

The Intonational Grammar of Persian

by

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**A Thesis submitted to the Faculty of Graduate
Studies of**

The University of Manitoba

**in partial fulfilment of the requirements of the
degree of**

Doctor of Philosophy

Department of Linguistics

University of Manitoba

Winnipeg

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Your file *Votre référence*

ISBN: 978-0-494-36275-4

Our file *Notre référence*

ISBN: 978-0-494-36275-4

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**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of
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DOCTOR OF PHILOSOPHY

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Abstract

This thesis is a detailed investigation of the phonology and phonetics of the intonation of Persian carried out in the framework of the AM theory of intonational phonology. Based on 2112 utterances read by a total of 8 native speakers, the work, on the one hand, presents a phonological account of the prosodic structure of this language, a structure that consists of the level Accentual Phrase with the pitch accent (L+)H* immediately dominated by the level Intonational Phrase, each level being marked by a low or high boundary tone. On the other hand, it scrutinizes the phonetic implementation of tones with regard to segments and shows how the phonology of Persian intonation is phonetically realized in the speech string. This research also studies the intonational patterns of simplex sentences, compound sentences coordinated with different types of conjunctions, subordinate structures, and vocative constructions. The sentence types include copular verb declaratives, sentences with unaccusative and unergative verbs, (S)(O)V sentences with and without adjuncts, null subject sentences, scrambled sentences, yes/no questions, leading yes/no questions, alternative questions, tag questions, single and multiple WH-questions, echo questions, imperatives, and single, double, and phrase focus constructions.

Acknowledgement

My gratitude goes to: My advisor Prof. Kevin Russell for his invaluable help in the course of thinking about and writing this dissertation. He's given me lots of linguistic ideas and provided me with answers and questions. He's also made me laugh (he's very funny). Prof. Jila Ghomeshi, one of my advisory committee members, with whom I've had many useful linguistic discussions and from whom I've learned a lot. She's full of positive energy and always there when you need her help. Prof. Rob Hagiwara, another committee member, whose intelligent comments have solved many of my linguistic problems through the years. He always makes you feel welcome with his big laughs. Prof. Todd Mondor, another committee member from the Department of Psychology for his helpful comments on my thesis, which made me look at issues from the eyes of a non-linguist scientist, a fact which broadened my vision. Prof. Gorka Elordieta, my external examiner from the Department of Linguistics and Basque Studies, University of the Basque Country, Spain, whom I knew through reading his widely-acclaimed writings, and whose detailed comments made me rethink some of the issues, raising the quality of my thesis. The linguistics people at the University of Manitoba, Profs. H.C. Wolfart, Terry Janzen, Lorna MacDonald, David Pentland, Moshe Nahir, our administrator Debbie Spindler, and our technician Arden Ogg for their help and kindness along the way. My language consultants, without whom I would have had no data to work on! Finally, the University of Manitoba Graduate Fellowship, which was partly responsible for keeping me alive during my research!

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List of abbreviations

AP = Accentual Phrase

CL = Clitic

CLS = Classifier

DEF = Definite

DEM = Demonstrative

DUR = Durative

EZ = The Ezafe vowel

IMP = Imperative

IND = Indefinite

IP = Intonational Phrase

NEG = Negative

NPA = Nuclear pitch accent

PART = Participle

PL = Plural

PRES = Present

PTC = Particle

QP = Question particle

RA = The morpheme *ra*

REL = Relative marker

SBJ = Subjunctive

1SG, 2SG, ... = The subject agreement suffixes

'+' in the examples separates the two parts of a compound verb.

Chapter 1 Preliminaries

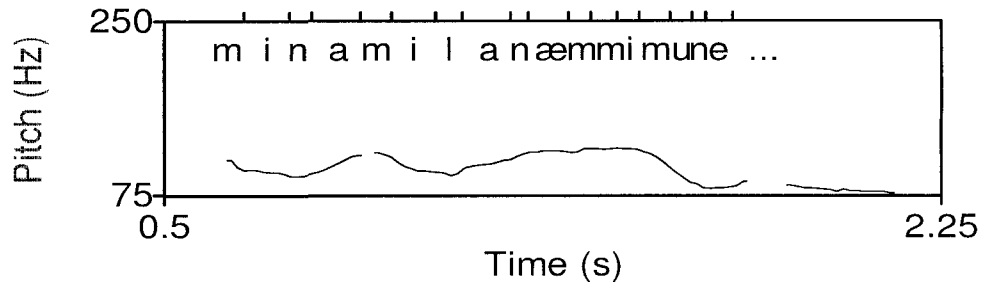
1.1. Introduction

This thesis is an attempt at discovering the intricacies of the intonational system of Modern Conversational Persian, hereafter referred to as Persian. It scrutinizes the phonology and phonetics of Persian intonation with the help of data read by native speakers. To this end, 528 sentences were designed, which included all the structures that were to be studied. A total of eight Persian native speakers were used, and for each part of the research, four speakers read and recorded the relevant sentences. The data were read in the default pronunciation unless a particular pronunciation was required (as in contrastive focus contexts). In total, the data of this dissertation contains 2112 utterances (528 multiplied by 4 speakers), given in Appendix V.

The aim of this dissertation is to explain the pitch changes of Persian utterances by examining their pitch tracks. A pitch track is a curve that shows the pitch fluctuations of an utterance in the course of time. For instance, the pitch track of Example (1) is given in figure 1. The speech analysis software used throughout this work is Praat (Boersma and Weenink 2007) and the examples are uttered by the author. The list of abbreviations is given in the beginning of the dissertation.

- (1) mina milan-æm mi-mun-e čænd ruz.
Mina Milan-too DUR-stay.PRES-3SG a few day
“Mina stays a few days in Milan too.”

Fig. 1: The utterance *mina milan-æm mi-mun-e čænd ruz*
 “Mina stays a few days in Milan too” (pitch track).

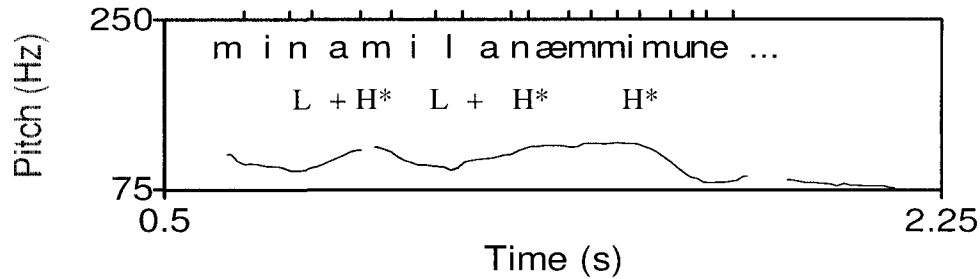


The vertical and horizontal axes are, respectively, pitch measured in Hertz (Hz) and time measured in second (s). Such contours are accounted for in this dissertation in the theoretical framework of the autosegmental-metrical theory of intonation (Ladd 1996). This framework, which started with works such as Liberman (1975), Bruce (1977), and Pierrehumbert (1980), considers the tonal structure to be composed of phonologically significant tonal events such as pitch accents and edge tones. These events, which consist of H(igh) and L(ow) pitch targets, correspond to points in the segmental string, and unlike in some other theories (e.g., the British tradition (Crystal 1969)), transitions between the events are phonologically irrelevant. Tones are phonetically aligned (along the horizontal axis) and scaled (along the vertical axis) in different ways depending on various factors. For instance, a focused element may cause a tone to realize later and higher. The notational system of this dissertation is a subset of ToBI (Tones and Break Indices), a system originally proposed for transcribing the intonation of American English and based on works like Pierrehumbert (1980), Ladd (1983), Beckman and Pierrehumbert (1986), Price et al. (1991), and Wightman et al. (1992).¹

Figure 2 contains the pitch track of Example (1) together with its tonal targets.

¹ For more information on ToBI, see Silverman et al. (1992), Pitrelli, Beckman, and Hirschberg (1994), Beckman and Ayers (1997), Beckman and Hirschberg (1997), and Beckman, Hirschberg, and Shattuck-Hufnagel (2005), and for intonational analyses of different languages using this system, see Jun (2005).

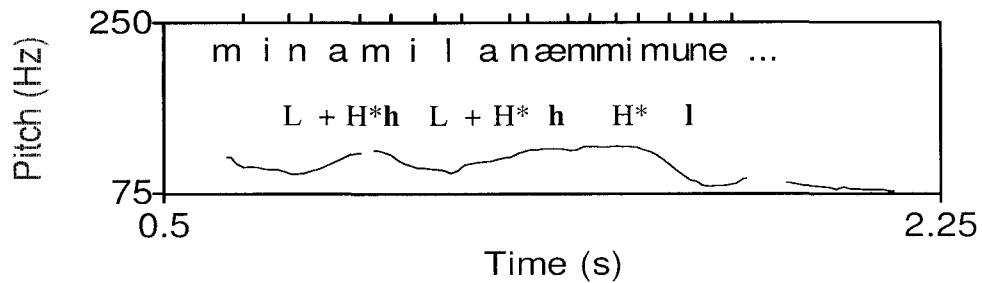
Fig. 2: The utterance *mina milan-æm mi-mun-e čænd ruz*
 “Mina stays a few days in Milan too” (pitch accents).



The smallest unit of Persian prosody is the Accentual Phrase (AP), with the phonological representation L+H* associating with the stressed syllable. This representation has two allophones, the default L+H*, for finally-stressed (non-monosyllabic) words and phrases and for vocatives, and H*, for initially-stressed words and monosyllabic content words. An AP normally consists of one content word together with its clitics. In the above example, there are three pitch accents. The first two are L+H* and correspond to the noun *Mina*, and the adverb *Milan* and its clitic *-æm*. The third pitch accent is for the initially-stressed verb *mi-mun-e* and is the H* allophone.

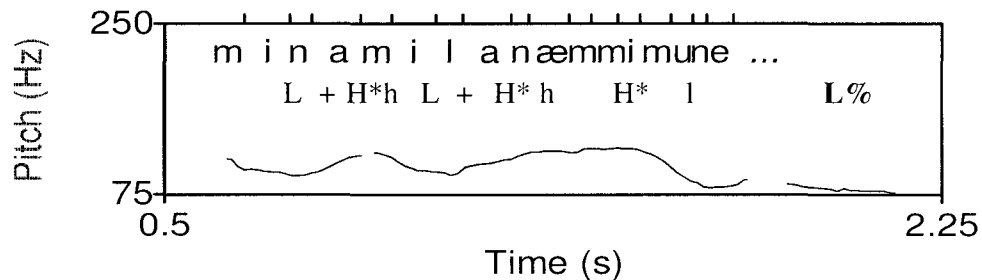
The right edge of each AP is marked by a boundary tone, which can be l (low) or h (high), determined by the nuclear status of the pitch accent. In most simplex sentences, the l boundary tone is used for the nuclear pitch accent (NPA) AP, i.e., the last AP, and the h boundary tone is reserved for other APs (the nuclear pitch accent is taken to be the accent perceived by the listener as the most prominent). The boundary tones of Example (1) are illustrated in Figure 3, in which the first two APs are high-boundary-toned and the last is the nuclear AP and low-boundary-toned.

Fig. 3: The utterance *mina milan-æm mi-mun-e čænd ruz*
 “Mina stays a few days in Milan too” (AP boundary tones).



The Intonational Phrase (IP) is the next level of Persian prosody, which immediately dominates one or more Accentual Phrases. The right edge of an IP is marked by a low or high boundary tone (L% or H%). The declarative utterance in (1) above contains one IP marked by L% in Figure 4, which indicates that it ends low and shows no pitch change.

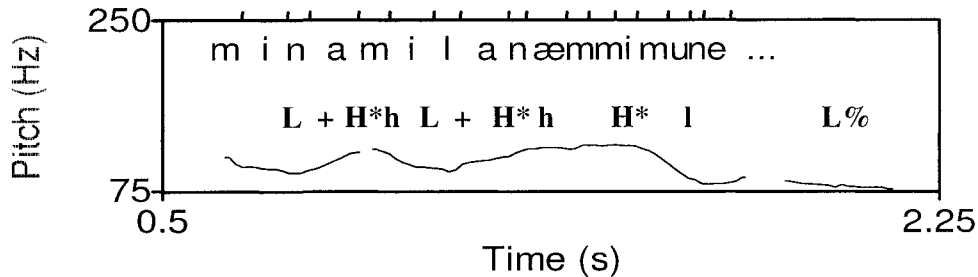
Fig. 4: The utterance *mina milan-æm mi-mun-e čænd ruz*
 “Mina stays a few days in Milan too” (IP boundary tone).



Example (2) and Figure 5 below demonstrate all the points made so far. They are the typical example and figure format of this dissertation. The acute accent marks the stressed syllable of an Accentual Phrase and the nuclear pitch accent AP is underlined.

- (2) miná milan-æm mí-mun-e čænd ruz.
 Mína Milan-too DUR-stay.PRES-3SG a few day
 “Mina stays a few days in Milan too.”

Fig. 5: The utterance *miná milán-æm mí-mun-e čænd ruz*
 “Mina stays a few days in Milan too.”



The main contribution of this thesis is twofold. First, it presents a comprehensive account of the intonational structure of an intonationally under-documented language, filling one of the gaps in the realm of Persian linguistics. Second and more general, it is a step towards the enrichment of typological studies of intonation by adding another language to the set of already existing studies. These two basic aims are achieved by investigating the intonational patterns of simplex sentences, compound sentences coordinated with different types of conjunctions, subordinate structures, and vocative constructions. The sentence types include copular verb declaratives, sentences with unaccusative and unergative verbs, (S)(O)V sentences with and without adjuncts, null subject sentences, scrambled sentences, yes/no questions, leading yes/no questions, alternative questions, tag questions, single and multiple WH-questions, echo questions, imperatives, and single, double, and phrase focus constructions. The other undertaking of the present work is to scrutinize the phonetic implementation of tones with regard to segments and to show how the phonology of Persian intonation is phonetically realized in the speech string by comparing the phonetic characteristics of focus and non-focus Accentual Phrases. For instance, in a nuclear AP, the L is aligned with the consonant preceding the stressed vowel and the H is aligned with the consonant following it.

The next section familiarizes the reader with the organization of the dissertation and the main findings and contribution of each chapter. In 1.3., the reader will be provided with some basic information regarding the Persian language. This specifically includes the structure of the clause, word order, and the location of lexical stress.

1.2. Thesis map and main findings

Chapter 2 is a review of literature on Persian intonation. The first section deals briefly with these five works: Lambton (1957), Mahootian (1997), Hayati (1998), Vahidian-Kamyar (2001), and Scarborough (2007). The next three sections contain more detailed overviews of the works Towhidi (1974), Eslami (2000), and Mahjani (2003). The chapter ends with a summary and comparison of all the works discussed.

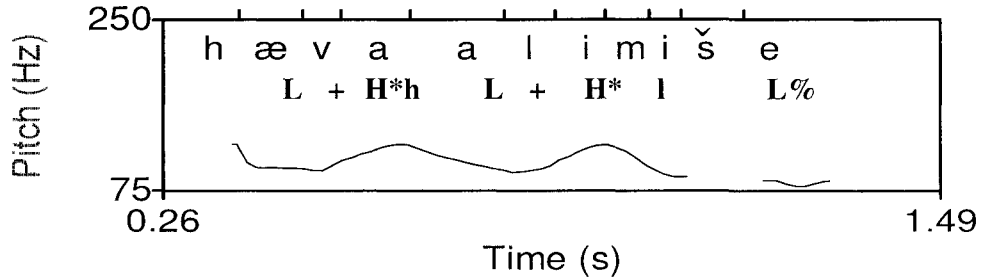
Chapter 3 deals with the prosodic structure of Persian. The smallest unit of Persian prosody is the Accentual Phrase (AP), with the pitch accent L+H* associating with the stressed syllable. An AP normally consists of one content word together with its clitics, but this configuration can change due to factors like information structure, focus, phrase length, subordination, and speech rate. The pitch accent has two allophones: L+H* for finally-stressed (non-monosyllabic) words and phrases and for vocatives, and H* for initially-stressed words and monosyllabic content words. The right edge of each AP is marked by a boundary tone, which can be l (low) or h (high). The nuclear AP of most simplex sentences, i.e., the last AP, has the l boundary tone and other APs have the h counterpart. However, the nuclear AP in echo questions (Chapter 4), double focus constructions (Chapter 6), and vocatives (Chapter 7) may exceptionally have a high boundary tone. Also, compound and some complex sentences have a high boundary tone

on the NPA AP of their first Intonational Phrase (Chapter 5). The Intonational Phrase (IP) is the next level of Persian prosody, which immediately dominates one or more Accentual Phrases. The right edge of an IP is marked by a low or high boundary tone (L% or H%). It will be seen in the following chapters that the former marks the end of declaratives (SOV or scrambled), leading (*mæge*) yes/no questions, WH-questions, alternative questions, imperatives, and vocatives, and the latter that of yes/no questions, tag questions, echo questions, coordinate structures, and IP-forming subordinate clauses.

Chapter 4 concerns declaratives, interrogatives, and imperatives. Declaratives are discussed in different categories including copular verb constructions, SOV, null subject, and scrambled sentences, with and without adjuncts. A Persian declarative is composed of one Intonational Phrase and one or more Accentual Phrases and ends with a low IP boundary tone. The NPA of the utterance, after which everything is deaccented up to the utterance end, goes on the final AP, which has a low boundary tone (l). All the other APs are high-boundary-toned. The NPA in affirmative copular constructions is on the complement, i.e. the element between the subject and the copula, as exemplified by (3) and Figure 6.

- (3) hævá alí mi-š-e.
 weather excellent DUR-become.PRES-3SG
 “The weather will become excellent.”

Fig. 6: The utterance *hævǎ alí mi-š-e* “The weather will become excellent.”



Scrambled (e.g., *alí mi-š-e hæva*) and null subject (e.g., *alí mi-š-e*) sentences also are accented on the complement. Any post-modifier of the complement attracts the NPA. The nuclear accent location of intransitive SV sentences depends on the factors unaccusativity and specificity.² Unergatives are always accented on the verb whereas unaccusatives are accented either on the verb (those with a specific subject) or on the final element of the subject (those with a non-specific subject). Specificity also plays a role in the NPA location of (S)OV sentences: it goes on the verb if the direct object is specific and on the direct object if it is non-specific. Arguments attract the NPA but adjuncts usually do not. The presence of the negative marker in a sentence always causes the negative verb to become the NPA of the utterance. The NPA cannot be a post-verbal element, except in “adverbial/motion constructions” such as *miná ræft-é xuné* (Mina go.PAST-PART home) “Mina has gone home”, where *xune* “home” is both post-verbal and nuclear. Imperatives pattern identically to declaratives, with the same NPA location constraints at work.

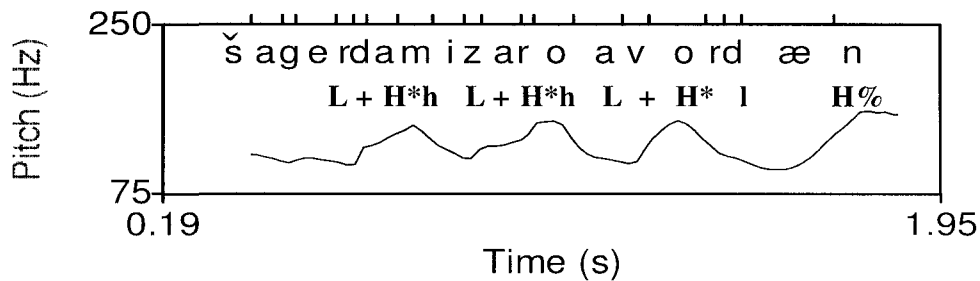
The basic tonal pattern of interrogatives is not different from that of declaratives, i.e., a series of L+H APs in one IP. Yes/no questions, whether with or without the

² Specific NPs are referentially anchored to another discourse object (von Heusinger 2002).

question particle *aya*, have an H% boundary tone in contrast to declaratives' L%, but all the constraints on the location of the NPA which exist for declaratives hold for yes/no questions too. The NPA in yes/no questions has a higher pitch excursion than in declaratives. Yes/no questions also show an overall higher register and more final lengthening than declaratives. An ordinary yes/no question is given in Example (4) and Figure 7.

- (4) *šagerd-á miz-á-ro avórd-æn?*
 student-PL table-PL-RA³ bring.PAST-3PL
 “Did the students bring the tables?”

Fig. 7: The yes/no question *šagerd-á miz-á-ro avórd-æn*
 “Did the students bring the tables?”



Leading yes/no questions are formed with the particle *mæge* and end with an L%.

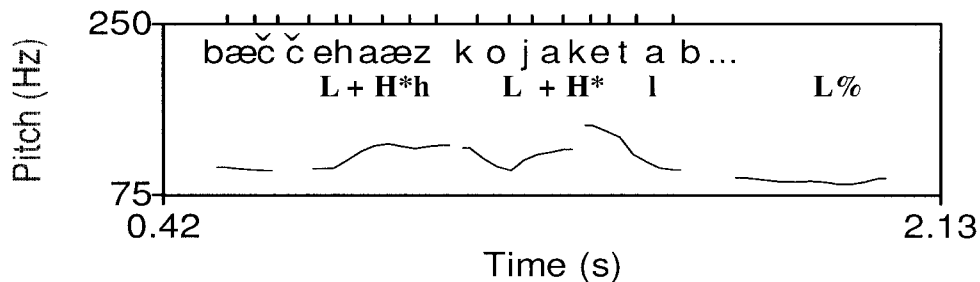
Tag questions are a linear combination of a declarative and a yes/no question realized in two separate IPs.

³ The enclitic *-ra* marks an object NP for specificity and is conversationally pronounced *ro* (and mostly *o* after consonants). For different analyses of *-ra* see, e.g., Dabir-Moghaddam (1992), Karimi (1996, 2003), and Ghomeshi (1997b).

WH-questions end with an L%. The WH-word makes its own AP and attracts the NPA. It has an additional pitch increase and causes deaccentuation up to the end of the question (Example (5) and Figure 8).

- (5) *bæčče-há æz kojá ketab xær-id-æn?*
 child-PL from where book buy-PAST-3PL
 “Where did the children buy books from?”

Fig. 8: The WH-question *bæčče-há æz kojá ketab xær-id-æn*
 “Where did the children buy books from?”



Most WH-words cannot occur post-verbally, save in adverbial/motion constructions. Multiple WH-questions have a series of APs and the last question word bears the nuclear accent. WH-echo questions have a high IP boundary tone, but their NPA AP, which unsurprisingly goes on the WH-word, can be high- or low-boundary-toned. A negative verb always becomes the NPA in all forms of WH-questions.

Chapter 5 is dedicated to compound and complex structures. The number of IPs in compound sentences equals the number of clauses coordinated. All the clauses of a compound structure except the last are realized as IPs with “incomplete” intonation pattern, that is, one or more high-boundary-toned APs and an H%. The last clause is an ordinary IP. Example (6) shows the tonal pattern of two declaratives conjoined.

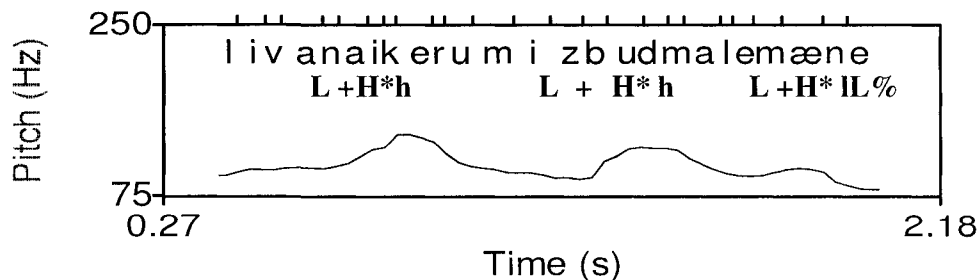
- (6) L+H*h L+H*h H% L+H*h H* l L%
- name-hé res-íd væ be-héš zæng+zæd-æm.
- letter-DEF⁴ reach-PAST.3SG and to-him/her bell+hit.PAST-1SG
- “The letter arrived and I called him/her.”

Compound sentences without any conjunction are intonationally the same as those with conjunction. Alternative questions (formed with *ya* “or”) have a pattern like other conjoined clauses, although the pre-conjunction clause can be uttered as a yes/no question too.

Complex sentences are studied in three (traditional) categories, adjective clauses, noun clauses, and adverb clauses. Adjective (relative) clauses usually form one AP, e.g., *ke ru miz bud* in (7), Figure 9.

- (7) livan-á-i ke ru miz búd mal-e mæn-e.
- glass-PL-DEM REL on table be.PAST.3SG property-EZ⁵ I-is
- “The glasses that were on the table are mine.”

Fig. 9: The utterance *livan-á-i ke ru miz búd mal-e mæn-e*
“The glasses that were on the table are mine.”



⁴ The definite marker *-e/-æ* (sometimes realized as *-he/-hæ* or *-ye/-yæ*), used only in conversational style, attracts the primary lexical stress (Ghomeshi 2003).

But sometimes extra length, slow speech rate, or the information packaging of the utterance causes the clause to realize as more than one AP. The nuclear accent of complex sentences containing a relative clause can fall on the relative clause or the main clause depending on the structural constraints of the sentence. Non-restrictive relative clauses have the potential of being realized as a separate IP due to the probable pause existing at their sides, but are otherwise intonationally similar to restrictive relative clauses. Extraposed relative clauses are either deaccented (since they appear after the verb) or form their own IP, which happens in a focus reading or a presentational amalgam construction.

Noun clauses, i.e., those subordinate clauses functioning as nouns, are discussed in different categories according to their intonation patterns. Some noun clauses behave in exactly the same way as relative clauses. They are those that are complements to a set of nouns such as *fact*, *claim*, and *theory*. Some others, i.e., those following verbs like *say* or *think*, together with their matrix clause have an intonation pattern identical to that of coordinated structures (Example (8) and Figure 10).

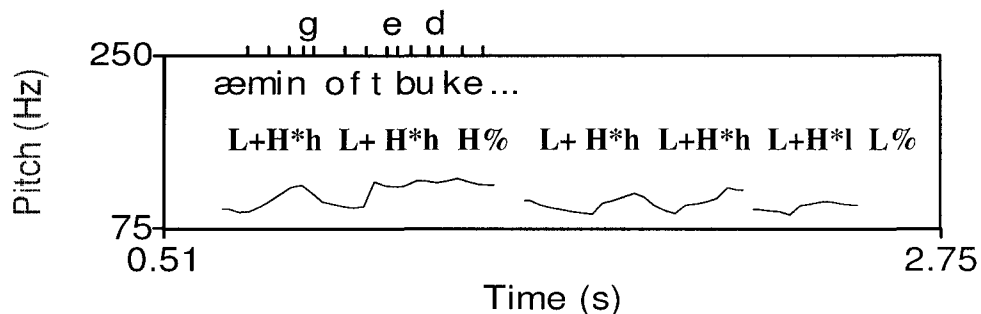
(8) æmín goft-é-bud ke šagerd-á miz-á-ro avórd-æn.

Amin say.PAST-PART-be.PAST.3SG that student-PL table-PL-RA bring.PAST-3PL

“Amin had said that the students brought the tables.”

⁵ The Ezafe vowel *-e* (usually pronounced *-ye* after vowels) syntactically links some elements with their modifiers in Persian (for analyses of the Ezafe construction, see e.g., Samiiian 1994, Ghomeshi 1997a,

Fig. 10: The utterance *æmin goft-é-bud ke šagerd-á miz-á-ro avórd-æn*
 “Amin had said that the students brought the tables.”



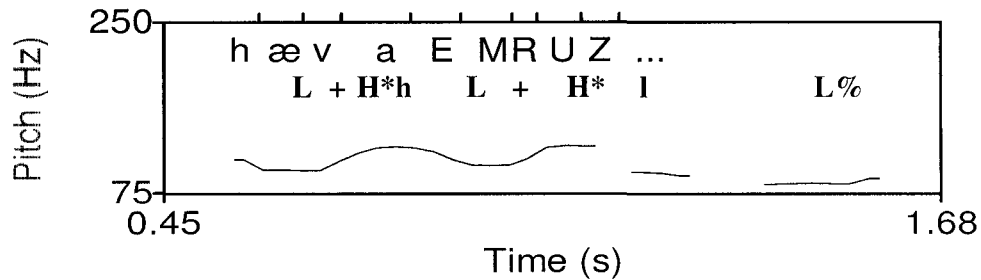
The matrix clause (*æmin goft-e-bud*) patterns like the pre-conjunction clauses in a coordinate structure, and the subordinate clause (*ke šagerd-a miz-a-ro avord-æn*) like the post-conjunction clause.

An adverb clause can appear to the left or right of the main clause. In the former case, it forms its own AP. In the latter case, it is usually deaccented because of the existence of the NPA in the matrix clause. However, there are some adverb clauses (e.g., those of purpose, cause, and negative condition) that follow the main clauses but start a new IP, imposing an incomplete pattern on the preceding matrix clause. Some adverb clauses lack a subordinator, in which case the intonation is not different from that of those having one.

Chapter 6 is about the phonology and phonetics of contrastive focus. A focused element forms its own Accentual Phrase, which has the phonological representation of L+H*, the same as an ordinary AP (Example (9) and Figure 11, capitalization denotes contrastive focus).

- (9) hævá EMRÚZ æbri-ye.
 weather today cloudy-is
 “The weather is cloudy TODAY.”

Fig. 11: The focused utterance *hævá EMRÚZ æbri-ye* “The weather is cloudy TODAY.”



A focused AP is phonetically longer and has more pitch excursion than a non-focused AP. Other than in adverbial/motion constructions, a focused element cannot normally be to the right of the verb if both are realized in one IP, but this constraint loosens if the focused element is in the next IP, as can occur in compound and complex sentences. Example (10) shows a compound sentence with a focused element in the second clause.

- (10) L+H*h L+H*h H*h H% L + H*hL+H*| L%
 dirúz hævá sárd šod væ ma BIRÚN næ-ræft-im.
 yesterday weather cold become.PAST.3SG and we out NEG-go.PAST-1PL
 “Yesterday the weather got cold and we didn’t go OUT.”

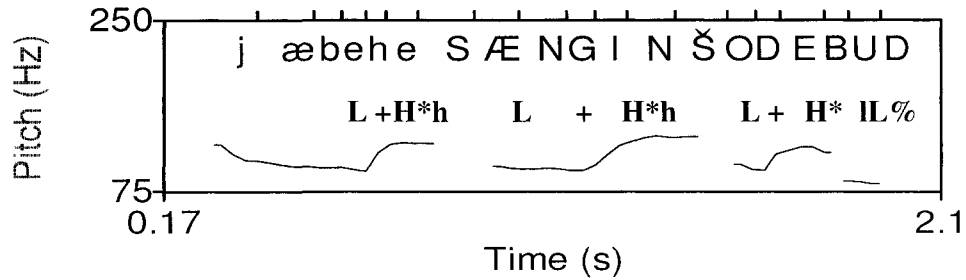
In (10), the adverb *birun* “out” is focused. The verb of the first clause has not prevented this adverb from being focused as it is in a separate IP. The existence of a focus AP

causes deaccentuation up to the utterance end. This also holds for those WH-questions where the WH-word follows the focus AP, in which case the WH-word loses its pitch accent. Cleft and pseudocleft constructions, which are other ways of marking contrastive focus, have the intonation of complex sentences containing a relative clause and a focused element.

Double focus constructions involve more than one focused element. Each of the focused elements forms a separate AP, and the second one causes deaccentuation. The focused elements can be uttered in one single IP or in two separate IPs, resulting in the first focus AP being high- or low-boundary-toned respectively. Phrase focus constructions (e.g., verb phrase focus) behave differently from double focus constructions in that in the former the NPA location is affected more by the structure of the phrase than by focus. For example in a copular verb construction, double focus on the verb and the complement (see (11) and Figure 12) causes both elements to form APs, but focus on the verb phrase, which consists of the verb and the complement (see (12) and Figure 13, e.g., as a response to “What about the box?”) deaccents the verb since it is to the right of the nuclear accented complement ([]_F indicates a focused constituent).

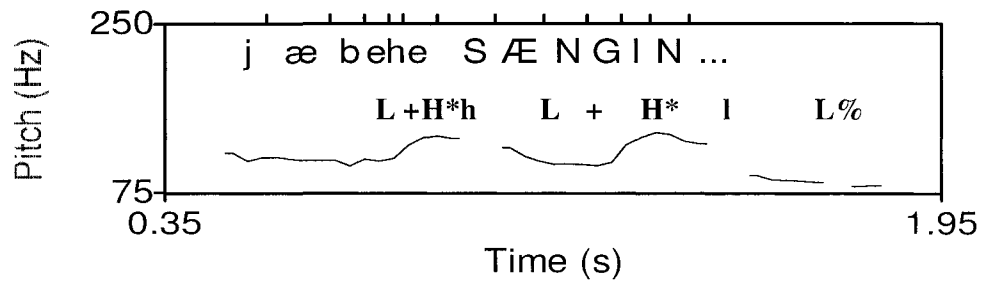
- (11) jæbe-hé [SÆNGÍN]_F [ŠOD-É-BUD]_F.
 box-DEF heavy become.PAST-PART-be.PAST.3SG
 “The box HAD BECOME HEAVY.”

Fig. 12: The utterance *jæbe-hé* [SÆNGÍN]_F [ŠOD-É-BUD]_F
 “The box HAD BECOME HEAVY” (double focus).



(12) *jæbe-hé* [SÆNGÍN ŠOD-E-BUD]_F.

Fig. 13: The utterance *jæbe-hé* [SÆNGÍN ŠOD-E-BUD]_F
 “The box HAD BECOME HEAVY” (verb phrase focus).



Chapter 7 deals with vocatives. Four call types are studied: default calls, anger calls, surprise calls, and chanted calls. All call types are stressed on the first syllable and their pitch track starts from a low, ascends to a high, and then descends. They are all realized as one AP and one IP. The ascent makes them share the representation L+H*. The H is aligned with (or slightly before) the second syllable. The descent is accounted for by the AP boundary tone. Default, anger, and chanted calls have the representation L+H* hL% but in surprise calls, the AP boundary tone is low, since the pitch track comes down more than in the other types. Figures 14 to 17 illustrate the pitch track and tonal events of the name *brahim* in the four different call types.

Fig. 14: The representation of the name *ebrahim* in default call.

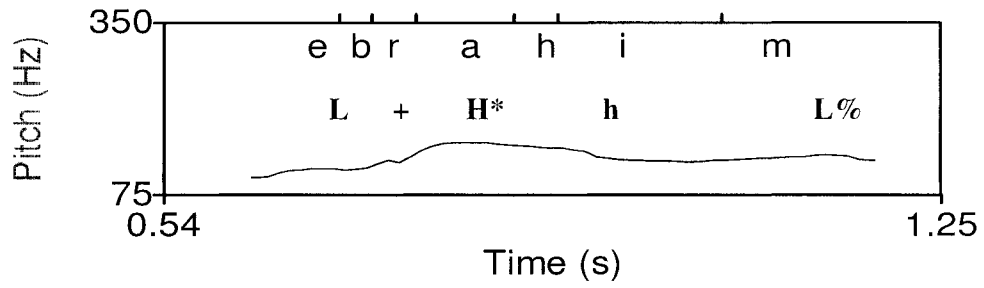


Fig. 15: The representation of the name *ebrahim* in anger call.

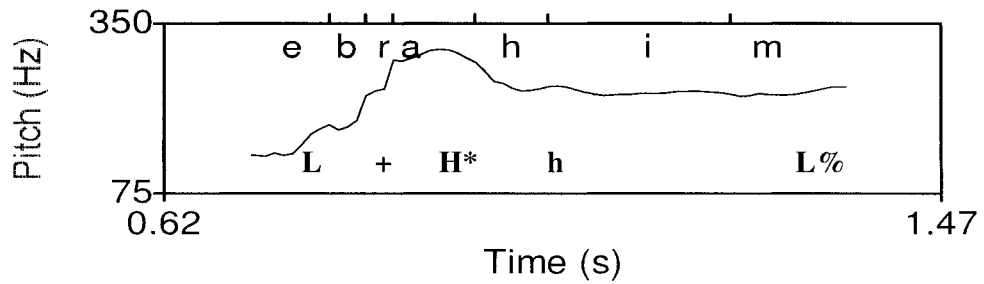


Fig. 16: The representation of the name *ebrahim* in surprise call.

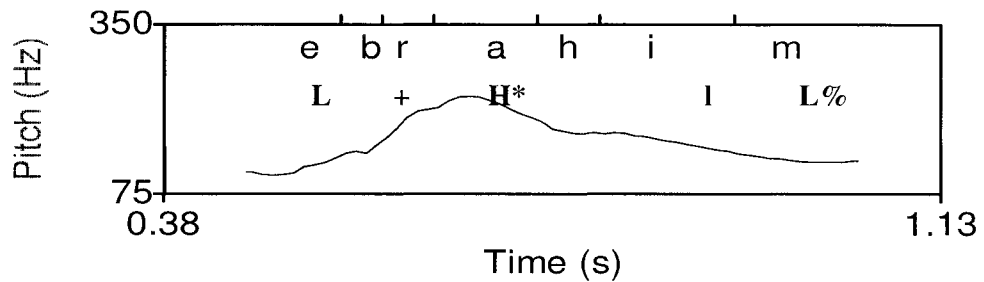
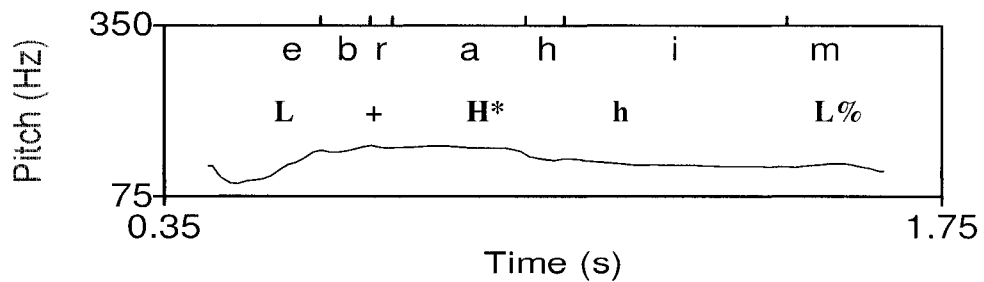


Fig. 17: The representation of the name *ebrahim* in chanted call.

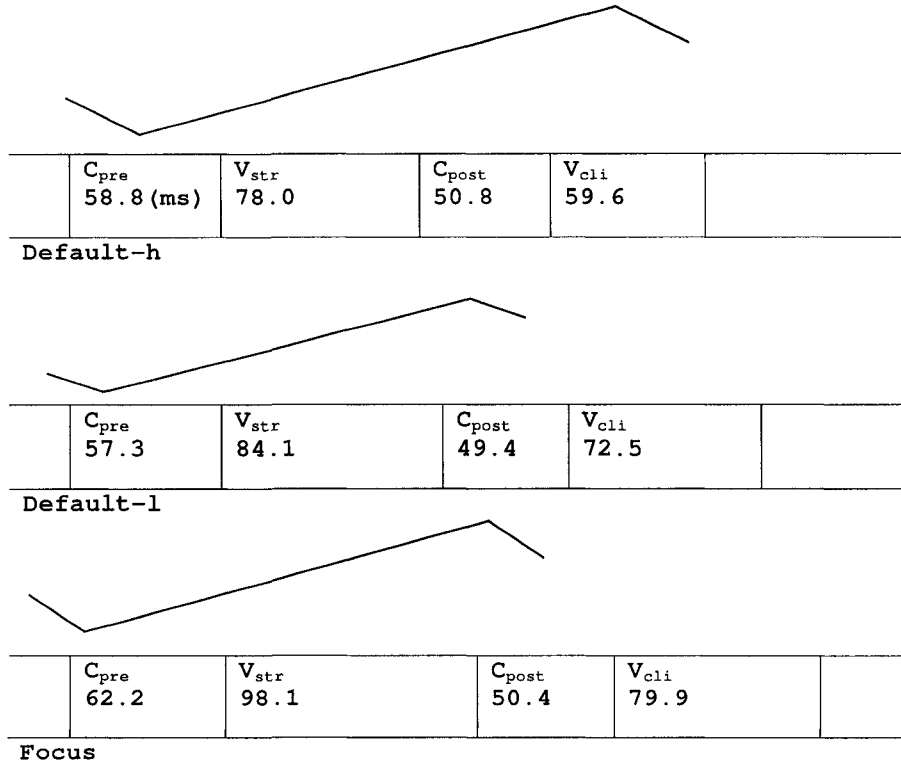


There are certain phonetic differences among the calls, e.g., chanted calls are longer and have more fixed pitches, or anger and surprise calls have a higher peak and show more

pitch excursion. Such differences are captured in a proposed notation of a more phonetic nature, using elements from music.

Chapter 8 contains an experiment dealing with the phonetic properties of a Persian AP. Three types of cliticized APs are examined and compared: non-nuclear APs with a high boundary tone, nuclear APs with a low boundary tone, and contrastive focus APs with a low boundary tone (referred to as Default-h, Default-l, and Focus types respectively). A schematic comparison of these AP types is given in Figure 18. The segments shown are the vowel of the stressed syllable (V_{str}), the consonants preceding and following this vowel (C_{pre} and C_{post}), and the vowel of the clitic (V_{cli}).

Fig. 18: Comparison of alignment in the three AP types.



The duration of the focus AP is more than that of the other two. This difference is caused by vowels, and the consonants' lengths are the same. The L is always aligned in the consonant preceding the stressed vowel but is significantly earlier in the Focus type. The alignment of H is determined by the AP boundary tone: if it is high, the H is aligned in the V_{cli} , and if it is low, the H is aligned in the C_{post} . The former is significantly later than the latter. The pitch excursions of the Default-h and Focus types are significantly higher than in the Default-l type. This difference stems from different highs and the lows are the same in all three types.

Chapter 9 concludes the thesis and provides the reader with directions for further research in related areas.

1.3. Modern Conversational Persian

Persian is an Iranian language belonging to the Indo-Iranian sub-branch of the eastern branch of the Indo-European language family. The dialect examined in this dissertation is Modern Conversational Persian, which is spoken in Tehran, the capital city of Iran.

Persian is classified as an SOV language (Greenberg 1963, Dabir-Moghaddam 1982, Karimi 1989, 2005). This is exemplified in (13).

- (13) mohændes-a film-o did-æn. [SOV]
engineer-PL movie-RA see.PAST-3PL
“The engineers saw the movie.”

In spoken Persian, there are many cases of deviation from the SOV order. For instance, (14) contains the other possible orders of (13). These six sentences share the same core meaning but differ in pragmatic nuances.

- (14) mohændes-a did-æn film-o. [SVO]
film-o mohændes-a did-æn. [OSV]
film-o did-æn mohændes-a. [OVS]
did-æn mohændes-a film-o. [VSO]
did-æn film-o mohændes-a. [VOS]

Phrasal complements of verbs precede the verb in the unmarked order and occur before or after the direct object: before when it is non-specific and after when it is

specific (Karimi 2003, 2005).⁶ (15) contains two examples of a Persian sentence with a subject, a direct object, a verb, and a prepositional phrase, the direct object being non-specific in (a) and specific in (b).

- (15) a. mæn æz un mæqaze ketab xær-id-æm. [S PP O V]
 I from that shop book buy-PAST-1SG
 “I bought a book/books from that shop.”
- b. mæn ketab-o æz un mæqaze xær-id-æm. [S O PP V]
 I book-RA from that shop buy-PAST-1SG
 “I bought the book from that shop.”

Clausal complements of verbs, traditionally known as noun clauses, appear in post-verbal position. In (16), the finite clause “they’d changed their fridge” is the complement of the verb “said” and follows this verb.

- (16) pæri goft yæxčal-ešun-o ævæz+kærd-æn.
 Pari say.PAST.3SG fridge-their-RA change+do.PAST-3PL
 “Pari said they’d changed their fridge.”

Owing to the fact that Persian is a null subject language, a Persian sentence can consist of only the verb. (17) exemplifies this point.

⁶ The different positions of the two types of object seem to play a role here. As Browning and E. Karimi (1994) argue, specific objects are in a higher syntactic position than non-specific ones.

- (17) umæd-æn.
come.PAST-3PL
“They came.”

Jun (2005) classifies Persian with English, German, Dutch, Greek, Italian, Spanish, Portuguese, Arabic, and Bininj Gun-wok as “stress-accent” languages, i.e., languages in which a certain syllable in a word is more prominent than other syllables by phonetic factors, showing syntagmatic contrast. Location of Persian lexical stress has been discussed in several works in the literature. Lazard (1992), Same’i (1996), Mahootian (1997), Vahidian-Kamyar (2001), Kahnemuyipour (2003), and Parmoon (2006) can be named among others. This notion is relevant to the present work since pitch accents in Persian occur on the lexically stressed syllables (Eslami and Bijankhan 2002, Eslami 2003). A summary of stress points in Persian includes the following. For nouns, adjectives, and most adverbs, the stress is word-final. (18) is illustrative.

- (18) Noun: šuné “comb”
Adjective: kutáh “short”
Adverb: yæváš “slowly”

Polymorphemic nouns, adjectives, and adverbs have the above pattern too, i.e., have final stress, as exemplified by (19).

(19)	Noun:	a. šune-há	b. šad-í	c. ab-limú
		comb-PL	happy-SUFFIX	water-lemon
		“combs”	“happiness”	“lemon juice”
	Adjective:	a. kutah-tær	b. ba-sævád	
		short-COMPARATIVE	PREFIX-knowledge	
		“shorter”	“knowledgeable”	
	Adverb:	movæqqæt-æn		
		temporary-SUFFIX		
		“temporarily”		

In (19), the plural morpheme *-ha* and the derivational nominal suffix *-i* have attracted the stress in the first two nouns. The third noun is a compound noun, which again has final stress. The adjectives have the comparative marker *-tær* and the derivational prefix *ba-*, both of which are stressed word finally. The adverb consists of two morphemes and is stressed word finally as well.

Verbs have their stress on the final syllable of the main constituent, i.e., the present stem, the past stem, or the participle. An example is given in (20) where *xær-id* (the past stem) is the main constituent and *-æm* is the person ending. The second syllable of the stem carries the stress, and the agreement marker, like all other clitics, does not affect stress.

- (20) xær-íd-æm.
buy-PAST-1SG
“I bought.”

However, the negative marker *ne-/næ-*, the durative prefix *mi-*, and the subjunctive/imperative prefix *be-* attract the stress (*ne-/næ-* and *be-* are in complementary distribution). *ne-/næ-* takes precedence over *mi-*. An example appears in (21).

- (21) né-mi-xær-íd-æm.
NEG-DUR-buy-PAST-1SG
“I wouldn’t buy.”

The future tense, exceptionally, has the stress on the final syllable of the auxiliary, as exemplified in (22).

- (22) xah-æm-ræft.
want.PRES-1SG-go
“I will go.”

Compound verbs, which comprise of a non-verbal element and a verb combined to denote a single predicate (Ghomeshi and Massam 1994, Dabir-Moghaddam 1995, Folli, Harley, and Karimi 2005 among others), are stressed on the non-verbal element. (23) contains an example.

(23) geryé+kærd.

crying+do.PAST.3SG

“S/he cried.”

Prefixal verbs, which consist of a prefix and a verb, behave mostly like compound verbs.

(24) is illustrative.

(24) vá+ræft.

PREFIX+go.PAST.3SG

“S/he was discouraged.”

But a small subset of them have been lexicalized and are stressed like simple verbs, i.e., on the final syllable of the main constituent (Sadat-Tehrani 2003), exemplified in (25).

(25) bæ+r+gæšt-æn.

PREFIX+turn.PAST-3PL

“They returned.”

Enclitics and certain suffixes such as the indefinite marker *-i* (as in *ketáb-i* “a book”) do not affect stress.

There are a few morphologically simple words, mostly of Arabic origin, which are stressed word-initially. Examples include *ámma* “but”, and *bále* “yes”.

To sum up, in this chapter, I have presented the structure of the dissertation and its main contributions, and also provided some background information on the Persian language. The next chapter deals with a summary of works done on Persian intonation.

Chapter 2 Literature review

The domain of Persian intonation has received relatively little attention. The next section familiarizes the reader with the content of five works that have, wholly or partly, dealt with intonation in Persian. They are Lambton (1957), Mahootian (1997), Hayati (1998), Vahidian-Kamyar (2001), and Scarborough (2007). Three more substantial works, i.e., Towhidi (1974), Eslami (2000), and Mahjani (2003), are looked at in more detail in the following three sections.⁷

2.1. Lambton (1957), Mahootian (1997), Hayati (1998), Vahidian-Kamyar (2001), Scarborough (2007)

Lambton's (1957) Persian grammar, whose examples are from formal Persian, divides the sentence into Intonation Groups, each of which consists of one to several words and a prominent or stressed syllable. She considers two principal tone levels. The first is high level, which is reached by a rise on the prominent syllable, and the second is low level, which is what the rise eventually comes down to. She posits two types of Intonation Groups: Final Intonation Groups and Suspensive Intonation Groups. In Final Intonation Groups, which are used for sentences with a complete meaning, the unstressed syllables preceding the final stress are on the low tone level, then there is rise to the high tone level on the final stress, and finally there is either a downward glide to low or, for longer sentences, a gradual descent up to the sentence end. In contrast to Final Intonation

⁷ These are additional works on Persian intonation: Arbisi-Kelm (2007), Chodzko (1852), Fo'adi (1933), Nye (1955), Hodge (1957), Jazayeri and Paper (1961), Atai (1964), Scott (1964), Yarmohammadi (1964), Bateni (1969), Lazard (1992), Sepanta (1995), Esposito and Barjam (2007), Samvelian and Rialland

Groups, Suspensive Intonation Groups, e.g., subordinate clauses, maintain the high tone after the final stress up to the end of the Intonation Group. Lambton also briefly describes interrogative sentences with and without an interrogative word. For instance, she states that in interrogative sentences with an interrogative word, the final stress is on the interrogative word. One of her examples appears in (26).⁸

- (26) *koja mi-xah-id be-ræv-id?*
 where DUR-want.PRES-2PL SBJ-go.PRES-2PL
 “Where do you want to go?” [Lambton 1957: 264]

In (26), the final stress of the sentence is on *koja* “where”, which has a rise to high followed by a descent to low.

Mahootian (1997), in her grammar, states that the stress patterns of the syllables in words and phrases influence the intonation patterns. She distinguishes five intonation patterns for conversational Persian. First, rising-falling intonation typically used in statements, which starts low, rises in the middle of the sentence, and drops at the end of the statement. Second, mid-rising intonation, typically used in yes/no questions, which starts on a mid pitch and rises at the end. Third, low-rising intonation which is common for a sequence of phrase groups (e.g., *a purse, a pair of shoes, and a dress*), each of which adds more information to the previous one. Each group in the sequence begins low and then rises high, and finally the sentence ends low as in statements. Fourth, mid-

(forthcoming). These works do not substantially add to the points reviewed in this chapter and hence are not looked at individually.

⁸ The examples from other sources have been adjusted to conform to the transcription system of this dissertation.

falling intonation, the common pattern of imperatives, which starts mid and stays mid but eventually falls at sentence end. Fifth, high-falling intonation, typically used in WH-questions, where the intonation peak is on the WH-word whether it is sentence initial or not. The intonation falls at the end of the question. Mahootian also provides some information regarding emphatic intonation and contrastive stress. For example, she states that a contrasted element has higher pitch and intensity than the same element when not used contrastively.

Hayati (1998) is a contrastive study comparing the intonation patterns of English and Persian sentences, whose aim is to predict the problems of Iranian speakers in producing the correct patterns of English intonation. He compares simplex sentences (declaratives, WH-questions, yes/no questions, and tags), compound (coordinate) sentences, and complex sentences (conditionals and relative clauses) in the two languages. He considers four tone levels for a sentence numbered from 1 (lowest) to 4 (highest) and bases his comparisons on these levels. (27) contains one of his examples.

(27) mæn dærs+ne-mi-xun-æm.

I lesson+NEG-DUR-read.PRES-1SG

“I don’t study.”

[Hayati 1998: 55]

In the above example, for both languages the pitch starts at level 2, goes up to level 3, and then comes down to level 1. The difference is that the Persian sentence has the pitch change from 1 to 2 on the negative prefix *ne-* but the English sentence has it towards the end on the verb *study*.

Vahidian-Kamyar (2001) divides sentences into Intonation Units, which are “semantic groups” for him and do not correspond to any syntactic unit. They can include one word, a short sentence, or part of a long sentence and are usually separated from one another by a pause. Working in the British tradition (Crystal 1969), he divides the Intonation Unit into prehead, head, body, nucleus, and tail. The nucleus is more prominent than the others and everything after it is deaccented. It does not necessarily have the highest pitch of the Intonation Unit though and sometimes the head is higher than the nucleus. The nucleus can have any of the six intonations falling, rising, low-rising, rising-falling, falling-rising-falling, and rising-falling-rising, for each of which Vahidian-Kamyar gives several examples ranging from one-syllable utterances to longer ones. The author gives some rules to determine the location of the nuclear stress. For instance, he states that the nuclear stress is on the verb for sentences with direct object plus *-ra*, and on the direct object for sentences without *-ra*. He gives (28) as an example.

(28) a. ma ketab-ra xær-id-im.

we book-RA buy-PAST-1PL

“We bought the book.”

b. ma ketab xær-id-im.

we book buy-PAST-1PL

“We bought a book/books.”

[Vahidian-Kamyar 2001: 182]

The nuclear stress, shown with underlining, is on the verb *xær-id-im* in (28a) and on the direct object *ketab* in (28b). Vahidian-Kamyar also introduces intonation patterns for

different sentence types like declaratives, interrogatives, imperatives, exclamations, and coordinate and subordinate structures, and he presents some examples of sentences uttered with different emotions such as irony, sympathy, and imploration.

Scarborough (2007) in her Field Methods paper examines the intonation of broad and narrow contrastive focus in Persian. She models the prosodic structure of Persian as comprised of Intonational Phrases, Intermediate Phrases, Accentual Phrases, words, and syllables. Intonational Phrases are marked by the boundary tone L% or H% and optionally followed by a pause. Intermediate Phrases are marked by the boundary tones L- or H- optionally accompanied by final lengthening. Accentual Phrases contain an L+H* pitch accent and an Ha (for non-final Accentual Phrases) or La (for final Accentual Phrases) boundary tone. She believes that a focused word generally has the highest peak in the intonational phrase and she proposes three alternative pitch accents for focus: L+H*, L+H*L, and L+^H* (^H* denoting extra high). Scarborough observes that declaratives, yes/no questions, and WH-questions mark focus in the same way and that there is deaccenting after the focused element. She mentions that some constructions look like focus although they are not focused, e.g., verbs such as “know” in a sentence like (29):

(29) madærbozorg mi-dun-e ke ananas-e res-id-e.
 grandmother DUR-know.PRES-3SG that pineapple-DEF reach-PAST-PART
 “Grandma knows that the pineapple is ripe.” [Scarborough 2007: 30]

In (29), *mi-dun-e ke* “knows that” has an L+H* and everything after that is deaccented. She sees this as an obligatory semantic focus triggered by members of a particular semantic class of verbs.

2.2. Towhidi (1974)

This book, originally a dissertation, is the first systematic study of Persian intonation system. The work, which includes the diagrams of pitch fluctuations of 29 Persian utterances in one of its appendices, is done in the theoretical framework of the British tradition (Crystal 1969) on the informal Tehrani dialect of educated speakers. Towhidi gives the prosodic systems of Persian as Tone, Pitch range, Tempo, Loudness, and Rhythmicality, which are accompanied by paralinguistic systems like Voice qualifiers (e.g., breathy voice). He divides speech into Tone Units, which are minimally a word and maximally a sentence. Each Tone Unit contains a “peak of prominence” (the equivalent of nuclear pitch accent in the autosegmental-metrical approach) and its boundary is marked by a change of tone. Some Tone Units end in a pause, at times accompanied by other junctural features such as syllable reduction. He also makes use of concepts like information units or new/given (Halliday 1970) for determining Tone Units. Following the British system, he divides every Tone Unit from left to right into the elements prehead, head, nucleus, and tail, of which only the nucleus is obligatory. (30) contains one of his examples, which includes all of the above 4 elements.

- (30) P H N T
 hæq̥iqæt-eš in-e ke sərbazi næ-ræft-æm.
 truth-CL this-is that military service NEG-go.PAST-1SG
 “The truth of it is that I didn’t do military service.” [Towhidi 1974: 46]

The nucleus in Persian bears one out of a possible 13 tones, which can be simple (falling, rising, level), complex (rising-falling, falling-rising, rising-level, and falling-level), or compound (rise+fall, fall+rise, rise+level, fall+level, rise-fall+rise, rise-fall+level). What distinguishes complex tones from compound tones is that the formers have a single peak of prominence and the latter have two peaks of prominence. The author mentions some of the uses of the above tones as well, e.g., that the falling tone conveys a sense of finality or that the rising-falling tone brings about a sense of emphasis or contrast. To illustrate, one of the utterances in his data containing a rising-falling complex tone is given in (31).

- (31) ya mæsæn češm-eš ne-mi-did.
 or for example eye-his NEG-DUR-see.PAST.3SG
 “Or for example his eyesight was not good.” [Towhidi 1974: 212-213]

The complex tone is on the verb *ne-mi-did*.

Later in the book, the author discusses the interaction of intonation and grammar, i.e., the impact that grammatical constructions have on the location of the peak of prominence, and the interaction of intonation and meaning for which he informally does

some perception experiments to check the meanings of the same utterance uttered with different intonations.

2.3. Eslami (2000)

This Ph.D. dissertation in Persian is the first work written in the theoretical framework of autosegmental-metrical phonology, which contains a comprehensive review of the literature on stress and intonation in Persian. The author posits four pitch accents (H*, L*, L+H*, and L*+H), two phrase accents (L- and H-) marking Intermediate Phrases, and two boundary tones (L% and H%) for Persian intonation system. His view is purely compositional in the sense that he assigns certain meanings to every pitch accent type. These meanings are given in (32).

(32)	H*	New information	
	L*	Given information	
	L+H*	Contrast	
	L*+H	Doubt	[Eslami 2000: 101]

He considers L- to be used when the message is complete and H- when it is incomplete, and L% for statements and H% for questions. Based on the above, he comes up with 16 different tunes in Persian which are the mathematical combinations of the three tone types (4 pitch accents * 2 phrase accents * 2 boundary tones) and he assigns a meaning to each tune. Two of his tune meanings are given in (33) for illustration.

- (33) H* L- L% A piece of news is provided for the listener and the stressed word contains new information; typical declarative
- L+H* L- H% The stressed word is contrasted against similar categories and a question is asked about it.

[Eslami 2000: 101]

A chapter in the work is devoted to the location of prominence in different phrases, i.e., NP, VP, PP, AP, ADVP, and S. Based on examples such as (34) and (35), the author has reached a principle to account for the location of the nuclear pitch accent with regard to the phrase head, which he calls The Head Avoidance Principle.

- (34) ræ'is-e danešgah-e melli.
 dean-EZ university-EZ national
 "The dean of the national university."

[Eslami 2000: 132]

- (35) æz xane-ye reza.
 from home-EZ Reza
 "From Reza's home."

[Eslami 2000: 141]

The principle basically states that the most prominent syllable in a phrase is in the farthest complement/modifier from the head. In the noun phrase in (34) for instance, *ræ'is* "dean" is the head noun and the most prominent syllable of the noun phrase is in the adjective *melli* "national" which is at the most distance from the head.

2.4. Mahjani (2003)

This M.Sc. thesis is a description of Persian prosodic and intonation systems within the framework of autosegmental-metrical phonology. Based on mostly simplex sentences read in isolation and narratives, and an interview, the author divides the prosodic structure of Persian into Intonational Phrase, Intermediate Phrase, and Accentual Phrase, with each constituent including one or more constituents of the immediate lower level. An Accentual Phrase contains at least one content word and has the tonal pattern of L+H* for most Accentual Phrases and H* for initially-stressed words which are mostly verbs. The Intermediate Phrase is marked by either L- or H- and characterizes the pitch between the last pitch accent and the edge of the Intermediate Phrase. Two boundary tones, L% and H%, demarcate the Intonational Phrase, the former typically used for declaratives and the latter for yes/no questions. The sentence types studied by the author are declaratives and interrogatives and a few imperatives and exclamations. Two of his examples are given in (36) and (37), the former is a declarative with four Accentual Phrases with a low Intonational Phrase boundary tone and the latter is a yes/no question with two Accentual Phrases and a high Intonational Phrase boundary tone.

(36) L+H* L+H* L + H* L +H* L%
æli diruz dær emtehan movæffaq šod.
Ali yesterday in exam successful become.PAST.3SG

“Ali succeeded in the exam yesterday.”

[Mahjani 2003: 48]

(37) L+H* L +H* H%
 šoma baziǵær hæst-id?
 you actor be.PRES-2PL

“Are you an actor?” [Mahjani 2003: 58]

In WH-questions, the WH-word gets prominence and what follows it becomes deaccented. One of his examples appears in (38).

(38) L+H*.....*deaccented*.....L%
 koja šoma babæk-o bord-id?
 where you Babak-RA take.PAST-2PL

“Where did you take Babak to?” [Mahjani 2003: 63]

The WH-word acts like focused elements which deaccent what follows them. He gives (39) as an example for a declarative with focus where *æli* “Ali” is the focused element (shown with capital letters) and everything after it is deaccented.

(39) L+H* L+H*.....*deaccented*.....L%
 mæn ÆLI-RA be mænzel bord-æm.
 I Ali-RA to home take.PAST-1SG

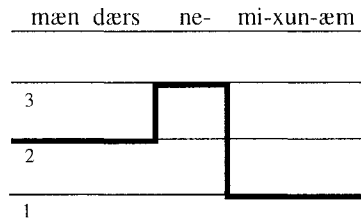
“I took ALI home.” [Mahjani 2003: 52]

To summarize the above-discussed works and to compare the different views, we now illustrate how these researchers would analyze the intonation of a typical declarative sentence. Consider the declarative in (27) above, repeated below as (40).

- (40) *mæn dærs+ne-mi-xun-æm.*
 I lesson+NEG-DUR-read.PRES-1SG
 “I don’t study.”

A level-based approach such as Hayati’s (1998) sees the patterns of (40) as consisting of three levels as given in Figure 19.

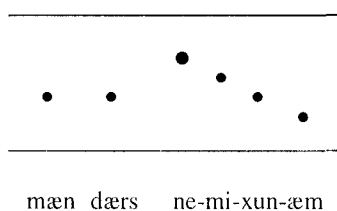
Fig. 19: The utterance *mæn dærs+ne-mi-xun-æm* “I don’t study”, three tone levels.



Lambton (1957) would treat (40) as one Final Intonation Group with a complete meaning. It would have a low tone level for the syllables preceding the negative marker *ne-*, with a rise to the high tone level on this marker, followed by a glide to the initial low. Scholars of the British school (Towhidi 1974, Vahidian-Kamyar 2001) would divide the sentence into a prehead (the pronoun *mæn* “I”), a head (the non-verbal part of the compound verb *dærs* “lesson”), a nucleus (the negative marker *ne-*), and a tail (those syllables of the verb following the negative marker). Towhidi would see the tone on the

nucleus as falling and Vahidian-Kamyar as rising-falling. A possible representation of the above sentence as analyzed in the British tradition is given in Figure 20, where the two parallel lines represent the top and bottom of the speaker's pitch range, dots correspond to syllables, and the large dot shows the nucleus.

Fig. 20: The utterance *mæn dærs+ne-mi-xun-æm* ‘I don’t study’, the British tradition.



The autosegmental-metrical/ToBI researchers (Eslami 2000, Mahjani 2003, Scarborough 2007) would handle (40) as consisting of a few pitch accents, the last of which (on the negative marker *ne-*) having the nuclear accent. A possible representation appears in (41).

(41) H* H* H* L%

There would be disagreement, however, as to the phrasing possibilities and boundary tones.

An overall look at the works done on Persian intonation so far shows that most researchers believe in some sort of ‘unit’ for intonation referred to with names such as Intonation Group, Intonation Unit, Intonation Phrase, and Tone Unit. However, there is not agreement as to the exact nature of this unit. Also, in some works, this unit has been divided into smaller divisions, the existence of some of which has not been justified. In

this dissertation, I will show that the prosodic structure of Persian is comprised of the Accentual Phrase and the Intonational Phrase, which together make up Persian utterances, with no level being necessary to exist between the two (Chapter 3). Another issue that this research addresses, which in its complete form is absent from previous works, is a comprehensive intonational grammar of Persian as far as different sentence types and constructions are concerned (Chapters 4 through 7). An area that, to the best of my knowledge, has not been discussed in the previous literature is the phonetic implementation of tones with regard to segments. This is done in the present work by comparing the phonetic characteristics of focus and non-focus Accentual Phrases and by illustrating how the phonology of Persian intonation is phonetically realized in the speech string (Chapter 8).

Having become familiar with the significant works done so far, we now start our intonational journey by looking at the structure of Persian prosody in the next chapter.

Chapter 3 Prosodic structure of Persian

There are two prosodic constituents in the prosodic structure of Persian. The smallest intonational unit of Persian is the Accentual Phrase (AP). One or more APs form an Intonational Phrase (IP). The next sections deal with the AP and the IP.

3.1. The Accentual Phrase (AP)

Based on the recordings done for this dissertation, there is a recurrent tonal/accental pattern for all utterances in Persian. The pattern, which following Mahjani (2003) I will call the Persian Accentual Phrase, or AP, consists of a low tone (L) followed by a high tone (H) forming the pitch accent L+H*, which is associated with the stressed syllable. Thus, Persian seems to have much less variation in the repertoire of its pitch accents than what some previous researchers have proposed (e.g., Towhidi 1974, Eslami 2000, Vahidian-Kamyar 2001). The valley and the peak of the Persian AP are aligned before and after the stressed vowel (see Chapter 8 for details). It should be mentioned that for such cases, i.e., when the tonal targets are not exactly aligned with segmental landmarks, there is not full agreement in the literature as to the location of star in the notation. For example, Arvaniti, Ladd, and Mennen (2000) suggest five possibilities for the Greek prenuclear accents, namely L*+H, L+H*, LH, [LH]*, and L*H*, stating that their data are compatible with all five representations; or Atterer and Ladd (2004) show that British English, Dutch, Greek, Northern German, and Southern German all have the same type of targets – namely an L followed by an H – but exhibit different patterns of alignment that move on a continuum rather than being categorical, and thus the authors abandon the

idea of a starred tone (Elordieta and Calleja 2005 adopt the same view on their work on different varieties of Spanish). The choice of H to be the starred tone for Persian is by no means a claim that I have solved the problem of starred tones in languages; rather, it serves to provide a solid working ground for an attempt at the systematization of an intonationally less-known language. On a more intuition-based level, the location of star on H matches the general stress pattern of Persian, where most words have final stress (see Section 1.3.). Another argument for placing the star on H comes from Grice (1995b) who distinguishes between L^*+H and $L+H^*$ pitch accents in English. Drawing on Yip (1989), she sees L^*+H as structurally similar to affricates and diphthongs and $L+H^*$ to consonant clusters. So, the tones of the latter are more “independent” from one another, which is the case in Persian, since in this language, the tones of the Accentual Phrase are usually realized on separate syllables.

There are two allophones for this pitch accent: $L+H^*$ and H^* , each of which occurs in a particular context (examples to follow shortly). The most common allophone is $L+H^*$ which is for words or phrases with final stress, e.g., nouns and adjectives, longer than one syllable, and also for vocatives. Initially-stressed words, e.g., most verb forms, and monosyllabic content words have the allophone H^* . Utterance initial APs usually take the form of the first allophone regardless of their stress pattern due to the occurrence of an utterance initial rise in Persian.

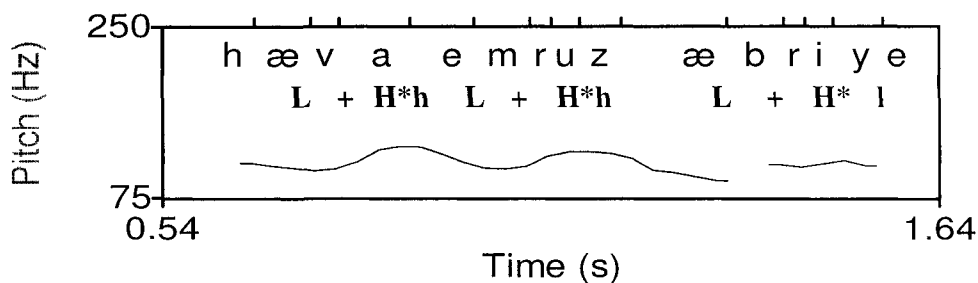
The part of an Accentual Phrase between the pitch accent and the AP end is handled by a boundary tone, which can be high or low, named here as h and l. Thus, the boundary tone marks the right edge of an AP. This part can consist of zero syllables (when the stressed syllable of an AP is its final syllable), in which case the boundary tone is realized

on the stressed syllable itself. It can also consist of several syllables, in which case the boundary tone includes all these syllables up to the AP end. The motivation for the existence of the AP boundary tone comes from the comparison of APs that have the nuclear pitch accent (NPA) and those that do not: in most types of simplex unmarked sentences, the NPA AP, which is the last AP, takes the l boundary tone, and other APs (which are not nuclear) take the h counterpart. Echo questions, double focus constructions, and vocatives are exceptions in this regard since they are simplex sentences whose NPA AP may have a high boundary tone (see Chapters 4, 6, and 7 respectively); also, the first NPA AP in compound and some complex sentences has a high boundary (see Chapter 5). (For more evidence on the existence of h and l see Chapter 9 which includes some alternative analyses as well.) Everything after the nuclear pitch accent is deaccented up to the IP end. In this dissertation, we adopt the definition of NPA as given by Hirschberg (2002: 34). She defines nuclear pitch accent (her “nuclear stress”) as “the perceptually most prominent accent in a prosodic phrase.” For more on NPA, see the references in Hirschberg (2002: 34-36) and in Ladd (1996: Chapter 5), and for a minimalist approach to the location of NPA in Persian, see Kahnemuyipour (2004), who accounts for sentences with arguments, adjuncts, and adverbials and for the factors specificity and unaccusativity with his phase-based approach, and whose results match the intonational/structural account of the present thesis.

Consider (42) and its pitch track in Figure 21. The acute accent shows the stressed syllable of an Accentual Phrase. The NPA AP is indicated with underlining. This nuclear accent is that for the unmarked pronunciation of the utterance unless otherwise specified.

- (42) hævá emrúz æbrí-ye.
 weather today cloudy-is
 “The weather is cloudy today.”

Fig. 21: The utterance *hævá emrúz æbrí-ye* “The weather is cloudy today.”

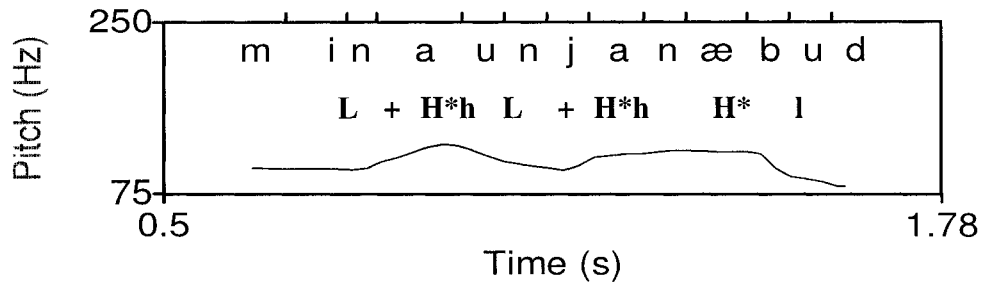


The utterance consists of three L+H* Accentual Phrases. The NPA of this sentence is on *æbri* “cloudy”, which, as a result, has a low AP boundary tone. The first two APs, not being nuclear, are marked with a high boundary tone. Each AP is realized a little lower than the previous one due to declination which is the gradual lowering of F0 in the course of an utterance (Gussenhoven 2004). As a result, the NPA AP, which as mentioned above is usually the final AP of the utterance, is often realized with a lower pitch excursion than other APs (focused APs behave differently and are studied later), i.e., the normalized amount of H minus L is less. This fact is also strengthened by the low boundary tone of the nuclear Accentual Phrase (compared to other APs whose boundary tones are high) which makes its previous H* still lower. The phonetic characteristics of Persian APs are looked at in more detail in Chapter 8.

The second allophone for the Accentual Phrase pattern in Persian, namely the H*, is exemplified in (43) and Figure 22.

- (43) miná unjá næ-bud.
 Mina there NEG-be.PAST.3SG
 “Mina wasn’t there.”

Fig. 22: The utterance *miná unjá næ-bud* “Mina wasn’t there.”



The third Accentual Phrase *næ-bud* has the lexical stress on the negative marker *næ*- and hence realized as H*.

In the next subsection, we will have a closer look at the internal structure of the AP and the elements it may be comprised of.

3.1.1. Inside an AP

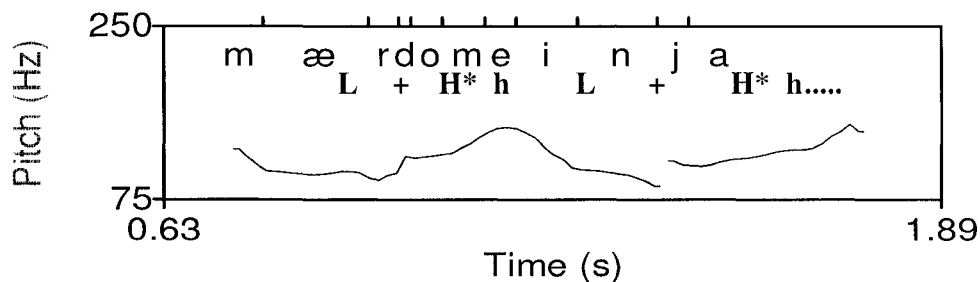
An Accentual Phrase normally consists of one content word with its possible clitic(s). For example *ketab-æm* (book-my) “my book”, which consists of the content word *ketab* and the clitic *-æm*, is one AP. Compound nouns, e.g., *ketab-xune* (book-house) “library” and reduplicative nouns (Ghaniabadi 2005), e.g., *sændæli-mændæli* (chair-REDUPLICATION) “chairs and stuff like that” are counted as one word and are always one AP. An AP may also consist of more than one word due to several factors. In fast speech rate, the number of APs in an utterance may be fewer compared to that in normal rate. The effect of speech rate on prosodic phrasing has been observed for other languages as well, for instance Fougeron and Jun (1998) for French, Jun (2003) for Korean, Gussenhoven

(2004) for Northern Bizkaian Basque and Japanese, and Prieto (2006) for Spanish. Focus, length, and subordination also influence the Accentual Phrase structure.⁹ Information structure is another factor interacting with prosody (see, e.g., Brown 1983, Steedman 1991, Baumann and Hadelich 2003, Baumann and Grice 2006, Cruttenden 2006). For example, (44) is illustrative of the effect of information structure on the realization of AP.

- (44) mærdom-e inja xeyli mehræbun-æn.
 people-EZ here very kind-are
 “The people here are very kind.”

There are two alternative phrasings for the subject noun phrase (*mærdom-e inja*) in (44). The first is when the noun phrase comprises two APs, i.e., one AP for each word. This can be the case when (44) is used as part of the new information, e.g., in answer to the question “How do you like your new town?” This alternative is shown in Figure 23 which contains the pitch track of the subject noun phrase as two Accentual Phrases.

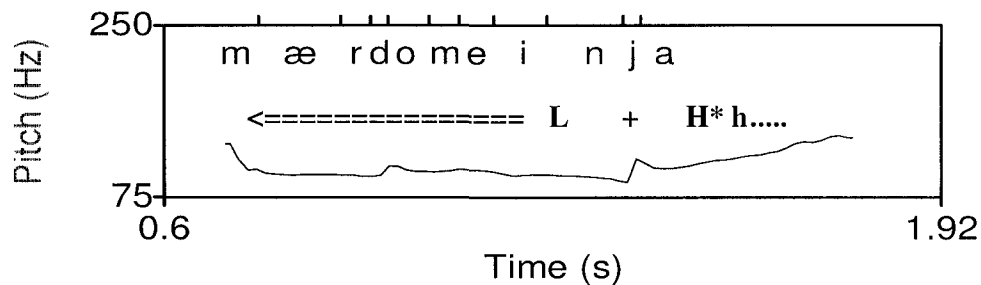
Fig. 23: [*mærdóm-e*]_{AP} [*injá*]_{AP} “The people here” realized as two APs.



⁹ Focus constructions and subordinate clauses are studied later in this thesis (Chapter 6 and Section 5.2. respectively). The impact of length on prosodic structure is looked at in the subsection on relative clauses (5.2.1.).

The second alternative is when the whole subject noun phrase forms one AP. The pitch track of the noun phrase as one AP is given in Figure 24.

Fig. 24: [mærdom-e injá]_{AP} “The people here” realized as one AP.



This can happen when the subject noun phrase is given information, e.g., as part of the answer to the question “How do you find the people there?” In such cases, i.e., where the L of an AP is realized on several syllables before the H*, a low plateau is formed (on *mærdom-e in-* in the above example) which can be accounted for by the spreading of the L to the left up to the beginning of the AP (shown with an arrow). Thus, in such leftward spreading cases, there is no observable valley, and the low part of the contour has the shape of a level low stretch.¹⁰

If an enclitic is located at the end of an AP, e.g., the enclitic *-e* in Figure 23, it bears the AP boundary tone. If the AP boundary tone on the enclitic is high, it is predictably higher than the previous H*. The same scenario exists for words with more than one enclitic, as exemplified in (45).

¹⁰ The term spreading (both in the leftward spreading above and the rightward spreading of the AP boundary tone discussed in Section 3.2.) is used in the same sense as Grice, Ladd, and Arvaniti (2000). They observe that in the varieties of Romanian and Hungarian spoken in Transylvania, yes/no questions have a high plateau following the nuclear accent, and making use of Gussenhoven’s (1993) analysis, they see this high plateau as derived from the spreading (or their preferred term “copying”) of an H- phrase accent.

- (45) livan-æm-o vərdašt.
 glass-my-RA pick up.PAST.3SG
 “S/he picked up my glass.”

In the AP *livan-æm-o*, the word *livan* “glass” has the pattern L+H* and both of the enclitics *-æm* and *-o* bear the boundary tone of the AP which can be l or h due to the different intonations of the sentence.¹¹ Figures 25a and b contain the pitch contours of the utterance in (45) in two different pronunciations. The first figure is the default version with the nuclear pitch accent on the verb (*vərdašt*) and the second figure has the NPA on “glass” which gives it a marked pronunciation.

Fig. 25a: The utterance *liván-æm-o vərdašt* “S/he picked up my glass” with *livan-æm-o* having a high boundary tone.

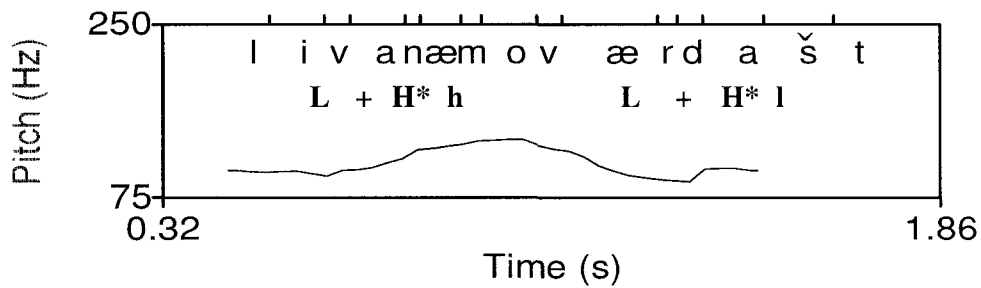
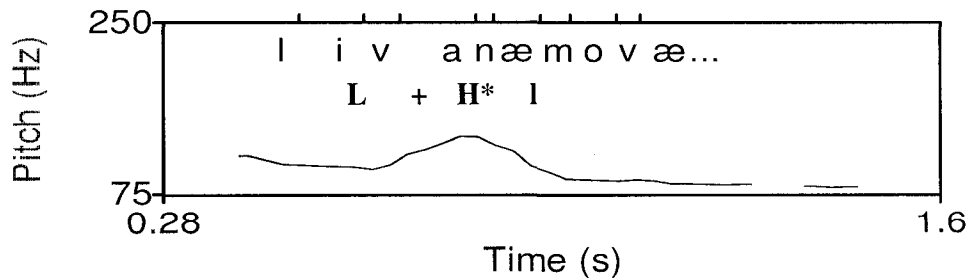


Fig. 25b: The utterance *liván-æm-o vərdašt* “S/he picked up my glass” with *livan-æm-o* having a low boundary tone.



The clitics *-æm* and *-o* are high in Figure 25a and low in Figure 25b, identical to the AP boundary tone. Note that, as mentioned above, the h in 25a is phonetically realized higher than its preceding H*.

Besides the above-discussed meaning-changing tonal variations, there are also some inter-speaker variations on the Accentual Phrase structure which do not bear on semantic or pragmatic factors. As an example, the prepositional phrase in (46) may be pronounced in either of the ways demonstrated without any change in meaning.

- (46) a. | AP | AP |
 L + H* h L+H*h
 be næzær-e uná ...
 to opinion-EZ they
 “In their opinion ...”
- b. | AP |
 <===== L+H*h
 be næzær-e uná ...

In this subsection, we studied the deciding factors in the formation of the Persian AP.

Now we move to the next level of prosodic structure of Persian, the Intonational Phrase (IP).

¹¹ Note that we are dealing with the phonology of the AP here. Phonetically, the tones are aligned in different ways. For instance, the peak of the AP may in some cases not align with the stressed syllable and

3.2. The Intonational Phrase (IP)

One or more Accentual Phrases are immediately dominated by an Intonational Phrase, which corresponds to an utterance for simplex sentences. An IP is phonologically marked by a boundary tone L% or H% on the final syllable or part of the final syllable.

Phonetically, IPs are usually accompanied by pitch resetting at the beginning and a pause and sometimes vowel lengthening at the end. There is usually one nuclear pitch accent in every IP. L% is used for declaratives (SOV or scrambled), leading (*mæge*) yes/no questions, WH-questions, alternative questions, imperatives, and vocatives. H% is used for yes/no questions, tag questions, echo questions, coordinate structures, and IP-forming subordinate clauses.

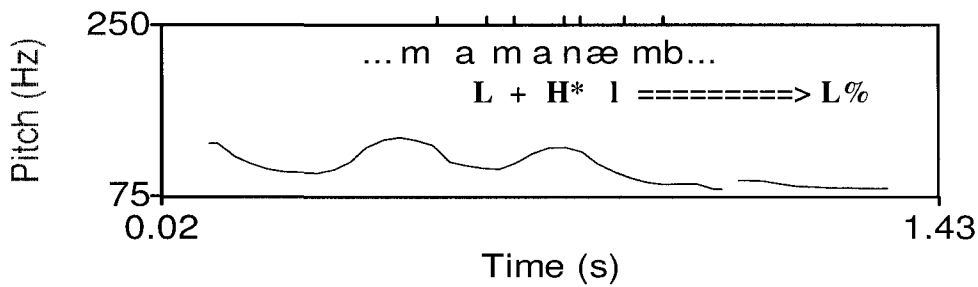
The prosodic structure proposed in this dissertation does not include the level Intermediate Phrase, a level between the IP and the AP, and its characteristic tone the phrase accent (e.g., L-). Phrase accents in the autosegmental-metrical framework refer to the changes in the F0 from the last pitch accent to the end of the phrase (Pierrehumbert 1980). Phrase accents were later regarded as edge tones for the Intermediate Phrase (Beckman and Pierrehumbert 1986). Previous works (Eslami 2000, Mahjani 2003, Scarborough 2007) have suggested the Intermediate Phrase level for Persian; however, they do not present firm evidence as to the existence of this level and of the phrase accent. In this regard, my data show that the prosodic levels of IP and AP suffice for Persian and considering a level between the two only complicates the representations. This is supported by the fact that the AP boundary tone can in all instances account for the part of the F0 contour following the NPA, i.e., the part that the phrase accent is supposed to associate with. How this is done is by the spreading of the AP boundary tone

be realized in the next syllable. The phonetic implementation of accents is discussed in Chapter 8.

of the NPA to the right. In other words, the part of the F0 contour that is between the NPA and the IP boundary always has the same tone as that of the NPA AP boundary tone. Thus, the following two situations do not occur after the NPA AP in Persian: a low AP boundary tone followed by a high stretch and a high AP boundary tone followed by a low plateau. Examples (47) and (48) with their pitch tracks in Figures 26 and 27 are illustrative.

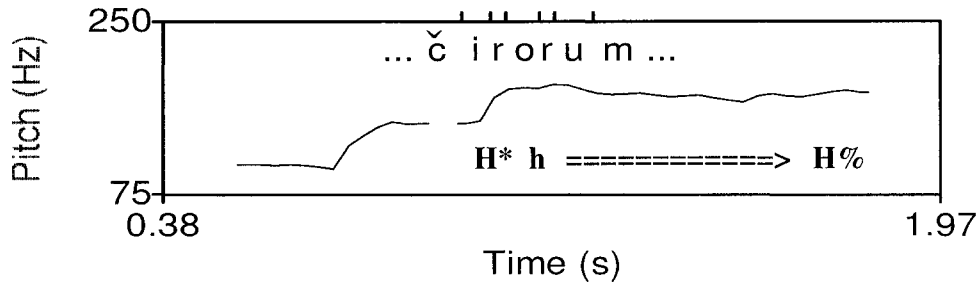
- (47) namé-ye mamán-æm bud ru miz.
 letter-EZ mom-my be.PAST.3SG on table
 “It was my mom’s letter on the table.”

Fig. 26: Spreading of low boundary tone to the end of the utterance in *namé-ye mamán-æm bud ru miz* “It was my mom’s letter on the table.”



- (48) arezú čí-ro ru miz gozašt?
 Arezu what-RA on table put.PAST.3SG
 “Arezu put what on the table?” [Echo question]

Fig. 27: Spreading of high boundary tone to the end of the utterance in *arezú čí-ro ru miz gozašt* “Arezu put what on the table?”[echo question]



In both examples, the boundary tone of the final AP spreads over the following syllables (shown with an arrow). In (47) the *l* of the AP *maman-æm* “my mom” affects *bud ru miz*, and in (48) the *h* of the AP *čí-ro* “what” affects *ru miz gozašt*. So there is no need for a new tone to be introduced for this portion of a contour. The IP boundary tones are of course orthogonal to their previous tones, for example the *L%* in (47) can switch to *H%*, with everything else unchanged, if the sentence is used as an ordinary yes/no question (Subsection 4.2.1.). Note also that the tonal pattern of *čí* is *H** and not *L+H** which is due to the fact that *čí* is monosyllabic.

3.3. Chapter summary

In this chapter, the prosodic structure of Persian was discussed and the two levels of this structure, the Accentual Phrase and the Intonational Phrase, were studied. The Accentual Phrase is characterized by the pitch accent *L+H** and has two allophones: *L+H** for words and phrases with final stress and vocatives, and *H** for initially stressed words and monosyllabic content words. The AP is marked by the boundary tone *l* or *h* at the right edge, which handles the part between the pitch accent and the AP end, and the choice of which depends on factors such as the nuclear status of the pitch accent. The nuclear pitch accent causes the following elements to deaccent. An AP normally consists of one

content word together with its clitics but this prosodic structure can be altered by such factors as information structure. One or more APs form the next level of Persian prosody, the Intonational Phrase. An IP is marked by a low or high boundary tone at its right edge (L% or H%), each of which is designated for certain sentence types. What follows in the next four chapters is an account of the different intonation patterns that exist in Persian. We will see how different sentence types behave intonationally.

Chapter 4 The intonation patterns of Persian – simplex sentences

This chapter deals with the various intonation patterns that different simplex sentence types, i.e., declaratives, interrogatives, and imperatives, exhibit. All the utterances considered have unmarked pronunciations and there is no pragmatic or attitudinal load with them. We start with simplex sentences, and then move on to coordinated and subordinated structures in Chapter 5. Focus constructions of different types will be investigated in Chapter 6. Vocatives are looked at in Chapter 7. Two female and two male speakers were used for Chapters 4 through 6, one of the males being the author. They had an age range of 26-41 and had lived in Iran all their life before moving to Canada 3 to 10 years ago. They had been using Persian in some of their daily communications since they left Iran. All the speakers consulted for this dissertation spoke the dialect under study (i.e., Modern Conversational Persian) without any foreign accent and were all consistent as far as the production of different sentence types was concerned, so they were representative of the general population. The recordings were done in multiple sessions. The sentences were presented to the speakers on cue cards in random order, and each speaker read each sentence once. The productions, a total of 1752 tokens (438 utterances multiplied by 4 speakers), were recorded by a microphone connected to a PC, placed at a fixed distance of about 10 cm from the speaker, at the sampling frequency of 22.05 KHz. The recordings were input to the Praat software (Boersma and Weenink 2007). The methodology used for Chapter 7 and the phonetic experiment of Chapter 8 will be introduced in the chapters themselves.

A simplex sentence is one which has one verb and the required arguments, optionally accompanied by adjuncts. There is no syntactic dependency or subordination in simplex sentences. Simplex sentences in this dissertation include copular verb constructions, (S)(O)V declaratives, scrambled declaratives, yes/no questions, leading (*mæge*) yes/no questions, tag questions, WH-questions, echo questions, and imperatives.

Before starting the discussion of declaratives, a justification of the type of data used in this dissertation is in order. The data of this dissertation contains 2112 utterances of read speech. It may be argued that using a linguistic corpus of spontaneous speech will yield more reliable results in language studies; however, there are several arguments defending the kind of data collection used in the present research. The first is the nature of the work itself. In writing an intonational grammar, the researcher must have a pool of all the sentence types and structures that she wants to study. This is made possible by way of designing a set of data; it is practically impossible to find all the utterances appropriate for an undertaking of this sort in a given corpus. The second argument is an empirical one. Lickley, Schepman, and Ladd (2005) measure the alignment of lows in Dutch falling-rising questions with two sets of data, read data and Map Task (Anderson et al. 1991) dialogs, i.e., conversations where the questioner requests information from a partner regarding the different locations on a map. Lickley and colleagues reach the same results from the two sets and conclude that lab speech *can* be used in experimental research concerning phonological and phonetic issues. The third argument addresses the problem of decontextualization in read speech: that lab speech lacks context. This is not the case with the present work. All of the sentences that were in any way ambiguous or

that needed a specific context (including contrastively-focused sentences) were explained to the speakers and an appropriate pronunciation was elicited.

4.1. Declaratives

We divide declaratives into two subtypes: copular verb constructions and (S)(O)V declaratives.

4.1.1. Copular verb constructions

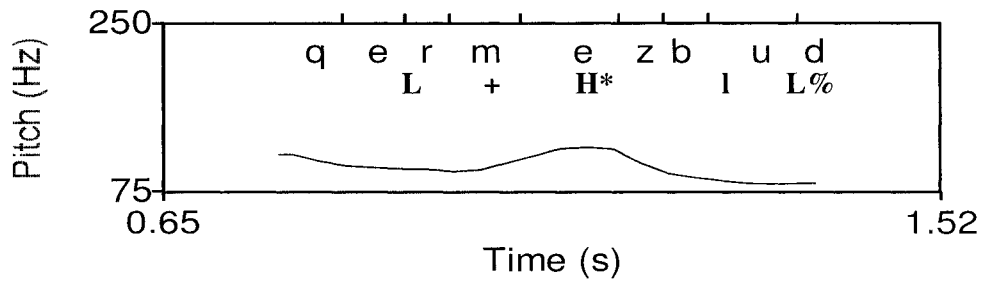
Copular verbs in Persian, similar to other languages, serve to create a relationship between the subject and the complement (Gholamalizadeh 1995).¹² The most common conversational copular verbs are *budæn* “to be”, *šodæn* “to become”, *be næzær umædæn* “to seem”, and *be næzær residæn* “to seem”. The unmarked word order for copular verb declaratives is as appears in (49). Brackets around the subject denote that this element can be dropped due to the null subject nature of Persian.

(49) (subject +) complement + copula

The intonation contour of copular constructions contains one or more Accentual Phrases, with the nuclear pitch accent on the final AP of the complement, thus causing the verb to deaccent. (50) is an example of the simplest form of a copular construction with no overt subject and a complement consisting of only one word. As before, the nuclear pitch accent AP is underlined. The pitch track is given in Figure 28.

- (50) qerméz bud.
 red be.PAST.3SG
 “It was red.”

Fig. 28: The copular construction *qerméz bud* “It was red.”

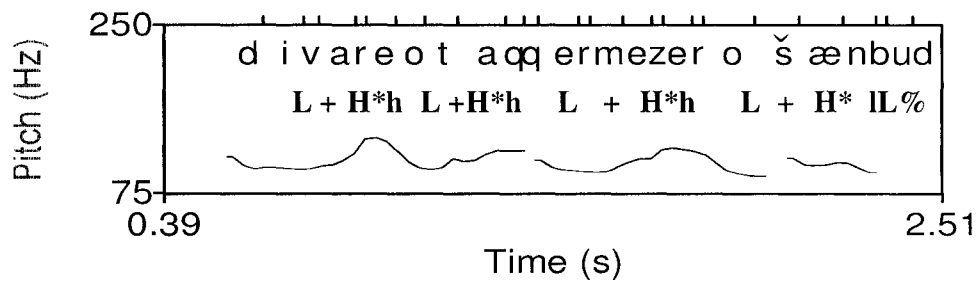


The complement *qermez* is the only AP in (50) having the L+H* pattern followed by a low AP boundary tone and bearing the NPA of the utterance.

Any added element normally means another AP. This is exemplified in (51) and Figure 29 where the subject and the complement both have post-modifiers.

- (51) divár-e otáq qerméz-e rošán bud.
 wall-EZ room red-EZ light be.PAST.3SG
 “The wall of the room was light red.”

Fig. 29: The copular construction *divár-e otáq qerméz-e rošán bud* “The wall of the room was light red.”



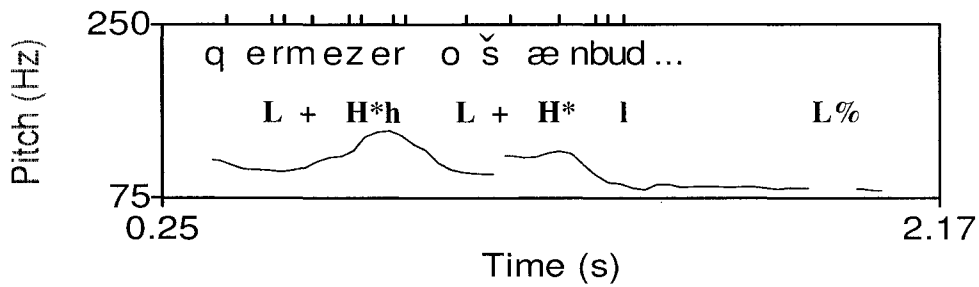
¹² The complement may also be referred to as the predicate.

The first three APs have a high boundary tone while the fourth, which bears the NPA, has a low boundary tone.

In scrambled copular constructions, the same pattern exists. (52) and Figure 30 are illustrative.

- (52) qerméz-e rošæn bud divar-e otaq.
 red-EZ light be.PAST.3SG wall-EZ room
 “The wall of the room was light red.”

Fig. 30: The scrambled copular construction *qerméz-e rošæn bud divar-e otaq* “The wall of the room was light red.”

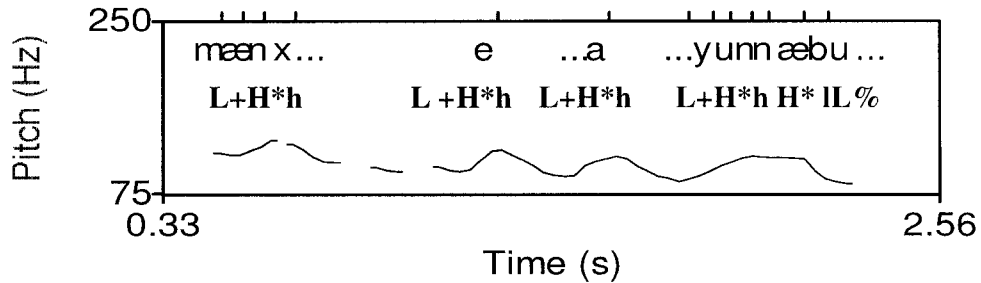


The nuclear accent is still on the final element of the complement (*rošæn* “light”), which deaccents the following elements (*bud divar-e otaq*). Note that the boundary tone of the AP *rošæn* is spread to the right up to the utterance end.

The negative marker *ne-/næ-* in Persian attracts the NPA of the utterance, as is common in many languages. Example (53) together with its pitch track in Figure 31 illustrate this point.

- (53) *mæn xošbæxtané be uná mædyún næ-bud-æm.*
 I fortunately to them indebted NEG-be.PAST-1SG
 “I was fortunately not indebted to them.”

Fig. 31: The copular construction *mæn xošbæxtané be uná mædyún næ-bud-æm*
 “I was fortunately not indebted to them.”



As can be seen, the verb in the copular construction in (53) constitutes one AP which is unlike the behaviour of the affirmative counterpart where the verb always falls in the deaccented part of the utterance following the nuclear pitch accented complement. Since the negative marker is word initial in (53), the AP of the verb is realized as H*. The APs preceding the negative verb all have their ordinary condition, similar to an affirmative sentence. Note that in this example, an adverb (*xošbæxtane* “fortunately”) and a prepositional phrase (*be una* “to them”) are used in the construction and each forms a separate AP. Note also that the subject pronoun (*mæn* “I”), which is a stressed monosyllabic word, is realized as L+H* due to its utterance initial position.

4.1.2. (S)(O)V declaratives

The L+H tonal pattern of the Persian Accentual Phrase is seen in all instances of (S)(O)V declaratives and everything after the NPA is deaccented up to the utterance end. First, let us start with sentences with intransitive verbs, which consist of unaccusative and

unergative verbs. Unaccusative constructions, i.e., those with verbs like *residæn* “to arrive”, *umædæn* “to come”, *rixtæn* “to spill”, etc. basically involve non-volitional subjects. These constructions have their NPA on the final element of the subject if the subject is non-specific, and on the verb if the subject is specific. Consider (54) a and b.

- (54) a. *yé namé-ye mohém umæd-e.*
 a letter-EZ important come.PAST-PART.3SG
 “An important letter has arrived.”
- b. *name mohemm-é umæd.*
 letter important-DEF come.PAST.3SG
 “The important letter arrived.”

The pitch tracks of the above sentences are given in Figures 32a and b.

Fig. 32a: The utterance *yé namé-ye mohém umæd-e* “An important letter has arrived” (unaccusative verb, non-specific subject).

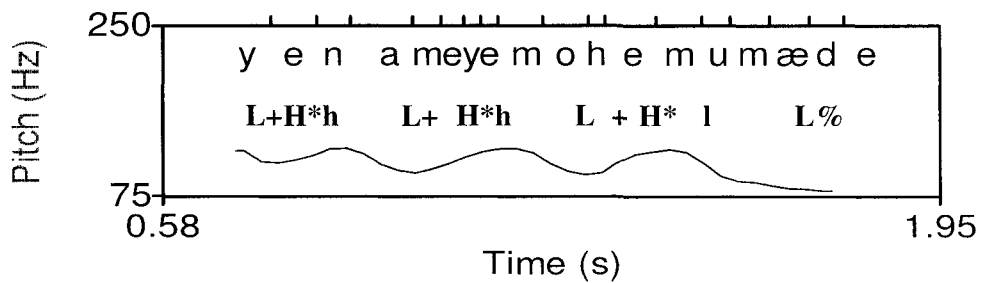
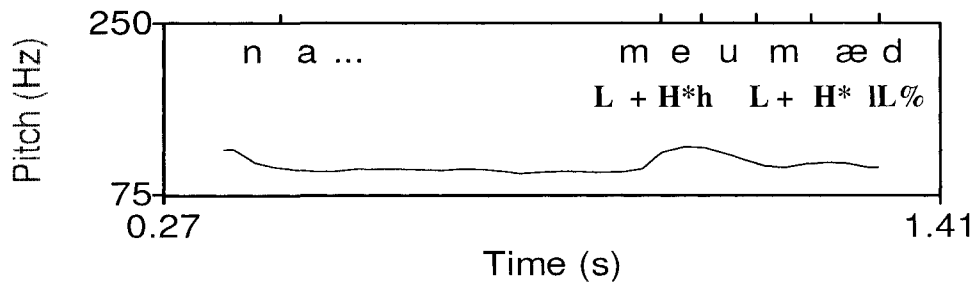


Fig. 32b: The utterance *name mohem-é umæd* “The important letter arrived”
 (unaccuative verb, specific subject).



Example (54a) contains a non-specific subject and its nuclear pitch accent associates with *mohem* “important” which is the post-modifier of the subject and is the third and last AP. (54b) in contrast contains a specific subject and as a result, the verb *umæd* bears the NPA. Note that the subject and its modifier (*name mohemm-e* “the important letter”) have together formed one AP, which is due to the fact that they constitute a semantic whole.

Unaccusative sentences that state a generic truth are nuclear pitch accented on the verb. An example appears in (55).

- (55) L+H*h L+H*h H*1 L%
 áb dær sefr dærejé yæx+mi-zæn-e.
 water in hundred degree ice+DUR-hit.PRES-3SG
 “Water freezes at zero degrees.”

This is in line with Ladd (1996: 188) who, making reference to Gussenhoven (1983) and Faber (1987), states for English that “sentences with generic subjects, and sentences that state definitions, eternal truths, and grand abstractions are often accented on the predicate.”

Unergative constructions, which take agentive subjects, have the nuclear accent on the verb and unlike in unaccusatives, specificity does not play any role in the NPA location. Examples of unergative verbs include *xændidæn* “to laugh”, *šena+kærdæn* “to swim”, and *doidæn* “to run” (for some diagnostic criteria for distinguishing between unaccusative and unergative verbs see Karimi-Doostan 1997). Two examples are provided in (56) a and b and Figures 33a and b.

- (56) a. *namí xænd-íd.*
 Nami laugh-PAST.3SG
 “Nami laughed.”
- b. *mærdóm xænd-íd-æn.*
 people laugh-PAST-3PL
 “People laughed.”

Fig. 33a: The unergative verb utterance *namí xænd-íd* “Nami laughed” (specific subject).

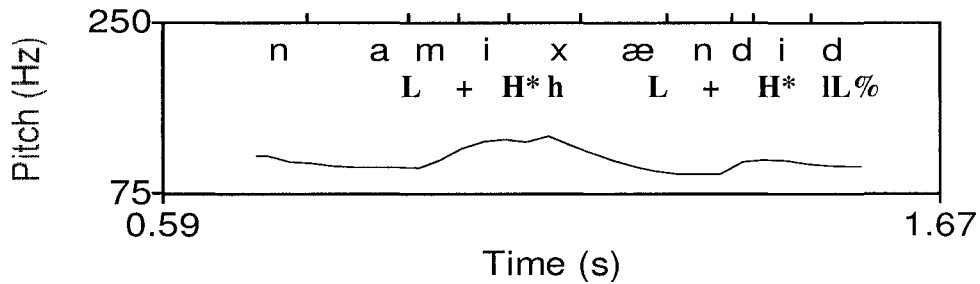
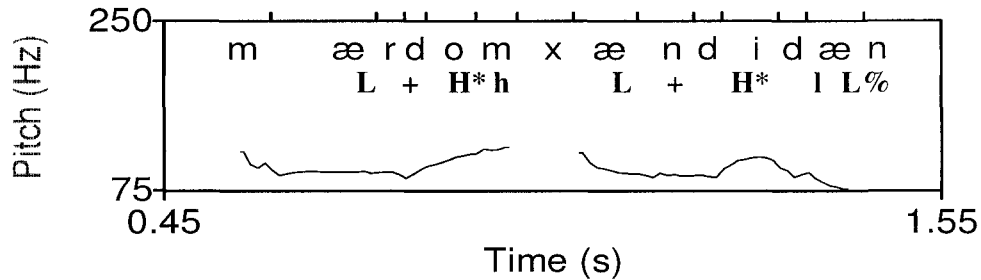


Fig. 33b: The unergative verb utterance *mærdóm xænd-id-æn* “People laughed” (non-specific subject).



The first utterance has a specific subject and the second a non-specific one. In both, the verb carries the nuclear accent and there is no difference in their intonation patterns.¹³

Moving on to SOV declaratives, we observe the same specificity constraint on the location of NPA, this time with the direct object, and not the subject being the decisive factor. Example (57a) contains a specific direct object (*film-a-ro*)¹⁴ and Example (57b) a non-specific one (*film*).

- (57) a. miná film-á-ro did-é-bud.
 Mina film-PL-RA see.PAST-PART-be.PAST.3SG
 “Mina had seen the movies.”
- b. miná fílm did-e-bud.
 Mina film see.PAST-PART-be.PAST.3SG
 “Mina had seen movies.”

The pitch tracks of the above examples are given in Figures 34a and b.

¹³ The behaviour of unaccusatives and unergatives with regard to nuclear accent can also be analyzed syntactically since the subjects of unaccusatives, unlike those of unergatives, are internal arguments and behave like objects.

¹⁴ Recall that the enclitic *-ro* makes an NP specific.

Fig. 34a: The utterance *miná film-á-ro did-é-bud* “Mina had seen the movies” (specific direct object).

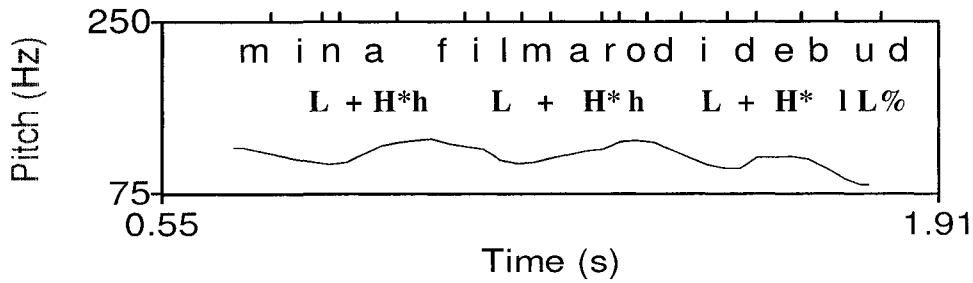
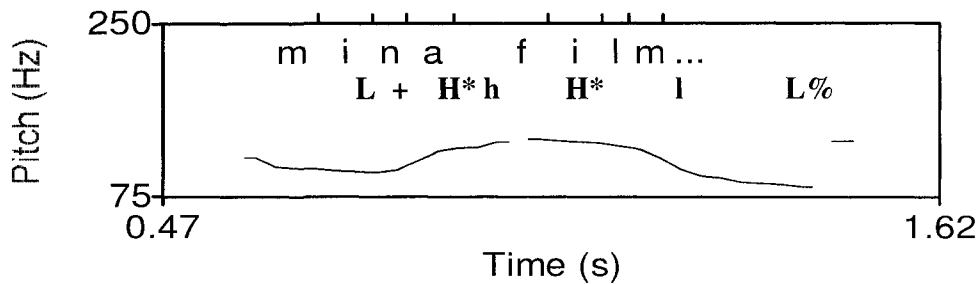


Fig. 34b: The utterance *miná film did-e-bud* “Mina had seen movies” (specific direct object).



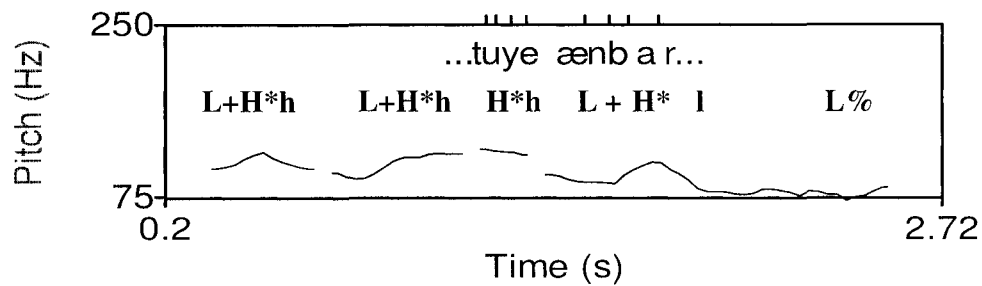
The verb following the non-specific direct object in Figure 34b (*film*) is deaccented. This word also exemplifies the realization of AP as a single H* for monosyllabic content word APs.

Any element added to the SOV pattern such as arguments and adjuncts in the form of different types of phrases (e.g., prepositional phrases, adverbial phrases, etc.) constitute one Accentual Phrase each. Arguments, whether specific or non-specific, often attract the nuclear pitch accent when co-occurring with specific direct objects and cause their following elements to deaccent. Adjuncts, again regardless of their specificity, are usually neutral with regard to the NPA, except for some manner and measure adverbs (e.g., *særi* “quickly”, *xub* “well”, and *xeyli* “very”) which attract this accent in most

contexts. Example (58) and Figure 35 show a nuclear accented argument and Example (59) and Figure 36 a non-nuclear accented adjunct.

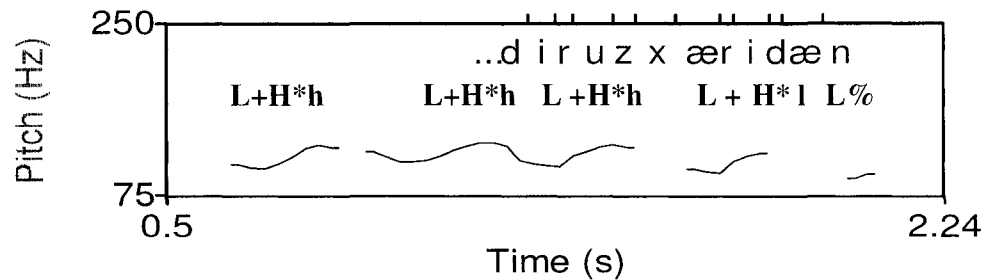
- (58) *mæn væsa'él-æm-o tú-ye ænbár negæh+mi-dar-æm.*
 I things-my-RA in-EZ storage look+DUR-have.PRES-1SG
 “I keep my stuff in the storage room.”

Fig. 35: The utterance *mæn væsa'él-æm-o tú-ye ænbár negæh+mi-dar-æm* “I keep my stuff in the storage room” (SOV with argument).



- (59) *uná xunæ-ro dirúz xær-íd-æn.*
 they house-RA yesterday buy-PAST-3PL
 “They bought the house yesterday.”

Fig. 36: The utterance *uná xunæ-ro dirúz xær-íd-æn* “They bought the house yesterday” (SOV with adjunct).



The NPA in (58) is on the argument *ænbár* “storage room”, and in (59) it is on the verb and not on the adjunct *diruz* “yesterday”.

The intonation of OV sentences (null subject SOVs) is not different from that of ordinary SOVs, a behaviour that was observed for copular constructions too (Subsection 4.1.1.). For instance, Example (59) above without a subject has the pattern shown in (60).

- (60) L+H**h* L+H**h* L+H**IL%*
 xunæ-ro dirúz xær-íd-æn.
 house-RA yesterday buy-PAST-3PL
 “They bought the house yesterday.”

The pattern is identical to that in Figure 36 except that it lacks the first AP, which is for the subject.

The effect of negation in SOVs is similar to that in copular constructions. Thus, the negative verb becomes the NPA of the utterance, as exemplified by (61).

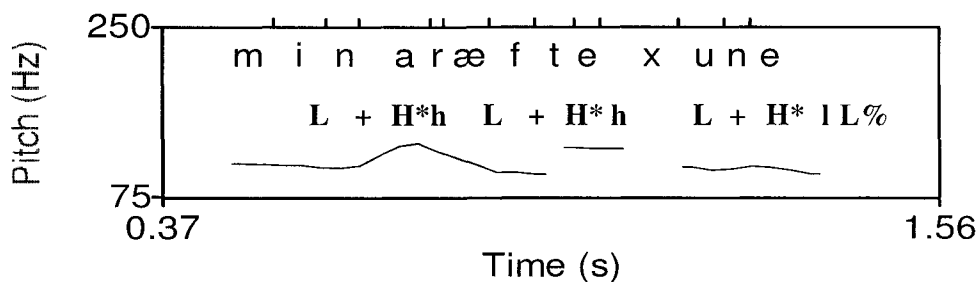
- (61) L + H* *h* H**h* L+H**h* H**l L%*
 mæqaze-hé gól-e lalé næ-dašt.
 shop-DEF flower-EZ tulip NEG-have.PAST.3SG
 “The shop didn’t have tulip flowers.”

There is a small subset of Persian sentences that are not verb final in unmarked order. These sentences usually include an adverbial or involve some sort of motion. Let us call them “adverbial/motion constructions”. (62) contains two examples.

- (62) a. *miná* *ræft-é* *xuné*.
 Mína go.PAST-PART.3SG home
 “Mina has gone home.”
- b. *kavé* *xab-íd* *ru míz*.
 Kaveh sleep.PAST.3SG on table
 “Kaveh slept on the table.”

Normally no element following the verb in Persian can receive prominence, supported by Karimi’s (2003) observation that focal elements can only appear in the preverbal position. But the adverbial/motion construction is an exception to this generalization in that it has the NPA on a post verbal element, e.g., *xune* “home” and *miz* “table” in (62) a and b. The pitch contour of (62a) is given in Figure 37.

Fig. 37: The “adverbial/motion construction” *miná ræft-é xuné* “Mina has gone home.”



The NPA on *xune* is retained when the above utterance takes a verb final form, i.e., *miná xune ræft-e*, which is a slightly marked version.

To summarize so far, the intonation patterns of copular verb declaratives and (S)(O)V declaratives have been studied in this chapter. For all samples, the basic L+H

pattern of the Accentual Phrase exists and the phonological representation of simple declaratives can be formulized as in (63).

$$(63) \quad ((L+)H^*h)^n (L+)H^*l \quad L\% \quad n = 0,1,2,\dots$$

Parentheses show optionality in the sense that some APs (initially-stressed words and monosyllabic content words) are realized as H^* , and power n means that the element under that power can potentially be repeated n times. The simplest case is when the Intonational Phrase consists of only one AP in which case $n = 0$ and the IP is realized as $(L+)H^*l \quad L\%$. The number of penultimate APs can theoretically increase infinitely with $n = 1,2,\dots$

Among the various types of declarative sentences studied, there are differences regarding the location of the nuclear pitch accent. Copular verb declaratives have their nuclear pitch accent on the final element of the complement and the copula is always deaccented. Unaccusatives with a specific subject and unergatives are usually accented on the verb, while unaccusatives with a non-specific subject have their accent on the final element of the subject. SOV sentences are either nuclear accented on the verb, if the direct object is specific, and on the direct object, if it is non-specific. Non-verb-final adverbial/motion constructions are accented on the post-verbal AP. The NPA in negative sentences is always on the verb AP regardless of any of the above factors.

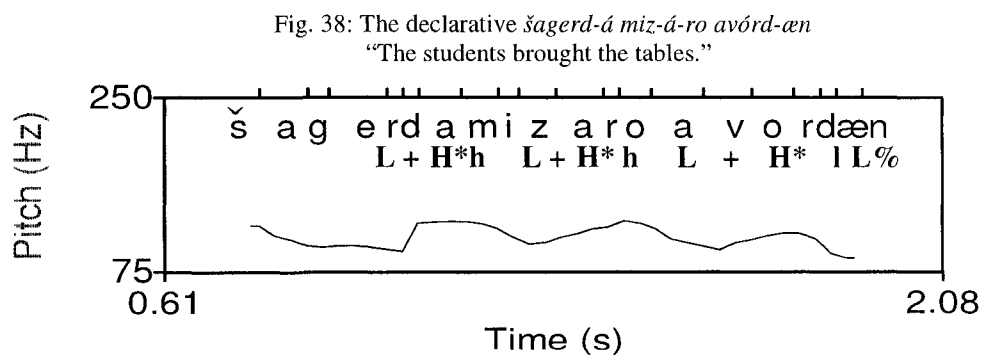
4.2. Interrogatives

The intonation patterns of different types of interrogative sentences in Persian will be studied in this section. The investigation involves yes/no questions, leading yes/no questions, tag questions, WH-questions, and echo questions.

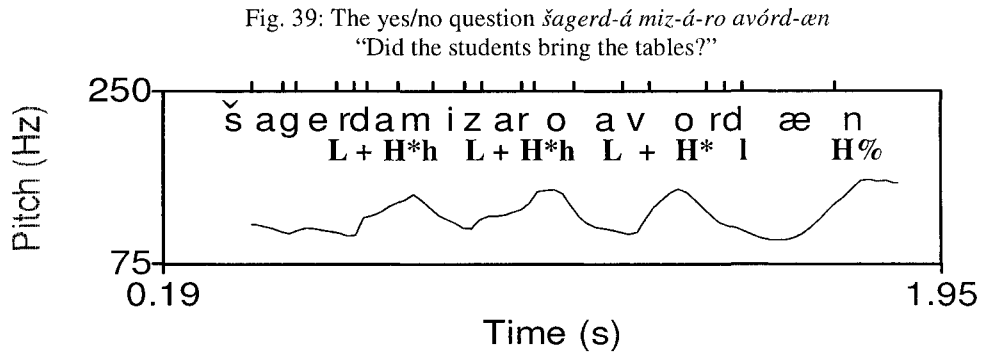
4.2.1. Yes/no questions

The word order of declaratives and their yes/no question counterparts is the same and the act of questioning is done by change of intonation. In a more formal style, there is the question particle *aya*, which commonly appears sentence-initially and will be discussed shortly. Let us start with the comparison of a simple SOV sentence and its yes/no question counterpart, appearing in (64) and (65) and Figures 38 and 39.

- (64) *šagerd-á miz-á-ro avórd-æn.*
student-PL table-PL-RA bring.PAST-3PL
“The students brought the tables.”



- (65) *šagerd-á miz-á-ro avórd-æn?*
 student-PL table-PL-RA bring.PAST-3PL
 “Did the students bring the tables?”



As can be seen, the tonal pattern of the yes/no question is phonologically very similar to that of the declarative: a series of L+H* Accentual Phrases with the last AP being the most prominent. In fact, the NPA location of yes/no questions is always identical to that of declaratives and the same considerations, e.g., specific/non-specific or unaccusative/unergative (Subsection 4.1.2.), exist for yes/no questions as well. The difference between the yes/no question and the declarative is in the Intonational Phrase boundary tone. While it is low for the declarative (L%), it is high for the yes/no question (H%). This means a pitch increase on the final syllable of the IP. Thus, we can give the phonological representation of yes/no questions as in (66).

- (66) ((L+)H*h)ⁿ (L+)H*1 H% n = 0,1,2,...

The interpretation of the above formula is the same as that of declaratives (63) in the previous section. $n = 0$ yields the simplest yes/no question in the form of $(L+)H^*1 H\%$, and $n = 1, 2, \dots$ create the possibility of one or more non-nuclear APs.

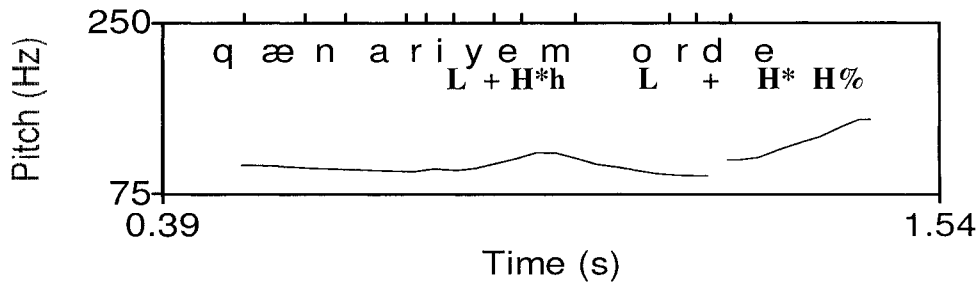
Apart from the phonological difference of the IP boundary tone, there are three phonetic differences between declaratives and yes/no questions. The first is related to the scaling of the H^* , especially in the final AP. This H^* is realized higher in yes/no questions, hence a higher pitch excursion (H-L). This is seen in Examples (64) and (65) where the verb AP (*avord-æ:n*) has a higher peak in the yes/no question (148 Hz) than in the declarative (114 Hz).¹⁵ The second difference concerns the overall pitch register, i.e., the relative position of the pitch contour with regard to the pitch axis. The register for yes/no questions is higher than that of declaratives. That is to say that yes/no questions include higher pitches. For the above examples, the pitch register is 89 Hz – 125 Hz for the declarative and 100 Hz – 148 Hz for the yes/no question. The third difference between the declarative and its yes/no question counterpart is related to final lengthening. It is the case that yes/no questions get lengthened at the end. This can be seen in the increased duration of the vowel /æ/ in the question – 210 ms – compared to that of the statement – 50 ms.

There is one situation in yes/no questions where the low boundary tone of the final AP is not phonetically realized. This occurs when the stressed syllable of the NPA AP is the final syllable of the IP illustrated by Example (67) and Figure 40.

¹⁵ In a representation where realizational properties such as pitch excursion are treated in the phonology, the pitch accent for the final AP can be shown as $L+^{\wedge}H^*$.

- (67) qænari-yé mord-é?
 canary-DEF die.PAST-PART.3SG
 “Has the canary died?”

Fig. 40: The yes/no question *qænari-yé mord-é* “Has the canary died?”

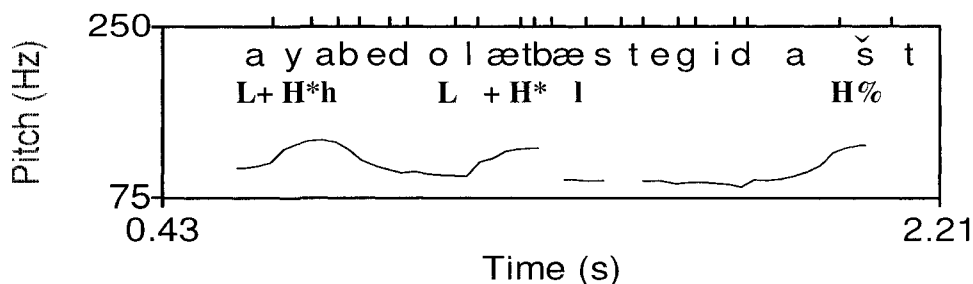


The stressed participle marker (-*e*) bears the H* of the AP’s L+H*. Immediately after this syllable, the IP (and the utterance) rise and go to an end, which leaves no docking site for the AP boundary tone l. Consequently, this l is undershot.

As mentioned before, formal style yes/no questions can be formed with the placement of the question particle *áya* in front of the sentence (and less often in the middle). This type of question is also employed in informal style although to a lesser degree. In yes/no questions with *áya*, this initially-stressed particle simply forms a separate Accentual Phrase in the form of H*, or (more often) L+H* as it is usually utterance initial. Example (68) and its contour in Figure 41 provide an illustration.

- (68) áya be doláét bæstegi+dašt?
 QP to government dependence+have.PAST.3SG
 “Did it depend on the government?”

Fig. 41: The yes/no question *áya be dolát bæstegi+dašt* “Did it depend on the government?” (yes/no question with the particle *aya*).



As observed by Mahjani (2003), yes/no questions with *aya* take a slightly lower register than yes/no questions without this particle. The main reason for this seems to be that with *aya* part of the act of questioning is done by syntax, and phonology (change of intonation) becomes less crucial. Also, an utterance with *aya* is naturally longer than one without, resulting in more declination and more involvement of lower pitches.

4.2.1.1. Leading yes/no questions

The particle *mæge* can appear in the beginning of a yes/no question making it a “leading yes/no question” (Mahootian 1997). This particle can come in other positions in the sentence as well but with less frequency. This type of question involves the speaker’s presupposition, in the sense that she assumes the opposite polarity answer. So in positive leading yes/no questions a negative answer is assumed and vice versa. In this sense, the function of such questions is similar to that of tag questions. Leading yes/no questions are also referred to as “biased” questions in the literature (Rezai 2003). An example of a leading yes/no question is provided in (69).

- (69) mæge æli unja næ-bud?
 PTC Ali there NEG-be.PAST.3SG
 “Wasn’t Ali there then?”

The word “then” in the gloss shows the presupposition involved in the Persian question. An alternative translation for (69) would be “Ali was there, wasn’t he?” where the speaker assumes a positive answer.

Intonationally, there are two alternatives for the particle *mæge*. It can either form an independent AP or become part of the next AP. Whatever follows *mæge* usually has the basic pattern of a declarative although with a slightly higher pitch register. This higher register seems to carry the load of expectation (and surprise) inherent in this question type. Figures 42a and 42b contain the pitch tracks of two interchangeable productions of (69).

Fig. 42a: The leading yes/no question *mægé ælí unjá næ-bud*
 “Wasn’t Ali there then?”

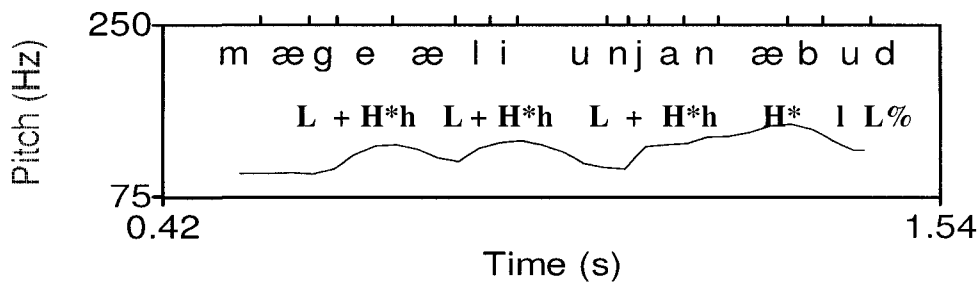


Fig. 42b: The leading yes/no question *mæge æli unja næ-bud*
 “Wasn’t Ali there then?” (alternative pronunciation).

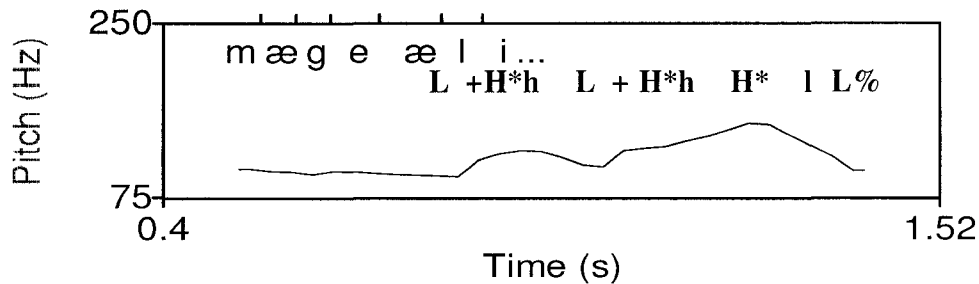


Figure 42a shows *mæge* as one separate AP while in Figure 42b, both syllables of this particle are realized low and form part of the L of the next AP *æli* “Ali” (caused by the leftward spreading of the L). In both pronunciations, the part after *mæge*, i.e., *æli unja næ-bud*, behaves like an ordinary declarative with the phonological representation of L+H* h L+H* h H* l L%.

Another less common, but equally grammatical, intonation for what follows *mæge* is that of an ordinary yes/no question with an H% at the IP end. This option adds to the degree of surprise in the utterance. The tonal patterns of (69) with this option are provided in (70). Again, there are two possibilities for *mæge*, as a separate AP (70a) and as part of the next AP (70b).

- (70) *mæge* *æli* *unja* *næ-bud?*
- a. L+H* h L+H* h L+H* h H* l H%
- b. L+H* h L+H* h H* l H%

The particle *mæge* can also co-occur with WH-questions which produce a stronger attitude of surprise than in yes/no questions. They will be discussed in Subsection 4.2.3.

4.2.1.2. *hič* questions

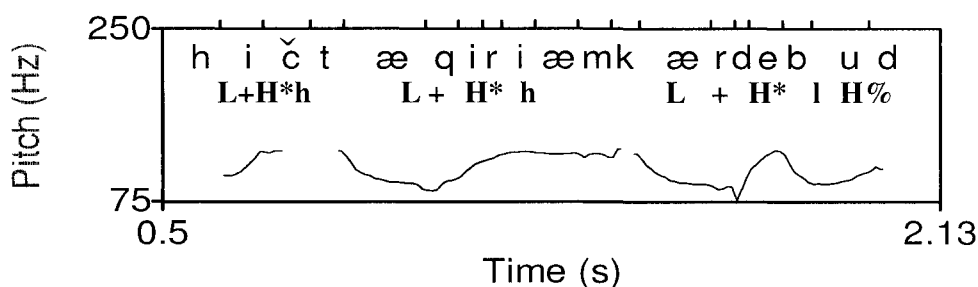
Before closing the subsection on yes/no questions, let us briefly discuss another word which appears in yes/no questions, the word *hič* with the literal meaning “nothing” (Bateni 1969, Sadeghi and Arjang 1986, Khanlari 2001). This word in fact functions like an adverb in yes/no questions and is the equivalent of “at all”. (71) is illustrative.

- (71) *hič* *tæqír-i-æm* *kærd-é-bud?*
 nothing change-IND-CL do.PAST-PART-be.PAST.3SG
 “Had it changed at all?”

hič is usually one AP with the pattern H* or L+H* (the latter when it occurs sentence initially) and it does not affect the basic intonation of the yes/no question it occurs in.

Figure 43 demonstrates this fact about Example (71).

Fig. 43: The yes/no question *hič tæqír-i-æm kærd-é-bud*
 “Had it changed at all?”



tæqír-i-æm+kærd-e-bud? is a neutral yes/no question with its typical pattern discussed above. The adverb *hič* has only added another AP in the form of L+H* with a high AP boundary tone, which is not the NPA of the utterance.

4.2.2. Tag questions

The most common tag question in Persian is in the form of the single word *næ* “no”, as exemplified by (72).

- (72) ba mæn mí-ay-n, næ?
with I DUR-come.PRES-2PL no
“You’re coming with me, aren’t you?”

The word *are* “yeah” can replace *næ*, though its usage is more limited. Tag questions can also consist of a verb with a polarity opposite to that of the pre-tag. For example, the above sentence can be used with the negative of the verb *mi-ay-n* in the tag question part, as given in (73).

- (73) ba mæn mí-ay-n, né-mi-ay-n?
with I DUR-come.PRES-2PL NEG-DUR-come.PRES-2PL
“You’re coming with me, aren’t you?”

Tag questions are intonationally realized as a separate Intonational Phrase. There are two reasons for this claim. First, each part of the sentence, i.e., pre-tag and tag, has a nuclear pitch accent of its own. For instance, in (73) above, the verbs bear the NPA, *mi-ay-n* for the pre-tag and *ne-mi-ay-n* for the tag. If the tag were in the same IP as the pre-tag, there would be no accented element in it since everything after the NPA is deaccented. Second, there is usually a small pause between the pre-tag and the tag, which

is one of the diagnostics for the existence of an IP break. This observation is supported by the use of a comma in writing before the tag question. So, the tag is in a separate IP with a separate NPA and the whole tag construction is an utterance consisting of two IPs.

With the above consideration, the intonational analysis of tags follows easily. The whole tag construction is a linear combination of two independent structures: a pre-tag which behaves like an ordinary declarative, and a tag which behaves like an ordinary yes/no question. Figures 44 and 45 contain the pitch tracks of the utterance in (72) and (73). Note the upstep on the H* of the verb which sometimes occurs with the verbal durative prefix *mi-*.

Fig. 44: The utterance *ba mæn mi-ay-n, næ* “You’re coming with me, aren’t you?” (tag question).

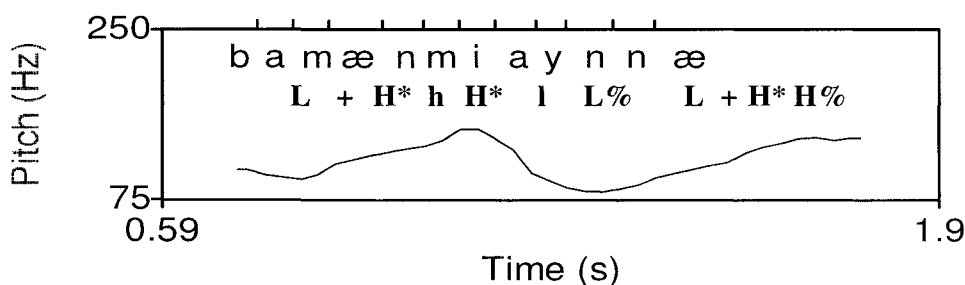
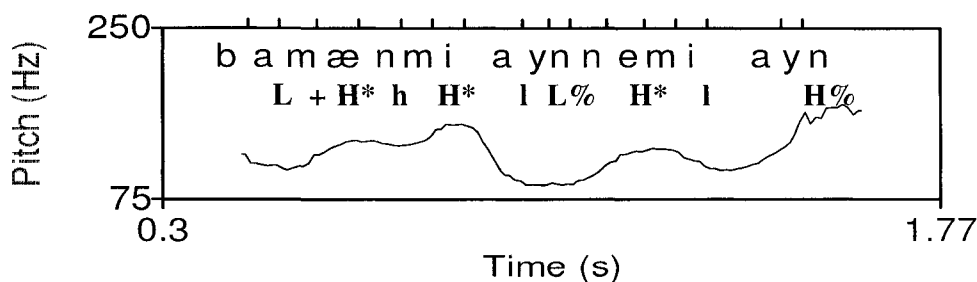


Fig. 45: The utterance *ba mæn mi-ay-n, næ-mi-ay-n* “You’re coming with me, aren’t you?” (tag question).



The pre-tag *ba mæn mi-ay-n* has the intonation of a normal declarative and the tag *næ* (Figure 44) or *næ-mi-ay-n* (Figure 45) is added to it as a separate IP having the pattern of

a yes/no question. Note that in the *næ* version, although *næ* is a monosyllabic content word, its pitch accent is L+H* since it is IP initial. Also in the same version, the low AP boundary tone of the tag is not realized because the AP ends in a stressed syllable (see Subsection 4.2.1.). The diagram in (74) summarizes the foregoing analysis.

(74)	Pre-tag		Tag		
		IP		IP	
		declarative intonation		yes/no question intonation	

To sum up the intonation of yes/no questions, these sentences have the basic pattern of a series of L+H* Accentual Phrases identical to declaratives but their Intonational Phrase boundary tone is H% and not L% as in declaratives. The location of the nuclear pitch accent is identical to that in declaratives and all the restrictions stated earlier for declaratives (e.g., specific/non-specific or unaccusative/unergative contrasts) are valid for yes/no questions as well. Yes/no questions have a higher pitch excursion on the nuclear pitch accent Accentual Phrase, an overall higher pitch register, and more final lengthening than declaratives. The particle *aya* can be added to a yes/no question in a more formal style, which is realized as an additional AP and does not influence the intonational phonology of the rest of the sentence. Leading (*mæge*) yes/no questions mostly end with a falling intonation like declaratives and the particle *mæge* is realized either as a separate AP or as part of the L of the following AP. The adverb *hič* “nothing” can be added to a yes/no question for emphasis and is assigned one AP. Tag questions are

composed of two IPs, the first behaving like a simple declarative and the second like a yes/no question.

The next subsection deals with questions having a WH-word, i.e., WH-questions.

4.2.3. WH-questions

WH-words in Persian, which include *ki* “who”, *či* “what”, *key* “when”, *čera* “why”, *koja* “where”, and *kodum* “which”, remain in situ in their unmarked order. Consider the unmarked declarative in (75).

- (75) bæčče-ha æz un mæqaze ketab xær-id-æn.
child-PL from that shop book buy-PAST-3PL
“The children bought books from that shop.”

This sentence has the order S PP O V (see Section 1.3.). Every element can be questioned about using a WH-word. Three of the possible WH-questions for (75) are given in (76) – (78).

- (76) ki æz un mæqaze ketab xær-id?
who from that shop book buy-PAST.3SG
“Who bought books from that shop?”

(77) bæčče-ha æz koja ketab xær-id-æn?
child-PL from where book buy-PAST-3PL

“Where did the children buy books from?”

(78) bæčče-ha æz un mæqaze či xær-id-æn?
child-PL from that shop what buy-PAST-3PL

“What did the children buy from that shop?”

As can be seen in the above examples, Persian WH-words *ki* “who”, *koja* “where”, and *či* “what” are in their normal position. Persian allows words and phrases to be topicalized for emphasis or other information structure considerations, and WH-words are no exception. The sentence in (79) exemplifies the topicalization of *či*. (For a minimalist account of the constraints on WH-movement see Karimi 2005.)

(79) či bæčče-ha æz un mæqaze xær-id-æn?
what child-PL from that shop buy-PAST-3PL

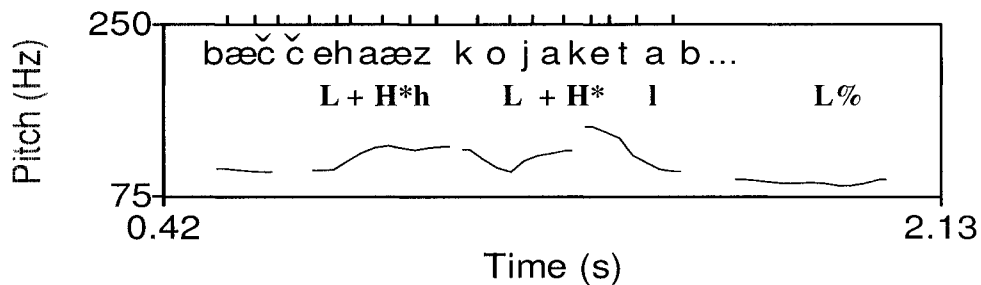
“What did the children buy from that shop?” OR

“What was it the children bought from that shop?”

So Persian is typologically neither a WH-in-situ language nor a syntactic WH-movement language (Kahnemuyipour 2001). On the one hand, WH-words *can* be moved from their original position, and on the other hand, their movement is not to satisfy syntactic well-formedness.

The WH-word is usually the most prominent word in the sentence as far as information structure is concerned. This is encoded in Persian in the location of the nuclear pitch accent: it is always on the WH-word. Let us examine the pitch contour of Example (77) in Figure 46.

Fig. 46: The WH-question *bæčče-há æz kojá ketab xær-id-æn*
 “Where did the children buy books from?”



An AP has been assigned to the WH-word *kojá* “where”. The subject noun phrase *bæčče-há* “children” takes one AP too (note that the preposition *æz* “from” which is usually low is realized high due to fast speech rate and is merged with the previous AP *bæčče-há*). Everything after the WH-word, i.e., *ketab xær-id-æn*, is deaccented. Similar to default declaratives, the IP and the utterance end low, marked with an L%.

There is often a pitch increase on the H of the WH-word AP, a phenomenon that stems from the focus nature of WH-words. Yet these words can be realized still higher if the WH-word is contrastively focused (see Chapter 6 for focus constructions).

Monosyllabic WH-words, e.g., *ki* “who”, and initially-stressed ones, e.g., *čera* “why” are realized as H*.

Due to the focus nature of WH-words, they cannot normally occur post-verbally, as illustrated by the ungrammaticality of (79).¹⁶

- (79) *bæčče-ha ketab xær-id-æn æz koja?
child-PL book buy-PAST-3PL from where

Intended to mean: “Where did the children buy books from?”

This is owing to the fact that the verb *xær-id-æn* triggers deaccentuation after it and does not allow the question word *koja* to form an AP, so this word must come before the verb. There are two cases, however, where it is possible for the WH-word to appear after the verb. The first is in adverbial/motion constructions (Subsection 4.1.2.). Recall that these constructions are not verb-final in default order. Example (80) is repeated from (62a).

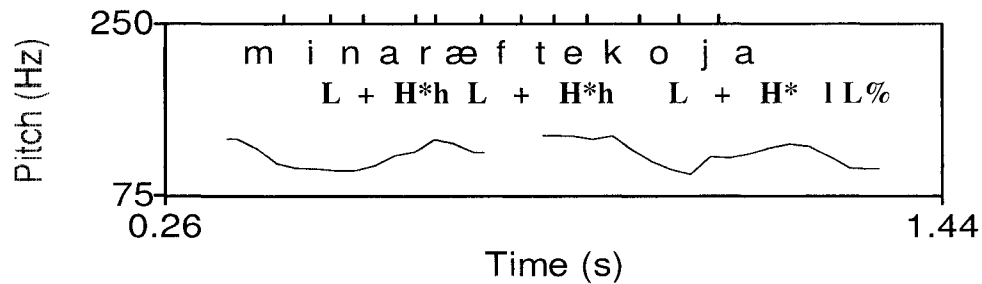
- (80) miná ræft-é xuné.
Mina go.PAST-PART.3SG home
“Mina has gone home.”

The word *xune* “home” is not deaccented and bears the NPA of the utterance. If a WH-question is asked about this word, the WH-word will normally appear after the verb *and* accented. Example (81) and Figure 47 are illustrative.

¹⁶ This sentence can be grammatical in a contrastive focus context (e.g., *ketab* “book” as opposed to *dæftær* “notebook” where *ketab* deaccents everything after it), which is irrelevant for the discussion at hand.

- (81) miná ræft-é kojá?
 Mina go.PAST-PART.3SG where
 “Where has Mina gone?”

Fig. 47: The utterance *miná ræft-é kojá* “Where has Mina gone?”
 (WH-question in adverbial/motion construction).

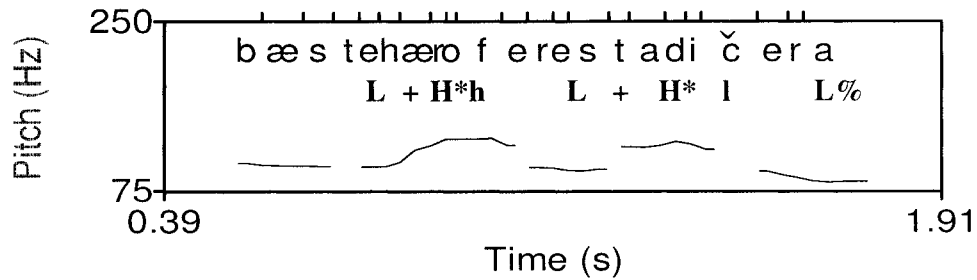


The WH-word *kojá* has occurred post-verbally but retained its AP structure and nuclear accent since it is in an adverbial/motion construction.

The second situation where a WH-word can follow the verb is with the WH-words *čera* “why” and *četoř* “how come”. Interestingly, these two WH-words are deaccented after the verb. (82) contains an example with *čera* with the pitch contour given in Figure 48.

- (82) bæste-hæ-ro ferest-ád-i čera?
 parcel-DEF-RA send-PAST-2SG why
 “Why did you send the parcel?”

Fig. 48: The WH-question *bæste-há-ro fersest-ád-i čera*
 “Why did you send the parcel?”

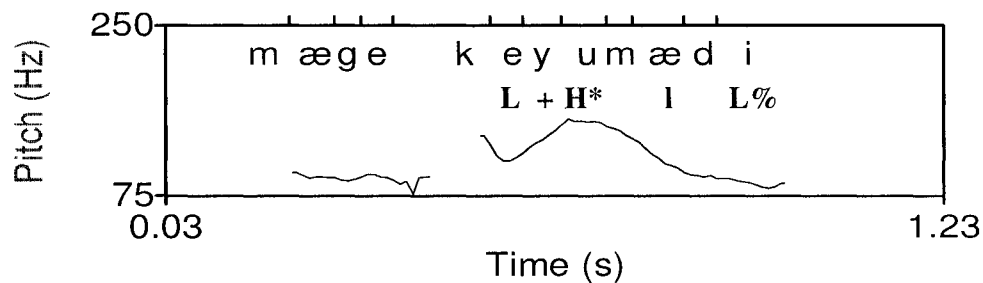


In Figure 48, which has the unmarked pronunciation of (82), the NPA is on the verb and this has forced the WH-word to deaccent. The reason for this odd and unique behaviour of these two WH-words is unclear at this point. I leave this question open for future research.

The particle *mæge*, studied in Subsection 4.2.1.1. under leading yes/no questions, can also occur in most WH-questions. Here, this particle connotes more surprise than expectation. An example is provided in (83) and Figure 49.

- (83) *mæge k^éy umæd-i?*
 PTC when come.PAST-2SG
 “When did you come then?” [With surprise]

Fig. 49: The utterance *mæge k^éy umæd-i* “When did you come then?”
 (WH-question with the particle *mæge*).



As in leading yes/no questions, *mæge* can form a separate AP or be (part of) the L of the next AP, without affecting the NPA (in the above figure it is part of the next AP). Similar to any simple WH-question, the NPA is on the question word *key* “when” after which the verb (*umæd-i*) is deaccented.

To summarize the intonational behaviour of WH-questions so far, these sentences are comprised of a series of Accentual Phrases with the pitch accent L+H*. The question word forms a separate AP which often bears the nuclear pitch accent of the utterance and its following elements are deaccented. There is a pitch increase on the H of the AP in the WH-word compared to the other nuclear pitch accent APs in declaratives. The Intonational Phrase ends in the lower part of the speaker’s range, hence marked with an L%.

We now move to questions that contain multiple WH-words.

4.2.3.1. Multiple WH-word questions

WH-questions in Persian can contain more than one WH-word. As in the case of single WH-word questions, the WH-words in a multiple WH-word question can remain in situ or can be topicalized. Consider Example (84) repeated from (75).

- (84) bæčče-ha æz un mæqaze ketab xær-id-æn.
 child-PL from that shop book buy-PAST-3PL
 “The children bought books from that shop.”

(85) contains two of the possible two-WH-word questions related to (84). The question words are italicized.

- (85) a. *bæčče-há* æz *kojá* *čí* xær-id-æn?
 child-PL from where what buy-PAST-3PL
 “What did the children buy from where?”
- b. æz *kojá* *bæčče-há* *čí* xær-id-æn?
 from where child-PL what buy-PAST-3PL
 “What did the children buy from where?”

(85a) has the question words *kojá* “where” and *čí* “what” in situ, while in (85b) *kojá* has been topicalized. Note that here we are not dealing with focussed elements, so a pair-listing interpretation is intended for both sentences. The relevant context can be that the children wanted to buy different things from different places and the questioner is asking what they bought and from where.

Now, consider the pitch tracks of the sentences in (85), which are given in Figures 50a and b.

Fig. 50a: The two-WH-word question *bæčče-há æz kojá čí xær-id-æn* “What did the children buy from where?” (in situ).

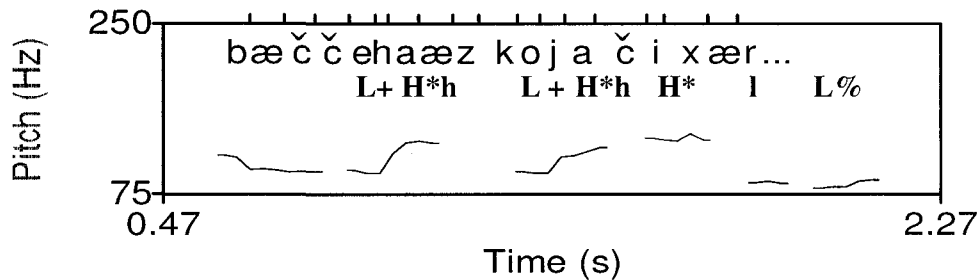
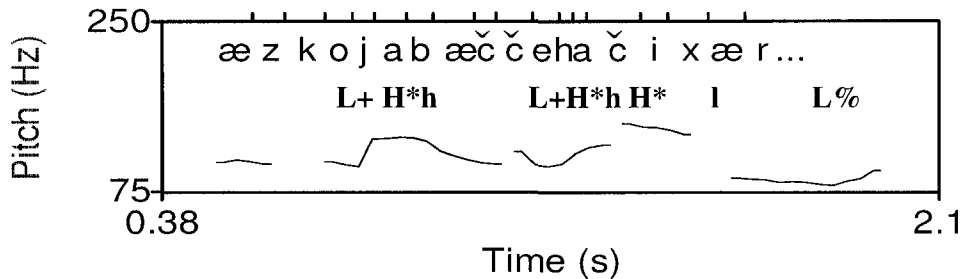


Fig. 50b: The two-WH-word question *æz kojá bæčče-há čí xær-id-æn*
 “What did the children buy from where?” (topicalized).

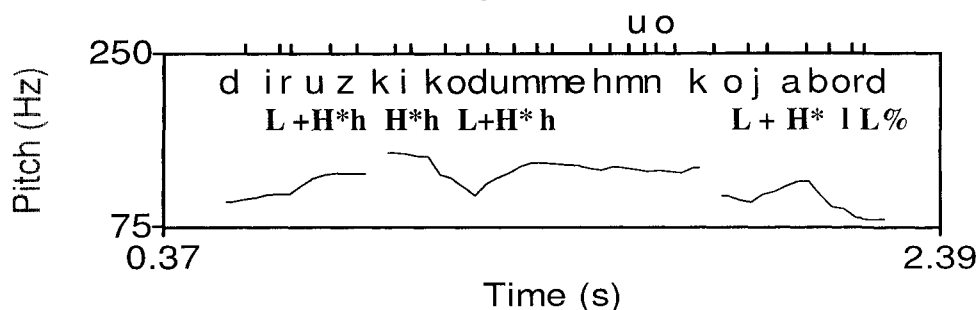


The intonational analysis is rather straightforward. Two-WH-word questions have a series of Accentual Phrases, the last of which is assigned to the second WH-word. This AP is the NPA of the utterance and naturally deaccents everything after it. The first WH-word acts like an ordinary AP and does not trigger deaccentuation. So in Figures 50a and 50b, *æz kojá* “from where” is an ordinary AP marked with L+H* pitch accent and boundary tone h. *čí* “what” being the second WH-word forms the last AP (realized as H*) with a low boundary tone and carrying the nuclear stress. Note that in Figure 50b, there is one non-WH-word AP (*bæčče-ha*) between the two WH-word APs which retains its AP status and is not deaccented after *æz kojá*.

There is no fundamental change when the utterance contains more than two WH-words, as illustrated in (86) and Figure 51.

- (86) *dirúz kí kodúm mehmun-o kojá bord?*
 yesterday who which guest-RA where take.PAST.3SG
 “Who took which guest where yesterday?”

Fig. 51: The three-WH-word question *dirúz kí kodúm mehmun-o kojá bord*
 “Who took which guest where yesterday?”



There are four APs in (86), the adverb *diruz*, the WH-word *ki*, the WH-determiner and its head *kodum mehmun-o*, and *koja* with the fourth being the NPA and having a low AP boundary tone. The Intonational Phrase boundary is L% as before. The second AP (*ki*) is realized as H* since it is monosyllabic. The head of the WH-determiner *mehmun-o* bears the high AP boundary tone.

Having investigated the behaviour of WH-questions with one or more question words, in the next section we turn to echo questions.

4.2.4. Echo questions

An echo question usually repeats all or part of what has just been uttered and asks for clarification or expresses surprise. An echo question is either in the form of a yes/no question or a WH-question and is segmentally identical to the neutral version of the question. An example of a yes/no echo question is given in (87). This sentence can be uttered in response to an utterance like “Sayeh bought me a car.”

- (87) sayé bərá-t mašín xær-id?
 Sayeh for-you car buy-PAST.3SG
 “Sayeh bought you a car?” [Echo question]

The intonation of yes/no echo questions is identical to that of contrastive focus constructions. The echo question above for instance has the same intonation as when the utterance is a non-echo question but the word *mašín* “car” is contrastively focused. For this reason, this type of echo question will be dealt with in Chapter 6 (Focus), and here we only study WH-echo questions.

There are no structural constraints on WH-echo questions and any WH-question can be used as an echo question. Let us look at Example (88).

- (88) arezú čí-ro ru miz gozašt?
 Arezu what-RA on table put.PAST.3SG
 “Arezu put what on the table?” [Echo question]

A speaker may ask this question if she hasn’t heard the object that Arezu put on the table in the previous discourse. There are two alternative intonations for (88). They are provided in Figures 52a and b.

Fig. 52a: The echo question *arezú čí-ro ru miz gozašt*
 “Arezu put what on the table?” (first alternative).

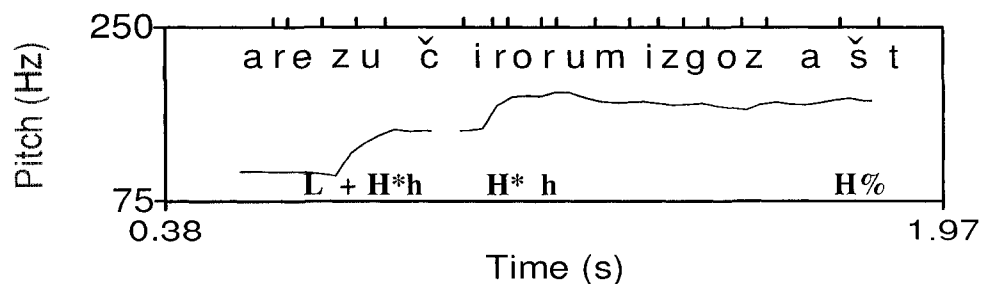
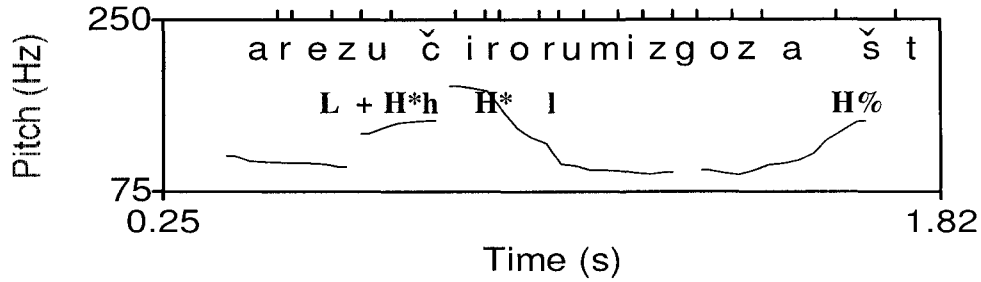


Fig. 52b: The echo question *arezu čí-ro ru miz gozašt*
 “Arezu put what on the table?” (second alternative).



Both alternatives have two APs, the first of which (the name *arezu* with the pattern L+H*h) is identical in the two. Also, the Intonational Phrase boundary tone for both alternatives is H%. The difference lies in the boundary tone of the second AP *čí-ro*. It is high for the first version and low for the second. This boundary tone, as mentioned in Section 3.2., spreads to the end of the IP.

There is a striking characteristic to note about each of the above alternatives. The first alternative is one of the only three instances in Persian intonation where the nuclear pitch accent AP of a simplex sentence has a high boundary tone (the other two instances are double focus constructions and vocatives studied in Chapters 6 and 7).

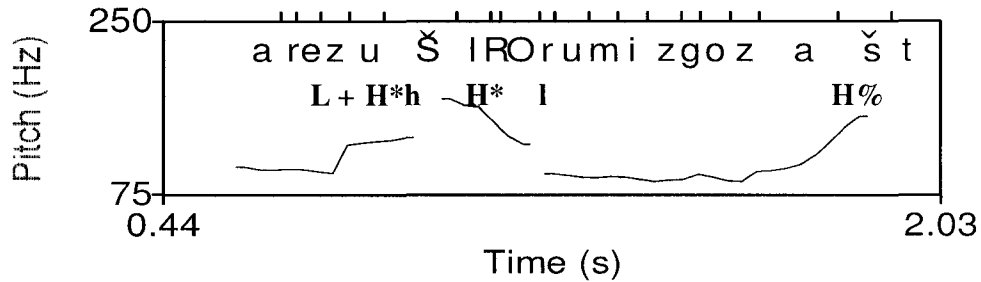
As for the second alternative, it has an intonation pattern identical to that of yes/no questions. This point is illustrated with Example (89) and Figure 53.

(89) arezú ŠÍR-O ru miz gozašt?

Arezu milk-RA on table put.PAST.3SG

“Did Arezu put THE MILK on the table?”

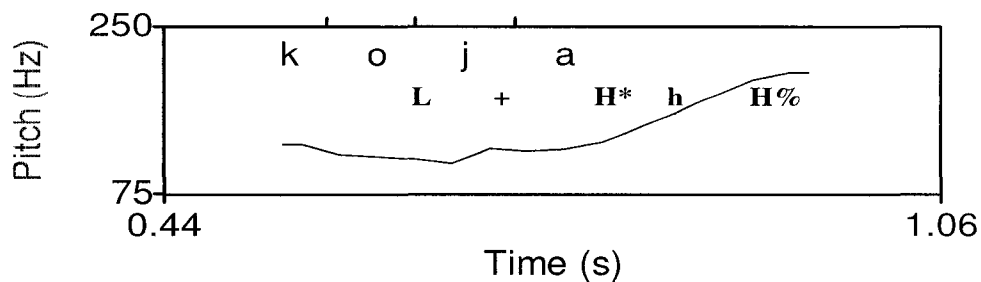
Fig. 53: The yes/no question *arežú ŠÍR-O ru miz gožašt*
 “Did Arezu put THE MILK on the table?”



(89) and (88), a yes/no question (in this example with a focused direct object) and a WH-echo question respectively, which are segmentally almost equal, share the same intonation contour. This characteristic makes the second version of WH-echo questions susceptible to the same constraint that existed for yes/no questions: if the utterance ends with a stressed syllable, the (final) low AP boundary tone is not realized. As a result, WH-echo questions ending with a stressed syllable can only have one alternative, namely the one with a high AP boundary tone for the final AP. An example of such WH-echo questions is given in (90) and Figure 54.

- (90) kojá?
 where
 “Where?” [Echo question]

Fig. 54: The echo question *kojá* “Where?”



As can be seen, there is no room between the H* and the H% for a low AP boundary tone to realize and consequently the high AP boundary tone takes over. Thus, the second syllable of *koja* is associated with H*, h, and H%. In such a situation, the difference between the two alternative intonations of WH-echo questions is neutralized in favour of the version with a high AP boundary tone.

In sum, WH-echo questions can have one of the representations in (91).

- (91) a. ((L+)H* h)ⁿ H% n = 1,2,3,...
 b. ((L+)H* h)ⁿ (L+)H* l H% n = 0,1,2,...

In (91a), all the Accentual Phrases, including the nuclear one, have a high boundary tone. In (91b), the final AP has a low boundary tone. WH-echo questions whose final syllable is stressed cannot have the option in (91b) since there is no docking site in them for the l.

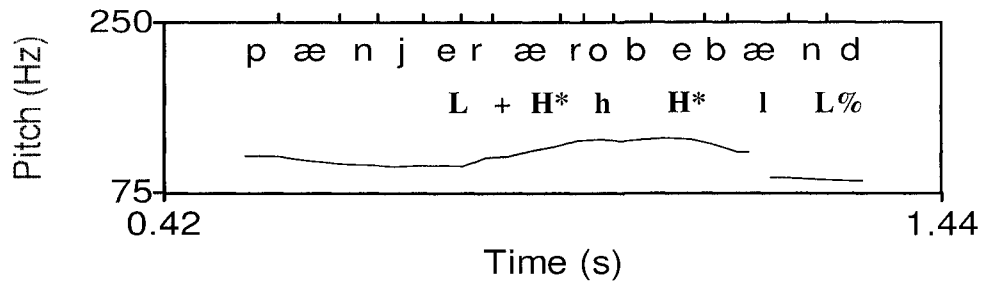
4.3. Imperatives

Imperatives are formed with the stressed prefix *be-/bo-* added to the present stem of the verb. They use two persons, second person singular and plural and they have no overt subject. (92) contains an example.

- (92) pænjeræ-ro bé-bænd!
 window-RA IMP-close.PRES.2SG
 “Close the window!”

The intonation pattern of imperatives is identical to that of declaratives as evidenced by the pitch contour of (92) in Figure 55.

Fig. 55: The imperative *pænjeræ-ro bé-bænd* “Close the window!”



The direct object forms one Accentual Phrase with a high boundary tone, and the verb, which is the NPA, forms another with a low boundary tone. The imperative ends low in the speaker’s range marked by L%. This pattern is the same as a corresponding declarative such as (93).

- (93) L+H* h H* l L%
- pænjeræ-ro bæst-æm.
- window-RA close.PAST-1SG
- “I closed the window.”

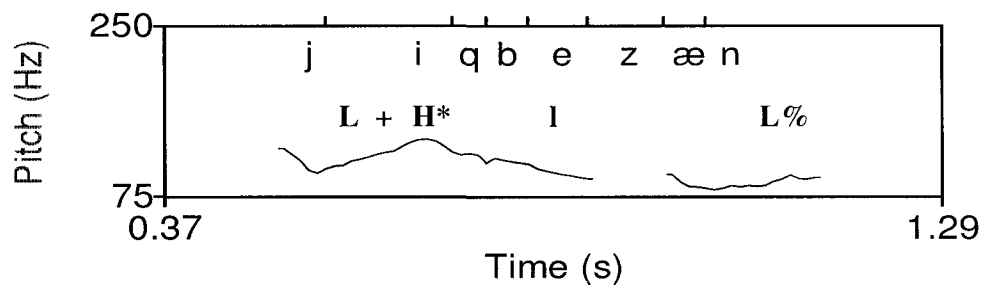
All the constraints stated earlier regarding the NPA location of declaratives (specific/non-specific contrasts, unaccusative/unergative contrasts) hold for imperatives too. So for instance, the non-specific direct object in (94) below, i.e., *xune* “house”, attracts the NPA.

- (94) xuné be-xær!
house IMP-buy.PRES.2SG
“Buy a house!”

The imperative form of compound verbs in unmarked pronunciation is stressed on the non-verbal element and not on the prefix *be-*, as exemplified in (95) and Figure 56.

- (95) jíq+be-zæn!
scream+IMP-hit.PRES.2SG
“Scream!”

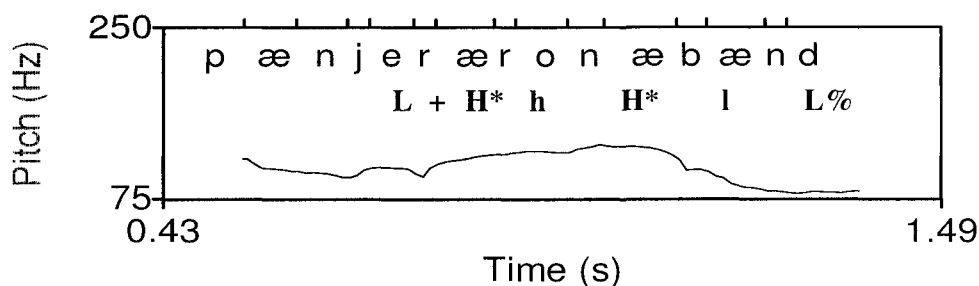
Fig. 56: The imperative *jíq+be-zæn* “Scream!” (with a compound verb).



Negative imperatives replace the stressed negative marker *næ-* for *be-*, but are otherwise, segmentally and intonationally, unchanged. The negative of (92) and its pitch track are given in (96) and Figure 57.

- (96) pænjeræ-ro næ-bænd!
window-RA NEG-close.PRES.2SG
“Don’t close the window!”

Fig. 57: The negative imperative *pænjeræ-ro nê-bænd* “Don’t close the window!”



The word *lotfæn* “please” can be added to an imperative to increase the degree of politeness. There is no restriction on the location of this word in the sentence and as long as it occurs before the NPA, it is realized as an L+H*h AP. (97) is illustrative.

- (97) L+H*h L+H* h H* l L%
- lotfæn pænjeræ-ro bê-bænd!
- please window-RA IMP-close.PRES.2SG
- “Please close the window!”

4.4. Chapter summary

The intonation patterns of declaratives, interrogatives, and imperatives were investigated in Chapter 4. All three types contain one or more Accentual Phrases with the boundary tone l or h. It is usually the case that a nuclear pitch accent AP has a low boundary tone and a non-nuclear one has a high boundary tone, although echo questions are exceptions in this regard since (in one of their versions) the boundary tone of the NPA AP is high. All three sentence types end with an Intonational Phrase boundary tone. This tone is L% for declaratives, most leading questions, WH-questions, and imperatives, and H% for

yes/no questions, *hič* questions, and echo questions. Tag questions can be analyzed as two IPs, the first with the pattern of a declarative and the following with that of a yes/no question.

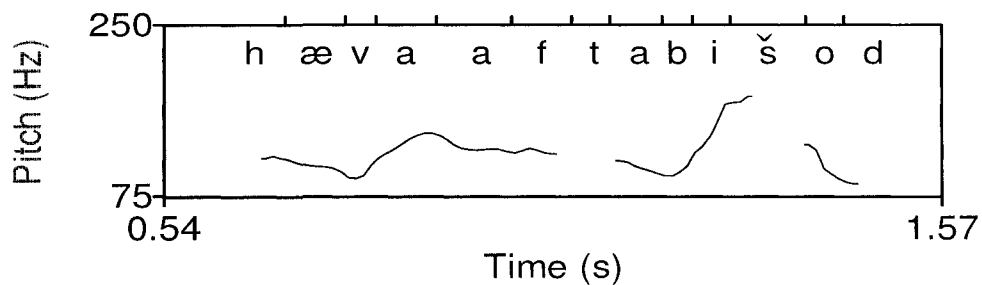
There are similar syntactic and information structure constraints as to the location of the NPA in all three types. In copular constructions, it is on the final element of the complement. In unergatives and unaccusatives, the NPA goes on the verb and on the final element on the subject respectively. Specificity plays a role in the NPA location: specific elements are non-nuclear. Arguments, as opposed to adjuncts, usually attract the nuclear accent of the utterance. Adverbial/motion constructions are nuclear pitch accented on the post-verbal element. In WH-questions, the WH-word forms a separate AP and is the nuclear accent, thus, everything after this AP is deaccented. Multiple WH-questions have more than one question word, all of which except the last are ordinary non-nuclear APs. The last question word carries the NPA and causes deaccentuation. Imperatives have the same intonation and NPA location as those of declaratives. The presence of a negative verb in Persian causes the NPA to go on the verb AP. This factor has priority over all the above-mentioned factors in attracting the NPA.

Other than the different sentence types studied so far, i.e., declarative, interrogative, and imperative, there is another sentence type discussed in the literature, exclamations. These sentences, which take a variety of forms in Persian, express diverse emotions such as surprise, anger, joy, and disgust. The assignment of the title “exclamation” to these sentences seems to be related more to the semantics and pragmatics rather than the syntax of such sentences, and no unique intonational structure is involved in them. Two examples are given in (98).

- (98) a. *čé adám-e jaléb-i hæst-i!*
 what person-EZ interesting-IND be.PRES-2SG
 “What an interesting person you are!”
- b. *hævá aftabí šod!*
 weather sunny become.PAST.3SG
 “The weather got sunny!”

In (98a), the question word *čé* adds an element of surprise to the semantics of the sentence. The sentence in (98b) is segmentally identical to an ordinary (non-exclamation) copular construction, but intonationally different from it, as shown in Figure 58.

Fig. 58: The exclamation *hævá aftabí šod* “The weather got sunny!”



The above contour shares the basic elements of its ordinary copular counterpart, i.e., the existence of two L+H* APs, with the second being the NPA. The difference, which stems from the emotion involved in the utterance, lies in the phonetic implementation. For instance, the exclamation has more excursion on both its APs, its NPA AP is extraordinarily higher, and the utterance exhibits a higher overall pitch register. The intonational analysis of exclamations, therefore, requires a detailed study of speaker affect and attitude for different constructions, which falls outside the scope of the present

work (except for the impact of anger and surprise on calls which has been systematically studied in Chapter 7). For this reason, exclamations are put aside from this thesis and are left for future research.

Chapter 5 The intonation patterns of Persian – compound and complex sentences: coordination and subordination

In the previous chapter, we investigated the intonation patterns of simplex sentences in Persian. This chapter is dedicated to sentences that consist of more than one clause. Such sentences are of two types, compound sentences and complex sentences. We start with compound sentences.

5.1. Compound sentences – coordination

Compound sentences comprise at least two matrix clauses that are coordinated by means of one or more conjunctions. Unlike in complex sentences (Section 5.2.), there is no dependency or subordination relation between the two clauses of a coordinate structure. Also note that here we are dealing with coordinate *clauses*. Other phrase types, e.g., noun phrases or adjective phrases, can be coordinated in Persian too but they fall in the domain of simplex sentences. To clarify this issue, consider (99) which contains coordinated subject noun phrases.

- (99) šagerd-a-o mo'ællem-a ba hæm sohbæt+kærd-æn.
student-PL-and teacher-PL with each other talk+do.PAST-3PL
“The students and the teachers talked with each other.”

The enclitic *-o* “and” is a conjunction which has conjoined the two NPs *šagerd-a* “students” and *mo'ællem-a* “teachers”. As stated in Subsection 3.1.1., an enclitic

becomes part of the Accentual Phrase of its host and bears the boundary tone of this AP. So in (99), the first noun phrase (*šagerd-a*) forms an AP together with the clitic *-o*. The tonal pattern of (99), a simplex sentence with coordinated noun phrases, is given in (100).

(100) L+H* h L+H*h L + H*h L +H* l L%

 šagerd-á-o mo'ællem-á ba hám sohbát+kærd-æn.

After this small clarification, we begin our discussion of coordinated sentences with their prosodic structure. Let us show a coordinated structure with (101), where C and CONJ stand for clause and conjunction respectively.

(101) C1 CONJ C2

I argue that the two clauses C1 and C2 are realized as two separate Intonational Phrases. The conjunction is either part of the first IP (if it is a clitic) or part of the second IP (if it is in full form). I rely on three pieces of evidence for claiming that C1 and C2 are separate IPs. The first two are phonetic reasons: an amount of pause at the end of the first clause (sometimes represented by a comma in writing), and a certain degree of vowel lengthening there compared to when the same segments are used in the middle of one single IP. As mentioned earlier, these are two of the phonetic determiners of an Intonational Phrase break. The third reason is related to prominence facts. The whole structure in (101) has two prominent elements, one before the conjunction and one after. In other words, each clause in (101) has a different nuclear pitch accent, which testifies to

their each being a separate IP (double focus constructions have exceptionally two NPAs in one IP, which is due to the fact that focused elements are inherently more prominent than other elements, see Chapter 6).

The most common conjunctions in Persian are the coordinating conjunction *væ* “and” (and its less formal counterpart the enclitic *-o*), the adversative conjunctions *væli* “but” and *æmma* “but”, and the disjunctive conjunction *ya* “or” (Mahootian 1997).

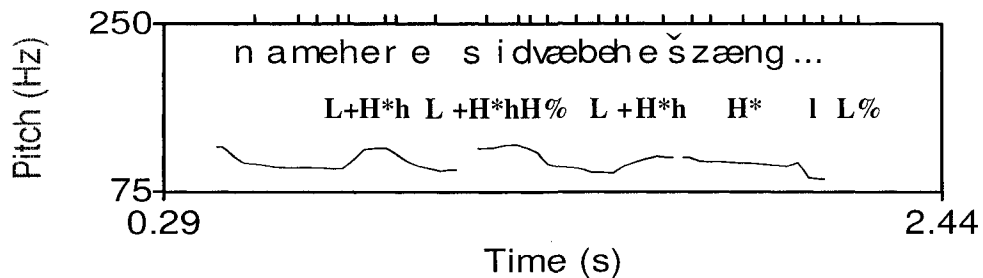
Below, we deal with each of them separately.

The coordinating conjunction *væ* “and” in its full form is seen more in the formal style but it is also used in conversational Persian. (102) contains an example consisting of two clauses conjoined with “and”.

- (102) name-hé res-íd *væ* be-héš zæng+zæd-æm.
 letter-DEF reach-PAST.3SG and to-him/her bell+hit.PAST-1SG
 “The letter arrived and I called him/her.”

The pitch track of this sentence is given in Figure 59.

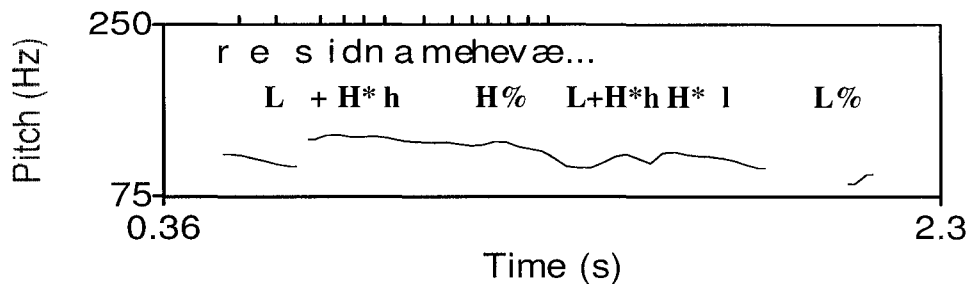
Fig. 59: The utterance *name-hé res-íd væ be-héš zæng+zæd-æm* “The letter arrived and I called him/her” (sentences coordinated with *væ*).



The second IP has its ordinary status, i.e., a group of Accentual Phrases with the last being the NPA. The conjunction *væ* is realized as part of the low of the following AP (here part of the prepositional phrase *be-heš* “to him/her”). The IP preceding the conjunction contains a series of APs and ends at a high level before the conjunction with an H%. The H% gives the first IP its “incomplete” character leaving the listener in expectation of what is more to come. The boundary tone of the last AP of the first IP, which is the NPA of this IP, is high similar to the previous ones. If there are more syllables between the NPA AP and the conjunction, as exemplified in (103) and Figure 60, they are all pronounced high due to the spreading of the AP boundary tone.

- (103) res-íd name-he væ be-héš záng+zæd-æm.
 reach-PAST.3SG letter-DEF and to-him/her bell+hit.PAST-1SG
 “The letter arrived and I called him/her.”

Fig. 60: The utterance *res-íd name-he væ be-héš záng+zæd-æm*
 “The letter arrived and I called him/her.”



In Figure 60, the high boundary tone of the AP *res-íd* “arrived” has spread to *name-he* “the letter” (with an amount of declination), leaving this NP without any pitch accent. The deaccentuation comes to an end with the L+H* AP (*væ*) *be-heš* “and to him/her”, a fact which is additional support for the two-IP analysis of conjoined sentences: the

beginning of the second IP ends the deaccentuation effect in the first IP. (104)
schematically summarizes the intonation pattern of clauses conjoined with *væ* “and”.

(104) C1 CONJ C2
IP1 | IP2
 $((L+)H^*h)^m H\%$ $((L+)H^*h)^n (L+)H^*l L\%$ $m = 1, 2, \dots$ $n = 0, 1, \dots$
(m and n are independent)

All the APs of IP1 have a high boundary tone and the IP ends high. IP2, which includes the conjunction (in full form), behaves like an ordinary simple declarative shown here with an $L\%$ ending a series of APs whose tonal patterns are as discussed before (i.e., all with a high boundary tone except the last which has a low boundary tone).

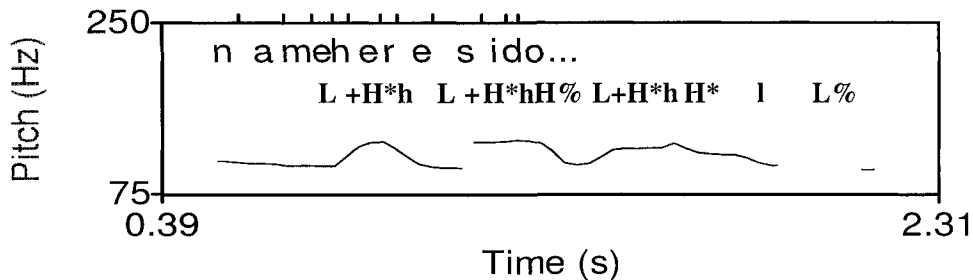
There is no change if the two conjoined clauses are WH-questions. Each question is one IP and the NPA in each IP goes on the WH-word, after which there is deaccentuation up to the IP end. This is exemplified in (105).

(105) $L+H^*h$ $H\%$ $L+H^*l$ $L\%$
kojá ræft-c-bud-æn *væ* kéy telefon+kærd-æn?
where go.PAST-PART-be.PAST-3PL and when telephone+do.PAST-3PL
“Where had they gone and when did they call?”

If the conjunction *væ* “and” is cliticized to the previous word, it takes the form *-o* and bears the high boundary tone of the final AP of IP1. (106) is the cliticized version of (102) whose contour is given in Figure 61.

- (106) name-hé res-íd-o be-héš zæng+zæd-æm.
 letter-DEF reach-PAST.3SG-and to-him/her bell+hit.PAST-1SG
 “The letter arrived and I called him/her.”

Fig. 61: The utterance *name-hé res-íd-o be-héš zæng+zæd-æm* “The letter arrived and I called him/her” (cliticized “and”).



The clitic *-o* has received the high boundary tone of the AP *res-id*.

The adversative conjunctions *væli* and *æmma* both meaning “but” are initially-stressed words which form H* Accentual Phrases. The choice of one or the other does not change the intonation pattern. These conjunctions begin the second Intonational Phrase. Clauses conjoined by adversative conjunctions can have two intonation patterns. The first is identical to *væ* compound sentences, i.e., IP1 has a high boundary tone and it includes the clause before the conjunction with all of its APs having a high boundary tone. IP2 starts with the conjunction and acts like a normal simple declarative (schematic representation in (104)). The second version of *væli/æmma* compound sentences differs in IP1: it is intonationally the same as IP2, that is, the last AP has a low boundary tone

and the IP ends with an L% boundary tone. (107) is an example of two clauses conjoined with *væli* “but” whose two intonational versions appear in Figures 62a and 62b.

- (107) umæd-é-bud *væli* *sohbæt+næ-kærd-im*.
 come.PAST-PART-be.PAST.3SG but talk+NEG-do.PAST-1PL
 “S/he’d come but we didn’t talk.”

Fig. 62a: The utterance *umæd-é-bud væli sohbæt+næ-kærd-im* “S/he’d come but we didn’t talk” (sentences coordinated with *væli*, first alternative).

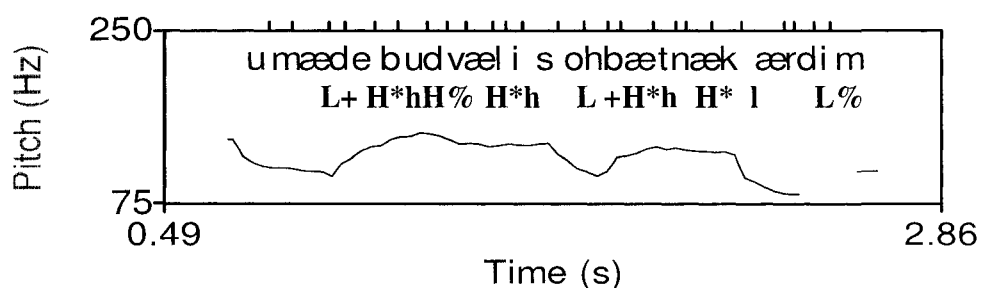
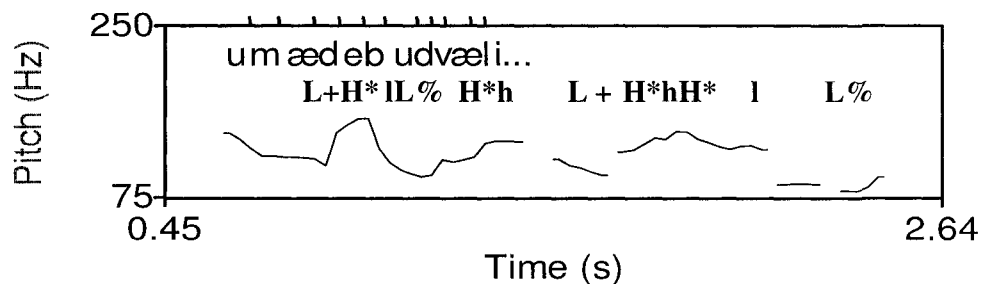


Fig. 62b: The utterance *umæd-é-bud væli sohbæt+næ-kærd-im* “S/he’d come but we didn’t talk” (sentences coordinated with *væli*, second alternative).



The first version (Figure 62a) is very similar to Figure 59 (*væ*), only the conjunction (*væli*) is itself an independent AP because it is initially-stressed. The second version (Figure 62b) has the intonation pattern of two simple declarative sentences (two IPs) put together, with the conjunction being the first AP of the second IP. The occurrence frequency of the two alternatives is almost equal in my data. The deciding factor for one

alternative over the other is the information packaging of the utterance. When both sentences end low (L%), the propositional contents of the two conjoined clauses are of the same degree of importance (alternative 2), but when C1 ends high (H%) and C2 low (L%), the speaker is attaching more importance to the second clause, and by using H% she is signalling to the listener to be ready for the next chunk of information (alternative 1).

The disjunctive conjunction *ya* “or” is commonly used in declaratives as schematized in (108).

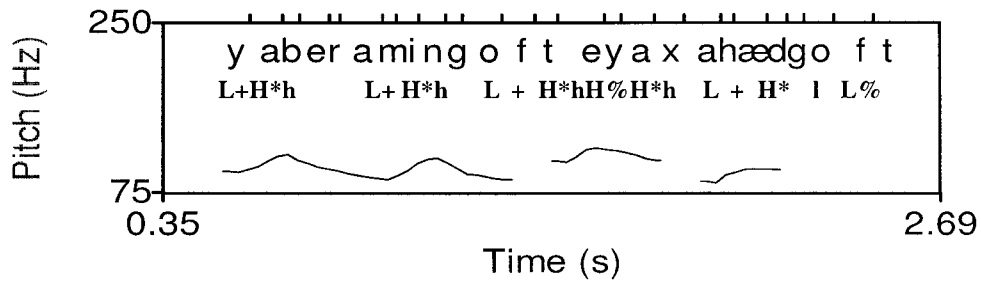
(108) *ya* C1 *ya* C2

In (108), C1 and C2 are independent clauses. (*ya* can also occur in questions forming an “alternative question” which will be discussed shortly.) Consider the conjoined declaratives in (109).

(109) *yá* *be* *ramín* *goft-é* *yá* *xah-æd-goft*.
 or to Ramin say.PAST-PART.3SG or want.PRES-3SG-say
 “Either s/he’s told Ramin or will tell [him].”

The intonation pattern of *ya ... ya* conjoined declaratives is similar to other compound sentences studied so far. Figure 63 testifies to this claim.

Fig. 63: The utterance *yá be ramín goft-é yá xah-áed goft*
 “Either s/he’s told Ramin or will tell [him]” (coordination with *ya*).



The boundary tones of the two Intonational Phrases are high and low respectively. The first conjunction is an L+H* Accentual Phrase (since it is utterance initial) and the second is an H* AP.

The disjunctive conjunction *ya* can form what is known in the literature as “alternative questions” (Mahootian 1997, Rezai 2003). (110) contains an example.

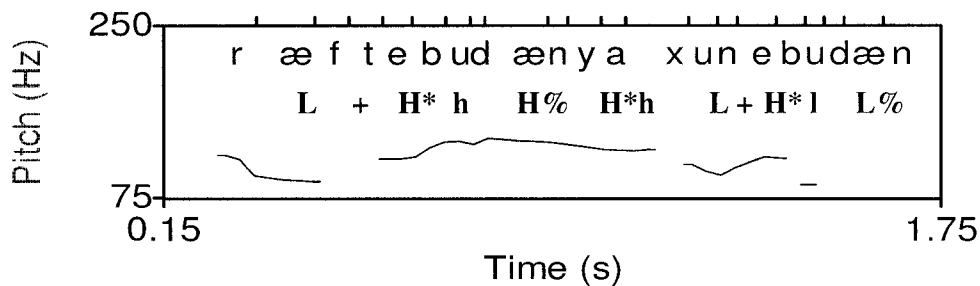
- (110) ræft-e-bud-æn *ya* næ?
 go.PAST-PART-be.PAST-3PL or no
 “Had they left or not?”

The respondent to alternative questions selects between two contrastive propositions. The part after *ya* can be expanded to include a clause semantically contrastive to the clause before *ya*, as exemplified in (111).

- (111) ræft-é-bud-æn *yá* xuné bud-æn?
 go.PAST-PART-be.PAST-3PL or home be.PAST-3PL
 “Had they left or were they home?”

Alternative questions behave intonationally in the following way. The pre-conjunction clause has either the “incomplete” intonation pattern, i.e., an IP with a series of APs all having a high boundary tone and ending with an H%, or (less frequently) the intonation of an ordinary yes/no question. The post-conjunction part behaves like a normal declarative. To illustrate, the more frequent intonation of (111) is given in Figure 64.

Fig. 64: The alternative question *ræft-é-bud-æn yá xuné bud-æn*
 “Had they left or were they home?”



The clause *ræft-e-bud-æn* is one IP ending with H% and consisting of one AP with a high boundary tone. The conjunction and the next clause (*ya xune bud-æn*) form the second IP with a normal declarative intonation. The conjunction *ya* has been realized high and forms a separate AP (although in faster speech it becomes part of the previous AP).

Apart from the conjunctions studied above, i.e., *va* “and” (cliticized as *-o*), *væli* “but”, *æmma* “but”, and *ya* “or”, Persian has several other less frequent conjunctions which for the most part do not exhibit any unique intonational behaviour. There should only be a mention of conjunctions that are “inherently emphatic” (Mahootian 1997), among them *hæm ... hæm* “both ... and” [literally “too ... too”].¹⁷ Although such conjunctions do not result in a different intonation contour, they affect the location of the nuclear pitch accent. An example is given in (112).

- (112) L+H*^h L+H*^h H% H*^h H*^l L%
- háem hævá aftabi bud háem šæhr-eš qæšæng bud.
- too weather sunny be.PAST.3SG too city-CL beautiful be.PAST.3SG
- “Both the weather was sunny and the city was beautiful.”

The NPAs of the first and second clauses when used as independent declaratives are on the complements *aftabi* “sunny” and *qæšæng* “beautiful” respectively, but the conjunctions *háem ... háem* have caused the elements to their immediate right, i.e., *hæva* “weather” and *šæhr* “city” to attract the prominence.

If the number of coordinated clauses is more than two, the basic intonation does not change. The “incomplete” pattern persists for all IPs except the last, and the last IP ends with low AP and IP boundary tones (l L%). (113) is illustrative.

- (113) L+H*^h L+H*^h H*^h H% L+H*^h L+H*^h H%
- aqá-ye emamí-ro díd-æm-o ba-háš sohbæt+kærd-æm-o
- mister-EZ Emami-RA see.PAST-1SG-and with-him talk+do.PAST-1SG-and
- L+H*^h L+H*^l L%
- belæxaré qæbúl+kærd.
- finally accepted+do.PAST.3SG
- “I saw Mr. Emami, talked to him, and he finally accepted.”

The first two IPs *aqá-ye emamí-ro díd-æm-o* and *ba-háš sohbæt+kærd-æm-o* end with

¹⁷ In some contexts, the conjunctions *ya ... ya* behave in this emphatic way too.

h H% and the third with l L%.

Coordinated clauses may also follow one another without conjunction (Lazard 1992), in which case the intonation is not different from the same utterance with a conjunction. (114) contains an example.

- (114) L+H*^h L+H*^h H% L+H*^h H*^l L%
- čǎend-ta-š-o uná xord-æn bæqiyǎ-š-æm mǎn xord-æm.
- several-CLS-CL-RA they eat.PAST-3PL rest-CL-CL I eat.PAST.1SG
- “They ate some of them [and] I ate the rest.”

The second clause (*bæqiyǎ-š-æm mǎn xord-æm*) immediately follows the first (*čǎend-ta-š-o una xord-æn*). Identical to when there is *vǎ* “and” between the two clauses, the intonation pattern of the compound sentence in (114) consists of two IPs, the first having h-boundary-toned APs and an H%, and the second being an ordinary declarative.

5.1.1. Section summary

In this section, the intonation pattern of coordinated clauses was investigated. These sentences basically have as many Intonational Phrases as the number of conjoined clauses. All IPs are comprised of a series of APs (realized differently as H* or L+H*). All the IPs except the last end with a high IP boundary tone (H%) preceded by a high AP boundary tone (h). This creates a sense of incompleteness and leaves the listener waiting for more. The last IP is a simple declarative with a low boundary tone (L%) preceded by a low AP boundary tone (l). Each IP in conjoined clauses contains a separate NPA.

Coordinated sentences with the adversative conjunctions *væli* “but” or *æmma* “but” have their first IPs sometimes realized with a low AP and IP boundary tone (i.e., 1 L%), which adds to the newness of the propositional content of their IP. Some semantically-loaded conjunctions, such as *hæm ... hæm* “both ... and” change the NPA of the clause. The conjunction *ya* “or” can form “alternative questions” where the listener can select between two contrasting propositions in her response. The intonation of such questions does not usually differ from other conjoined clauses, although occasionally the pre-conjunction question can have a yes/no question intonation.

Having discussed coordinate sentences, in the next section we deal with subordinate structures.

5.2. Complex sentences – subordination

There are at least two clauses in a complex sentence, the main clause and the subordinate clause, the latter being structurally dependent on or subordinate to the former.

Subordinate clauses can be adjective clauses (relative clauses), noun clauses, or adverb clauses (Lazard 1992), which are subordinate clauses functioning as an adjective, a noun, and an adverb respectively.¹⁸ We study the intonation of Persian complex sentences containing the above three categories. We start our discussion with relative clauses.

5.2.1. Adjective clauses (relative clauses)

Relative clauses are postnominal in Persian, i.e., they follow the noun they modify, and are introduced by the relative marker *ke*. An example is provided in (115) (the relative clause is italicized).

- (115) *livan-a-i ke ru miz bud.*
glass-PL-DEM REL on table be.PAST.3SG
“The glasses that were on the table.”

In (115), *livan-a* “glasses” is the head noun, which is modified by the relative clause *ke ru miz bud*. The suffix *-i* makes the relative clause restrictive, that is, it limits the set of possible objects the head noun can refer to. The head noun and the relative clause in (115) are used in a complex sentence in (116).

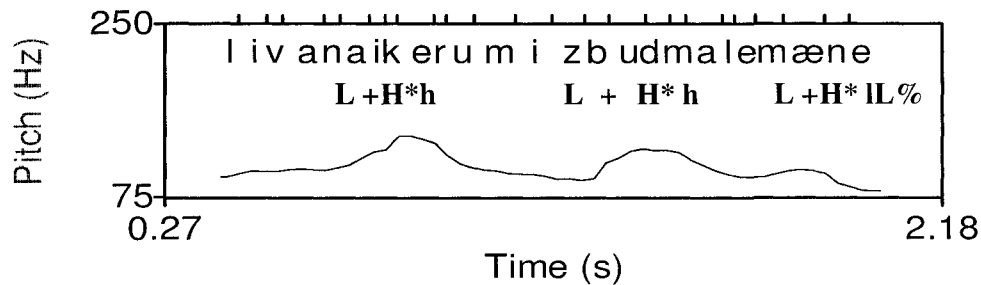
- (116) *livan-á-i ke ru miz búd mal-e máen-e.*
glass-PL-DEM REL on table be.PAST.3SG property-EZ I-is
“The glasses that were on the table are mine.”

As a general, though not unbreakable, rule, a (short) relative clause is realized as one Accentual Phrase with the pattern L+H* with the H* associating with the final

¹⁸ The term “noun clause” is more employed in traditional grammars. I have intentionally kept the traditional term to contrast it with other subordinate clauses (i.e., adjective clauses and adverb clauses),

syllable, which is the stressed syllable in relative clauses, and a complex sentence containing a relative clause forms one single Intonational Phrase with one nuclear pitch accent. It is more likely to get larger APs in relative clauses than in main clauses. Let us see these points in Figure 65, which displays the pitch contour of (116).

Fig. 65: The utterance *livan-á-i ke ru miz búd mal-e mæn-e*
 “The glasses that were on the table are mine.”



The relative marker *ke* is cliticized to the head noun and becomes part of its AP. It bears the AP’s high boundary tone and like other clitics, it is realized higher than the H* (in slower speech, *ke* becomes part of the L of the Accentual Phrase that the relative clause forms).¹⁹ The relative clause AP boundary tone in Figure 65 is high since that AP is not the NPA of the utterance; the NPA is on the AP *mæn-e* with a low boundary tone.

The NPA of a complex sentence containing a relative clause can fall on the AP of the relative clause too. This basically depends on the prominence status of the head noun. For example in (117), the head noun *ketab* “book” is a non-specific direct object (recall that non-specific direct objects receive prominence and specific ones do not) and so the

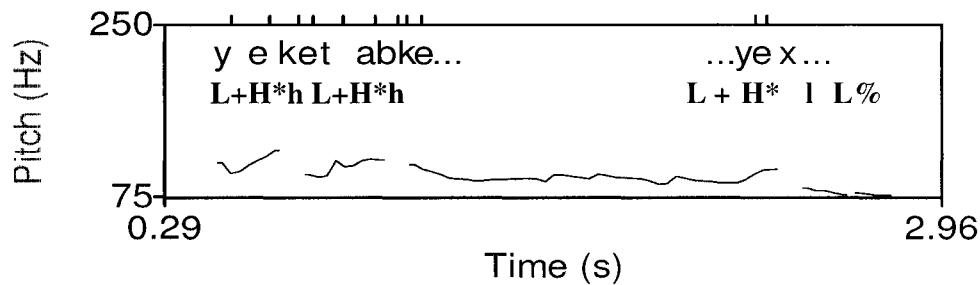
since the three categories (and the subcategories within them) show unique intonational properties.

¹⁹ There is a possibility that the head noun (*livan-a-i*) and the relative clause (*ke ru miz bud*) together form one single AP. As already mentioned, this can be the result of information structure considerations. Such a phrasing occurs for instance when *livan-a-i ke ru miz bud* “the glasses that were on the table” is given information.

relative clause modifying it receives prominence and becomes the NPA. As a result, the main verb (*xær-id-æm*) is deaccented (Figure 66).

- (117) *yé ketáb ke dær mored-e baqdari-yé xær-id-æm.*
 a book REL in case-EZ gardening-is buy-PAST-1SG
 “I bought a book that is about gardening.”

Fig. 66: The utterance *yé ketáb ke dær mored-e baqdari-yé xær-id-æm* “I bought a book that is about gardening.”

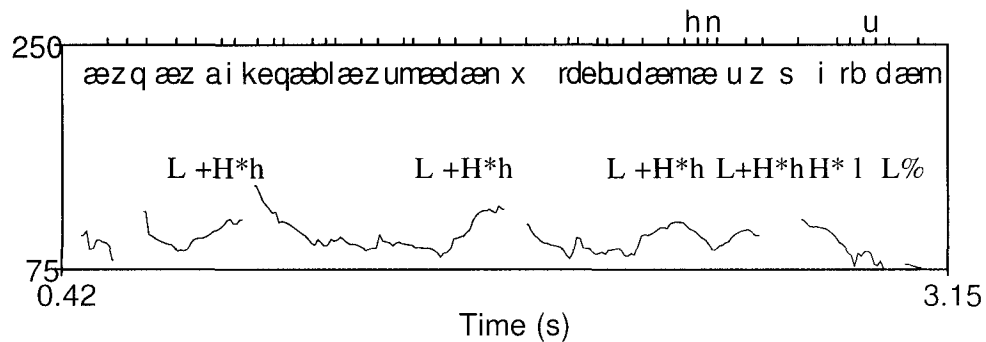


The above sentence without the relative clause, i.e., *ye ketab xær-id-æm* “I bought a book” would have the NPA on *ketab* and with the addition of the relative clause, the NPA shifts from the noun to its modifying element, i.e., the relative clause. This shift of prominence from a noun to its post-modifier seems to follow a general trend in Persian. In this language, a modifier occurring after a noun attracts the prominence of the phrase. For instance, the prominence of *ketab* “book”, which is on the second syllable, moves to its modifier *še’r* in *ketab-e še’r* (book-EZ poetry) “book of poetry”. Note that in the relative clause in (117), the H of its AP is on the final syllable of the AP (*ye*), which is the stressed syllable of relative clauses. This stress shift happens in some other types of subordinate clauses too, especially subordinate adverb clauses preceding a main clause (Subsection 5.2.3.).

A relative clause may accommodate more than one Accentual Phrase. This is the case with larger relative clauses, slower speech, or when the information packaging dictates some elements to be more prominent than others. Consider Example (118) and its pitch contour in Figure 67.

- (118) æz qæzá-i ke qæbl æz umædæn xord-e-bud-æm
 from food-DEM REL before from to come eat.PAST-PART-be.PAST-1SG
 hænúz sír bud-æm.
 still full be.PAST-1SG
 “I was still full from the food that I’d eaten before coming.”

Fig. 67: The utterance *æz qæzá-i ke qæbl æz umædæn xord-e-bud-æm hænúz sír bud-æm* “I was still full from the food that I’d eaten before coming” (the relative clause contains more than one AP).

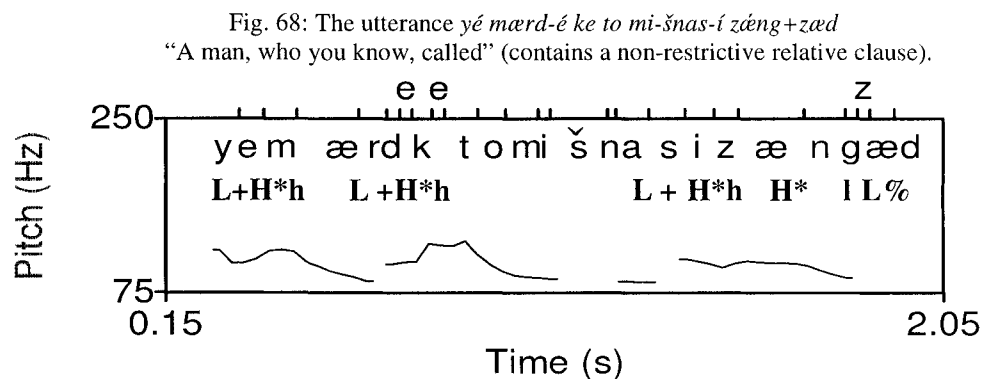


The relative clause in (118) (*ke qæbl æz umædæn xord-e-bud-æm* “that I’d eaten before coming”) is long enough to impose an AP break inside it. As can be seen from the pitch track, this fact does not influence the intonation pattern of the rest of the sentence.

Non-restrictive relative clauses provide additional information about the head noun and thus specify them more precisely. The Persian non-restrictive relative clause behaves

intonationally very similar to the restrictive counterpart. This type of relative clause has the possibility of being realized as a separate IP due to the pauses before and after it, but this is not a necessity and the pattern of a non-restrictive relative clause is usually identical to that of a restrictive one. (119) contains an example of a non-restrictive relative clause and Figure 68 shows its pitch track. (Note the seemingly contradictory co-occurrence of the indefinite article *ye* and the definite marker *-e* in this example, which is grammatical in Persian.)

- (119) *yé mærd-é ke to mi-šnas-í zæng+zæd.*
 a man-DEF REL you DUR-know.PRES-2SG bell+hit.PAST.3SG
 “A man, who you know, called.”



The complex sentence in (119) consists of four APs, the third of which is for the relative clause with a high boundary tone. There is no difference between the intonation of this sentence and that of a complex sentence with a restrictive relative clause such as *un mærd-e ke to mi-šnas-i zæng+zæd* “The man who you know called”.²⁰

²⁰ There is another prominence possibility for (119) with the nuclear pitch accent occurring on the relative clause verb (*mi-šnas-i*) in which case the relative clause gets a low boundary tone and the matrix verb (*zæng+zæd*) becomes deaccented.

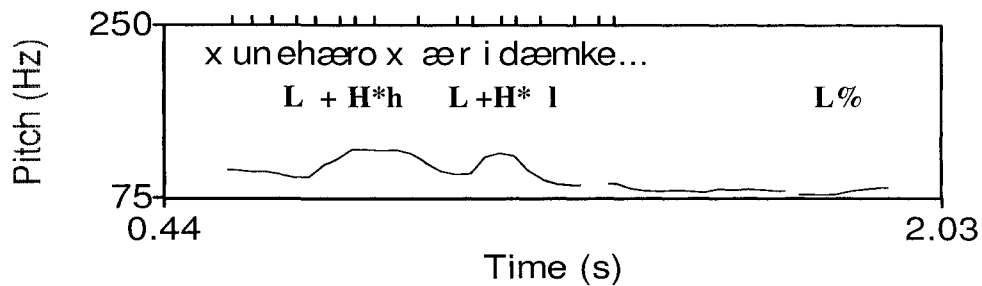
Extraposited relative clauses usually come at the end of the sentence. (120) contains an example from English where the relative clause *who was my friend* appears at the end instead of right after the head noun *woman*.

(120) A woman was talking to them *who was my friend*.

Extraposited relative clauses exist in Persian. Example (121b), whose pitch track appears in Figure 69, provides the extraposited version of (121a).

- (121) a. *xune-hæ-ro ke ba hæm did-ím xær-íd-æm.*
house-DEF-RA REL with each other see.PAST-1PL buy-PAST-1SG
“I bought the house that we saw together.”
- b. *xune-hæ-ro xær-íd-æm ke ba hæm did-im.*

Fig. 69: The utterance *xune-hæ-ro xær-íd-æm ke ba hæm did-im* “I bought the house that we saw together” (contains an extraposited relative clause).



The intonational behaviour of the extraposited version is easy to account for: in (121b) the relative clause has occurred after the matrix verb (*xær-id-æm*) which is the NPA, so it is completely deaccented and bears the low boundary tone of the matrix verb AP.

There is another possibility for extraposed relative clauses. If the NPA of (121a) is in the relative clause (on its ultimate syllable to be exact), then in the extraposed version, the relative clause is realized as a separate IP. This is shown in (122).

- (122) a. L+H* h L+ H*1 L%
xune-hæ-ro ke ba hæm did-ím xær-id-æm.
house-DEF-RA REL with each other see.PAST-1PL buy-PAST-1SG
“I bought the house that we saw together.”
- b. L+H* h H% L +H*1L%
xune-hæ-ro xær-id-æm ke ba hæm did-ím.

The sentences in (122) are different from those in (121) with regard to information structure. In (122), the speaker pinpoints the house that they saw together and contrasts it with other houses, so it almost has a focus interpretation. The diagrams in (123) summarize the behaviour of extraposed relative clauses as exemplified by (121) and (122). What appears after the arrow is the pattern of the extraposed version. The underlining specifies the nuclear pitch accent.

- (123) a. direct object AP relative clause AP verb AP →
 L+H*h L+H*h L+H*1 L%
direct object AP verb AP relative clause (no AP)
 L+H*h L+H*1 (deaccented) L%

b. direct object AP	<u>relative clause AP</u>	verb (no AP)	→
L+H*h	L+H*1	(deaccented) L%	
<u>direct object AP</u>	verb AP	<u>relative clause</u>	
L+H*h	H%	L+H*1 L%	

Here, there should be a mention of “presentational amalgam constructions” studied in Lambrecht (1988). These are biclausal constructions with a structure similar to that of a relative clause whose first clause is either an existential *there*-construction or *I have* (or *I got*) and whose head noun is always indefinite. Such constructions typically lack a relative marker or a complementizer. Two examples are provided in (124).

- (124) a. There’s a lot of people don’t know that.
 b. I have a friend in the Bay Area is a painter. [Lambrecht 1988: 319]

The Persian equivalent of presentational amalgam constructions has, due to the verb-final nature of this language, the form of extraposed relative clauses. This is exemplified in (125), the translation of (124a).

- (125) mærdom-e ziyad-i hæst-æn in-o ne-mi-dun-æn.
 people-EZ many-IND be.PRES-3PL this-RA NEG-DUR-know.PRES-3PL
 “There’s a lot of people don’t know that.”

Intonationally, these constructions are realized as two IPs. The tonal pattern of (125) is given in (126).

(126) L + H* h L+H*h H% H*h H* 1 L%

mærdóm-e ziyád-i hæst-æn ín-o né-mi-dun-æn.

The intonation pattern is similar to that of coordinate structures. Note specifically that here the relative clause (*in-o ne-mi-dun-æn*) is stressed like an ordinary matrix clause and the stress is on *ne-* the negative marker and not shifted to the final syllable. So the relative clause in presentational amalgam constructions does not possess its subordination characteristic as in ordinary relative clauses and acts more syntactically and intonationally independently.

5.2.1.1. Subsection summary

To sum up the intonational behaviour of relative clauses, these clauses are usually realized as one Accentual Phrase with the pattern L+H* whose H associates with the last syllable of the relative clause. Relative clauses can sometimes include more than one AP owing to the length of the clause, slow speech, or information structure reasons. Relative clauses may or may not contain the nuclear pitch accent of the complex sentence, a fact that is structurally determined. For instance, if a relative clause modifies a head noun that would be the NPA of the same sentence without the relative clause, the relative clause Accentual Phrase becomes the NPA in the default reading of the utterance. Non-restrictive and restrictive relative clauses do not exhibit intonational differences with one

another, unless the non-restrictive relative clause is set off by pauses in which case it forms its own Intonational Phrase. Extraposed relative clauses, which normally follow the verb, either become deaccented or, in a focus reading or a presentational amalgam construction, get realized as a separate IP.

5.2.2. Noun clauses

We start this subsection with complex sentences containing those noun clauses such as the underlined part in *the fact that they stole the car*, hereafter called “*fact-noun clauses*”, which appear after a certain group of nouns.²¹ Some of the nouns in this group are *vaqe’iyyæt* “fact”, *šaye’e* “rumour”, *edde’a* “claim”, *næzæriyye* “theory”, *fekr* “thought” (for a larger list see Gholamalizadeh 1995). *Fact-noun clauses* are obligatorily introduced with the complementizer *ke*. An example is given in (127).

- (127) ín šaye’é ke mašin ærzun šod-é qædimí-ye.
 this rumour that car cheap become.PAST-PART.3SG old-is
 “The rumour that the price of car has come down is old.”

Although their syntactic structures are different, the surface forms of *fact-noun clauses* and relative clauses are similar, as shown in (128).

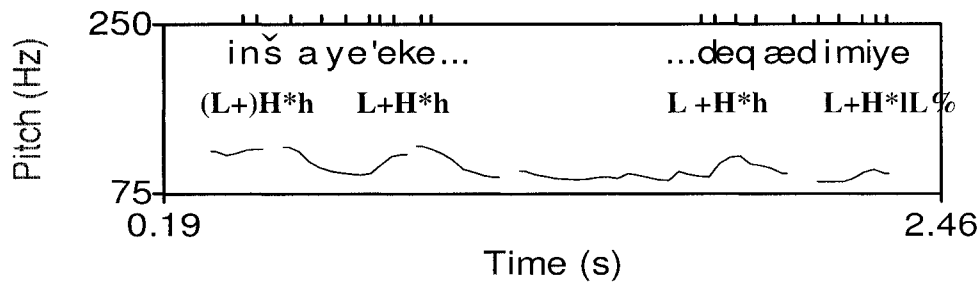
- (128) Relative clause constructions: head noun + *ke* + clause
 Fact-noun clause constructions: *fact-noun* + *ke* + clause

²¹ The type of clause categorized here as a “*fact-noun clause*” can also be named “clausal complement of a noun” in a modern terminology.

The intonation pattern of *fact*-noun clauses is the same as that of relative clauses.

Consider Figure 70, the pitch track of Example (127).

Fig. 70: The utterance *in šaye'é ke mašin ærzun šod-é qædimí-ye*
 “The rumour that the price of car has come down is old.”



The *fact*-noun clause *ke mašin ærzun šod-e* is realized as one Accentual Phrase with the pattern L+H* and the H associating with the final syllable *de*. The rest of the complex sentence is the same as before, i.e., a series of (L+)H* APs.

The next type of noun clause that we study is those noun clauses that follow certain adjectives such as *mælum* “obvious”, *xub* “good”, and *mošæxxæs* “clear”. Let us call them *obvious*-noun clauses (also known as “clausal complements of adjectives”). The structure of such noun clauses inside a complex sentence is given in (129). The complementizer *ke* is optional.

(129) adjective + a form of *budæn* “to be” (+ *ke* “that”) + clause

(130) contains an example.

- (130) mælum bud ke batajrobæ-s.
 obvious be.PAST.3SG that experienced-is
 “It was obvious that s/he is experienced.”

When native speakers are given such sentences to read, they give prominence to one of the following two elements: either the adjective starting the sentence or the default prominent AP of the noun clause. The two versions are semantically and pragmatically almost interchangeable. So the nuclear accent of (130) is either on *mælum* “obvious” or on *batajrobe* “experienced”. The pitch tracks of these two versions are provided in Figures 71 a and b.

Fig. 71a: The utterance *mælúm bud ke batajrobæ-s* “It was obvious that s/he is experienced” (first version).

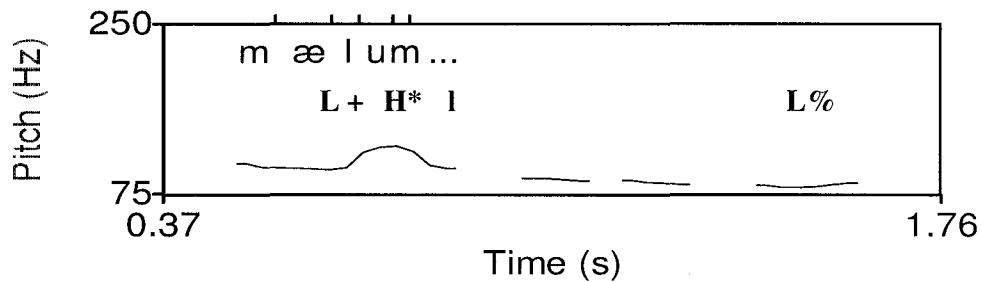
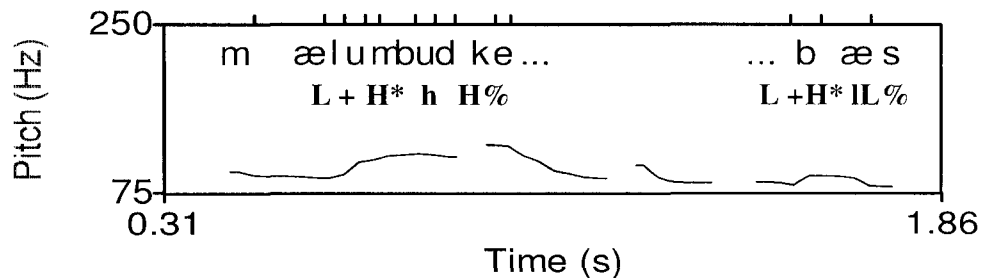


Fig. 71b: The utterance *mælúm bud ke batajrobæ-s* “It was obvious that s/he is experienced” (second version).



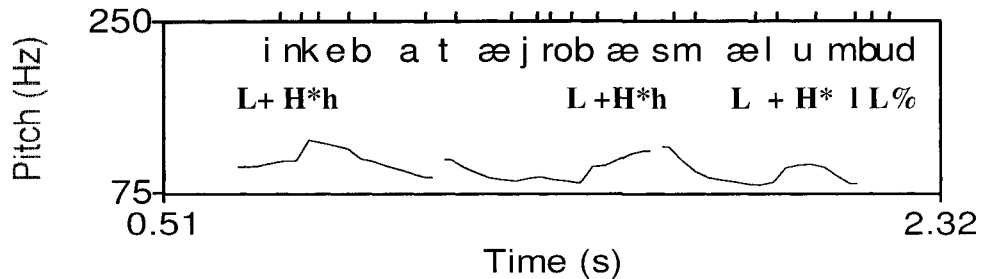
The first version is realized as one single IP with the NPA on the introductory adjective *mælum* “obvious” which has a low AP boundary tone and which deaccents everything to the utterance end. In the second pronunciation, there are two IPs with one prominent AP in each. The first is on the adjective *mælum* with the pattern L+H* and H* associating with its stressed syllable (second syllable). This IP has a high AP boundary tone which spreads to the right extending to include the verb *bud* and the complementizer *ke*. The first IP ends in an H%. The subordinate noun clause (*batajrobæ-s*) forms a separate IP with a low boundary tone on the NPA AP and an L% at the end.

There is a version of *obvious*-noun clause complex sentences in which the noun clause is in the front of the sentence, as exemplified in (131).²²

- (131) *ín* *ke* *batajrobæ-s* *mælúm* *bud*.
 this that experienced-is obvious be.PAST.3SG
 “That s/he’s experienced was obvious.”

This version, in which the noun clause follows *in* “this”, is intonationally similar to relative clause constructions studied in the previous subsection. Thus, *in* acts like the head noun, and *ke batajrobæ-s* like a relative clause modifying *in*. Consider Figure 72.

Fig. 72: The utterance *in ke batajrobá-s mælúm bud*
 “That s/he’s experienced was obvious.”



in has a separate AP with the cliticized *ke* riding on its high boundary tone. The next AP extends as far as the noun clause with a high boundary tone. The final AP, which bears the NPA, is on the adjective *mælum* and has a low boundary tone. The IP ends with an *L%*.

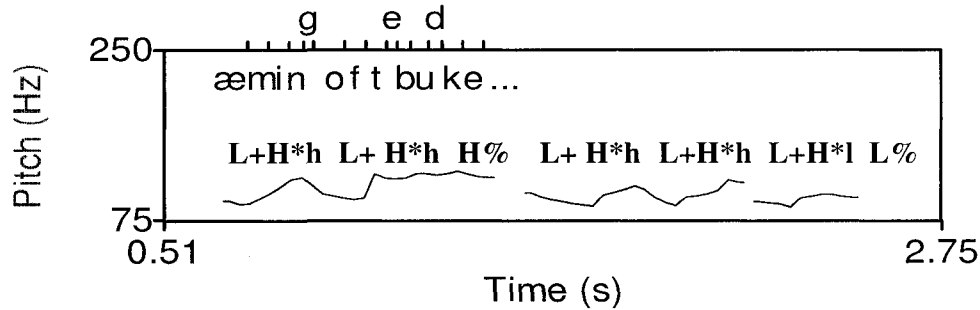
We now look at what we call *say-noun* clauses, i.e., those clausal complements which follow certain verbs such as *goftæn* “to say”, *xastæn* “to want”, and *fekr+kærdæn* “to think”. An example is provided in (132).

- (132) æmín goft-é-bud ke šagerd-á miz-á-ro avórd-æn.
 Amin say.PAST-PART-be.PAST.3SG that student-PL table-PL-RA bring.PAST-3PL
 “Amin had said that the students brought the tables.”

The noun clauses following these verbs are optionally introduced by the complementizer *ke*. Let us consider the pitch contour of Example (132), given in Figure 73.

²² In the English equivalents, (130) is the *It*-extraposed version of (131).

Fig. 73: The utterance *æmín goft-é-bud ke šagerd-á miz-á-ro avórd-æn*
 “Amin had said that the students brought the tables.”



The behaviour of *say*-noun clauses is quite like coordinate structures. The matrix clause containing the verb “say” or “want”, etc. has a series of (L+)H* APs and it finally ends high with an H%, thus bringing the first IP to an end. The NPA of this IP is on the stressed syllable of the matrix verb and all the following syllables bear the high boundary tone of the NPA AP. The optional complementizer *ke* is cliticized to its preceding element. The second IP consists of the subordinate noun clause and has a typical declarative intonation. This analysis is summarized in (133) below, which is very similar to that of coordinate structures (104) in Section 5.1.

- | | | | | |
|-------|--------------------|--|-----------------------------|-------------------------------------|
| (133) | Matrix clause | | Subordinate clause | |
| | IP1 | | IP2 | |
| | $((L+)H^*h)^m H\%$ | | $((L+)H^*h)^n (L+)H^*1 L\%$ | $m = 1,2,\dots \quad n = 0,1,\dots$ |
| | | | | (m and n are independent) |

Applying the above formula to Figure 73, in the matrix clause m equals 2 yielding two APs, the first being the matrix clause subject *æmín* “Amin” and the second the matrix

verb *goft-e-bud* “had said”. The second syllable of this verb (*te*) is associated with the starred tone, and the auxiliary *bud* and the following complementizer *ke* carry the high boundary tone. The matrix clause ends high (the H%). The subordinate clause forms the second IP and contains three APs ($n = 2$), i.e., *šagerd-a* “students”, *miz-a-ro* “tables” and *avordæn* “brought”, with the first two having a high boundary tone and the third a low boundary tone and being the nuclear pitch accent. The second IP (and the utterance) end in the low register of the speaker’s voice, hence the L%.

If the *say-noun* clause is an interrogative, it retains its intonational status after the matrix clause, as if it were used as an independent utterance. For example, consider (134) a and b and their tonal patterns.

- (134) L+H**h* L+H**h*H% L+H**h* L+H**h* L+H**l*H%
- a. æmín pors-íd šagerd-á miz-á-ro avórd-æn.
- Amin ask-PAST.3SG student-PL table-PL-RA bring.PAST-3PL
- “Amin asked if the students brought the tables.”
- L+H**h* L+H**h*H% L+H**h* H* *l* L%
- b. æmín pors-íd šagerd-á čí avord-æn.
- Amin ask-PAST.3SG student-PL what bring.PAST-3PL
- “Amin asked what the students brought.”

(134a) has a yes/no question in its subordinate clause (*šagerd-a miz-a-ro avord-æn*) and (134b) a WH-question (*šagerd-a čí avord-æn*). These questions have the intonation of ordinary yes/no questions and WH-questions respectively, and in neither case does the

matrix clause (*æmin pors-id*) influence their normal pattern. However, the existence of a WH-word in the matrix clause causes deaccentuation up to the utterance end. This is exemplified in (135).

- (135) L+H*1 L%
- kí pors-id šagerd-a miz-a-ro avord-æn?
- who ask-PAST.3SG student-PL table-PL-RA bring.PAST-3PL
- “Who asked if the students brought the tables?”

In such cases, it is the focus nature of the WH-question that causes the utterance level deaccentuation.

Before closing the subsection on noun clauses, there should be a mention of a group of verbs that trigger deaccentuation in the following noun clause. Scarborough (2007), who gives *dunestæn* “to know” as the example, relates this phenomenon to a sort of obligatory semantic focus caused by certain lexical items. There do not seem to be many of such verbs in Persian and I have found only two other verbs with the same behaviour, namely *yad+ræftæn* and *færamuš+kærdæn* both meaning “to forget”. Subordinate clauses following such verbs may be called *forget-noun clauses*. (136) contains an example.

- (136) L+H* 1 L%
- færamúš+kærd-æm be-het zæng+be-zæn-æm.
- forgotten+do.PAST-1SG to-you bell+SBJ-hit.PRES-1SG
- “I forgot to call you.”

In (136), there is only one AP on the matrix verb whose starred tone associates with the stressed syllable of the verb (-*muš*) and everything after it is deaccented.²³

5.2.2.1. Subsection summary

In this subsection, we studied noun clauses in four different categories, *fact*-noun clauses, *obvious*-noun clauses, *say*-noun clauses, and *forget*-noun clauses. *Fact*-noun clauses behave similar to relative clauses in that they form a separate L+H* Accentual Phrase whose high associates with the final syllable of the subordinate clause. *Say*-noun clauses and some *obvious*-noun clauses cause an Intonational Phrase break after the matrix clause which ends with a high IP boundary tone (the “incomplete” pattern). Their behaviour in this regard is like that of coordinate sentences. The subordinate clause following the matrix clause, which is realized as another IP, has its default pattern and is not affected by the matrix clause (unless the matrix clause is a WH-question, which causes deaccentuation up to the utterance end). Thus, if the subordinate clause is a declarative it has the intonation of a neutral declarative, and if it is an interrogative (as can occur in

²³ Note that the same situation may occur in complex sentences with *say*-noun clauses too (e.g., (132)), i.e., the sentence can have only one NPA on the matrix verb causing the following elements to deaccent, but such a situation happens only when the matrix verb is focused, whereas with verbs like “to forget”, this is the default pronunciation.

say-noun clauses) it behaves like an interrogative. *Forget*-noun clauses are deaccented due to the semantics of their matrix clause verb.

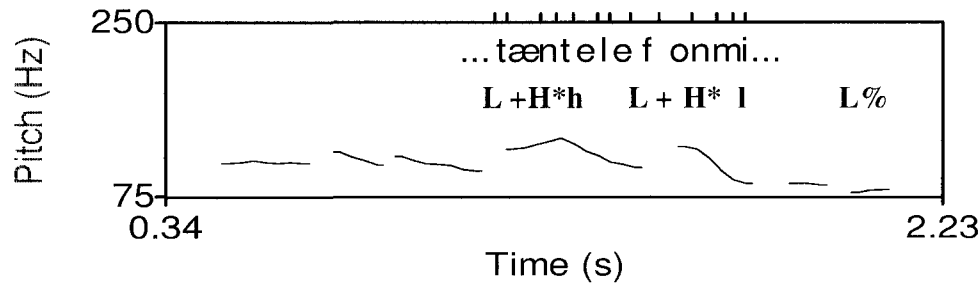
5.2.3. Adverb clauses

Grammar books classify adverb clauses into many different types. It is the semantic property rather than the grammatical form which distinguishes the different types from one another. Adverb clauses of time, manner, purpose, cause, condition, and result can be named among others. Complex sentences containing adverb clauses are in most cases (but not all, see further below) realized as a single Intonational Phrase with one nuclear pitch accent. (137) is an example of a complex sentence with an adverb clause of time.

- (137) hær væqt mi-tunest-æn telefón+mi-kærd-æn.
each time DUR-be able.PAST-3PL telephone+DUR-do.PAST-3PL
“They called whenever they could.”

The adverb clause in the above example is *hær væqt mi-tunest-æn* which precedes the matrix clause. Intonationally, the whole utterance forms one IP and the adverb clause is realized as either one or more than one Accentual Phrases, depending on its information structure. The matrix clause contains the NPA. Figure 74 shows the pitch contour of Example (137) with the adverb clause realized as one AP.

Fig. 74: The utterance *hær væqt mi-tunest-æn telefon+mi-kærd-æn*
 “They called whenever they could” (adverb clause first).

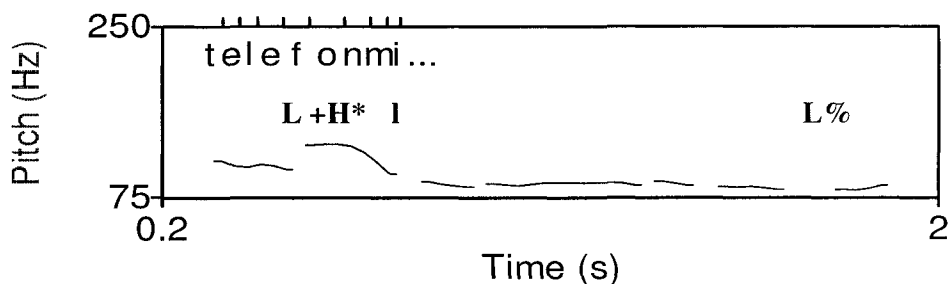


The first AP is the adverb clause and the H of this AP corresponds to the final and stressed syllable of the clause (similar to relative clauses). The matrix clause (*telefon+mi-kærd-æn*) consists of one AP, which carries the nuclear pitch accent. The utterance ends with an L%.

The adverb clause can also follow the matrix clause in which case it is fully deaccented owing to the fact that the NPA precedes it. For instance, (138) contains the same clauses of (137) but with reverse order, with a somewhat different pragmatic load and more emphasis on the matrix clause proposition. Figure 75 shows the pitch track of (138).

- (138) telefon+mi-kærd-æn hær væqt mi-tunest-æn.
 telephone+DUR-do.PAST-3PL each time DUR-be able.PAST-3PL
 “They called whenever they could.”

Fig. 75: The utterance *telefón+mi-kærd-æn hæv væqt mi-tunest-æn*
 “They called whenever they could” (adverb clause second).

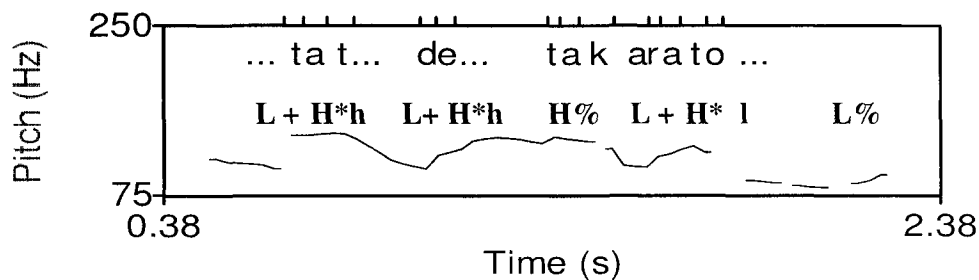


As can be seen, the subordinate clause is fully deaccented after the matrix clause.

Some adverb clauses are realized as one separate IP. These are mostly adverb clauses of purpose, cause, or negative condition. Complex sentences containing such clauses usually have the adverb clause preceded by the matrix clause and introduced by the subordinators *ke* “so that”, *ta (in ke)* “in order to”, *čon(ke)* “because”, and *mæge in ke* “unless”. An example is given in (139) and Figure 76.

- (139) *dust-á-t umæd-é-bud-æn ta kar-á-t-o*
 friend-PL-your come.PAST-PART-be.PAST-3PL so work-PL-your-RA
be-bin-æn.
 SBJ-see.PRES-3PL
 “Your friends had come to see your work.”

Fig. 76: The utterance *dust-á-t umæd-é-bud-æn ta kar-á-t-o be-bin-æn*
 “Your friends had come to see your work” (adverb clause as one IP).



The intonation is similar to that of coordinate sentences and *obvious-* and *say-noun* clauses. The matrix clause above, i.e., *dust-a-t umæd-e-bud-æn* “your friends had come” is an IP with the “incomplete” pattern ending with h H%, and the purpose clause, i.e., (*ta*) *kar-a-t-o be-bin-æn*, which is semantically more significant than the main clause, is a declarative IP. There are two nuclear pitch accents in the utterance, one in each IP underlined in the example.

It is possible for some adverb clauses to lack subordinators, a fact that does not have any impact on the intonation of the sentence. Example (140) compares two complex sentences both containing an adverb clause, the second lacking the subordinator.

- (140)
- | | | | |
|----|--|------|-----------------------------|
| | L+H*h | H* 1 | L% |
| a. | <i>æge</i> <i>mi-umæd-í</i> | | <u><i>mí-did-i-šun.</i></u> |
| | if DUR-come.PAST-2SG | | DUR-see.PAST-2SG-them |
| | “If you’d come, you would’ve seen them.” | | |
| | L+H*h | H* 1 | L% |
| b. | <i>mi-umæd-í</i> | | <u><i>mí-did-i-šun.</i></u> |
| | DUR-come.PAST-2SG | | DUR-see.PAST-2SG-them |
| | “If you’d come, you would’ve seen them.” | | |

As can be seen the subordinator *æge* “if” is part of the low of the adverb clause AP (140a) and its omission does not change the intonation pattern of the rest of the sentence.

5.2.3.1. Subsection summary

To summarize this subsection, complex sentences containing an adverb clause are mostly realized as one Intonational Phrase with the adverb clause forming a single AP (or more APs if dictated by information structure constraints). If the matrix clause precedes the subordinate clause, the latter is deaccented. A minority of adverb clauses, namely those of purpose, cause, and negative condition, when following the matrix clause, are intonationally patterned similar to coordinate structures and *obvious-* and *say-noun* clauses, in the sense that the matrix clause has an “incomplete” intonation pattern ending in $h\ H\%$, and the adverb clause has the intonation of a declarative. Those adverb clauses that lack a subordinator have a pattern similar to their default with-subordinator counterparts.

Chapter 6 The intonation patterns of Persian – focus

The term “focus” is used in this thesis to denote “contrastive focus” which means highlighting one or more elements in contrast to other elements in the discourse. This type of focus is also referred to as “corrective focus” (Gussenhoven, forthcoming). For example, if *wine* is focused in *I brought the WINE* (shown with capital letters), this word is set in contrast to other things I may have brought like “a cake” or “cheese”. So a possible paraphrase would be *I brought the wine and not the cake*. Let us begin with what focus means phonologically in Persian.

6.1. The phonology of focus

A focused constituent in Persian forms a separate Accentual Phrase. The tonal pattern of this AP is not different from that of ordinary APs, i.e., it is (L+)H*, and the boundary tone of focus APs is always low in single focus constructions. Phonetically, focus APs have a greater pitch excursion and a longer duration than ordinary ones, which will be looked at in Chapter 8.²⁴ The focused AP becomes the nuclear pitch accent of the Intonational Phrase and thus results in deaccenting what follows which lasts to the utterance end. Example (141) and Figure 77 compare two versions of the same sentence without and with focus.

²⁴ Scarborough (2007) suggests the possibility of different phonological representations for non-focused and focused APs, for instance L+H* for the former and L+[^]H* (extra high) for the latter. Due to the fact that the focused and non-focused versions share the same basic propositional content, I favour treating the tonal difference in the phonetics and consider focused and non-focused APs as phonologically identical.

- (141) a. *hævǎ emrúz æbrí-ye.*
 weather today cloudy-is
 “The weather is cloudy today.”
- b. *hævǎ EMRÚZ æbri-ye.*
 weather today cloudy-is
 “The weather is cloudy TODAY.”

Fig. 77a: The utterance *hævǎ emrúz æbrí-ye* “The weather is cloudy today.”

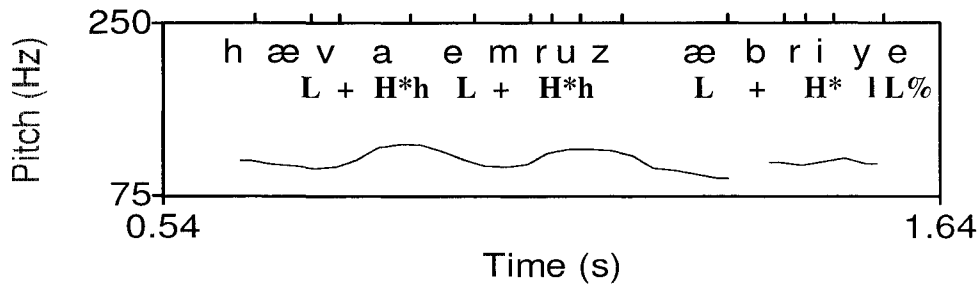
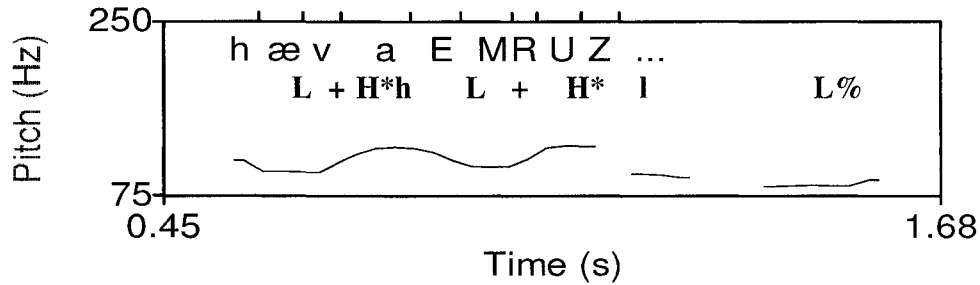


Fig. 77b: The focused utterance *hævǎ EMRÚZ æbri-ye* “The weather is cloudy TODAY.”



The utterance in (141a) (discussed earlier in Section 3.1.) has three L+H* Accentual Phrases whose boundary tones are high – AP1 and AP2 – and low – AP3. The third AP has the nuclear pitch accent of the utterance. In the focused version (141b), there are two APs: one for the subject and one for the adverb, both being in the form of L+H*. Due to focus on the adverb, the element to its right (i.e., the complement and the verb *æbri-ye*),

although being the NPA in the default version, is deaccented. In (141b), the focused AP becomes the NPA. So focus overrules the default NPA of an utterance.

There is a constraint on the location of focus in a sentence: focal elements can only appear pre-verbally (Karimi 2003). Consider (142) which is the scrambled version of (141a).

- (142) æbri-ye hæva emruz.
cloudy-is weather today
“The weather is cloudy today.”

Neither of the elements subjects (*hæva* “weather”) and adverb (*emruz* “today”) can be the focus of the utterance. This is shown in (143).

- (143) a. *æbri-ye HÆVA emruz.
b. *æbri-ye hæva EMRUZ.

In (143) a and b, the subject and the adverb respectively occur after the verb, hence the impossibility of their being focused.

The only situation where focus can occur post-verbally is with “adverbial/motion constructions”. Recall from Subsection 4.1.2. that such constructions are not verb final in their default order. Example (62a) is repeated here as (144).

- (144) miná ræft-é xuné.
Mina go.PAST-PART.3SG home
“Mina has gone home.”

In (144), although *xune* “home” follows the verb, it can be focused, since it is the default prominence of the sentence. So (145) is a grammatical sentence in Persian.

- (145) miná ræft-é XUNÉ.
Mina go.PAST-PART.3SG home
“Mina has gone HOME.”

Example (145) is the focused version of (144). In the focused counterpart, the AP *xune* “home” is realized higher and longer (see Chapter 8).

Having become familiar with the phonology of focus, constraints on its location, and its prominence status, we now move to focus in different sentence types, beginning with focus in declaratives.

6.2. Focus in declaratives

Declaratives can have any of their elements focused as long as it is not after the verb (unless in adverbial/motion constructions as described above). Consider Example (146).

- (146) forúq dirúz bærá sohráb piræn xær-id.
 Foruq yesterday for Sohrab shirt buy-PAST.3SG
 “Forough bought a shirt for Sohrab yesterday.”

Any of the elements subject, adverb, preposition, object of preposition, direct object, or verb can become focused. (147) is illustrative.

- (147) a. L+H*1 L%
FORÚQ diruz bæra sohrab piræn xær-id.
- b. L+H*h L+H*1 L%
 forúq DIRÚZ bæra sohrab piræn xær-id.
- c. L+H*h L+H*h L+H*1 L%
 forúq dirúz BÆRÁ sohrab piræn xær-id.
- d. L+H*h L+H*h L+H*h L+H*1 L%
 forúq dirúz bærá SOHRÁB piræn xær-id.
- e. L+H*h L+H*h L+H*h L+H*1 L+H*1 L%
 forúq dirúz bærá sohráb PIRÆN xær-id.
- f. L+H*h L+H*h L+H*h L+H*1 L+H*h L+H*1 L%
 forúq dirúz bærá sohráb piræn XÆR-ÍD.

The focused item in all the above sentences has a normal L+H* AP pattern and triggers deaccenting of the following elements. All sentences end in an L% as is the case with declaratives.

In line with the idea of the focused element being singled out semantically, intonation does its turn to add to this process of singling out, underlining the focused element in contrast to other elements. In this regard, the focused Accentual Phrase is phonetically different from the same AP when not focused, that is, it is higher and longer (studied in Chapter 8). Also, the other APs of the utterance, become more different from the focused AP, so for instance, compare the intonation patterns of (146) and (147d) given in Figure 78.

Fig. 78a: The utterance *forúq dirúz bærá sohráb piræn xær-id* “Forough bought a shirt for Sohrab yesterday.”

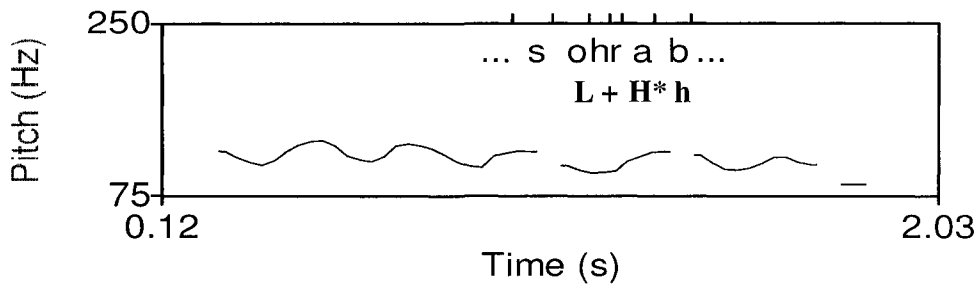
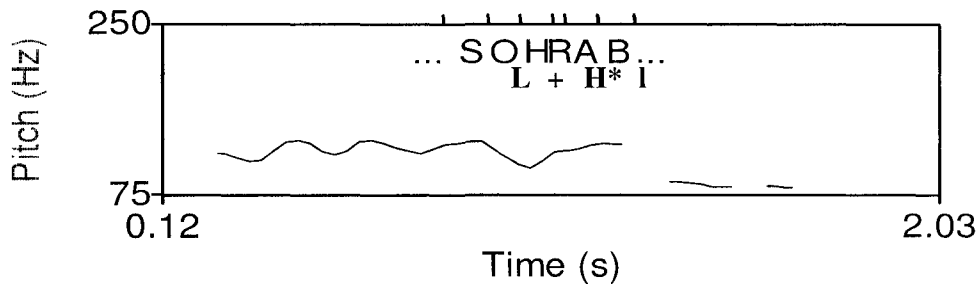


Fig. 78b: The focused utterance *forúq dirúz bærá SOHRÁB piræn xær-id* “Forough bought a shirt for SOHRAB yesterday.”



The APs preceding the focus in 78b (SOHRAB) show less pitch excursion and are uttered faster than the same APs in the default version (78a).

Having dealt with focus in declaratives, in the next two sections, we turn to focus in yes/no questions and WH-questions.

6.3. Focus in yes/no questions

The focus mechanism in yes/no questions is not different from that in declaratives. The focused constituent has an Accentual Phrase of its own causing its following elements to deaccent, and leaving the basic pattern of the interrogative intact. Consider the sentences in (148) where (148a) is an ordinary yes/no question, and (148b) is the same question with the direct object being focused, for instance in a context where the questioner thought at first that the students brought the chairs and now she has heard that it was the tables and not the chairs that they brought and so is asking to confirm.

- (148) a. šagerd-á miz-á-ro avórd-æn?
 student-PL table-PL-RA bring.PAST-3PL
 “Did the students bring the tables?”
- b. šagerd-á MIZ-Á-RO avord-æn?
 student-PL table-PL-RA bring.PAST-3PL
 “The students brought the TABLES?”

The pitch contours of these two sentences are given in Figure 79.

Fig. 79a: The yes/no question *šagerd-á miz-á-ro avórd-æn*
 “Did the students bring the tables?”

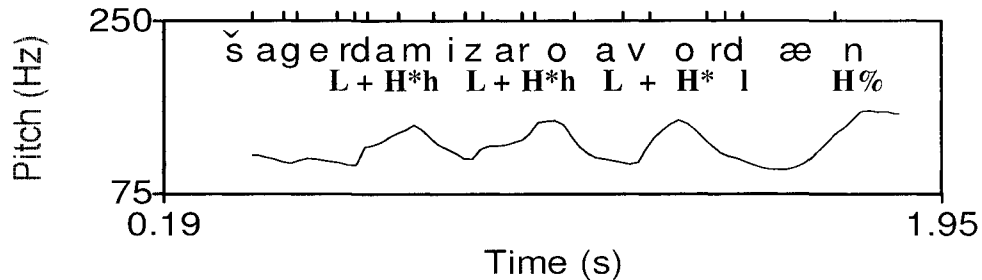
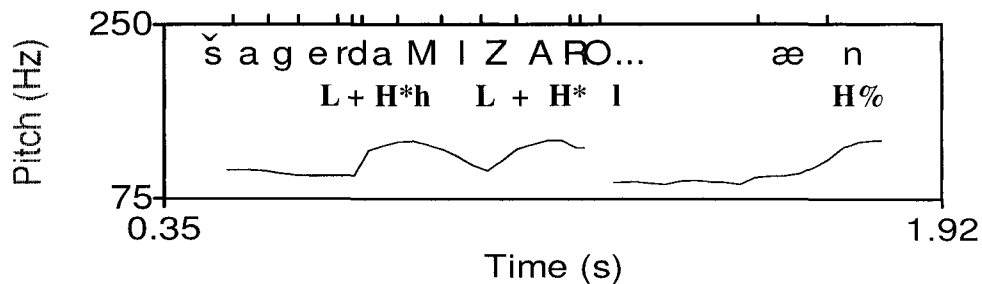


Fig. 79b: The focused yes/no question *šagerd-á MIZ-Á-RO avord-æn*
 “Did the students bring the TABLES?”



The focused direct object AP in 79b, i.e., *miz-a-ro* “tables”, has received a low boundary tone and has deaccented the verb (*avord-æn*). The focused question ends with an H% similarly to the non-focused question.

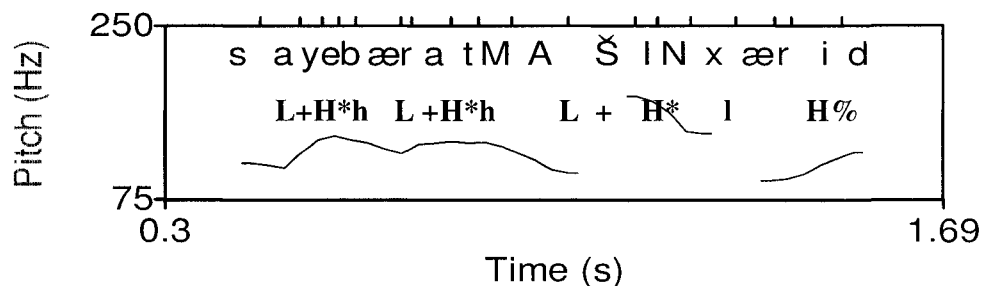
It was mentioned earlier in the dissertation (Subsection 4.2.4.) that yes/no echo questions are segmentally and intonationally identical to yes/no questions with focus. Example (87), a yes/no echo question, is repeated here as (149).

- (149) sayé bərá-t mašín xær-id?
 Sayeh for-you car buy-PAST.3SG
 “Sayeh bought you a car?” [Echo question]

The intonation of the above echo question is identical to the same question when the direct object is contrastively focused. The focused version and its pitch track are given in (150) and Figure 80.

- (150) sayé bærá-t MAŠÍN xær-id?
 Sayeh for-you car buy-PAST.3SG
 “Did Sayeh buy you a CAR?”

Fig. 80: The echo yes/no question *sayé bærá-t MAŠÍN xær-id*
 “Did Sayeh buy you a CAR?”



Note that the focused element of (150) is the default nuclear accent of the echo question (the direct object *mašín*), and if instead of that, any other element (e.g., the subject *saye* “Sayeh” or the verb *xær-id* “bought”) is focused, the intonation of the focused sentence will be totally different from that of the echo question.

6.4. Focus in WH-questions

Any element in Persian WH-questions can be focused, i.e., elements to the right of the WH-word, those to its left, and also the WH-word itself (of course with the exception of post-verbal words, as stated before). Consider Example (151).

- (151) *bæčče-ha æz koja ketab xær-id-æn?*
 child-PL from where book buy-PAST-3PL
 “Where did the children buy books from?”

(151) is an ordinary WH-question with the WH-word *koja* “where” occurring sentence medially. The sentences in (152) contain two focused versions of this WH-question. The first has the focus on an item preceding the WH-word (*bæčče-ha* “children”) and the second on an item following it (*ketab* “book”).

- (152) a. *BÆČČE-HÁ* æz koja ketab xær-id-æn?
 child-PL from where book buy-PAST-3PL
 “Where did the CHILDREN buy books from?”
- b. *bæčče-há* æz *kojá* *KETÁB* xær-id-æn?
 child-PL from where book buy-PAST-3PL
 “Where did the children buy BOOKS from?”

The pitch contours of (152) a and b are provided in Figures 81a and b.

Fig. 81a: The focused WH-question *BÆČČE-HÁ æz koja ketab xær-id-æn* “Where did the CHILDREN buy books from?”

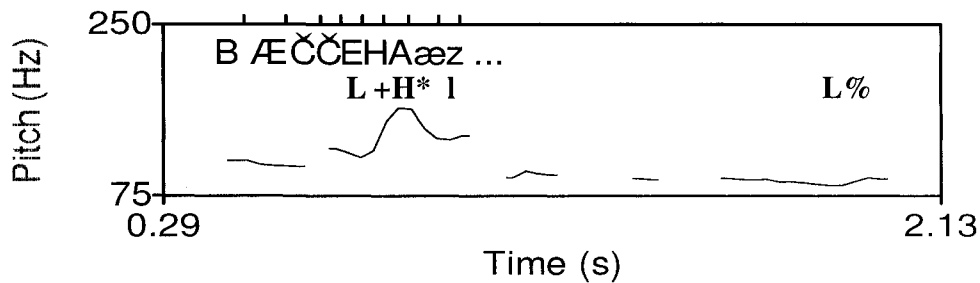
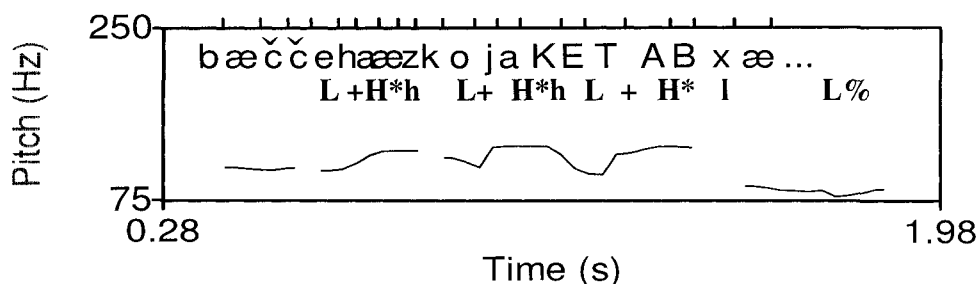


Fig. 81b: The focused WH-question *bæčče-há æz kojá KETÁB xær-id-aen*
 “Where did the children buy BOOKS from?”



Here is the intonational analysis. In the presence of a focused item, a WH-word acts like an ordinary AP: if the focus precedes the question word, the question word undergoes the normal deaccenting common to post-focal elements; if the focus follows the question word, the question word is realized as a normal (L+)H* Accentual Phrase without causing any deaccentuation. So the deaccentuation of focus has priority over the deaccentuation of the WH-word. Figure 81a has the subject *bæčče-ha* focused and as a result it has formed the only Accentual Phrase of the utterance and everything following it bears its spread low AP boundary tone. In Figure 81b where the focus is on the direct object *ketab*, the WH-word is an AP with the pattern L+H* and a high AP boundary tone since it is not the nuclear pitch accent. The focused AP (*ketab*) attracts the prominence, gets a low AP boundary tone, and deaccents the verb. Both utterances end with an L% as is the common Intonational Phrase boundary tone for WH-questions.

The analysis proposed here differs from Mahjani's (2003). He believes that when there are a WH-word and a focus in a sentence, whichever comes later will cancel the deaccenting effect of the other one (in my analysis, a WH-word to the right of a focus word does not cause this cancellation). The example he gives is (153).

(153) BABÆK-O koja šoma bord-id?
 Babak-RA where you take.PAST-2PL

“Where did you take BABAK to?”

[Mahjani 2003: 63]

He considers two APs for the utterance, one for *BABÆK-O* and one for *koja*. My recordings of the same utterance always has *koja* deaccented and so conforms to the claim made in this thesis that a question word acts like an ordinary word and gets deaccented after focus. There is one situation in which *koja* can get a separate Accentual Phrase and that is when *BABÆK-O* is pronounced as a separate utterance, followed by an amount of pause. In this case, the focus deaccentuation of *BABÆK-O* only extends to the end of the first utterance, and *koja*, being in another utterance, retains its pitch accent. So we can consider two different patterns for the sentence in (153), given below in (154).

(154) BABÆK-O koja šoma bord-id?
 a. L + H* 1 L%
 b. L + H* 1 L% L+H*1 L%

The first pattern (154a), where there is one IP and deaccentuation for the question word, corresponds to my analysis, and the second (154b) with two IPs and two utterances and the question word being assigned an AP matches Mahjani’s analysis.

It was mentioned in Subsection 4.2.3. that WH-words show a pitch increase on H, which together with their deaccenting capability give them the qualities of a focused constituent. However, in Persian the WH-word can be contrastively focused itself.

Consider the examples in (155) and their contours in Figure 82, which compare an ordinary WH-question with the same question when the WH-word is focused. The context for the focused version can be a situation where the speaker has asked the listener the question in (155a) and the listener has wrongly heard the word *ki* “who” as another word, so the speaker has repeated the question with that word focused.

- (155) a. emrúz ki umæd-e-bud?
 today who come.PAST-PART-be.PAST.3SG
 “Who had come today?”
- b. emrúz KÍ umæd-e-bud?
 “WHO had come today?”

Fig. 82a: The WH-question *emrúz ki umæd-e bud* “Who had come today?”

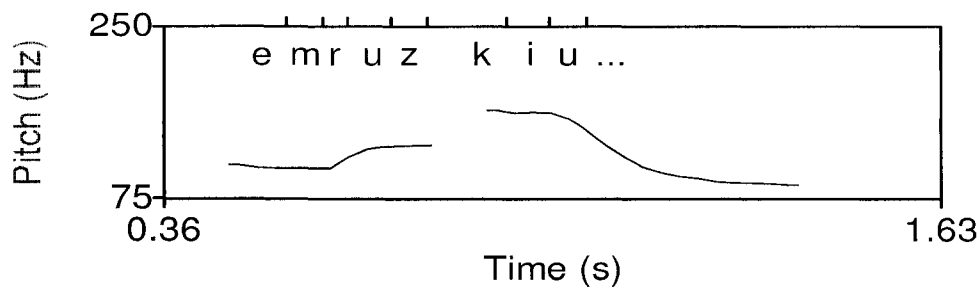
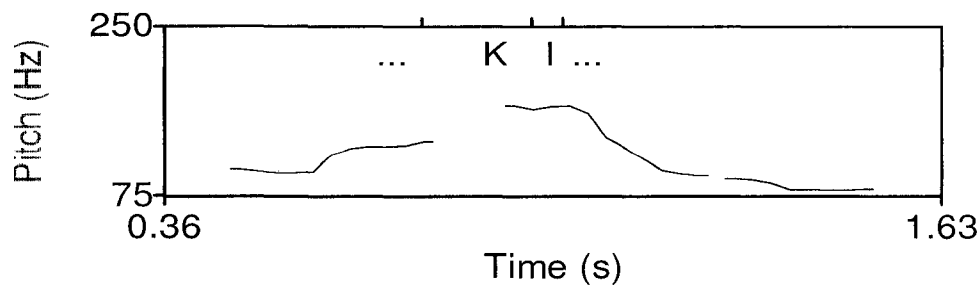


Fig. 82b: The WH-question *emrúz KÍ umæd-e bud* “WHO had come today?”, with the WH-word focused.



As can be seen, the two utterances are intonationally different. The focused version has a higher pitch on the WH-word than the non-focused version. Also, this version involves more deaccenting and is overall longer. Thus, WH-words, although exhibiting some characteristics of focus in Persian, are not focus constituents themselves. They are, however, the NPA of an ordinary WH-question due to the fact that they have the most amount of information in the sentence.

After investigating focus in questions, we will study this phenomenon in compound and complex sentences in the next section.

6.5. Focus in compound and complex sentences

The mechanism of focus in compound and complex sentences is similar to that in simplex sentences. The focus constituent is assigned an Accentual Phrase with the pattern (L+)H* and a low boundary tone. The focus AP brings about deaccentuation up to the end of the utterance, which unlike simplex sentences, may include more than one Intonational Phrase.²⁵ Consider the compound sentence in (156) and its tonal pattern.

- (156) L+H*h L+H*h H*h H% L + H*hL+H*h H* l L%
- dirúz hævá sáerd šod væ má birún næ-ræft-im.
- yesterday weather cold become.PAST.3SG and we out NEG-go.PAST-1PL
- “Yesterday the weather got cold and we didn’t go out.”

²⁵ Note that extra long sentences consist of multiple IPs and usually involve bigger pauses and more instances of pitch reset in their intonation, which contribute to their being realized as more than one utterance. So focus deaccentuation does not usually extend to the end of a very long sentence, which may involve several instances of deaccentuation, as many as the number of the utterances.

Any of the elements in (156) can become focused, which results in deaccentuation up to the utterance end. For instance, in (157) the subject of the first clause is focused which has not only deaccented the elements in IP1 but also those in IP2.^{26,27}

(157) L+H*h L+H* l L%

dirúz HÆVÁ særd šod væ ma birun næ-ræft-im.
 yesterday weather cold become.PAST.3SG and we out NEG-go.PAST-1PL
 “Yesterday the WEATHER got cold and we didn’t go out.”

The domain of deaccentuation after focus suggests the greater power of focus compared to a normal NPA: NPA deaccentuation works at IP level while focus deaccentuation works at utterance level. Another point to mention here is that focus is possible on words after the first verb (*šod* “got”). This shows that the constraint stated earlier concerning the impossibility of focus for post-verbal elements is valid only for simplex sentences, that is to say that a verb does not prevent the elements in another clause (of the same complex sentence) from becoming focused. Consider Example (158).

(158) L+H*h L+H*h H*h H% L +H*hL+H* l L%

dirúz hævá særd šod væ ma BIRÚN næ-ræft-im.
 yesterday weather cold become.PAST.3SG and we out NEG-go.PAST-1PL
 “Yesterday the weather got cold and we didn’t go OUT.”

²⁶ The contrastive focus of *hæva* “weather” may be semantically odd due to lack of any feasible contrast set.

In (158), the adverb *birun* “out” is focused. This word is located to the right of the verb *šod*, but since it is in the next clause, it has not undergone the above-mentioned constraint.

To illustrate focus in the three basic types of complex sentences, (159) contains three examples and their intonational patterns. They show complex sentences with adjective clause, noun clause, and adverb clause respectively. The examples were studied in their default form earlier (Examples (116), (132), and (139)) and now one element in each is contrastively focused.

- (159) a. L+H*h L + H*1 L%
- livan-á-i ke RU MÍZ bud mal-e mæn-e.
- glass-PL-DEM REL on table be.PAST.3SG property-EZ I-is
- “The glasses that were ON THE TABLE are mine.”
- b. L+H*h L+H*h H% L + H* 1
- æmín goft-é-bud ke ŠAGERD-Á
- Amin say.PAST-PART-be.PAST.3SG that student-PL
- L%
- miz-a-ro avord-æn.
- table-PL-RA bring.PAST-3PL
- “Amin had said that THE STUDENTS brought the tables.”

²⁷ Note that the focused version consists of only one IP, so it might be said that focus has caused deaccentuation in the two IPs of the non-focused version, and as a result, the second IP has lost its IP status

c. L + H* 1

DUST-Á-T umæd-e-bud-æn ta kar-a-t-o
friend-PL-your come.PAST-PART-be.PAST-3PL so work-PL-your-RA

L%

be-bin-æn.

SBJ-see.PRES-3PL

“YOUR FRIENDS had come to see your work.”

The focused items in the above examples are the copular construction complement in the relative clause in (159a), the subject of the subordinate clause in (159b), and the subject of the matrix clause in (159c). There is nothing unusual about the patterns. Ordinary APs are assigned to everything up to and including the focus, and post-focal items are all deaccented. Note that in (159b), where the focused constituent is in the second IP, the first IP has retained its nuclear pitch accent (*goft-e-bud*).

A clarification on the concept of contrastive focus is in order here. When an element in a sentence is contrastively focused, it is set against a background of other possible alternatives. This idea is different from when an item only receives extra prominence in a sentence, which means that its newness is more than the default version but less than the contrastively focused version. This is in line with the idea of degrees of givenness (see, e.g., Terken 1981, Hajicová 1993, Chafe 1994, Lambrecht 1994, Baumann and Hadelich 2003, Baumann and Grice 2006). Let us explain this with an example. In (159a) above, the glasses that were on the table are in contrast with other glasses, which were, e.g., on the counter, in the sink, etc. So the speaker is saying that she means the glasses on the

and has become part of the first IP.

table and NOT those anywhere else. In such a case, the tonal pattern is as shown in (159a). Now, if the phrase *ru miz* “on the table” is not contrastively focused but only gets extra prominence, the tonal pattern will be different. This can happen in a context where the speaker is talking about glasses in different places; for example she would say, “As for the glasses on the counter, they’re John’s, as for those in the sink, they’re Janet’s, and as for those on the table, they’re mine.” In such a situation, the phrase *ru miz* is assigned one Accentual Phrase but does not cause deaccentuation of what follows. The figures in 83 compare the three different pronunciations of the sentence *livan-a-i ke ru miz bud mal-e mæn-e*, the default version, the prominent version, and the contrastively focused version.

Fig. 83a: The utterance *livaná-i ke ru miz búd mal-e mæn-e*
 “The glasses that were on the table are mine” (default version).

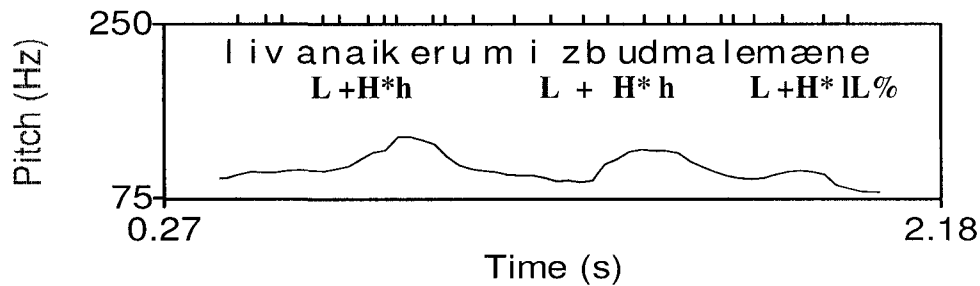


Fig. 83b: The utterance *livaná-i ke ru míz búd mal-e mæn-e*
 “As for the glasses that were on the table, they’re mine” (prominent version).

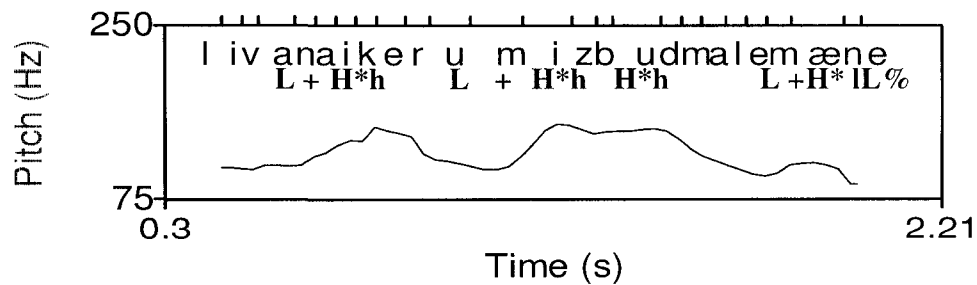


Fig. 83c: The utterance *liváná-i ke RU MÍZ bud mal-e mæn-e*
 “The glasses that were ON THE TABLE are mine” (contrastively focused version).

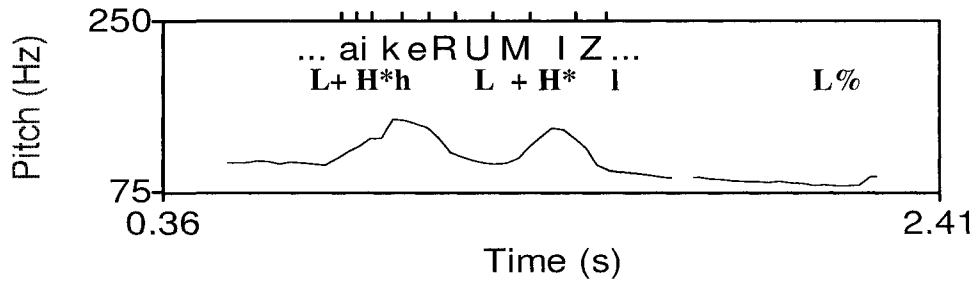


Figure 83a (which is repeated from Figure 65, Chapter 5) is the default reading, where the relative clause forms a single Accentual Phrase. In Figure 83b, *ru miz* “on the table” has received extra prominence and its newness in the discourse is more than that in 83a. For this reason, it is realized as one separate AP, which is phonetically very similar to the contrastively focused AP, but does not trigger any deaccenting. Here, we can say that the information packaging has dictated the relative clause to be realized as more than one AP. Figure 83c is the contrastive focus version (corresponding to (159a)) and as a result, everything after “on the table” is deaccented.

Before closing this section, we look at clefting and pseudoclefting in Persian, which are other ways of contrastively focusing an element. In pseudocleft constructions, the focused element is preceded by phrases like *kæs-i ke* “the one who”, *čiz-i ke* “the thing that”, and *ja-i ke* “the place that”, and in cleft constructions, the focused element is in the front of the sentence followed by a copula and the relative marker *ke* (Mahootian 1997). Examples are provided in (160) a and b, in both of which *Hamid* is the focused element.

- (160) a. *kæs-i ke xæbær-o be-hešun dad hæmid bud.*
 person-DEM REL news-RA to-them give.PAST.3SG Hamid be.PAST.3SG
 “The one who gave them the news was Hamid.”
- b. *hæmid bud ke xæbær-o be-hešun dad.*
 Hamid be.PAST.3SG REL news-RA to-them give.PAST.3SG
 “It was Hamid who gave them the news.”

Gholamalizadeh (1995) states that such constructions have the structure of complex sentences containing a relative clause, and that clefts are derived from pseudoclefts. Following the same path, I handle the intonation patterns of these two constructions in the following fashion. The pseudocleft, (160a), contains a relative clause (*ke xæbær-o be-hešun dad* “who gave them the news”) and the head noun *kæs* “person”. There are three APs in the utterance, one for the head-noun, one for the relative clause, and one for *hæmid*, which is a focused AP. In the cleft version, (160b), the focused element is in the front of the sentence; therefore, while keeping its focused AP status, deaccents everything after it. The tonal patterns of these two sentences are shown in (161).

- (161) L+H*^h L+H*^h L+H* 1 L%
- a. *kæs-i ke xæbær-o be-hešun dád HÆMÍD bud.*
 L+H* 1 L%
- b. HÆMÍD bud ke xæbær-o be-hešun dad.

Having seen focus in compound and complex sentences, in the next section we look at cases where more than one element is focused.

6.6. Focus on more than one element

So far, our discussion of focus involved focus on one item. Contrastive focus in Persian can be on more than one item too. We limit our presentation to simple SOV and copular verb declaratives. Let us consider Example (162), an SOV sentence which was treated before in the present work.

- (162) šagerd-á miz-á-ro avórd-æn.
student-PL table-PL-RA bring.PAST-3PL
“The students brought the tables.”

As discussed earlier, any of the three Accentual Phrases can be focused, which results in the deaccentuation of the following elements (if any) and a low boundary tone, more pitch excursion, and more length in the focused AP. Now let us see what happens when two APs are focused and consider all the possible cases. The three possible alternatives are given in (163). All three sentences can be thought of as having a pair-listing interpretation, for example, (163a) can be the answer to the question, “Did the students take away the chairs?”

- (163) a. šagerd-á MIZ-Á-RO AVÓRD-ÆN.
 b. ŠAGERD-Á MIZ-Á-RO avord-æn.
 c. ŠAGERD-Á miz-a-ro AVÓRD-ÆN.

The sentences in (163) are cases of “double focus”. The focused constituents are direct object and verb in (163a), subject and direct object in (163b), and subject and verb in (163c). The recordings show that the intonation of these constructions shares the following points. First, the focused APs are realized higher than non-focused ones. Second, the second focused AP in each sentence has a low boundary tone and causes deaccentuation of what follows. This can be seen in (163b), where the direct object has deaccented the verb. Third, the first focused AP does not trigger deaccentuation in the second focused AP. Fourth, the first focused AP can be realized in two different ways. One, with a high boundary tone and as part of the single IP of the whole sentence; two, with a low boundary tone and as a separate IP followed by an amount of pause. Fifth, there are two nuclear pitch accents in each sentence, that is, each focused AP is an NPA. To illustrate, the two possible intonations of (163b) are provided in Figure 84.

Fig. 84a: The double focused utterance ŠAGERD-Á MIZ-Á-RO avord-æn
 “The STUDENTS brought the TABLES” (first alternative).

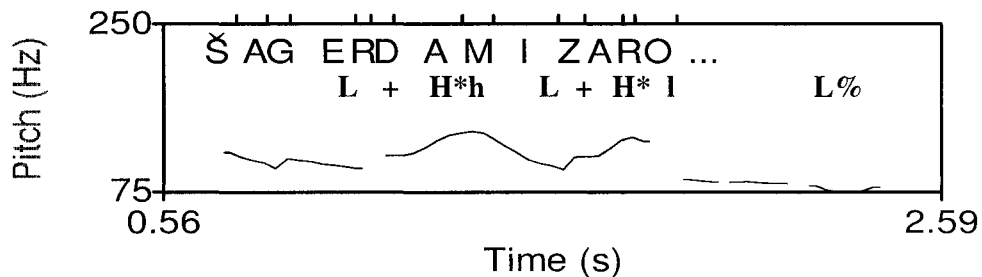
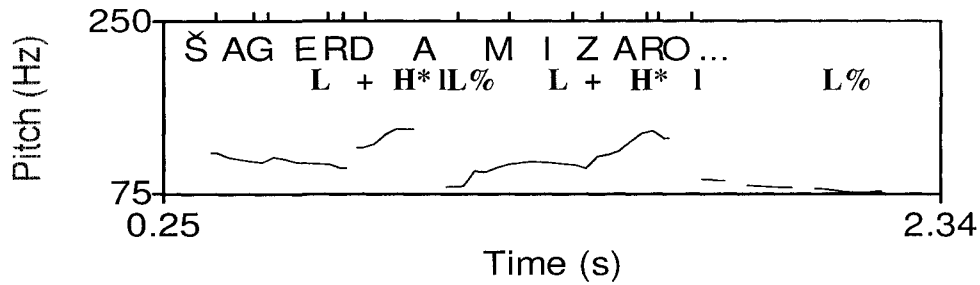


Fig. 84b: The double focused utterance ŠAGERD-Á MIZ-Á-RO avord-aen
 “The STUDENTS brought the TABLES” (second alternative).



In 84a, there are two Accentual Phrases one for each focused constituent. Their boundary tones are h and l respectively. The sentence is realized as one Intonational Phrase. This alternative can be called the pause-less alternative. 84b on the other hand has two IPs both ending low with an L%. The first contains the first focus AP with a low boundary tone and some pause at the end, and the second comprises the second focus AP also with a low boundary tone plus the deaccented verb, which carries this tone.

A contrast should be drawn between double focus constructions and constructions that involve a focused phrase consisting of more than one content word. For instance, consider (164), which is an ordinary copular verb declarative.

- (164) jæbe-hé [sængín šod-e-bud]_{VP}
 box-DEF heavy become.PAST-PART-be.PAST.3SG
 “The box had become heavy.”

The two different scenarios are as follows. One, the double focus option, where the two elements in the verb phrase are focused separately. Two, the “phrase focus” option, where the elements in the verb phrase are seen as a unit and are focused as a whole. The

latter option can be used as a response to the question “What did you say about the box?” In such a situation, there is less probability of a pause between the two focused items, and the whole sentence is realized as one IP, as is the case with the pause-less alternative for double focus constructions. Phrase focus and double focus constructions, although similar in their prosodic structure, do not behave in the same way. Compare the double focus version and the verb phrase focus version of (164), respectively appearing in (165) a and b ([]_F indicates a focused constituent), and their contours in Figures 85a and b (85a is the pause-less version of double focus).

- (165) a. *jæbe-hé* [SÆNGÍN]_F [ŠOD-É-BUD]_F.
 b. *jæbe-hé* [SÆNGÍN ŠOD-E-BUD]_F.

Fig. 85a: The utterance *jæbe-hé* [SÆNGÍN]_F [ŠOD-É-BUD]_F “The box HAD BECOME HEAVY” (double focus).

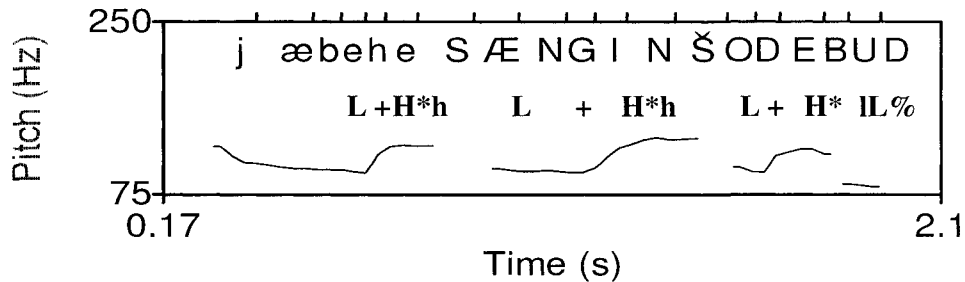
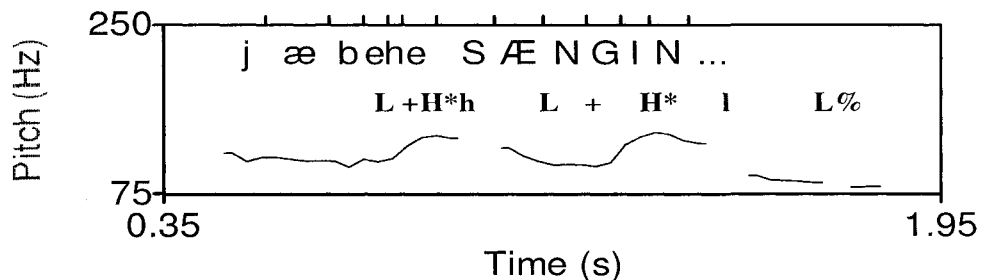


Fig. 85b: The utterance *jæbe-hé* [SÆNGÍN ŠOD-E-BUD]_F “The box HAD BECOME HEAVY” (verb phrase focus).



As can be seen, in the double focus intonation (85a), the verb is realized as a separate Accentual Phrase, but the phrase focus counterpart (85b) has the verb deaccented. This is because in (165b) although both *sængin* “heavy” and *šod-e-bud* “had become” are focused (similar to (165a)), they are seen as a whole and thus the structural prominence of the complement (*sængin*) influences the verb (*šod-e-bud*) and deaccents it. The sentence in this way becomes quite like a single focus version with only the complement focused.

6.7. Chapter summary

The intonational behaviour of focus in Persian is studied in Chapter 6. A focused constituent is assigned an Accentual Phrase which is phonologically the same as a non-focused constituent, that is, it has the tonal pattern of (L+)H*. Phonetically, a focused AP has more pitch excursion and longer duration than the non-focused counterparts. The non-focused part of a sentence is usually pronounced at a faster rate than the focused part. The focused AP in single focus constructions has a low boundary tone and causes deaccenting up to the utterance end, which may include more than one Intonational Phrase, as in the case of compound and some complex sentences. There is a constraint on the location of focus in Persian: focus cannot occur post-verbally. This constraint, however, works at the level of simplex sentences and in compound and complex sentences, regardless of the number of IPs, elements after the first verb *can* be focused. The existence of focus in yes/no questions turns the question into an echo question. In WH-questions, focus deaccentuation supersedes WH-word deaccentuation in the sense that a focused AP located to the left of a WH-word deaccents the latter (except when the

focused element is in a separate IP), but a WH-word preceding the focus does not cause any deaccentuation. In double focus constructions, focused items are realized as different APs. The second focus AP has a low boundary tone and brings about deaccentuation. The first, which does not cause deaccentuation in the second focus AP, can be realized either in the same IP with a high AP boundary tone or as a separate IP with a low AP boundary tone, an L%, and a pause. Phrase focus constructions are intonationally different from double focus constructions due to the structural prominence of elements. For instance if a copular verb construction is double focused on the complement and on the verb, both these elements form Accentual Phrases, but if the verb phrase is focused, the verb is deaccented since it follows the complement which is structurally more prominent than the verb.

Chapter 7 The intonation of vocatives²⁸

This chapter deals with the intonation of vocatives in Persian. I have described and analyzed four types of calls: default calls, anger calls, surprise calls, and chanted calls. This is done with the help of recordings by 4 native speakers of Persian. The results of the experiments of this chapter show that all types of calls share a similar general contour and are all characterized by the tonal pattern defined in the framework of this dissertation: they all have the pattern L+H* followed by an Accentual Phrase boundary tone which can be high or low depending on the call type, and all ending with a low Intonational Phrase boundary tone. We start with the issue of the location of stress in vocatives.

7.1. Stress in vocatives

The issue of stress in Persian vocatives has received some attention in the following works: Ferguson (1957), Hodge (1957), Zav'jalova (1962, 1964), Towhidi (1974), Eslami (2000), and Vahidian-Kamyar (2001). Although there is not unanimous consent on the location of stress in vocatives, most of the scholars agree that, at least in some circumstances, stress is on the initial syllable in vocatives.

To determine the most perceptually prominent syllable of vocatives, the names in (166) were presented to 5 educated native speakers of Persian (3 males, 2 females) once as citation form and once as vocative, and they were asked to pick the stressed syllable. The age range of the consultants (two of whom were linguists) was 26-41 and before

²⁸ I use “vocative” as a cover term for names in calls as opposed to names in citation form. Later, I use

moving to Canada, the time of which varied between 3 to 10 years ago, they had lived in Iran all their life. They had been using Persian in some of their daily communications since they left Iran²⁹

(166)	<u>Two-syllable</u>	<u>Three-syllable</u>	<u>Four-syllable</u>
	lale	æfsane	æmiræli
	peyman	arezu	rezaqoli

The results were consistent: the consultants unanimously judged the stress for citation forms on the ultimate syllable and for vocatives on the initial syllable. In fact, this characteristic is not limited to proper names, and all Persian words and phrases exhibit the same behaviour. For example, *dust-e mæn* (friend-EZ I) “my friend”, with the default stress on *mæn* (e.g., as used in response to “Who can do this?”), will be initially stressed (on *dust*) when used vocatively. From the foregoing discussion, I conclude that Persian vocatives bear the stress on the initial syllable, a point that will be implemented in the intonational analysis of vocatives.

7.2. Calls – default, anger, surprise

I define default calls as calls whereby a speaker calls a hearer who is at a relatively far distance. This call takes place in a neutral situation, i.e., there is no specific attitude involved in it. Anger calls are those in which a caller calls an addressee with the attitude of anger. This anger may have been the result of impatience caused by the addressee not

“call” for different types of calling.

having answered the first call, or from the caller having seen something that has made her angry, or reasons like that. Surprise calls may have been caused by the caller having seen or heard something odd.

15 names were spoken one time each by 4 educated native speakers of Persian, two female (F) and two male (M), one of them (M2) being the author. They were a subset of the 5 consultants above with an age range of 26-41, who had lived in Iran all their life before moving to Canada 3 to 10 years ago. The names were chosen on the basis of the number of syllables they have: 5 two-syllable, 5 three-syllable, and 5 four-syllable names. The names appear in (167).

(167)	<u>Two-syllable</u>	<u>Three-syllable</u>	<u>Four-syllable</u>
	a. ava	f. æfsane	k. æmiræli
	b. færzan	g. arezu	l. foruzænde
	c. humæn	h. ebrahim	m. nazafærin
	d. lalæ	i. mænučehr	n. nušafærin
	e. peyman	j. nilufær	o. rezaqoli

Monosyllabic names are excluded from this recording since these names are very rare in Persian, and it is almost always the case that in calling people with monosyllabic names, one or more syllables are added to the name. For instance, the name *sam* is usually used in calling together with the diminutive suffixes *-i* and/or *-jan* as *sam-i*, *sam-jan*, or *sam-i-jan*.

²⁹ Note that compound names like *æmiræli*, which consist of two separate names (*æmir* and *æli*), form one whole stress unit and are not phonologically different from simple names like *æfsane*.

The names were given to the speakers on cue cards in random order and each speaker read each name once. For the default calls, they were asked to use the names in (167) for calling some imaginary person in the next room in order to ask them about the place of something. For the other two types, the names above were given to the same speakers, who were asked to call the names once with an angry tone and once in a surprised state. The recordings of the three call types were done in separate stages. The productions, a total of 240 tokens, were recorded by a microphone connected to a PC, placed at a fixed distance of about 10 cm from the speaker, at the sampling frequency of 22.05 KHz. The naturalness of the attitudes in anger and surprise calls was tested by playing the utterances for the speaker who had produced them and also for other speakers. Those recordings that sounded unnatural or distorted (about 6.7 %) were discarded and such utterances were re-recorded in another session. The recordings were input to the Praat software (Boersma and Weenink 2007). The following factors were measured for each sample: the pitch of the peak (H), the pitch of the valley (initial L), the normalized pitch excursion, and the duration of the call.

7.2.1. Results and discussion

The figures in 86 contain the pitch contours of the name *ebrahim* uttered in default, anger, and surprise calls.

Fig. 86a: The name *ebrahim* in default call.

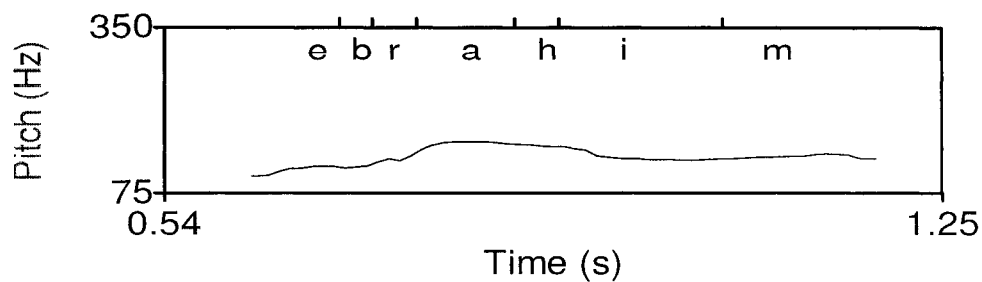


Fig. 86b: The name *ebrahim* in anger call.

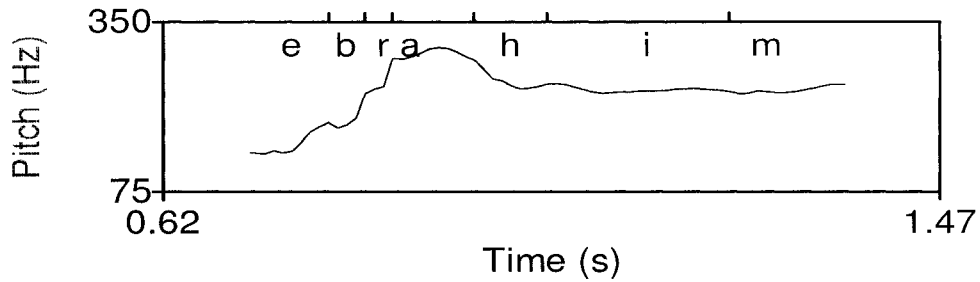
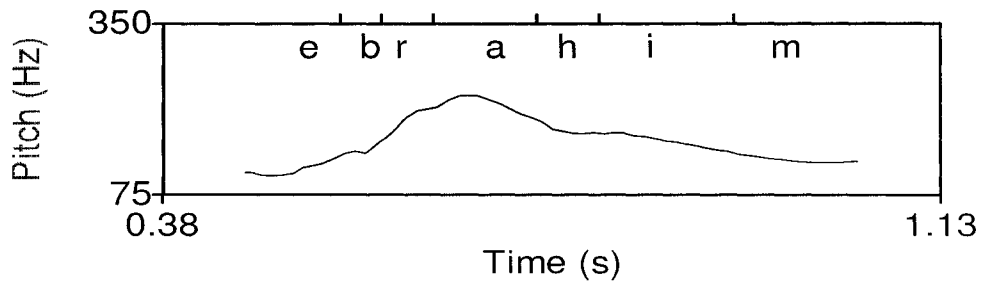


Fig. 86c: The name *ebrahim* in surprise call.



For all names of two, three, and four syllables, the pitch contours start from a low and reach a peak in the second syllable and then descend.³⁰ The descent for default and anger calls is usually to a level between the initial low and the peak, although for some anger samples, it goes lower. For surprise calls, the descent is in the form of a gradual decrease to a point almost as low as the initial low. Here, one speaker usually ended the contour at a mid level; also, the production of another speaker usually started from a pitch higher than that ending the contour.

³⁰ There is another type of surprise call in Persian familiar to the author with the stress on the ultimate syllable and a rising intonation. This type was not produced by any of the speakers and falls outside the scope of this paper.

Table 1 contains the mean values of the highest and the lowest pitch (initial L), their normalized difference (that is, their difference divided by their mean)³¹, and duration for each call type calculated for each speaker and also for all speakers.

Table 1: Mean values of highest and lowest pitch (initial L), their normalized difference (pitch excursion), and duration, for each call type across speaker and among all 4 speakers.

<i>Call type; speaker</i>	<i>H (Hz)</i>	<i>L (Hz)</i>	<i>H-L normalized</i>	<i>duration (s)</i>
Default; F1	317	221	0.356	0.80
Default; F2	342	243	0.338	0.69
Default; M1	219	131	0.505	0.68
Default; M2	164	107	0.418	0.60
Default; all	261	176	0.404	0.69
Anger; F1	390	222	0.549	0.77
Anger; F2	470	238	0.659	0.67
Anger; M1	304	145	0.708	0.66
Anger; M2	287	117	0.838	0.67
Anger; all	363	181	0.689	0.69
Surprise; F1	337	183	0.594	1.08
Surprise; F2	461	217	0.714	0.71
Surprise; M1	261	141	0.598	0.87
Surprise; M2	223	108	0.691	0.77
Surprise; all	321	162	0.649	0.86

As can be seen from the table, the mean normalized pitch excursions for default, anger, and surprise calls are 0.404, 0.689, and 0.649 respectively. A repeated-measures ANOVA based on the means of each speaker showed highly significant difference among the different call types: $F(2,6) = 15.76$, $p = 0.004$. Further, Tukey-Kramer multiple comparison tests found this difference to be between default calls on the one hand and anger and surprise calls on the other. Thus, the latter two types have a significantly higher

³¹ The small discrepancies are due to the fact that the normalized excursions are calculated with the unrounded (original) amounts of Ls and Hs.

excursion than the former. Repeated-measures ANOVAs verified that the Ls are not significantly different from each other ($F(2, 6) = 2.6, p = 0.15$) but that the Hs are ($F(2, 6) = 20.34, p = 0.002$). Tukey-Kramer multiple comparison tests for Hs showed that default calls have a significantly lower H than the other two types. As for duration, the means showed significant difference ($F(2, 6) = 7.74, p = 0.022$), the surprise type being longer than the other two (Tukey-Kramer).

7.2.2. Analysis and representation

Based on the phonetics of default, anger, and surprise calls discussed so far, we can now suggest a representation for these calls. All calls form one Accentual Phrase (and also one Intonational Phrase) and have the basic structure of an AP, that is they start from a low and move up to a high. This ascent matches the L+H* pattern for all three types. Note that although the stressed syllable is the first syllable of the name, the peak is aligned later in the second syllable, this late alignment being the case for all APs in Persian (see Chapter 8). After the H, there is a difference between default calls and anger calls on the one hand and surprise calls on the other. The former types stay high until the end of the call (though not as high as the peak). The latter type gradually comes to a low. The tonal behavior of the contours after the peak can be accommodated with the help of AP boundary tone. For default and anger calls, the boundary tone is h and for surprise calls, it is l. The h is realized lower than the peak, which is due to a phonetic downstep rule in Persian. Finally, the IP boundary tone is L% for all call types since none of the contours end with any direction change. Thus, we can have the representations in (168) for the three call types.

- (168) a. L+H* h L% default and anger calls
 b. L+H* l L% surprise calls

To exemplify (168), the contours and tonal events of the name *ebrahim* in default, anger, and surprise call are given in the figures in 87 below.

Fig. 87a: The representation of the name *ebrahim* in default call.

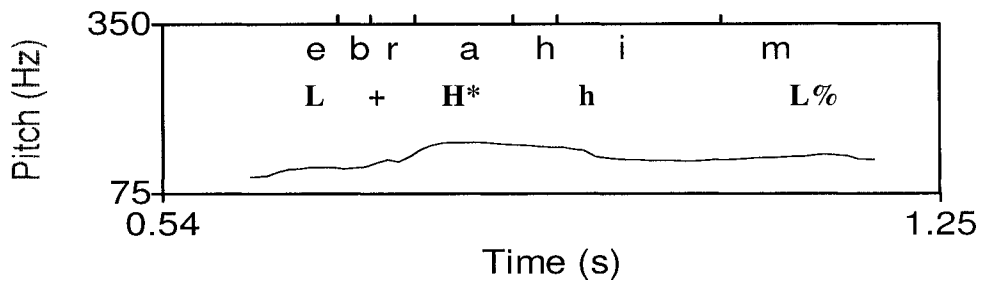


Fig. 87b: The representation of the name *ebrahim* in anger call.

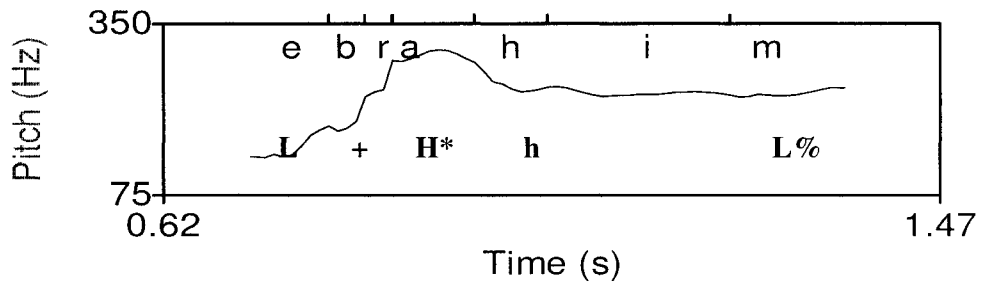
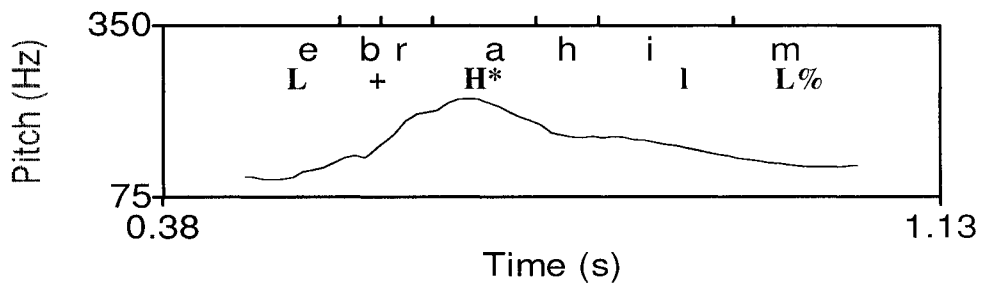


Fig. 87c: The representation of the name *ebrahim* in surprise call.



In this three-syllable name, the L+H* associates with the stressed first syllable and the peak is phonetically aligned in the following syllable. The AP boundary tone is realized in the third syllable, which is h for default and anger calls and l for surprise calls. The contours are all marked with an L% denoting that they do not involve any direction change at the end.

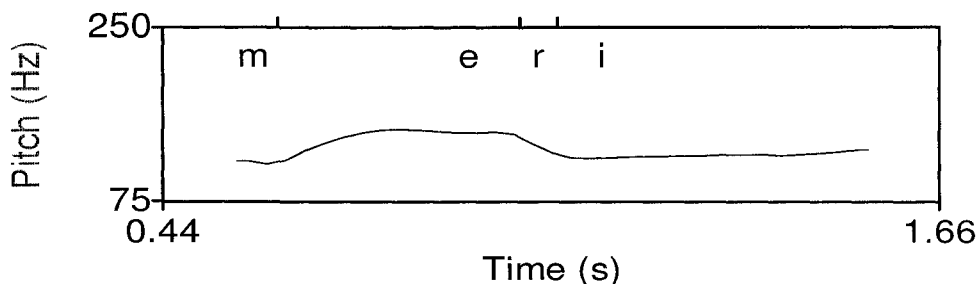
As seen in (168a), the representation for default and anger call types is the same. This is normal, since this representation is a phonological one and does not account for scaling differences. The difference between the alleged two call types is in the paralinguistic aspects of the utterance, namely that the anger call, although sharing the same contour structure with the default call, is realized with a higher pitch register. The increase of pitch register here denotes the paralinguistic message of anger. In order to accommodate the scaling details of intonation contours, researchers have implemented notations that are more phonetic in nature. Examples include INTSINT (Hirst and Di Cristo 1998) and IViE (Grabe, Nolan, and Farrar 1998). In the same spirit, in Subsection 7.4.1., I propose an alternative representation, which by getting help from music notations can possibly capture the non-categorical differences between contours. Before that, in the next section we look at another type of call common in languages, namely the chanted call.

7.3. Chanted calls

A certain type of call has been studied in the literature, which is something between speech and song. It has been given different names by different scholars, for example, “vocative chant” (Liberman 1975) and “stylized fall” (Ladd 1978). Here, I use Hayes and

Lahiri's (1991) term "chanted call" to contrast it with the other terms I have used such as default calls, etc. I distinguish the chanted call from the other types of calls studied so far in this thesis by two factors: in the chanted call, 1) the syllables are lengthened, and 2) the same pitch continues for some time, thus making the call seem more musical. In other words, the pitch contour consists of static level tones instead of moving quickly from one target point to another. For example, the name *Mary* in chanted call has the contour in Figure 88.

Fig. 88: *Mary* in chanted call.

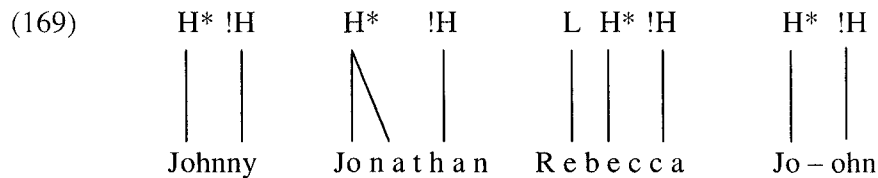


Ladd (1978) puts this type of call in his bigger category of "stylized" intonation contours and believes that these contours always characterize predictability and stereotypedness in the sense that for instance, a warning message like "Watch out!" cannot be uttered with this pattern.

7.3.1. Chanted calls in different languages

A look at the literature shows that chanted calls are attested in a number of languages. Ladd (1996) treats this type of call for English as the sequence of H* !H, the starred tone being the accented syllable of the name and ! being the diacritic for a downstepped

tone.³² Note that Ladd’s notation includes downstep in the representation, whereas in this dissertation, this phenomenon is more of a phonetic nature and is not shown in the categorical representations. He states that if there are syllables preceding the nucleus, they will be L, and also that if the lexically-stressed syllable is utterance final, it is broken down into two syllables, the first being H* and the second !H. (169) illustrates the above points.



[Ladd 1996: 137 (4.29a)]

He specifies that German basically has the same pattern with the difference that notes are less prolonged than in North American English (170).

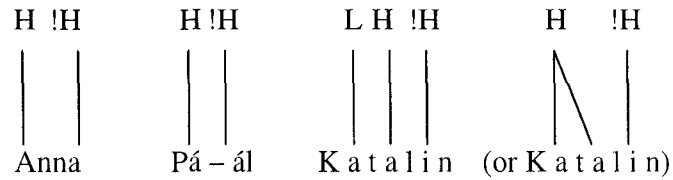


[Ladd 1996: 137 (4.29b)]

³² Gussenhoven (2004) notes that if the second tone is realized as a L, the call expresses impatience (his “low vocative chant”).

Hungarian and French have the sequence H !H on the last two syllables of the name regardless of the place of the accentual prominence. If the name has one syllable, the vowel is split up into two syllables.³³ (171) is illustrative.

(171) a. Hungarian



b. French

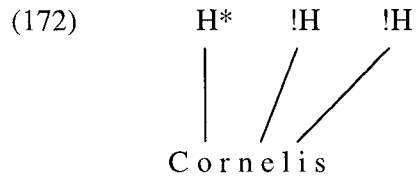


[Ladd 1996: 138 (4.30)]

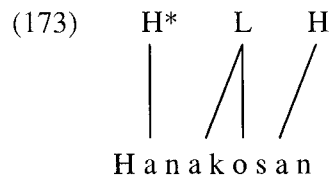
Varga (1989) claims that the chanted call, apart from Ladd's (1978) predictability factor, possesses a "mobilizing" effect in Hungarian too, in that the speaker expects the hearer to do something.

Dutch shows a similar behavior but there may be more than two level pitches (Gussenhoven 1993). I have exemplified this in (172), using Ladd's notation.

³³ For more detail on German and French, see Gibbon (1976) and Fagyal (1997) respectively.

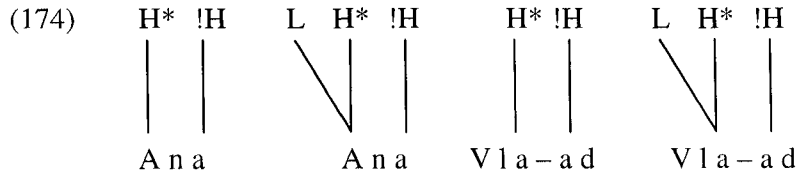


Abe (1998) reports the existence of the chanted call in Japanese. His example, which I have schematized in (173), is *Hánako-san* “Hánako-HONORIFIC” in which *Há-* is very high, *-nako* is lower, and *san* is high again.

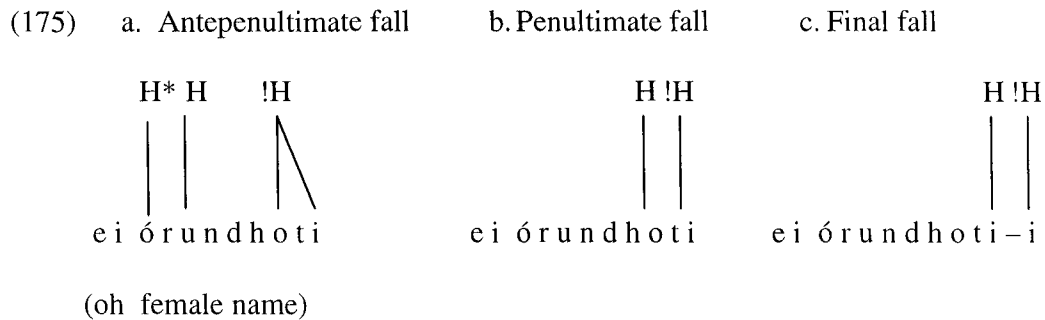


He states that this type of call is likely to be used by a group of children for calling their friend out of her house to join them.

The Romanian chanted call is similar to that of English and German. According to Dascălu (1985), it is characterized by a stepdown pitch beginning from the stressed syllable of the word which can or cannot be preceded by a “preparatory rise” (Gussenhoven 2004 uses the adjective “delayed” for English chanted calls with this rise). Names of one syllable are broken down in two. I have illustrated the Romanian chanted call in (174).



The Bengali chanted call differs from the English counterpart in that with longer names, the lowering of the pitch can occur in different places (Hayes and Lahiri 1991). (175), originally from Hayes and Lahiri (1991), is illustrative.



In all of the languages above, the chanted call has at least two levels: a higher level (H) and a lower downstepped level (!H) which occurs after the high. The H (which is sometimes preceded by an L) can be associated with a lexically stressed syllable, e.g., English (on the first syllable of *Johnny*) or with an unstressed syllable, e.g., French (on the first syllable of *Monique*). The association of !H can be dependent on stress or on the location of syllable. For instance, in the English name *Jonathan*, it is associated with the secondary-stressed syllable following the stressed syllable (i.e., *-than*), or in the Bengali name *orundhoti*, it is associated with either the ultimate or the penultimate syllable. Also,

the !H can occur more than once in Dutch, in which case each !H is lower than the previous one.

Having seen the different patterns of the chanted call in some languages, we will now see how such calls behave in Persian.

7.3.2. Chanted calls in Persian

Chanted calls in Persian, which are not necessarily related to physical distance, are associated with some attitudes other than Ladd's (1978) "predictability" and Varga's (1989) "mobilization", namely "kindness" and "friendliness". For instance, (176) is ungrammatical since it is uttered by a speaker who is angry at the addressee (this is true for English too).

(176) Speaker angry at Ramin:

*ramin [chanted call], čera in kar-o kærd-i?

Ramin why this work-RA do.PAST-2SG

"Ramin, why did you do this?"

Age and social status also play a role in the pragmatic load of this call, in the sense that a Persian speaker will usually not call somebody of a higher social rank, e.g., her boss, or an elderly person in chanted form. (177) is illustrative.

- (177) Niece to elderly aunt:
*æmme [chanted call], koja-in šoma?
aunt where-are you
“Auntie, where are you?”

According to the judgement of the speakers, this type of call is also characteristic of children’s talk, in the sense that they can very naturally use it, as in the Japanese case, for calling each other out to play.

One of the other uses of this call in Persian is for waking someone dear, as exemplified in (178).

- (178) saye[chanted call], bidar+šo!
Sayeh awake+IMP.become.2SG
“Sayeh, wake up!”

Note that in waking someone, the rest of the utterance is usually uttered in chanted form too.

In order to analyze chanted calls, the 15 names in (167) were given to the same 4 native speakers to be called in chanted style.³⁴ The recording procedure was the same as above.

The general shape of the contour is similar to that of the previous call types: there is an initial rise to a peak followed by a (slight) fall. But compared to the previous types, the

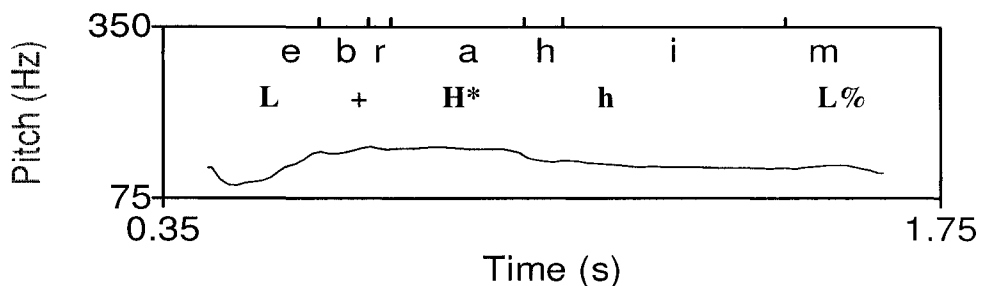
³⁴ For one of speakers, the chanted call is not very natural for four-syllable names.

rise time is less and the pitch events extend longer and stay relatively constant. Here, the ascent to the peak is less musical and more speech-like than the rest of the utterance and occurs in the first syllable. The peak lasts up to the beginning of the ultimate syllable (for two- and three-syllable names) or the beginning of the penultimate syllable (for four-syllable names). The pitch decrease is gradual for some utterances and more abrupt for others. The contour can be shown with the representation in (179).

(179) L+H* h L%

The representation is similar to those of default and anger calls. The L+H* signifies the ascent, and the AP high boundary tone h shows the behaviour of the call from the stepdown to the end. The end of the contour can be represented with an L%. Figure 89 illustrates the application of (179) to the name *ebrahim*, which is a typical contour of Persian chanted calls.

Fig. 89: The representation of the name *ebrahim* in chanted call.



As can be seen, the first and the second syllable form the L+H*. The AP boundary tone h is realized on the third syllable *him* on whose first consonant the stepdown occurs. Note that the realization of h in the chanted call (and also in default and anger calls) is different

from that in other Persian utterances in that it is phonetically downstepped compared to the previous H. This behaviour can be encoded in a proposed alternative representation which will be introduced shortly.

Table 2 contains the across-speaker and the total mean values of high, low, their normalized difference (pitch excursion), and duration.

Table 2: Across speaker and total mean values of high, low, normalized pitch excursion, and duration of chanted calls.

<i>Speaker</i>	<i>H</i> (Hz)	<i>L</i> (Hz)	<i>H-L</i> <i>normalized</i>	<i>duration</i> (s)
F1	346	221	.441	1.24
F2	312	223	.333	.99
M1	199	132	.408	1.25
M2	155	101	.429	1.31
all	253	169	.403	1.20

Repeated-measures ANOVAs revealed the following points. Out of the four factors above, the L of chanted calls is not significantly different from that of the other three types ($F(3,9) = 2.08, p = 0.17$). The other factors show significant difference (H: $F(3,9) = 12.56, p = 0.001$; Normalized H-L: $F(3,9) = 16.75, p = 0.0005$; duration: $F(3,9) = 25.88, p = 0.00009$). Tukey-Kramer multiple comparison tests determined that chanted calls are significantly longer than default, anger, and surprise calls. These tests also showed that chanted calls differ in the H and the pitch excursion from anger and surprise calls but not from default calls. In sum, the instrumental comparison of the four above-discussed types of calls concludes the following points. The pitch of the L is the same in all calls. The maximum pitch and the pitch excursion are the same in chanted and default calls, which are in turn lower than those of anger and surprise calls. Chanted calls have the most

duration, then come surprise calls, and finally default and anger calls whose lengths are the same.

Having discussed the phonology and phonetics of default, surprise, anger, and chanted calls, I now introduce the concept of “melody” of words and speech. With the help of this concept, I propose an alternative representation for calls, which I suggest can contain both phonological and phonetic information. This representation, which can be called the “melodic representation”, encodes those differences that are not captured by a purely phonological notational system.

7.4. The melody of words

In this section, I try to relate the pitch contour of vocatives to intervals in semitone units. One of the differences between music and speech is that when a note is sung or played on an instrument, the pitch remains the same in the full duration of that note.³⁵ Figure 90 shows the pitch contour of the note A₄ (440 Hz) produced by an oscillator.

Fig. 90: The pitch contour of the note A₄.

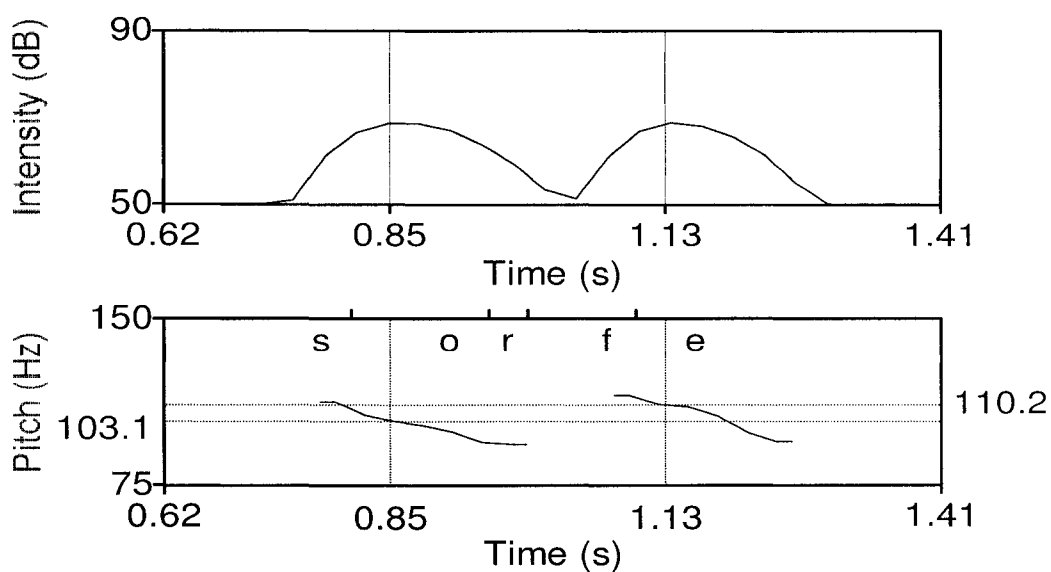


³⁵ For discussions of parallels and contrasts between music and speech see, for example, Fónagy (1981), Fujisaki (1983), Lerdahl and Jackendoff (1983), Chan (1987), Carlsen et al. (1989), Scotto di Carlo and Autesserre (1992), Patel (1998), Patel et al. (1998), Ross and Lehiste (2001), Arnold and Jusczyk (2002), Lehiste (2004), Martin (2004), and Dilley (2005).

As we can see, the pitch is 440 Hz from the beginning of the sounding of this note to its end (which is from 1.09 s to 2.55 s on the time axis). In contrast to this, the pitches of words in speech are not kept constant, i.e., when a word is uttered, the pitch curve in the duration of a syllable is not a straight line (the only exception being the chanted call where syllables have constant pitches).

One of the ways to relate words with musical intervals is to show every syllable with a pitch that represents that syllable. Different methods exist in the literature to find such a pitch. Fónagy, Bérard, and Fónagy (1983) take the point on the pitch contour that coincides with the intensity curve maximum. Patel et al. (1998) use the median F0, that is, $(\max + \min)/2$. Elordieta and Hualde (2003) consider the peak if the syllable has one, and the middle of the syllable vowel if there is no peak. In a pilot project, I applied the three methods above to the same set of data and I obtained very similar results, but what comes here is based on Fónagy et al.'s view. To exemplify, the intensity curve and the pitch contour of the word *sorfe* "cough" are drawn in Figure 91.

Fig. 91: Intensity and pitch curves of *sorfe* "cough".



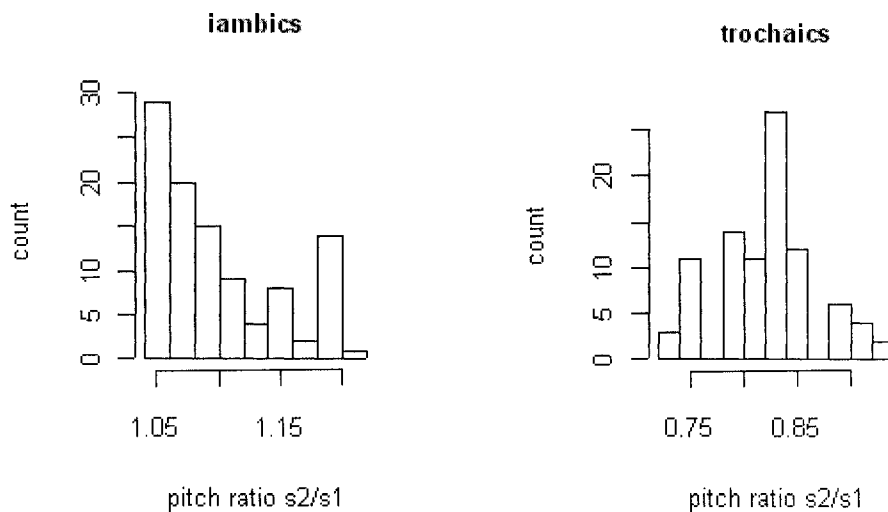
As can be seen, the intensity peaks of the first and the second syllables occur at 0.85 s and 1.13 s respectively. At these points in time, the pitch contour values are 103.1 Hz and 110.2 Hz respectively. Therefore, we will take those two pitches to represent the pronunciation of the word. Now that we have one representing pitch for every syllable, we can show the passing of one syllable to the next in speech with an interval in semitones. To do this, we get the ratio of the second pitch to the first. If the ratio is more than 1 the interval is ascending, if it is less than 1 the interval is descending, and if it is equal to 1 the interval is 0 (neither ascending nor descending). Appendix II contains pitch ratios corresponding to different semitone (ST) intervals. In the case of our example *sorfe*, this ratio is 1.069, which is quite close to the interval one ST, and owing to the fact that the ratio is greater than unity, the interval is ascending. So, the melody of the word *sorfe* is the interval one ST, ascending.

The remainder of this section contains an informal experiment with Persian iambic and trochaic words, served to further illustrate and clarify the concept of melody of words. In trying to find the melody of such words, 36 iambic and 30 trochaic words with the different combinations of the Persian 6 vowels were chosen (the words are given in Appendix III). Two points about Persian trochaic words should be mentioned. First, there are no words with /u/ as the second vowel. This is why the number of these words is 30 and not 36. Second, not many trochaic words exist in Persian, therefore, many of our recorded words contain enclitics or suffixes to reach the desired trochaic pattern. For instance, *sib-i* “an apple” consists of the word *sib* “apple” plus the indefinite marker suffix *-i* which together comprise one single word for our purpose.

Each word was recorded once in the frame sentence *begu* WORD *dobare* “say WORD again” uttered by 3 native speakers, making a total of 198 tokens. The reason for choosing a frame sentence and not using the words in isolation is to reduce the boundary effects on pitch since the word is neither in the beginning nor at the end of the utterance. The representative pitches of the syllables were then measured.

The histograms in Figure 92 illustrate the number of samples (vertical axis) against second to first syllable pitch ratio (horizontal axis) in iambic and trochaic words.³⁶

Fig. 92: Histograms of syllable pitch ratios for iambic and trochaic words (second to first syllable).



The above patterns do not define a normal curve (Shapiro-Wilk Test: $W = 0.8641$, $p < 0.01$ iambics; $W = 0.9393$, $p < 0.01$ trochaics); however, certain ratios have occurred more than others and these will suffice for providing us with an illustration of the concept of melody of words. The most frequently occurring ratio for iambic words is closest to

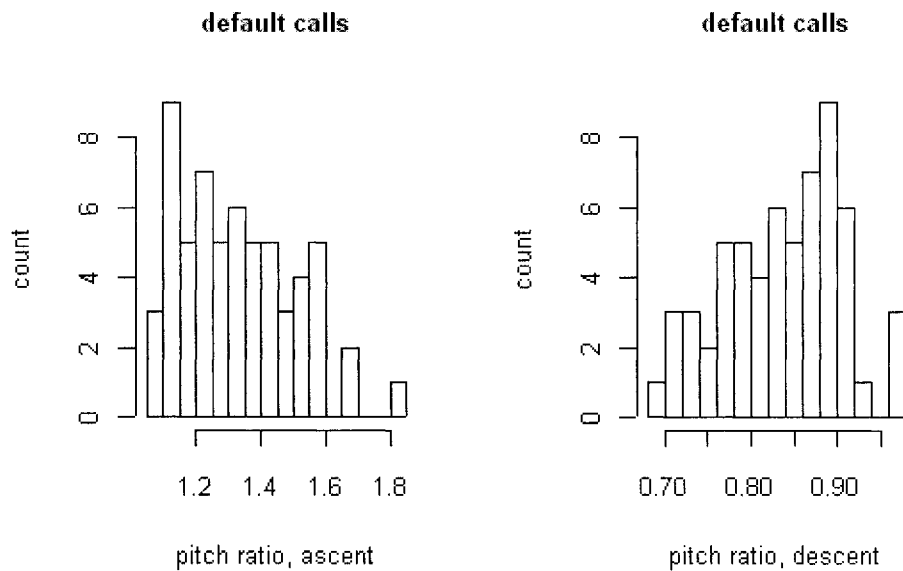
³⁶ The software used for drawing the histograms of this thesis is R (R Development Core Team 2006).

the interval of 1 ST (the ratio 1.060) and that for trochaic words to 3 ST (the ratio 0.841).³⁷ Therefore, the prevalent melodies of iambic and trochaic words are 1 ST ascending and 3 ST descending respectively.

7.4.1. The melody of calls and the melodic representation

We now apply the concept of melody of words to the different types of calls. The histograms in Figure 93 show the pitch ratios of the ascent and the descent in default calls.

Fig. 93: Histograms of ascent and descent pitch ratios in default calls.



The above distributions are near normal (Shapiro-Wilk Test: $W = 0.9571$, $p = 0.03$ ascent; $W = 0.9733$, $p = 0.21$ descent) with the mode of 1.122 for the ascent and 0.891 for

³⁷ The distributions seem to have another mode each (the ratios around 1.19 (3 ST) for iambs and 0.75 (5 ST) for trochaics). This issue is irrelevant to the point made here and I do not take any stance regarding the exact nature of these distributions.

the descent, both equivalent to 2 ST. Thus the melody of default calls can be given as in (180) (“↑” stands for semitones ascending and “↓” for semitones descending).

(180) 2↑ 2↓

If we add other phonetic information together with the phonological representation to the above melody, we will arrive at the “melodic representation”. For instance, relative pitch register can be encoded by the musical note corresponding to the first tonal event of an utterance (the pitches of musical notes in equal-tempered scale are given in Appendix IV). In this way, utterances whose intonational difference lies only in the pitch space they occupy will be differentiated from one another. Adding the first note to (180) and including the phonological representation in it as well, we get (181), which is the melodic representation of default calls.

(181) L+H* h L%; C 2↑ 2↓

The representation starts with the tonal events of default calls, then comes the first note C, followed by the melody of these calls, which is an interval of two semitones ascending followed by an interval of two semitones descending. An important point to mention here is that the first note signifies a relative concept and does not necessarily correspond to all instances of the realizations of that utterance by all speakers. That is to say, a certain tone-bearing syllable may at one instance correspond to the note C and at another instance and/or by another speaker to D. The descriptive power of the first note is in its

ability to compare different utterances, e.g., (as will be clear shortly) one of the distinguishing factors between default, anger, and surprise calls is their first note.

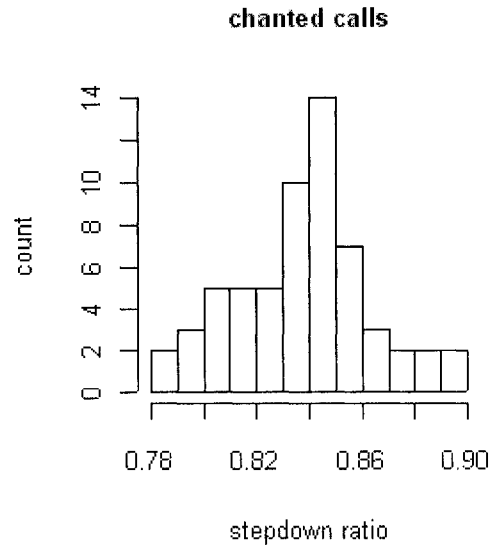
Moving on to anger and surprise calls, as stated earlier, these calls share the same basic contour type with default calls. The main distinguishing factor among these curves, as far as the melodic representation is concerned, is that anger and surprise calls have a higher pitch register than default calls. This means that they occupy a higher space along the vertical axis. The difference is on average 5 ST for anger calls and 2 ST for surprise calls. This will be tentatively encoded in the first note in the melodic representations, i.e., if we consider the first note to be C for default calls, the first note for anger calls will be 5 ST higher (the note F) and that for surprise calls will be 2 ST higher (the note D).³⁸ The melodic representations of anger and surprise calls, corresponding to the default call representation in (181), are given in (182).

(182) Anger: L+H* h L%; F 2↑ 2↓
Surprise: L+H* l L%; D 2↑ 2↓

³⁸ Note that the initial Ls of the different call types are not significantly different; however, in this tentative musical representation, the average differences are calculated and used in the notation.

For chanted calls, the histogram of stepdown interval is given in Figure 94.

Fig. 94: Distribution of the descent in chanted calls.



The histogram represents a normal distribution with a mode of almost 3 ST interval (the ratio 0.841). Based on Shapiro-Wilk Normality Test, the normality of the above distribution is more than that of the descent in default calls ($W = 0.9789$, $p = 0.38$ chanted vs. $W = 0.9733$, $p = 0.21$ default). Also, the variances of the two distributions are significantly different (Ansari-Bradley Test, $AB = 1246.5$, $p < 0.01$), that of chanted calls being much smaller. These facts show that in chanted calls, there is more consistency among speakers to reach a certain interval than in default calls, which in turn testifies to the more musical character of the former. The melodic representation of chanted calls appears in (183).

(183) L+H* h L%; D 3↓:

In (183), first there is the tonal representation L+H* h L%. Then comes the first note which is D, implying that the start of this call type is almost from the same pitch as the surprise call. This note is followed by the interval 3 semitones, denoting the stepdown ratio. The colon specifies the extra length of syllables.

The melodic representations of the four call types are repeated in (184) below. Due to the shorter initial rise in chanted calls, the L is perceptually, and musically, insignificant, hence put inside brackets.

- (184) Default: L+H* h L%; C 2↑ 2↓
 Anger: L+H* h L%; F 2↑ 2↓
 Surprise: L+H* l L%; D 2↑ 2↓
 Chanted: (L+)H* h L%; D 3↓:

In sum, the melodic representation compares phonologically similar utterances and distinguishes them from one another. It extracts the necessary information from tools such as waveforms, pitch contours (scaled in Hz or semitones), and duration markings and presents it in a concise, discrete, and easy-to-handle way. It can record pitch register differences between utterances, differences which can be the result of change of attitude. For instance, the main difference between default, anger, and surprise calls is in their pitch register, which is encoded in their first note. It can also show if there are fixed intervals between adjacent syllable pitches. The melodic representation has the potential of dealing with “melodic clichés” which may exist in languages, e.g., the French sentence *Bonjour Madame!* uttered with the notes A-F-E-D, identical to the beginning of

Beethoven's piano sonata #17 (Fónagy, Bérard, Fónagy 1983). At this point, the melodic representation is a tentative proposal and there are certain open questions in this regard. For example, there were no claims made here as to how much of the information in this representation is in the phonology and how much of it in the phonetics. Also, in its present form, it does not directly show which intervals are more stable (as in chanted calls) than others, and it does not encode any information about the intensity of utterances. I leave such questions for future research.

This chapter contained a detailed study of four types of calls in Persian, namely default calls, anger calls, surprise calls, and chanted calls. It was concluded that all these call types form one-word utterances consisting of one Accentual Phrase and one Intonational Phrase. The AP tonal pattern of all the call types is L+H*. The first syllable is lexically stressed and the peak is aligned with (or slightly before) the second syllable. The chanted call is characterized by its relatively constant pitches. The AP boundary tone of default, anger, and chanted calls is high and that of surprise calls, which show a gradual fall to the end, is low. All calls are marked with an L% since there is no drastic change of direction at the end of the contour. The overall phonetic comparison between the calls revealed that chanted calls are longer than the other three types. All calls have the same average amount of the valley pitch, but as far as the peak pitch and the pitch excursion are concerned, anger and surprise calls are realized higher than default and chanted calls. Making use of notations taken from music, an alternative representation, the melodic representation, was proposed to capture the differences between the call types.

Chapter 8 The phonetics of Persian intonation

This chapter deals with certain phonetic aspects of Persian intonation. We will verify how the tonal targets of the Persian Accentual Phrase are aligned with regard to segments and how the existence of contrastive focus affects this issue. We saw earlier that the Persian Accentual Phrase has the phonological pattern of L+H*. We now examine how the valley and the peak of an AP are aligned relative to points in the segmental string. We also measure the pitch excursion and the duration of an Accentual Phrase. So the objective of this chapter is to determine the exact way that an AP in Persian is realized. To this end, three different types of cliticized APs are investigated and compared. The first type has a high boundary tone and is not the nuclear pitch accent of the utterance. The second *is* the nuclear pitch accent and is marked by a low boundary tone. In the third type, the same Accentual Phrase as in the other two types is contrastively focused and ends in a low boundary tone.

8.1. Experiment

My aim was to determine the phonetic characteristics of the Persian Accentual Phrase and to instrumentally compare three different cliticized Accentual Phrase types: non-nuclear pitch accented high-boundary-toned AP, nuclear pitch accented low-boundary-toned AP, and focused nuclear pitch accented low-boundary-toned AP. The comparison concerned the alignment of L and H relative to certain segmental landmarks, the difference in pitches of the valley and the peak, and the duration of the segments and of the whole AP. The APs under investigation exclude those that have a low plateau caused

by a leftward spreading rule (discussed in Subsection 3.1.1.) and so are all APs realized with an observable valley.

8.1.1. Method

8.1.1.1. Design and materials

30 utterances and 4 speakers were used in this experiment that made a total of 120 samples. The 30 utterances consisted of 10 with a non-NPA high-boundary-toned test AP, 10 with an NPA low-boundary-toned test AP, and 10 with a focused test AP. In what follows, we refer to the above three types as Default-h, Default-l, and Focus types respectively. A sample set is given in (185). The test AP is italicized. (The list of sentences used in this experiment is provided in Appendix V.)

- (185) Default-h: dirúz *namé-mun* umáéd.
 yesterday letter-our come.PAST.3SG
 “Yesterday our letter arrived.”
- Default-l: mál-e *namé-mun* bud.
 property-EZ letter-our be.PAST.3SG
 “It was for our letter.”
- Focus: mál-e NAMÉ-MUN bud.
 property-EZ letter-our be.PAST.3SG
 “It was for OUR LETTER.”

The pitch tracks are given in Figure 95 with the tones of the test APs shown.

Fig. 95a: The Default-h utterance *dírúz namé-mun uméd*
 “Yesterday our letter arrived.”

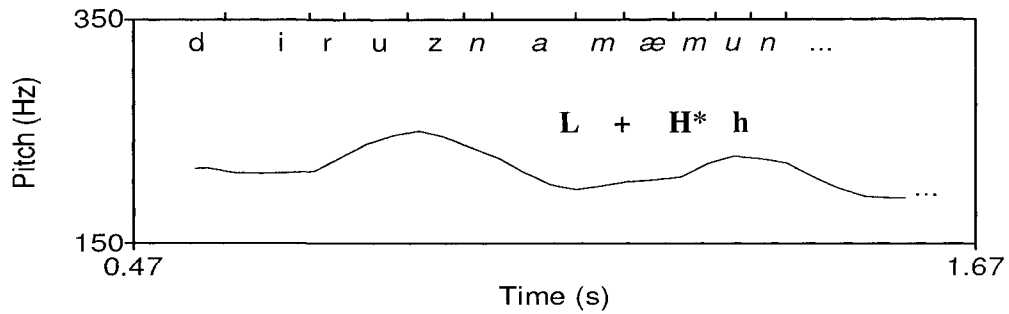


Fig. 95b: The Default-l utterance *mál-e namé-mun bud*
 “It was for our letter.”

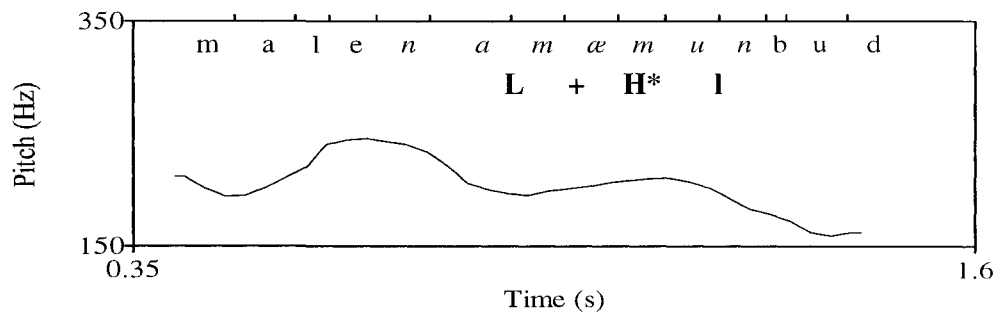
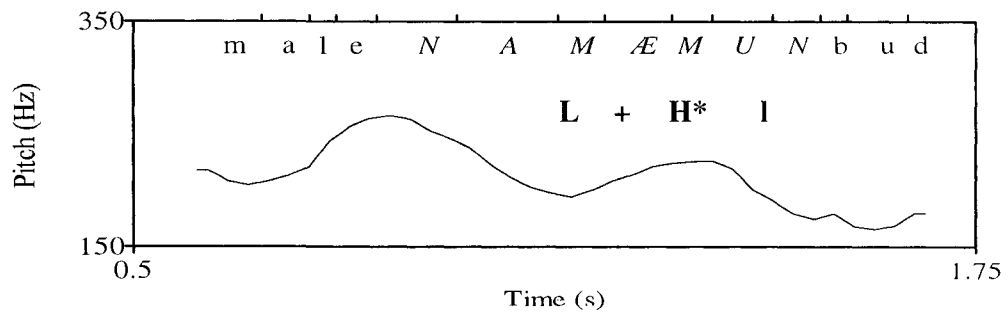


Fig. 95c: The Focus utterance *mál-e NAMÆMUN bud*
 “It was for OUR LETTER.”



The elicitation of the utterances was done by showing them to speakers on cue cards in random order. The speakers were asked to use a normal speech rate, neither fast nor

slow, and to read each utterance once. For the third type, a prompter question was asked to cause the test Accentual Phrase to become contrastively focused. Thus, every time a contrastive focus utterance came up on a card, the experimenter asked the speaker a question whose answer was the utterance on the card. For example, the question for the focus utterance in (185) was (186).

(186) mal-e ketab-etun bud?
property-EZ book-your be.PAST.3SG
“Was it for your book?”

The test AP (e.g., *namæ-mun* ‘our letter’ in (185)) was designed to be always preceded and followed by other syllables in the utterance in order to reduce the unwanted utterance-initial and utterance-final effects. The consonants on the sides of the stressed vowel in the test word were always the sonorants /l/, /m/, /n/ in order for the F0 track of the test word to be smooth and connected.

8.1.1.2. Speakers

Four speakers, two female (F) and two male (M), took part in this experiment, one of the males being the author (M2). Their age ranged from 27 to 41, all educated native speakers of Persian who spoke Tehrani dialect and who had lived in Iran all their lives before moving to Canada 3 to 6 years ago. They had been using Persian in some of their daily communications since they left Iran.

8.1.1.3. Procedure

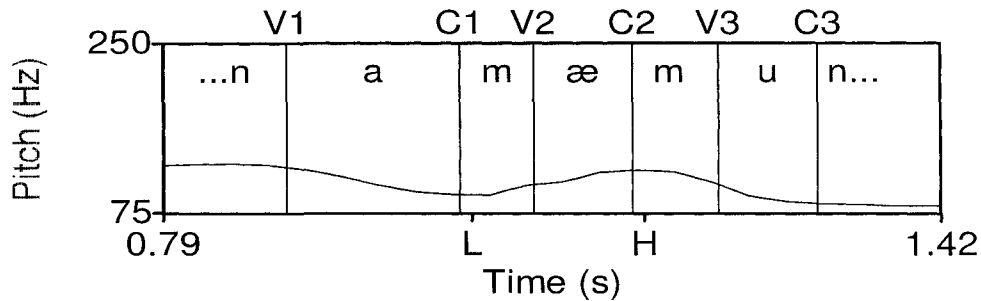
The productions of the speakers were recorded by a Marantz PMD660 professional digital voice recorder using a Shure KSM109 cardioid condenser microphone placed at a fixed distance of about 40 cm from the speaker. The recordings were input to the Praat software. The test Accentual Phrases always had the pattern L+H*. The recordings of those utterances whose valley and peak were not fully observable (about 7.5 % of the recordings) were discarded and such utterances were re-recorded in a second session. The measurement methodology was basically that of Atterer and Ladd (2004). The following eight landmarks were selected in each test AP.

- V1: The beginning of the vowel preceding the stressed vowel (V_{pre})
- C1: The beginning of the consonant preceding the stressed vowel (C_{pre})
- V2: The beginning of the stressed vowel (V_{str})
- C2: The beginning of the consonant following the stressed vowel (C_{post})
- V3: The beginning of the vowel of the clitic (V_{cli})
- C3: The end of V_{cli}
- L: The location of F0 minimum
- H: The location of F0 maximum

These landmarks help us determine the location of the maximum and the minimum of the test AP with regard to the segments. Figure 96 shows an example of the location of the above landmarks for the Default-I sentence in (185) repeated below as (187).

- (187) *mál-e* *namæ-mun* *bud.*
 property-EZ letter-our be.PAST.3SG
 “It was for our letter.”

Fig. 96: Landmarks for the AP *namæ-mun* “our letter” in a Default-1 production.



The segments in the test AP were a series of consecutive consonants and vowels for all sentences, i.e., they all consisted of the string $CV_{pre}C_{pre}V_{str}C_{post}V_{cli}$. This reassured the segmental uniformity of the data.

A justification of the alignment measurement methodology used in this research is in order here. In the alignment literature, there are different methods for measuring the alignment of pitch targets. Some researchers have taken the reference point approach (as the one adopted in this work) and some have measured proportional values such as the distance between a target and a landmark divided by duration of a stressed syllable. In their paper on the alignment of Dutch nuclear accents, Schepman, Lickley, and Ladd (2006) consider the F0 peak relative to the end of the stressed syllable. Then, they compare their results with other possible measurement methodologies: three of the reference point type – alignment relative to the beginning of the stressed vowel (Silverman and Pierrehumbert 1990), relative to the beginning of the stressed syllable (Prieto, van Santen, and Hirschberg 1995), and relative to the F0 minimum (’t Hart,

Collier, and Cohen 1990) – and one of the proportion type – alignment as a proportion of the syllable rhyme (Silverman and Pierrehumbert 1990). Schepman et al. reach the general conclusion that the overall results do not change with the methodology. However, they add that segmental landmarks (i.e., beginnings and ends of consonants or vowels) are preferred over F0 landmarks (such as 't Hart et al.'s F0 minimum method mentioned above), and also that nearby landmarks are preferred over more distant ones since the farther a landmark is, the more the probability of unrelated variances becomes.

As for the measurement of the pitch of Ls and Hs and the Accentual Phrase durations, this measurement was easily possible by the Praat software and there was no complicated methodology involved.

8.1.2. Results and discussion

Table 3 contains the mean values of the different segment durations and the AP durations for individual speakers and for all speakers. Note that the duration of the AP is not necessarily the addition of the durations of the five segments, since in some cases the Accentual Phrase contains another consonant before V_{pre} and/or after V_{cli} .

Table 3: Mean AP and segment durations for each speaker and all speakers (the abbreviations are introduced in the text).

<i>AP type; speaker</i>	<i>V_{pre}</i> (ms)	<i>C_{pre}</i> (ms)	<i>V_{str}</i> (ms)	<i>C_{post}</i> (ms)	<i>V_{cli}</i> (ms)	<i>AP duration</i> (ms)
Default-h; F1	105.4	58.3	74.6	50.1	53.0	438.7
Default-h; F2	97.8	60.0	75.7	53.7	57.0	432.1
Default-h; M1	111.8	57.6	82.2	55.0	67.9	465.1
Default-h; M2	97.2	59.2	79.4	44.6	60.4	439.6
Default-h; all	103.1	58.8	78.0	50.8	59.6	443.8
Default-l; F1	111.9	60.5	81.2	50.8	68.4	485.9
Default-l; F2	102.7	59.8	84.7	53.8	73.9	484.1
Default-l; M1	115.7	53.2	89.1	46.3	74.4	487.8
Default-l; M2	108.2	55.6	81.3	46.8	73.2	477.5
Default-l; all	109.6	57.3	84.1	49.4	72.5	483.8
Focus; F1	132.2	64.9	102.7	48.8	80.7	575.8
Focus; F2	100.4	54.3	83.2	52.7	74.0	467.5
Focus; M1	135.9	65.0	107	47.3	86.7	557.3
Focus; M2	133.9	64.7	99.5	52.5	78.2	575.8
Focus; all	125.6	62.2	98.1	50.4	79.9	544.1

A repeated-measures ANOVA on the means of speakers showed that the durations of the three AP types are different ($F(2,6) = 11.65, p = 0.009$). In order to detect where the difference was, a Tukey-Kramer multiple comparison test was performed and it was revealed that the difference is between the Default-h and the Focus AP. This means that the duration of a focused Accentual Phrase is significantly longer than that of the non-focused counterpart with a high boundary tone. The duration of non-focused APs with a low boundary tone is between those of the other two types but not significantly different from either.

Of the five segments whose lengths were measured, the vowels and not the consonants exhibited significant difference in the three types. Repeated-measures ANOVAs of the segments yielded the following amounts:

$$V_{\text{pre}}: F(2,6) = 8.70, p = 0.02$$

$$C_{\text{pre}}: F(2,6) = 1.47, p = 0.30$$

$$V_{\text{str}}: F(2,6) = 12.75, p = 0.007$$

$$C_{\text{post}}: F(2,6) = 0.16, p = 0.86$$

$$V_{\text{cli}}: F(2,6) = 31.16, p = 0.0007$$

Tukey-Kramer multiple comparison tests done for the vowels showed that the V_{pre} in Focus APs is significantly longer than in Default-h APs, and that of Default-l APs is not different from the other two in this regard. The V_{str} of the Focus type is longer than that of the other two types, and the V_{cli} of the Default-h type is shorter than the other two types.

Mean alignment values for each speaker and for all speakers are given in Table 4. L and H alignments are given with regard to two reference points each: V1 and C1 for L, and C2 and C3 for H, hence the following variables:

LV1 = The distance between F0 minimum and V1

LC1 = The distance between F0 minimum and C1

HC2 = The distance between F0 maximum and C2

HC3 = The distance between F0 maximum and C3

A negative number denotes that the minimum or maximum has occurred before the reference point.

Table 4: Mean alignment values for each speaker and for all speakers (for the definitions of variables, see the text before this table).

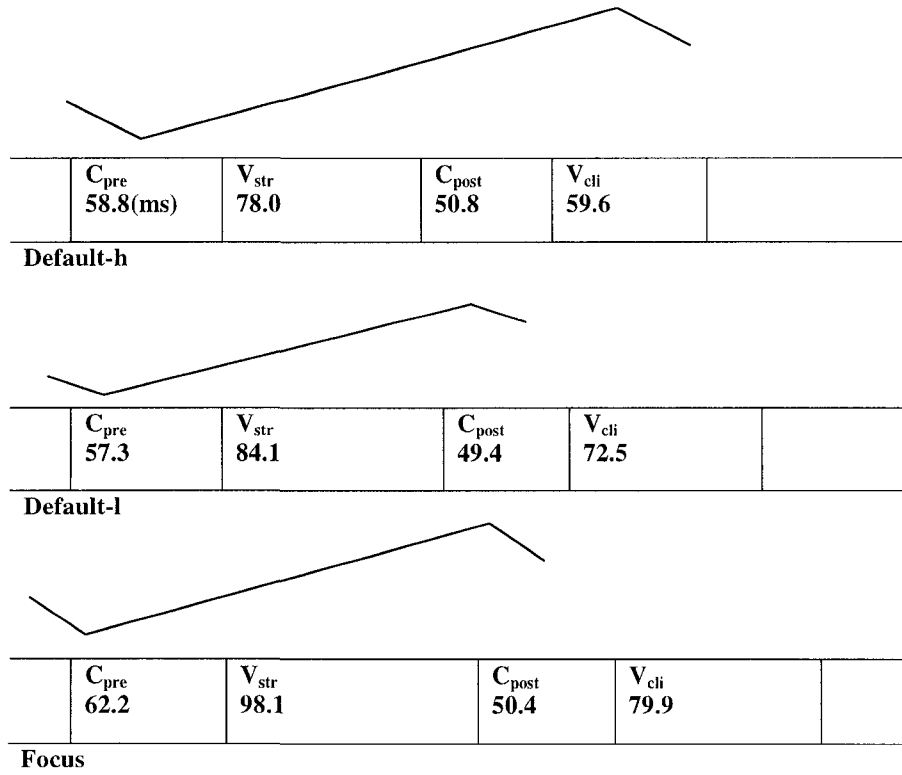
<i>AP type; speaker</i>	<i>LV1 (ms)</i>	<i>LC1 (ms)</i>	<i>HC2 (ms)</i>	<i>HC3 (ms)</i>
Default-h; F1	131.7	26.3	81.8	-21.5
Default-h; F2	136.0	43.2	94.8	-15.9
Default-h; M1	135.5	23.6	75.6	-47.3
Default-h; M2	113.0	15.7	61.2	-43.7
Default-h; all	129.0	27.2	78.0	-32.1
Default-l; F1	123.3	11.5	14.0	-105.2
Default-l; F2	119.2	16.5	10.7	-117.0
Default-l; M1	139.3	23.6	20.9	-99.7
Default-l; M2	117.1	8.9	4.7	-115.3
Default-l; all	124.7	15.1	12.6	-109.3
Focus; F1	124.6	-7.6	2.4	-127.1
Focus; F2	114.1	13.6	25.5	-101.1
Focus; M1	147.2	11.3	6.2	-127.8
Focus; M2	141.7	7.8	-3.4	-134.1
Focus;all	131.9	6.3	7.7	-122.5

The alignment of L occurs in the consonant preceding the stressed vowel in all three types. A repeated-measures ANOVA determined significant difference ($F(2,6) = 7.25, p = 0.03$) relative to the reference point C1, and Tukey-Kramer multiple comparison tests showed that the difference lies between the Default-h and the Focus types: in the former the valley is halfway through the consonant and in the latter at its onset. With regard to the reference point V1, the alignment difference of L does not reach significance level ($F(2,6) = 0.42, p = 0.68$). This is due to the fact that V1 is a farther point to L than C1. As mentioned earlier, it is preferable to measure alignment relative to a nearer variable (Schepman et al. 2006), therefore the results from C1 reference point reflect the reality more than those from V1.

The alignments of H are significantly different relative to both points (HC2: $F(2,6) = 93.11$, $p = 0.00003$; HC3: $F(2,6) = 61.51$, $p = 0.0001$). Tukey-Kramer tests revealed that the Default-h type is different from the other two. Segmentally, H is aligned with the middle of the vowel of the clitic in the Default-h type but in the beginning of the preceding consonant in the other two types. In other words, the AP type with a high boundary tone has a later alignment of H. In the Focus type, speakers F1 and M2 had negative means for LC1 and HC2 respectively. This means that F1's low occurred in the vowel preceding the stressed syllable and M2's high occurred in the stressed syllable. However, these negative averages, which are mainly affected by large negative numbers in only a couple of utterances in each case, do not seem to play a significant role and are not large enough to make the grand mean negative.

Based on the mean values in the above two tables, a schematic representation of alignment locations of L and H in different AP types is provided in Figure 97.

Fig. 97: Comparison of alignment in the three AP types.



The mean pitch values of L and H and their normalized difference (pitch excursion) appear in Table 5.

Table 5: Mean values of valley and peak pitches and their normalized difference across speaker and total.

<i>AP type; speaker</i>	<i>L (Hz)</i>	<i>H (Hz)</i>	<i>H-L normalized</i>
Default-h; F1	205	237	0.144
Default-h; F2	231	280	0.192
Default-h; M1	120	150	0.215
Default-h; M2	101	130	0.256
Default-h; all	164	199	0.202
Default-l; F1	206	224	0.085
Default-l; F2	228	253	0.101
Default-l; M1	120	138	0.132
Default-l; M2	100	122	0.199
Default-l; all	163	184	0.129
Focus; F1	198	226	0.135
Focus; F2	229	293	0.247
Focus; M1	123	151	0.202
Focus; M2	101	131	0.257
Focus; all	162	200	0.210

The mean Ls are quite close to one another (164, 163, 162 Hz) and are not significantly different ($F(2,6) = 0.30, p = 0.75$). The Hs show more variation: 199, 184, 200 Hz. The variations do not reach significance level but approach it ($F(2,6) = 4.37, p = 0.067$). The difference in the three types becomes significant in the normalized excursion, that is, the difference between H and L divided by their mean ($F(2,6) = 14.71, p = 0.005$). The difference is between the Default-l type and the other two types (Tukey-Kramer test). The higher excursion of the Focus and the Default-h types is justified: in the former the more change in pitch fluctuation is a way to make the contrastively focused AP more prominent, and in the latter the higher excursion is caused by the high AP boundary tone.

A phonetic factor absent from this experiment is intensity. Owing to the different inherent intensities of vowels, precise measurement of intensity involves controlling for segments. This has not been part of my experiment. Impressionistically however, the

Focus AP has a higher intensity than the Default ones. I informally compared the average intensity of a few APs of the three types with each other and observed that the Focus type is 1 to 2 dB louder than the other two types. I leave a more systematic investigation of intensity to future research.

8.2. Conclusion

The experiment in this chapter revealed certain phonetic characteristics of the Persian Accentual Phrase. Three different types of cliticized APs were studied: non-nuclear pitch accent high-boundary-toned APs, nuclear pitch accent low-boundary-toned APs, and focus (low-boundary-toned) APs. The results showed that the alignment of L is always in the consonant preceding the stressed vowel of the AP. The L occurs as early as the onset of this consonant in the Focus AP and goes as far as the middle of the consonant in APs with a high boundary tone.

The alignment of H is directly related to the boundary tone of the AP. For APs with a high boundary tone, the H is aligned in the middle of the vowel of the clitic. For APs with a low boundary tone, it is aligned earlier: in the preceding consonant, which is the consonant after the stressed vowel. This provides support for the claim made earlier in the dissertation that clitics carry the boundary tone of the Accentual Phrase.

The vowels of the Focus AP are on average longer than those of the non-focused counterparts. The length difference is more in the vowel of the clitic. The consonants preceding and following the stressed vowel are of the same length in all three AP types. The average duration of the AP is 544.1, 483.8, and 443.8 ms for the Focus, Default-l,

and Default-h types respectively. The difference between the first and the third is statistically significant, i.e., Focus APs are longer than Default-h ones.

The pitches of the valley in all AP types are very close but those of the peak are farther apart. The pitch excursion of the Default-l type is significantly lower than the other two types.

Chapter 9 Conclusions

9.1. Summary of main results

This thesis is an intonational journey through the Persian language. It is a grammar of Persian intonation dealing with the prosodic structure of this language and the phonology and phonetics of its contours. This was done by recoding more than 2100 utterances read by native speakers and analyzing them in the autosegmental-metrical framework of intonation.

It was proposed that the smallest unit of Persian prosody is the Accentual Phrase (AP), with the pitch accent L+H* associating with the stressed syllable. An AP usually consists of one content word plus its clitics, but this configuration can change because of factors like information structure. The pitch accent has two allophones: L+H* for finally-stressed (non-monosyllabic) words and phrases and for vocatives, and H* for initially-stressed words and monosyllabic content words. The right edge of each AP is marked by a boundary tone, which can be low or high. The nuclear AP of most simplex sentences, i.e., the last AP, has the l boundary tone and other APs have the h counterpart. The next level of Persian prosody is the Intonational Phrase (IP), which immediately dominates one or more Accentual Phrases. The right edge of an IP is marked by a low or high boundary tone, L% for declaratives, leading yes/no questions, WH-questions, alternative questions, imperatives, and vocatives, and H% for yes/no questions, tag questions, echo questions, coordinate structures, and IP-forming subordinate clauses.

Declaratives and imperatives were seen to be comprised of a series of APs, with the last having a low boundary tone and the rest a high one. Such sentences end with a low IP

boundary tone. The last AP, which is the nuclear one, causes deaccentuation up to the end of the utterance. Similar to declaratives and imperatives, interrogatives have a series of L+H APs in one IP. Yes/no questions end with an H% boundary tone. The NPA in yes/no questions has a higher pitch excursion than in declaratives. Yes/no questions also show an overall higher register and more final lengthening than declaratives. WH-questions end with an L%. The WH-word makes its own AP and attracts the NPA. It has an additional pitch increase and causes deaccentuation up to the end of the question. Multiple WH-questions have a series of APs and the last question word has the nuclear accent.

Compound sentences can have as many IPs as the number of clauses coordinated. In such a case, all the clauses of a compound structure except the last are realized as IPs with “incomplete” intonation pattern, that is, one or more high-boundary-toned APs and an H%. The last clause is an ordinary IP. Compound sentences can also be realized as one IP, e.g. those with a focused element in the first clause causing deaccentuation in the post-conjunction clause. Complex sentences can be realized as one IP – e.g. those containing a short relative clause, where the relative clause forms its own AP – or two IPs, in which case the first usually has the incomplete intonation pattern. Some subordinate clauses, such as adverb clauses, are deaccented if they occur after the matrix clause.

A focused element forms its own Accentual Phrase, with the phonological representation of L+H*, the same as an ordinary AP. A focused AP has more pitch excursion and is phonetically longer than a non-focused one. The existence of a focus AP causes deaccentuation up to the utterance end. In cases where a WH-word follows a

focused element, the WH-word loses its pitch accent. Double focus constructions involve more than one focused element. Each focused item forms a separate AP, and the second one causes deaccentuation. The focused elements can be realized in one single IP or in two separate IPs, resulting in the first focus AP having a high or a low boundary tone respectively. Phrase focus constructions behave differently from double focus constructions in that in the former, it is more the structure of the phrase rather than focus which affects the NPA location.

Vocatives were studied in four different groups: default calls, anger calls, surprise calls, and chanted calls. All call types have the stress on the first syllable and their pitch contour starts from a low, ascends to a high, and then descends. They are all realized as one AP and one IP. The ascent is represented by L+H*. The H is aligned with (or slightly before) the second syllable. An AP boundary tone accounts for the descent. Default, anger, and chanted calls have the representation L+H* hL% but the AP boundary tone of surprise calls is low, since the pitch track comes down lower than in the other types. Chanted calls have more fixed pitches and are longer, and anger and surprise calls have more pitch excursion and a higher peak.

The phonetic properties of the Persian AP were investigated through an experiment which compared three types of cliticized APs: non-nuclear APs with a high boundary tone, nuclear APs with a low boundary tone, and contrastive focus APs with a low boundary tone. The duration of the focus AP is more than that of the other two. It is the duration of the vowels which causes this difference and not that of the consonants. The L is always aligned in the consonant preceding the stressed vowel but the focus type has this low significantly earlier aligned. The alignment of H is determined by the AP

boundary tone: if it is high, the H is aligned in the vowel of the clitic following the stressed syllable, and if it is low, the H is aligned in the previous consonant. The former is significantly later than the latter. The pitch excursions of the high-boundary-toned and the focus types are significantly higher than in the low-boundary-toned nuclear type. The highs are the cause of this difference and the lows are the same in all three types.

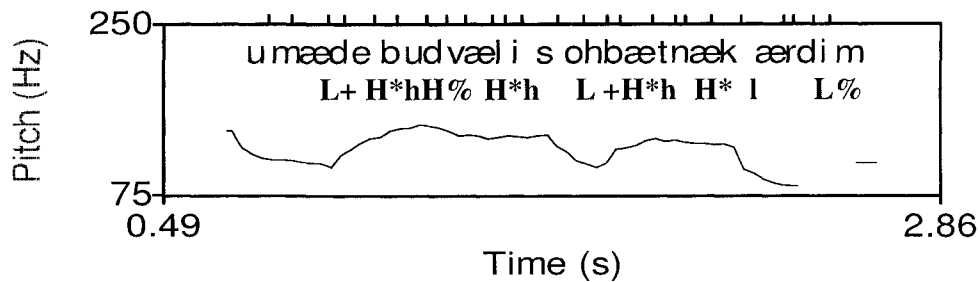
9.2. Alternative analyses

This thesis proposed a prosodic system for Persian which consists of only two levels below utterance, the AP and the IP, each with a right boundary tone. What appears in this section is a justification of this analysis and some argumentation against possible alternative analyses which are more complicated but not necessarily more adequate.

Previous proposals (e.g., Mahjani 2003, Scarborough 2007) considered the level of Intermediate Phrase between IP and AP with its characteristic tone phrase accent, shown with L- or H-. The addition of this level would mostly only complicate the system; however, it may be argued that in cases of incomplete intonation pattern, as in the first clause of coordinated structures which was analyzed here as ending with hH%, we are actually dealing with two Intermediate Phrases (or two minor IPs, e.g, Frota 2000) and not two Intonational Phrases. The reason for this claim can be the apparent inconsistency of the scaling of H% in the pre-conjunction clause: it is sometimes realized higher than the previous high level (Example (188) and Figure 98, repeated from (107) and Figure 62a) and sometimes not (Example (189) and Figure 99, repeated from (106) and Figure 61).

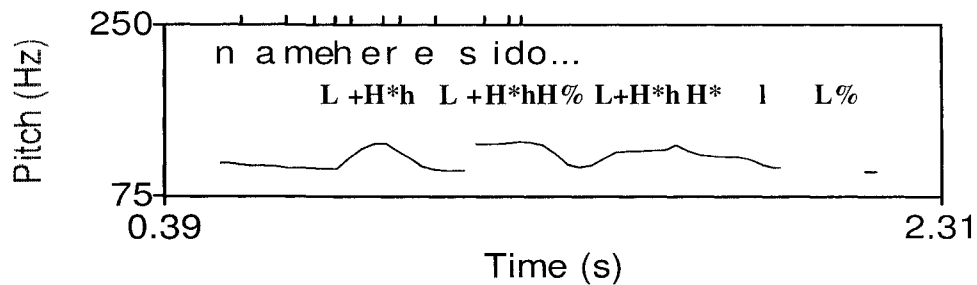
- (188) umæd-é-bud váli soh**bæt+næ-kærd-im**.
 come.PAST-PART-be.PAST.3SG but talk+NEG-do.PAST-1PL
 “S/he’d come but we didn’t talk.”

Fig. 98: The utterance *umæd-é-bud váli soh**bæt+næ-kærd-im***
 “S/he’d come but we didn’t talk.”



- (189) name-hé res-íd-o be-héš záng+zæd-æm.
 letter-DEF reach-PAST.3SG-and to-him/her bell+hit.PAST-1SG
 “The letter arrived and I called him/her.”

Fig. 99: The utterance *name-hé res-íd-o be-héš záng+zæd-æm*
 “The letter arrived and I called him/her.”

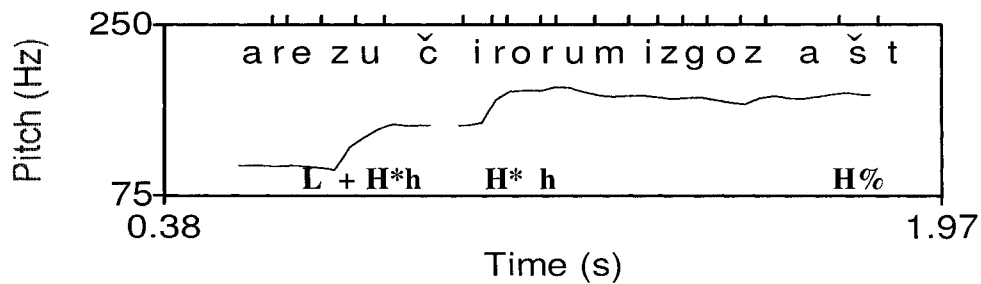


I preferred to treat the two clauses as two IPs since the prosodic boundary at the end of the first clause is also marked by temporal means, namely final lengthening and sometimes pauses, and also each clause has a perceptually prominent element. The higher pitch of the H% is not a necessity, since there are other places in Persian where this H%

does not show any change in pitch compared with the previous part of the contour, e.g., the echo question in (88) and Figure 52a, repeated below in (190) and Figure 100.

- (190) arezú č í-ro ru miz gozašt?
 Arezu what-RA on table put.PAST.3SG
 “Arezu put what on the table?” [Echo question]

Fig. 100: The echo question *arezú č í-ro ru miz gozašt*
 “Arezu put what on the table?”

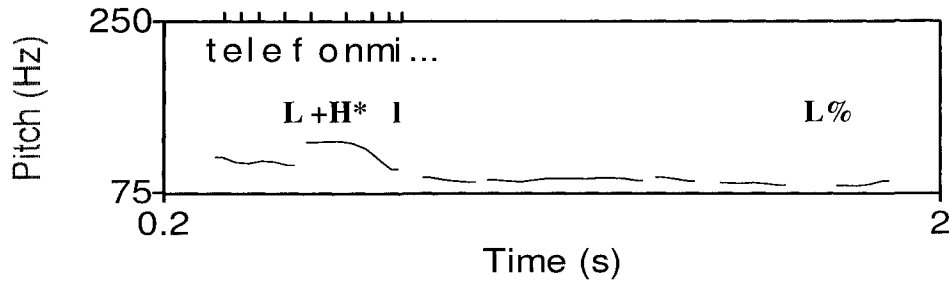


As can be seen, the final H% and the previous h have almost the same pitch level.

Another point concerns the existence of the two boundary tones for the AP level, l and h, as proposed in this work. It may be argued that one or both of these tones are redundant in the system. There are several arguments for these two tones. An argument for the existence of l is places where there is a matrix clause followed by a subordinate adverb clause and the adverb clause is deaccented, as exemplified in (138) and Figure 75, repeated below in (191) and Figure 101.

- (191) telefón+mi-kærd-æn hær væqt mi-tunest-æn.
 telephone+DUR-do.PAST-3PL each time DUR-be able.PAST-3PL
 “They called whenever they could.”

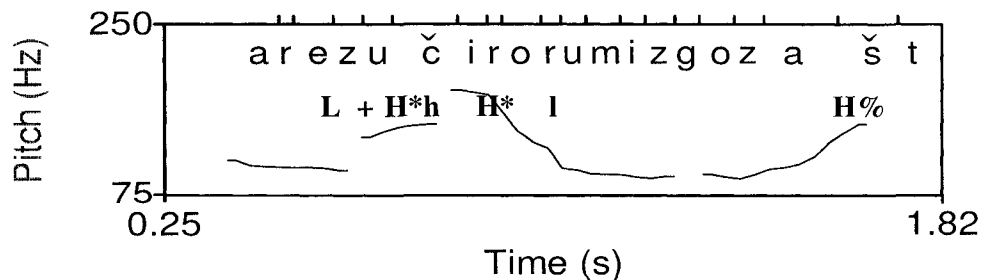
Fig. 101: The utterance *telefon+mi-kærd-æn hæq̄t mi-tunest-æn*
 “They called whenever they could.”



The low stretch after the pitch accent shows that there is a tone between the H* and the L% and it is not only an interpolation between the two, in which case the contour would have *gradually* come to a low. We could resort to a leftward spreading of the final L% which would add yet another spreading rule to the system making it needlessly complex. Besides, the alleged rule would have to arbitrarily be prevented from applying in certain cases, for instance, in yes/no questions (... lH%), where the final H% is not spread to the left.

There are structures where both l and h can exist resulting in two distinct patterns, e.g., the echo question in Figure 100 above and its counterpart in Figure 102, repeated from Figure 52b.

Fig. 102: The echo question *arezu čí-ro ru miz gozašt*
 “Arezu put what on the table?” (second alternative).



What is seen here is that the boundary tone of the second AP, in contrast to Figure 100, is low, testifying to the reality of both l and h boundary tones.

As for the existence of h, there are cases in Persian where this boundary tone is in fact quite visible and that is with high-boundary-toned cliticized APs. In such APs, the h is usually realized higher than the previous H. This makes it a distinct visible tone and quite different from its preceding H*. For instance, in the echo question of Figure 100 above, the nuclear AP, i.e., the question word *či*, is cliticized (with the enclitic *-ro*), and as can be seen from the contour, the pitch of the enclitic is higher than that of its host.

There is also the aesthetic notion of symmetry which plays in favour of the h boundary tone: a system with l vs. h is more symmetric and cross-linguistically more prevalent than one with l vs. Ø.

The different phonetic properties of APs with a low and a high boundary tone are another piece of evidence for l and h. As was seen in Chapter 8, the high of a non-nuclear high-boundary-toned AP is aligned with the vowel of the clitic following the stressed syllable and that of a nuclear low-boundary-toned AP is with the previous consonant. Also, these two highs are scaled differently: the one with a high boundary tone is scaled higher. Such phonetic observable facts are reasons to believe that both AP boundary tones exist in Persian.

On a more functional level, the l and h make a difference in making an AP nuclear and non-nuclear respectively. The final (nuclear) AP in a simplex sentence is low-boundary-toned and the pre-nuclear APs are high-boundary-toned.

While the foregoing discussion suggests that the proposed prosodic system in this dissertation can be a good candidate to handle the prosody of Persian, it is still a first proposal and future research will definitely shed more light on the darker corners.

9.3. Summary table

The final section of this dissertation contains a summary of the structures discussed. This table includes information on the intonational properties of these structures. The properties concern the intonation patterns of different sentence types and constructions and their phrasing and prominence characteristics, together with the alignment rules of Persian Accentual Phrases.

Table 6: Summary of structures and their intonational properties.

<u>Structure</u>	<u>Intonation pattern/Phrasing/Alignment</u>	<u>Nuclear pitch accent</u>
Declaratives	$((L+)H^*h)^n (L+)H^*l L\%$ $n = 0,1,2,\dots$	(On final AP)
Copulars	- The L and H of Persian nuclear APs are aligned with the consonants preceding and following the stressed syllable respectively – in non-nuclear APs, H is aligned in the next segment	On final element of complement
SVs		<i>Unergatives</i> : on V <i>Unaccusatives</i> : on V, if S is specific on S, if S is non-specific
SOVs		On V, if O is specific On O, if O is non-specific
Adv./motions		On adverbial
Interrogatives		
Yes/no questions	$((L+)H^*h)^n (L+)H^*l H\%$ $n = 0,1,2,\dots$	Same as declaratives
The particle <i>aya</i>	Adds an AP	No change
The particle <i>hič</i>	Adds an AP	No change
The particle <i>mæge</i> (Leading YNQ)	Can add an AP, Declarative <i>or</i> Yes/no question intonation	No change
Tags	Two IPs: <i>Pre-tag</i> : Declarative intonation <i>Tag</i> : Yes/no question intonation	Two NPAs, one in each IP
WH-questions	Declarative intonation	On WH-word (final WH-word in multiple WH-questions)
The particle <i>mæge</i>	Can add an AP	On WH-word
Echo WH-questions	$((L+)H^*h)^n H\%$ $n = 1,2,3,\dots$ <i>or</i> Yes/no question intonation	On WH-word
Imperatives	Declarative intonation	Same as declaratives
Compound structures	Two IPs, one for each clause: 1 st clause: $((L+)H^*h)^n H\%$ $n = 1,2,3,\dots$ “Incomplete Pattern” 2 nd clause: Declarative intonation	Two NPAs, one in each IP
With the conjunction <i>væli</i>	Same as above <i>or</i> both IPs declarative intonation	Two NPAs, one in each IP
Alternative questions	Same as above <i>or</i> IP1: Yes/no question intonation IP2: Declarative intonation	Two NPAs, one in each IP
Complex structures		
Relative clauses (restrictive or non-restrictive)	(Usually 1 AP; if long, >1 AP) Declarative intonation	Can be in the matrix or the relative clause
Extraposed relative clauses	One IP, declarative intonation <i>or</i>	Can be in the matrix or the relative clause
	Two IPs, one for each clause (has focus interpretation): Matrix clause: Incomplete Pattern Subordinate clause: declarative intonation	Two NPAs, one in each IP

Presentational amalgam constructions	Two IPs: Incomplete Pattern + declarative intonation	Two NPAs, one in each IP
Noun clauses		
<i>Fact</i> -type	Same as relative clauses	Same as relative clauses
<i>Obvious</i> -type	One IP, declarative intonation <i>or</i>	On adj. in the matrix clause
	Two IPs, one for each clause: Matrix clause: Incomplete Pattern Subordinate clause: declarative intonation	Two NPAs, one in each IP
	If <i>It</i> -extraposed, same as relative clauses	Same as relative clauses
<i>Say</i> -type	Two IPs, one for each clause: Matrix clause: Incomplete Pattern Subordinate clause: declarative or YNQ intonation depending on sentence type	Two NPAs, one in each IP
<i>Forget</i> -type	One IP, declarative intonation	On matrix verb
Adverb clauses	One IP, declarative intonation <i>or</i>	Usually in the matrix clause
	Two IPs, one for each clause (for some adverb clauses of purpose, cause, and negative condition): Matrix clause: Incomplete Pattern Subordinate clause: declarative intonation	Two NPAs, one in each IP
Focus	Any intonation depending on sentence type	On the focused element
Double focus	One IP	Two NPAs on two foci
	Two IPs (an IP break after the 1 st focus)	Two NPAs on two foci
Clefts and pseudoclefts	Same as relative clauses	On the focused element
Vocatives		
Default, anger, and chanted calls	L+H* <i>h</i> L% - H is aligned with the 2 nd syllable	(One-AP utterances)
Surprise calls	L+H* <i>l</i> L% - H is aligned with the 2 nd syllable	(One-AP utterance)

9.4. Future directions

There are certain questions that are left open in the present work. Here is a summary of these points. The first concerns the phonological representation of the Persian Accentual Phrase (Chapter 3), which was taken to be L+H*. As the phonetic study of the Persian AP shows (Chapter 8), the low and the high of a nuclear AP are aligned with the consonants preceding and following the stressed vowel, and this raises the question of the exact autosegmental representation of the pitch accent. This question can be addressed with more preciseness by adding certain other control factors to the mix such as the

number of vowels and consonants in an AP or the phonetic qualities of the vowel, and by considering alternative analyses such as secondary association. Thus, the existence of the star on H, as proposed here, can be more closely compared to other options such as the star on L, on the whole complex, or no star at all.

Another issue left for future work is the role of intensity in the phonetic research of Chapters 7 and 8. The exact measurement of intensity calls for control for vowel type. Vowels have different inherent intensities with some being more sonorous than others. Thus, for instance the more loudness of the first (stressed) syllable of *dádi* “you gave” can be due to the higher sonority of /a/ than /i/, and not due to stress. Therefore, the intensity-related comparison of APs should be done with APs with identical vowels, which will hopefully be done in future.

Owing to its tentativeness, the melodic representation introduced in Chapter 7 leaves certain questions open. One is the issue of intensity discussed above. The next is the exact nature of this representation. The notation contains information related to both phonology, e.g., the type of pitch accent of the call, and phonetics, e.g., the interval used in it. Thus, the melodic representation encodes information of mixed type. Further research is needed to determine what the underlying nature of this representation is. Also, in its current form, the melodic representation does not show the degree of stability of an interval. For example, the interval used in chanted calls is more fixed than that of the other three types, and ideally this should be reflected in the notation.

An alternative analysis for treating the different alignment patterns of peak is one based on the concept of secondary association. The view is originally from Pierrehumbert and Beckman (1988), which was later adopted by other scholars, e.g., Grice (1995a),

Gussenhoven (2000), Prieto, D’Imperio, and Gili Fivela (2005), and Face and Prieto (2007). The idea is that phonetic alignment of tones indicates different kinds of phonological representations, and that tonal targets of pitch accents have a primary association to stressed syllables but may also have a secondary association to edges of prosodic constituents. I leave the applicability of this option to Persian open for future research.

Apart from some informal observations (Chapter 4), I have not fully investigated the intonation of exclamations. Such sentences do not have a fixed form in Persian, and studying their intonation requires a thorough look at the effect of different emotions such as surprise, joy, and disgust in the intonation of Persian utterances. This undertaking is left for future research.

Dialectal variations are another issue that can be investigated in future work. The thesis deals with Modern Conversational Persian and uses speakers of this specific dialect. It would be worthwhile to study the intonation systems of other dialects of the Persian language and see the potential similarities and differences existing between them and the dialect explored here. Also, the speakers used had fairly consistent speech as far as the different patterns and sentences types were concerned. Follow-up research can choose speakers from different demographic groups and investigate the intonational differences among the groups, e.g., the tendencies of the younger generation compared with those of the older speakers.

Finally, the exceptional behaviour of two of Persian WH-words, i.e., *čera* “why” and *četon* “how come” was not accounted for in the present work. As mentioned in Chapter 4, WH-words cannot usually follow a verb and become deaccented (adverbial

motion constructions are an exception). The above two question words, however, can. So in Persian, there are sentences with either of these two question words, where they appear after the verb and lose their focal nature and become deaccented. The reason for this is to be explored in future work.

Appendix I – Persian phonemes

Vowels

	front	back
high	i	u
mid	e	o
low	æ	a
diphthong		ow

Consonants

	Bilabial	Labiodental	Dental/ Alveolar	Alveopalatal	Prevelar/ Velar	Uvular	Glottal
Stops	p/b		t/d		k/g	q	'
Affricates				č/j			
Fricatives		f/v	s/z	š/ž	x		h
Liquids			l,r				
Nasals	m		n				
Glides				y			

Appendix II – Intervals in semitone units

Pitch ratio of 2 nd to 1 st tone, ascending-descending	No. of semitones (ST)
1-1	0 (C to C)
1.060-0.944	1 (C to C [#])
1.060-0.944	1 (C to D ^b)
1.122-0.891	2 (C to D)
1.189-0.841	3 (C to D [#])
1.189-0.841	3 (C to E ^b)
1.260-0.794	4 (C to E)
1.335-0.749	5 (C to F)
1.414-0.707	6 (C to F [#])
1.414-0.707	6 (C to G ^b)
1.498-0.667	7 (C to G)
1.587-0.630	8 (C to G [#])
1.587-0.630	8 (C to A ^b)
1.682-0.595	9 (C to A)
1.782-0.561	10 (C to A [#])
1.782-0.561	10 (C to B ^b)
1.888-0.530	11 (C to B)
2-0.5	12 (C to next C)

Appendix III – Iambic and trochaic words (used in Chapter 7) (internal structure of

words not shown)

second first vowel vowel	/i/	/e/	/æ/	/u/	/o/	/a/
/i/	1. <i>piri</i> 'old age'	2. <i>mive</i> 'fruit'	3. <i>ziræk</i> 'astute'	4. <i>niru</i> 'force'	5. <i>tizro</i> 'fast'	6. <i>ziba</i> 'beautiful'
/e/	7. <i>sebil</i> 'moustache'	8. <i>gereh</i> 'knot'	9. <i>šekær</i> 'sugar'	10. <i>gerdu</i> 'walnut'	11. <i>jelo</i> 'front'	12. <i>sedu</i> 'sound'
/æ/	13. <i>pæri</i> 'fairy'	14. <i>mælek</i> 'king'	15. <i>mælæk</i> 'angel'	16. <i>æbru</i> 'eyebrow'	17. <i>ælo</i> 'flame'	18. <i>hæva</i> 'weather'
/u/	19. <i>tuti</i> 'parrot'	20. <i>rude</i> 'intestine'	21. <i>kudæk</i> 'child'	22. <i>mubur</i> 'blond'	23. <i>kuroš</i> 'Kurosh'	24. <i>surax</i> 'hole'
/o/	25. <i>xodi</i> 'insider'	26. <i>jom'e</i> 'Friday'	27. <i>sohbæt</i> 'talk'	28. <i>doru</i> 'hypocrite'	29. <i>mono</i> 'mono'	30. <i>xoda</i> 'God'
/a/	31. <i>bazi</i> 'game'	32. <i>male</i> 'trowel'	33. <i>bavær</i> 'belief'	34. <i>rasu</i> 'weasel'	35. <i>naro</i> 'trick'	36. <i>mana</i> 'lasting'

Iambic words

second first vowel vowel	/i/	/e/	/æ/	/u/	/o/	/a/
/i/	1. <i>sibi</i> 'an apple'	2. <i>mire</i> 's/he goes'	3. <i>miræn</i> 'they go'	4. --	5. <i>mizo</i> 'table'	6. <i>zira</i> 'because'
/e/	7. <i>deli</i> 'a heart'	8. <i>bere</i> 's/he go'	9. <i>bešæm</i> 'I become'	10. --	11. <i>kešo</i> 'elastic band'	12. <i>kera</i> 'whom'
/æ/	13. <i>væli</i> 'but'	14. <i>bæle</i> 'yes'	15. <i>ræftæm</i> 'I went'	16. --	17. <i>næro</i> 'don't go!'	18. <i>æmma</i> 'but'
/u/	19. <i>ruzi</i> 'a day'	20. <i>zude</i> 'it's early'	21. <i>xunæt</i> 'your blood'	22. --	23. <i>uno</i> 'that'	24. <i>ura</i> 'him/her'
/o/	25. <i>šodi</i> 'you became'	26. <i>sore</i> 'it's slippery'	27. <i>bordæm</i> 'I took'	28. --	29. <i>boxor</i> 'eat!'	30. <i>tora</i> 'you'
/a/	31. <i>bari</i> 'anyway'	32. <i>kale</i> 'it's unripe'	33. <i>malæš</i> 'his/her property'	34. --	35. <i>abo</i> 'water'	36. <i>mara</i> 'us'

Trochaic words

Appendix IV – Pitches of musical notes in equal-tempered scale

A₄ = 440 Hz; Middle C is C₄

Note	Pitch (Hz)	Note	Pitch (Hz)	Note	Pitch (Hz)	Note	Pitch (Hz)
C ₀	16.35	C [#] ₂ /D ^b ₂	69.30	D ₄	293.66	D [#] ₆ /E ^b ₆	1244.51
C [#] ₀ /D ^b ₀	17.32	D ₂	73.42	D [#] ₄ /E ^b ₄	311.13	E ₆	1318.51
D ₀	18.35	D [#] ₂ /E ^b ₂	77.78	E ₄	329.63	F ₆	1396.91
D [#] ₀ /E ^b ₀	19.45	E ₂	82.41	F ₄	349.23	F [#] ₆ /G ^b ₆	1479.98
E ₀	20.60	F ₂	87.31	F [#] ₄ /G ^b ₄	369.99	G ₆	1567.98
F ₀	21.83	F [#] ₂ /G ^b ₂	92.50	G ₄	392.00	G [#] ₆ /A ^b ₆	1661.22
F [#] ₀ /G ^b ₀	23.12	G ₂	98.00	G [#] ₄ /A ^b ₄	415.30	A ₆	1760.00
G ₀	24.50	G [#] ₂ /A ^b ₂	103.83	A ₄	440.00	A [#] ₆ /B ^b ₆	1864.66
G [#] ₀ /A ^b ₀	25.96	A ₂	110.00	A [#] ₄ /B ^b ₄	466.16	B ₆	1975.53
A ₀	27.50	A [#] ₂ /B ^b ₂	116.54	B ₄	493.88	C ₇	2093.00
A [#] ₀ /B ^b ₀	29.14	B ₂	123.47	C ₅	523.25	C [#] ₇ /D ^b ₇	2217.46
B ₀	30.87	C ₃	130.81	C [#] ₅ /D ^b ₅	554.37	D ₇	2349.32
C ₁	32.70	C [#] ₃ /D ^b ₃	138.59	D ₅	587.33	D [#] ₇ /E ^b ₇	2489.02
C [#] ₁ /D ^b ₁	34.65	D ₃	146.83	D [#] ₅ /E ^b ₅	622.25	E ₇	2637.02
D ₁	36.71	D [#] ₃ /E ^b ₃	155.56	E ₅	659.26	F ₇	2793.83
D [#] ₁ /E ^b ₁	38.89	E ₃	164.81	F ₅	698.46	F [#] ₇ /G ^b ₇	2959.96
E ₁	41.20	F ₃	174.61	F [#] ₅ /G ^b ₅	739.99	G ₇	3135.96
F ₁	43.65	F [#] ₃ /G ^b ₃	185.00	G ₅	783.99	G [#] ₇ /A ^b ₇	3322.44
F [#] ₁ /G ^b ₁	46.25	G ₃	196.00	G [#] ₅ /A ^b ₅	830.61	A ₇	3520.00
G ₁	49.00	G [#] ₃ /A ^b ₃	207.65	A ₅	880.00	A [#] ₇ /B ^b ₇	3729.31
G [#] ₁ /A ^b ₁	51.91	A ₃	220.00	A [#] ₅ /B ^b ₅	932.33	B ₇	3951.07
A ₁	55.00	A [#] ₃ /B ^b ₃	233.08	B ₅	987.77	C ₈	4186.01
A [#] ₁ /B ^b ₁	58.27	B ₃	246.94	C ₆	1046.50	C [#] ₈ /D ^b ₈	4434.92
B ₁	61.74	C ₄	261.63	C [#] ₆ /D ^b ₆	1108.73	D ₈	4698.64
C ₂	65.41	C [#] ₄ /D ^b ₄	277.18	D ₆	1174.66	D [#] ₈ /E ^b ₈	4978.03

Appendix V – The data used for this dissertation

The full list of vocatives appears in Chapter 7 and is not repeated here. Capital letters denote contrastive focus.

1. hæva æbri šod.
weather cloudy become.PAST.3SG
“The weather got cloudy.”
2. ketab-a inja hæst-æn.
book-PL here be.PRES-3PL
“The books are here.”
3. jævab-emun dorost-e.
answer-our correct-is
“Our answer is correct.”
4. livan-æm unja-st.
glass-my there-is
“My glass is there.”
5. in jæbe sængin-e.
this box heavy-is
“This box is heavy.”
6. hæftad-ta danešju inja hæst-æn.
seventy-CLS student here be.PRES-3PL
“There are seventy students here.”

7. bæ'zi æz mærdom dæspače mi-š-æn.
 some of people embarrassed DUR-become.PRES-3PL
 "Some people get embarrassed."
8. hæmin do-jeld ketab kafi-ye.
 this very two-CLS book enough-is
 "These two books are enough."
9. dær-e otaq baz bud.
 door-EZ room open be.PAST.3SG
 "The door of the room was open."
10. mo'ællem-æm aqa-ye nami inja-st.
 teacher-my Mr.-EZ Nami here-is
 "My teacher Mr. Nami is here."
11. divar-e ašpæzxune-ye hæmsaye-ye ma xærab šod.
 wall-EZ kitchen-EZ neighbour-EZ we broken down become.PAST.3SG
 "The wall of the kitchen of our neighbour collapsed."
12. væqt bæra-ye bazi ziyad-e.
 time for-EZ play much-is
 "There's much time for playing."
13. in jæbe-ye sefid sængin-e.
 this box-EZ white heavy-is
 "This white box is heavy."

14. hæftad-ta danešju-ye sæxtkuš inja hæst-æn
seventy-CLS student-EZ hard-working here be.PRES-3PL

“There are seventy hard-working students here.”

15. bæ’zi æz mærdom-e inja dæspače mi-š-æn.
some of people-EZ here embarrassed DUR-become.PRES-3PL

“Some of the people here get embarrassed.”

16. hæmin do-jeld ketab-e mofid kafi-ye.
this very two-CLS book-EZ useful enough-is

“These two useful books are enough.”

17. in dovvomin dæfæ-t-e.
this second time-your-is

“This is your second time.”

18. unja do-ta miz hæst.
there two-CLS table be.PRES.3SG

“There are two tables there.”

19. mozu hæmin radiyo-ha-s.
subject this very radio-PL-is

“The thing is these very radios.”

20. in ard-e ziyad-i-ye.
this flour-EZ much-IND-is

“This is too much flour.”

21. una adæm-a-ye mehræbun-i bud-æn.
 they person-PL-EZ kind-IND be.PAST-3PL
 “They were kind people.”
22. æli šagerdævvæl-e kelas šod.
 Ali top student-EZ class become.PAST.3SG
 “Ali became the top student of the class.”
23. kilid-e mal-e dær-e ænbar bud.
 key-DEF property-EZ door-EZ storage room be.PAST.3SG
 “The key was for the door of the storage room.”
24. še’r-a æz ša’er-e bozorg rumi bud.
 poem-PL from poet-EZ great Rumi be.PAST.3SG
 “The poems were from the great poet Rumi.”
25. hæva-ye šæhr-emun æbri šod.
 weather-EZ city-our cloudy become.PAST.3SG
 “The weather of our city got cloudy.”
26. hær do-ta miz abi-ye rošæn bud.
 each two-CLS table blue-EZ light be.PAST.3SG
 “Both tables were light blue.”
27. jelo-ye mænzel čænd-ta deræxt hæst.
 front-EZ house several-CLS tree be.PRES.3SG
 “There are a few trees in front of the house.”

28. divar-e otaq-e pesær-æm ye no' abi-ye zendæ-s.
wall-EZ room-EZ son-my a kind blue-EZ lively-is

“The wall of my son’s room is a kind of lively blue.”

29. divar-e otaq qermez-e rošæn bud.
wall-EZ room red-EZ light be.PAST.3SG

“The wall of the room was light red.”

30. æbri šod.
cloudy become.PAST.3SG

“It became cloudy.”

31. inja hæst-æn.
here be.PRES-3PL

“They’re here.”

32. dorost-e.
correct-is

“It’s correct.”

33. baz bud.
open be.PAST.3SG

“It was open.”

34. qermez bud.
red be.PAST.3SG

“It was red.”

35. hæva æbri næ-šod.
 weather cloudy NEG-become.PAST.3SG
 “The weather didn’t get cloudy.”
36. in jæbe sængin nist.
 this box heavy not be.PRES.3SG
 “This box isn’t heavy.”
37. dær-e otaq baz næ-bud.
 door-EZ room open NEG-be.PAST.3SG
 “The door of the room wasn’t open.”
38. una adæm-a-ye mehræbun-i næ-bud-æn.
 they person-PL-EZ kind-IND NEG-be.PAST-3PL
 “They weren’t kind people.”
39. mina unja næ-bud.
 Mina there NEG-be.PAST.3SG
 “Mina wasn’t there.”
40. æbri šod hæva.
 cloudy become.PAST.3SG weather
 “The weather got cloudy.”
41. baz bud dær-e otaq.
 open be.PAST.3SG door-EZ room
 “The door of the room was open.”

42. mal-e dær-e ænbar bud kilid-e.
property-EZ door-EZ storage room be.PAST.3SG key-DEF

“The key was for the door of the storage room.”

43. abi-ye rošæn bud hær do-ta miz.
blue-EZ light be.PAST.3SG each two-CLS table

“Both tables were light blue.”

44. qermez-e rošæn bud divar-e otaq.
red-EZ light be.PAST.3SG wall-EZ room

“The wall of the room was light red.”

45. name-ye maman-æm bud ru miz.
letter-EZ mom-my be.PAST.3SG on table

“It was my mom’s letter on the table.”

46. QÆZA MUNDE BUD.
food stale be.PAST.3SG

“THE FOOD WAS STALE.”

47. qæza MUNDE BUD.

“The food WAS STALE.”

48. qæza MUNDE bud.

“The food was STALE.”

49. QÆZA munde bud.

“THE FOOD was stale.”

50. qæza munde BUD.

“The food WAS stale.”

51. mæn be una mædyun hæst-æm.

I to they indebted be.PRES-1SG

“I’m indebted to them.”

52. mæn ba bæčče-ha movafeq-æm.

I with child-PL agreeing-am

“I agree with the children.”

53. ladæn æz dæst-e mæn delxor-e.

Ladan from hand-EZ I upset-is

“Ladan is upset with me.”

54. in eqdam bæra-ye mærdom zæruri-ye.

this measure for-EZ people essential-is

“This measure is essential for people.”

55. mæn be ayænde-ye una omidvar-æm.

I to future-EZ they hopeful-am

“I’m hopeful about their future.”

56. be næzær-e mæn jævab-emun dorost-e

to opinion-EZ I answer-our correct-is

“In my opinion our answer is correct.”

57. mive bæra-ye mæn xub-e.

fruit for-EZ I good-is

“Fruit is good for me.”

58. hæva bæ'd æz šiš xonæk mi-š-e.
 weather after from six cool DUR-become.PRES-3SG
 “The weather gets cool after 6.”
59. bæra-ye ma ahæn æz čub behtær-e.
 for-EZ we iron from wood better-is
 “For us iron is better than wood.”
60. hæva mote'æssefane æbri šod.
 weather unfortunately cloudy become.PAST.3SG
 “The weather got unfortunately cloudy.”
61. mote'æssefane hæva æbri šod.
 “Unfortunately the weather got cloudy.”
62. ketab-a ehtemalæn inja hæst-æn.
 book-PL probably here be.PRES-3PL
 “The books are probably here.”
63. ehtemalæn ketab-a inja hæst-æn.
 “Probably the books are here.”
64. mæn xošbæxtane be una mædyun næ-bud-æm.
 I fortunately to them indebted NEG-be.PAST-1SG
 “I was fortunately not indebted to them.”
65. hæva diruz æbri šod.
 weather yesterday cloudy become.PAST.3SG
 “The weather got cloudy yesterday.”

66. diruz hæva æbri šod.

“Yesterday the weather got cloudy.”

67. hæva emruz æbri-ye.

weather today cloudy-is

“The weather is cloudy today.”

68. hæva EMRUZ æbri-ye.

“The weather is cloudy TODAY.”

69. livan-æm mæ'mulæn unja-st.

glass-my usually there-is

“My glass is usually there.”

70. mæ'mulæn livan-æm unja-st.

“Usually my glass is there.”

71. hæva arumarum aftabi šod.

weather little by little sunny become.PAST.3SG

“The weather became sunny little by little.”

72. qeymæt-a særi' gerun šod.

price-PL quickly expensive become.PAST.3SG

“The prices went up quickly.”

73. hæva ye kæm aftabi šod.

weather a little sunny become.PAST.3SG

“The weather became almost sunny.”

74. qeymæt-a ye kæm gerun šod.
 price-PL a little expensive become.PAST.3SG
 “The prices went up a bit.”
75. deræxt-a-ye inja xeyli bolænd-e.
 tree-PL-EZ here very tall-is
 “The trees here are very tall.”
76. inja deræxt-a-ye xeyli bolænd hæst.
 here tree-PL-EZ here tall be.PRES.3SG
 “There are very tall trees here.”
77. in jæbe xeyli sængin-e.
 this box-EZ very heavy-is
 “This box is very heavy.”
78. væqt bæra-ye bazi xeyli ziyad-e.
 time for-EZ play very much-is
 “There’s very much time for playing.”
79. jævun-a xeyli dæspače mi-š-æn.
 young-PL very embarrassed DUR-become.PRES-3PL
 “Young people get very embarrassed.”
80. mærdom-e inja xeyli mehræbun-æn
 people-EZ here very kind-are
 “The people here are very kind.”

81. hæftad-ta daneşju-ye xeyli sæxtkuş inja hæst-æn
seventy-CLS student-EZ very hard-working here be.PRES-3PL

“There are seventy very hard-working students here.”

82. ye name umæd-e.

a letter arrive.PAST-PART.3SG

“A letter has arrived.”

83. ye name-ye mohem umæd-e.

a letter important arrive.PAST-PART.3SG

“An important letter has arrived.”

84. ye name bæra-ye mina umæd-e.

a letter for-EZ Mina arrive.PAST-PART.3SG

“An important letter has arrived for Mina.”

85. name-ha res-id-e.

letter-PL reach-PAST-PART.3SG

“The letters have arrived.”

86. name-ha-ye lazem res-id-e.

letter-PL-EZ necessary reach-PAST-PART.3SG

“The necessary letters have arrived.”

87. name mohemm-e umæd.

letter important-DEF arrive.PAST.3SG

“The important letter arrived.”

88. ab tu sæd dæreje boxar mi-š-e.
water in hundred degree vapour DUR-become.PRES-3SG

“Water evaporates at 100 degrees.”

89. ab dær sefr dæreje yæx+mi-zæn-e.
water in hundred degree ice+DUR-hit.PRES-3SG

“Water freezes at zero degrees.”

90. ab-e boxar šod.
water-DEF vapour become.PAST.3SG

“The water evaporated.”

91. xošbæxtane ye name umæd-e.
fortunately a letter arrive.PAST-PART.3SG

“Fortunately a letter has arrived.”

92. xošbæxtane name-he umæd-e.
fortunately letter-DEF arrive.PAST-PART.3SG

“Fortunately the letter has arrived.”

93. diruz ye name umæd.
yesterday a letter arrive.PAST.3SG

“Yesterday a letter arrived.”

94. name-ha diruz res-id.
letter-PL yesterday reach-PAST.3SG

“The letters arrived yesterday.”

95. ladæn tond umæd.

Ladan quickly come.PAST.3SG

“Ladan came quickly.”

96. ladæn tond umæd.

Ladan quickly come.PAST.3SG

“Ladan immediately came.”

97. ladæn dir umæd.

Ladan late come.PAST.3SG

“Ladan came late.”

98. nami xænd-id.

Nami laugh-PAST.3SG

“Nami laughed.”

99. nader xænd-id.

Nader laugh-PAST.3SG

“Nader laughed.”

100. xošbæxtane nader xænd-id.

fortunately Nader laugh-PAST.3SG

“Fortunately Nader laughed.”

101. nader mæ'mulæn færyad+mi-zæn-e.

Nader usually cry+DUR-hit.PRES-3SG

“Nader usually shouts.”

- 102.nader səri' kar+mi-kon-e.
 Nader quickly work+DUR-do.PRES-3SG
 “Nader works quickly.”
- 103.nader səri' də'va+mi-kon-e.
 Nader quickly work+DUR-do.PRES-3SG
 “Nader is quick to fight.”
- 104.nader kəm hærf+zæd.
 Nader little word+hit.PAST.3SG
 “Nader talked little.”
- 105.nader ye kəm hærf+zæd.
 Nader a little word+hit.PAST.3SG
 “Nader talked a little.”
- 106.šagerd-a miz-a-ro avord-æn.
 student-PL table-PL-RA bring.PAST-3PL
 “The students brought the tables.”
- 107.mina film-a-ro did-e-bud.
 Mina film-PL-RA see.PAST-PART-be.PAST.3SG
 “Mina had seen the movies.”
- 108.arezu film-a-ro did-e-bud.
 Arezu film-PL-RA see.PAST-PART-be.PAST.3SG
 “Arezu had seen the movies.”

109. arezu film-o did-e-bud.

Arezu film-RA see.PAST-PART-be.PAST.3SG

“Arezu had seen the movie.”

110. arezu film-o did.

Arezu film-RA see.PAST.3SG

“Arezu saw the movie.”

111. arezu film-a-ro did.

Arezu film-PL-RA see.PAST.3SG

“Arezu saw the movies.”

112. mæn film-o did-æm.

I film-RA see.PAST-1SG

“I saw the movie.”

113. pesær-emun film-a-ro did-e-bud.

son-our film-PL-RA see.PAST-PART-be.PAST.3SG

“Our son had seen the movies.”

114. šagerd-a-ye mædrese miz-a-ro avord-æn.

student-PL school table-PL-RA bring.PAST-3PL

“The students of the school brought the tables.”

115. šagerd-a-ye mædrese miz-a-ye alminiyomi-ro avord-æn.

student-PL school table-PL-RA aluminum-RA bring.PAST-3PL

“The students of the school brought the aluminum tables.”

116.dust-æm arezu film-a-ro did-e-bud.

friend-my Arezu film-PL-RA see.PAST-PART-be.PAST.3SG

“My friend Arezu had seen the movies.”

117.dust-æm arezu hæme-ye film-a-ro did-e-bud.

friend-my Arezu all-EZ film-PL-RA see.PAST-PART-be.PAST.3SG

“My friend Arezu had seen all of the movies.”

118.una did-e-bud-æn-eš.

they see.PAST-PART-be.PAST-3PL-it

“They’d seen it.”

119.miz-a-ro avord-æn.

table-PL-RA bring.PAST-3PL

“They brought the tables.”

120.film-a-ro did-e-bud.

film-PL-RA see.PAST-PART-be.PAST.3SG

“S/he’d seen the movies.”

121.film-o did-e-bud.

film-RA see.PAST-PART-be.PAST.3SG

“S/he’d seen the movie.”

122.film-o did.

film-RA see.PAST.3SG

“S/he saw the movie.”

123. livan-æm-o vərdašt.

glass-my-RA pick up.PAST.3SG

“S/he picked up my glass.”

124. šagerd-a miz-a-ro næ-yavord-æn.

student-PL table-PL-RA neg-bring.PAST-3PL

“The students didn’t bring the tables.”

125. arezu film-a-ro næ-did-e-bud.

Arezu film-PL-RA NEG-see.PAST-PART-be.PAST.3SG

“Arezu hadn’t seen the movies.”

126. pesær-emun film-a-ro næ-did-e-bud.

son-our film-PL-RA NEG-see.PAST-PART-be.PAST.3SG

“Our son hadn’t seen the movies.”

127. šagerd-a-ye mædrese miz-a-ye alminiyomi-ro næ-yavord-æn.

student-PL school table-PL-RA aluminum-RA NEG-bring.PAST-3PL

“The students of the school didn’t bring the aluminum tables.”

128. mæqaze-he gol-e lale næ-dašt.

shop-DEF flower-EZ tulip NEG-have.PAST.3SG

“The shop didn’t have tulip flowers.”

129. mehmun-a qæza avord-æn.

guest-PL food bring.PAST-3PL

“The guests brought food.”

130.mina film did-e-bud.

Mina film see.PAST-PART-be.PAST.3SG

“Mina had seen movies.”

131.arezu film did.

Arezu film see.PAST.3SG

“Arezu saw movies.”

132.arezu yazdæh-ta film did.

Arezu eleven-CLS film see.PAST.3SG

“Arezu saw 11 movies.”

133.hæme-ye mehmun-a qæza-ha-ye xošmæzze avord-æn.

all-EZ guest-PL food-PL-EZ delicious bring.PAST-3PL

“All the guests brought delicious foods.”

134.šagerd-a miz-a-ro avord-æn.

student-PL table-PL-RA bring.PAST-3PL

“The students brought the tables.”

135.šagerd-a avord-æn miz-a-ro.

136.miz-a-ro šagerd-a avord-æn.

137.miz-a-ro avord-æn šagerd-a.

138.avord-æn miz-a-ro šagerd-a.

139.avord-æn šagerd-a miz-a-ro.

140.ŠAGERD-A miz-a-ro avord-æn.

141.šagerd-a MIZ-A-RO avord-æn.

142.šagerd-a miz-a-ro AVORD-ÆN.

143. MIZ-A-RO šagerd-a avord-æn.
144. miz-a-ro ŠAGERD-A avord-æn.
145. miz-a-ro šagerd-a AVORD-ÆN.
146. ŠAGERD-A avord-æn miz-a-ro.
147. šagerd-a AVORD-ÆN miz-a-ro.
148. MIZ-A-RO avord-æn šagerd-a.
149. miz-a-ro AVORD-ÆN šagerd-a.
150. AVORD-ÆN miz-a-ro šagerd-a.
151. AVORD-ÆN šagerd-a miz-a-ro.
152. šagerd-a MIZ-A-RO AVORD-ÆN. [Double focus]
153. ŠAGERD-A MIZ-A-RO avord-æn. [Double focus]
154. ŠAGERD-A miz-a-ro AVORD-ÆN. [Double focus]
155. jæbe-he SÆNGIN ŠOD-E-BUD. [Double focus]
156. jæbe-he SÆNGIN ŠOD-E-BUD. [Phrase focus]
157. dar-æm ru qæt'e-ye dovvom kar+mi-kon-æm.
 have.PRES-1SG on piece-EZ second work+DUR-do.PRES-1SG
 "I'm working on the second piece."
158. in mæs'æle be to bæstegi+dar-e.
 this issue to you dependence+dave.PRES-3SG
 "This issue depends on you."
159. sina tu zirzæmin zendegi+mi-kon-e.
 Sina in basement life+DUR-do.PRES-3SG
 "Sina lives in the basement."

160.ramin æz hæme či xæbær+dar-e.

Ramin from all thing news+have.PRES-3SG

“Ramin has the news of everything.”

161.mæn æz una so'al+kærd-æm.

I from they question+do.PAST-1SG

“I asked them.”

162.dašt-im tu hæyat værzeš+mi-kærd-im.

have.PAST-1PL in garden sport+DUR-do.PAST-1PL

“We were exercising in the garden.”

163.bæčče-ha tu zirzæmin bazi+mi-kon-æn.

child-PL in basement play+DUR-do.PRES-3PL

“The children are playing in the basement.”

164.nader tu otaq xab-id.

Nader in room sleep-PAST.3SG

“Nader slept in the room.”

165.neda dar-e tu estæxr šena+mi-kon-e.

Neda have.PRES-3SG in pool swimming+DUR-do.PRES-3SG

“Neda is swimming in the pool.”

166.xošbæxtane šagerd-a miz-a-ro avord-æn.

fortunately student-PL table-PL-RA bring.PAST-3PL

“Fortunately the students brought the tables.”

167. arezu film-a-ro hæt mæn did-e.
 Arezu film-PL-RA definitely see.PAST-PART.3SG
 “Arezu has definitely seen the movies.”
168. šagerd-a diruz miz-a-ro avord-æn.
 student-PL yesterday table-PL-RA bring.PAST-3PL
 “The students brought the tables yesterday.”
169. ladæn jævab-a-ro mæ’ mulæn mi-dun-e.
 Ladan answer-PL-RA usually DUR-know.PRES-3SG
 “Ladan usually knows the answers.”
170. šagerd-a miz-a-ro særi’ avord-æn.
 student-PL table-PL-RA quickly bring.PAST-3PL
 “The students quickly brought the tables.”
171. arezu film-a-ro dæqiq did-e-bud.
 Arezu film-PL-RA carefully see.PAST-PART-be.PAST.3SG
 “Arezu had carefully watched the movies.”
172. xošbæxtane mehmun-a qæza avord-æn.
 fortunately guest-PL food bring.PAST-3PL
 “Fortunately the guests brought food.”
173. arezu ehtemalæn dar-e film mi-bin-e.
 Arezu probably have.PRES-3SG film DUR-see.PRES-3SG
 “Arezu is probably seeing movies.”

174.mehmun-a emruz qæza avord-æn.

guest-PL today food bring.PAST-3PL

“The guests brought food today.”

175.arezu æqlæb film mi-bin-e.

Arezu often film DUR-see.PRES-3SG

“Arezu often sees movies.”

176.ramin arum zærf+mi-šur-e.

Ramin slowly dish+DUR-wash.PRES-3SG

“Ramin washes the dishes slowly.”

177.arezu xeyli film did-e-bud.

Arezu very film see.PAST-PART-be.PAST.3SG

“Arezu had seen many movies.”

178.mæn jæbæ-ro ru miz gozašt-æm.

I box-RA on table put.PAST-1SG

“I put the box on the table.”

179.mæn ye jæbe ru miz gozašt-æm.

I a box on table put.PAST-1SG

“I put a box on the table.”

180.ladæn hæmæ-ro be nahar dæ’væt+kærd.

Ladan all-RA to lunch invitation+do.PAST.3SG

“Ladan invited everyone to lunch.”

- 181.mæn væsa'el-æm-o tu-ye ænbar negæh+mi-dar-æm.
 I things-my-RA in-EZ storage room look+DUR-have.PRES-1SG
 "I keep my stuff in the storage room."
- 182.nader be ma čænd-ta æks nešun+dad.
 Nader to we several-CLS photo sign+give.PAST.3SG
 "Nader showed us a few photos."
- 183.nader æks-a-ro be ma nešun+dad.
 Nader photo-PL-RA to we sign+give.PAST.3SG
 "Nader showed us the photos."
- 184.ladæn be madær-eš kæfš dad.
 Ladan to mother-her shoe give.PAST.3SG
 "Ladan gave shoes to her mother."
- 185.ladæn kæfš-a-ro be madær-eš dad.
 Ladan shoe-PL-RA to mother-her give.PAST.3SG
 "Ladan gave the shoes to her mother."
- 186.arezu jæryan-o be hæme goft.
 Arezu story-RA to everybody say.PAST.3SG
 "Arezu told the story to everybody."
- 187.foruq diruz bæra sohrab piræn xær-id.
 Foruq yesterday for Sohrab shirt buy-PAST.3SG
 "Forough bought a shirt for Sohrab yesterday."
- 188.FORUQ diruz bæra sohrab piræn xær-id.
- 189.foruq DIRUZ bæra sohrab piræn xær-id.

190.foruq diruz BÆERA sohrab piræn xær-id.

191.foruq diruz bæra SOHRAB piræn xær-id.

192.foruq diruz bæra sohrab PIRÆN xær-id.

193.foruq diruz bæra sohrab piræn XÆR-ID.

194.ladæn xunæ-ro æz mæn xær-id.

Ladan house-RA from I buy-PAST.3SG

“Ladan bought the house from me.”

195.ladæn ye mašin bæra bæradaer-eš xær-id.

Ladan a car for brother-her buy-PAST.3SG

“Ladan bought a car for her brother.”

196.una xunæ-ro diruz xær-id-æn.

they house-RA yesterday buy-PAST-3PL

“They bought the house yesterday.”

197.un nevisænde mæn-o ba hærf-a-š nejat+dad.

that author I-RA with word-PL-his/her rescue+give.PAST.3SG

“That author saved me with his/her words.”

198.ramin qæza-š-o tu ašpæzxune xord.

Ramin meal-his-RA in kitchen eat.PAST.3SG

“Ramin ate his meal in the kitchen.”

199.ramin tu ašpæzxune qæza mi-xor-e.

Ramin in kitchen meal DUR-eat.PRES-3SG

“Ramin eats/is eating in the kitchen.”

200.šagerd-a so'al-a-šun-o æz mo'ællem-a pors-id-æn.
student-PL question-PL-their-RA from teacher-PL ask-PAST-3PL

“The students asked the teachers their questions.”

201.dust-a-mun šekayæt-e geruni-ro mi-kærd-æn.
friend-PL-our complaint-EZ inflation-RA DUR-do.PAST-3PL

“Our friends were complaining about the inflation.”

202.ye næmayænde motevæjjeh-e qæziye šod.
a representative aware-EZ story become.PAST.3SG

“A representative found out about the story.”

203.ladæn jævab-e hæme-ye so'al-a-ro dad.
Ladan answer-EZ all-EZ question-PL-RA give.PAST.3SG

“Ladan answered all the questions.”

204.karmænd-a dærxast-e ezafehoquq kærd-æn.
clerk-PL request-EZ raise do.PAST-3PL

“The clerks requested a raise.”

205.bæradær-et mæn-o šarmænde-ye xod-eš kærd.
brother-your I-RA indebted-EZ self-his do.PAST.3SG

“Your brother made me indebted to him.”

206.bæstæ-ro tæhvīl-e una dad-æm.
package-RA delivery-EZ they give.PAST-1SG

“I delivered the package to them.”

207.nader divar-a-ro ræng-e abi zæd.

Nader wall-PL-RA paint-EZ blue hit.PAST.3SG

“Nader painted the walls blue.”

208.ladæn-o næder esm-e bæččæ-šun-o nima gozašt-æn.

Ladan-and Nader name-EZ child-their-RA Nima put.PAST-3PL

“Ladan and Nader named their baby Nima.”

209.in goldun dæhhezar tomæn mi-ærz-e.

this vase ten thousand toman DUR-cost.PRES-3SG

“This vase costs 10,000 tomans.”

210.majera diruz ettefaq+oft-ad.

incident yesterday happening+fall-PAST.3SG

“The incident happened yesterday.”

211.una qæziyæ-ro qælæt bærdašt+kærd-æn.

they story-RA wrong take+do.PAST-3PL

“They interpreted the story in the wrong way.”

212.hæme-ye una zendegi-ro qæšæng mi-did-æn.

all-EZ they life-RA beautiful DUR-see.PAST-3PL

“All of them saw life as beautiful.”

213.mina ræft-e xune.

Mina go.PAST-PART.3SG home

“Mina has gone home.”

214.mina ræft-e XUNE.

“Mina has gone HOME.”

215.reza ræft mædrese.

Reza go.PAST.3SG school

“Reza went to school.”

216.reza diruz ræft pælu golnaz.

Reza yesterday go.PAST.3SG side Golnaz

“Reza went over to Golnaz yesterday.”

217.qeymæt-a ræft-e bala.

price-PL go.PAST-PART.3SG up

“The prices have gone up.”

218.qeymæt-e mašin ræft bala.

price-EZ car go.PAST.3SG up

“The price of car went up.”

219.emsal qeymæt-e mašin ræft-e bala.

this year price-EZ car go.PAST-PART.3SG up

“This year the price of car has gone up.”

220.do-ta pesæræmu-a-ye ladæn emsal umæd-æn kanada.

two-CLS cousin-PL-EZ Ladan this year come.PAST-3PL Canada

“Ladan’s two cousins came to Canada this year.”

221.neda jæ’bæ-ro gozašt ru miz.

Neda box-RA put.PAST.3SG on table

“Neda put the box on the table.”

222.neda ye jæ'be gozašt ru miz.

Neda a box put.PAST.3SG on table

“Neda put a box on the table.”

223.nævid hæmæ-ro dæ'væt+kærd xunæ-š.

Navid everybody-RA invitation+do.PAST.3SG home-his

“Navid invited everybody over.”

224.nævid mehmun dæ'væt+kærd-e xunæ-š.

Navid guest invitation+do.PAST-PART.3SG home-his

“Navid has invited guests over.”

225.ladæn livan-a-ro dad nævid.

Ladan glass-PL-RA give.PAST.3SG Navid

“Ladan gave the glasses to Navid.”

226.ladæn livan dad be nævid.

Ladan glass give.PAST.3SG to Navid

“Ladan gave glasses to Navid.”

227.ba in kar-eš oft-ad tu čah.

with this work-his fall-PAST.3SG in well

“S/he fell into the well [trouble] with what s/he did.”

228.name-hæ-ro ferest-ad vezaræt-e sənaye.

letter-DEF-RA send-PAST.3SG ministry-EZ industry

“S/he sent the letter to the ministry of industry.”

229.hæme-ye sæng-a-ro endaxt tu čah.
all-EZ stone-PL-RA throw.PAST.3SG in well

“S/he threw all the stones in the well.”

230.šerkæt-emun qeymæt-a-ro keš-id-e bala.
company-our price-PL-RA pull-PAST-PART.3SG up

“Our company has increased the prices.”

231.fori do-id tæræf-e dær.
at once run-PAST.3SG direction-EZ door

“S/he immediately ran towards the door.”

232.hæva æbri šod?
weather cloudy become.PAST.3SG

“Did the weather get cloudy?”

233.hær do-ta miz abi-ye rošæn bud?
each two-CLS table blue-EZ light be.PAST.3SG

“Were both tables light blue?”

234.æbri šod?
cloudy become.PAST.3SG

“Did it become cloudy?”

235.hæva æbri næ-šod?
weather cloudy NEG-become.PAST.3SG

“Didn’t the weather get cloudy?”

236.ladæn æz dæst-e mæn delxor-e?

Ladan from hand-EZ I upset-is

“Is Ladan upset with me?”

237.hæva bæ'd æz šiš xonæk mi-š-e?

weather after from six cool DUR-become.PRES-3SG

“Does the weather get cool after 6?”

238.hæva diruz æbri šod?

weather yesterday cloudy become.PAST.3SG

“Did the weather get cloudy yesterday?”

239.unja deræxt-a-ye xeyli bolænd hæst?

there tree-PL-EZ here tall be.PRES.3SG

“Are there very tall trees there?”

240.in jæbe xeyli sængin-e?

this box-EZ very heavy-is

“Is this box very heavy?”

241.ye name umæd-e?

a letter arrive.PAST-PART.3SG

“Has a letter arrived?”

242.qænari-ye mord-e?

canary-DEF die.PAST-PART.3SG

“Has the canary died?”

- 243.name-ha-ye lazem res-id-e?
letter-PL-EZ necessary reach-PAST-PART.3SG
“Have the necessary letters arrived?”
- 244.nader xænd-id?
Nader laugh-PAST.3SG
“Did Nader laugh?”
- 245.šagerd-a miz-a-ro avord-æn?
student-PL table-PL-RA bring.PAST-3PL
“Did the students bring the tables?”
- 246.šagerd-a MIZ-A-RO avord-æn?
“Did the students bring THE TABLES?”
- 247.šagerd-a-ye mædrese miz-a-ye alminiyomi-ro avord-æn?
student-PL school table-PL-RA aluminum-RA bring.PAST-3PL
“Did the students of the school bring the aluminum tables?”
- 248.miz-a-ro avord-æn?
table-PL-RA bring.PAST-3PL
“Did they bring the tables?”
- 249.šagerd-a miz-a-ro næ-yavord-æn?
student-PL table-PL-RA NEG-bring.PAST-3PL
“Didn’t the students bring the tables?”
- 250.mehmun-a qæza avord-æn?
guest-PL food bring.PAST-3PL
“Did the guests bring food?”

251.šagerd-a avord-æn miz-a-ro?

student-PL bring.PAST-3PL table-PL-RA

“Did the students bring the tables?”

252.avord-æn šagerd-a miz-a-ro?

253.in mæs’æle be una bæstegi+dar-e?

this issue to they dependence+dave.PRES-3SG

“Does this issue depend on them?”

254.nader tu otaq xab-id?

Nader in room sleep-PAST.3SG

“Did Nader sleep in the room?”

255.šagerd-a diruz miz-a-ro avord-æn?

student-PL yesterday table-PL-RA bring.PAST-3PL

“Did the students bring the tables yesterday?”

256.jæbæ-ro ru miz gozašt-i?

box-RA on table put.PAST-2SG

“Did you put the box on the table?”

257.jæbæ-ro gozašt-i ru miz?

258.ladæn xunæ-ro æz-æt xær-id?

Ladan house-RA from-you buy-PAST.3SG

“Did Ladan buy the house from you?”

259.dust-a-mun šekayæt-e geruni-ro mi-kærd-æn?

friend-PL-our complaint-EZ inflation-RA DUR-do.PAST-3PL

“Were our friends complaining about the inflation?”

260.una qæziyæ-ro qælæt bærdašt+kærd-æn?

they story-RA wrong take+do.PAST-3PL

“Did they interpret the story in the wrong way?”

261.aya be dolæt bæstegi+dašt?

QP to government dependence+have.PAST.3SG

“Did it depend on the government?”

262.aya hæva æbri šod?

QP weather cloudy become.PAST.3SG

“Did the weather get cloudy?”

263.hæva aya æbri šod?

264.aya šagerd-a miz-a-ro avord-æn?

QP student-PL table-PL-RA bring.PAST-3PL

“Did the students bring the tables?”

265.šagerd-a aya miz-a-ro avord-æn?

266. šagerd-a miz-a-ro aya avord-æn?

267.hæva æbri šod ya næ?

weather cloudy become.PAST.3SG or no

“Did the weather get cloudy or not?”

268.hæva æbri næ-šod ya šod?

weather cloudy NEG-become.PAST.3SG or become.PAST.3SG

“Didn’t the weather get cloudy or it did?”

- 269.ræft-e-bud-æn ya næ?
 go.PAST-PART-be.PAST-3PL or no
 “Had they left or not?”
- 270.ræft-e-bud-æn ya xune bud-æn?
 go.PAST-PART-be.PAST-3PL or home be.PAST-3PL
 “Had they left or were they home?”
- 271.šagerd-a miz-a-ro avord-æn ya næ?
 student-PL table-PL-RA bring.PAST-3PL or no
 “Did the students bring the tables or not?”
- 272.šagerd-a avord-æn miz-a-ro ya næ?
- 273.avord-æn šagerd-a miz-a-ro ya næ?
- 274.šagerd-a miz-a-ro næ-yavord-æn ya avord-æn?
 student-PL table-PL-RA NEG-bring.PAST-3PL or bring.PAST-3PL
 “Did the students not bring the tables or did they?”
- 275.mehmun-a qæza avord-æn ya næ?
 guest-PL food bring.PAST-3PL or no
 “Did the guests bring food or not?”
- 276.in mæs’æle be una bæstegi+dar-e ya næ?
 this issue to they dependence+dave.PRES-3SG or no
 “Does this issue depend on them or not?”
- 277.bošqab ru miz gozašt-i ya næ-zašt-i?
 plate on table put.PAST-2SG or NEG-put.PAST-2SG
 “Did you put plates on the table or not?”

278.ba mæn mi-ay-n, næ?

with I DUR-come.PRES-2PL no

“You come with me, don’t you?”

279.ba mæn mi-ay-n, ne-mi-ay-n?

with I DUR-come.PRES-2PL NEG-DUR-come.PRES-2PL

“You come with me, don’t you?”

280.hæva æbri šod, næ?

weather cloudy become.PAST.3SG no

“The weather got cloudy, didn’t it?”

281.hæva æbri næ-šod, næ?

weather cloudy NEG-become.PAST.3SG no

“The weather didn’t get cloudy, did it?”

282.hæva æbri næ-šod, šod?

weather cloudy NEG-become.PAST.3SG become.PAST.3SG

“The weather didn’t get cloudy, did it?”

283.šagerd-a miz-a-ro avord-æn, næ?

student-PL table-PL-RA bring.PAST-3PL no

“The students brought the tables, didn’t they?”

284.avord-æn šagerd-a miz-a-ro, næ?

285.šagerd-a avord-æn miz-a-ro, are?

student-PL bring.PAST-3PL table-PL-RA yeah

“The students brought the tables, right?”

286.jæbæ-ro ru miz gozašt-i, are?
box-RA on table put.PAST-2SG yeah

“You put the box on the table, right?”

287.jæbæ-ro gozašt-i ru miz, næ?
box-RA put.PAST-2SG on table no

“You put the box on the table, didn’t you?”

288.mæge æli unja næ-bud?
PTC Ali there NEG-be.PAST.3SG

“Wasn’t Ali there then?”

289.mæge hæva æbri šod?
PTC weather cloudy become.PAST.3SG

“Did the weather get cloudy then?”

290.mæge hæva æbri næ-šod?
PTC weather cloudy NEG-become.PAST.3SG

“Didn’t the weather get cloudy then?”

291.mæge šagerd-a miz-a-ro avord-æn?
PTC student-PL table-PL-RA bring.PAST-3PL

“Did the students bring the tables then?”

292.šagerd-a mæge miz-a-ro avord-æn?

293.šagerd-a miz-a-ro mæge avord-æn?

294.mæge šagerd-a avord-æn miz-a-ro?

295.mæge avord-æn šagerd-a miz-a-ro?

296. hič tæqir-i-æm+kærd-e-bud?
nothing change-IND-CL+do.PAST-PART-be.PAST.3SG
“Had it changed at all?”
297. bæčče-ha æz koja ketab xær-id-æn?
child-PL from where book buy-PAST-3PL
“Where did the children buy books from?”
298. BÆČČE-HA æz koja ketab xær-id-æn?
“Where did THE CHILDREN buy books from?”
299. bæčče-ha æz koja KETAB xær-id-æn?
“Where did the children buy BOOKS from?”
300. ki jæbæ-ro ru miz gozašt?
who box-RA on table put.PAST.3SG
“Who put the box on the table?”
301. ki jæbæ-ro RU MIZ gozašt?
“Who put the box ON THE TABLE?”
302. ki jæbæ-ro gozašt RU MIZ?
303. arezu či-ro ru miz gozašt?
Arezu what-RA on table put.PAST.3SG
“What did Arezu put on the table?”
304. arezu jæbæ-ro koja gozašt?
Arezu box-RA where put.PAST.3SG
“Where did Arezu put the box?”

305. arezu JÆBÆ-RO koja gozašt?

“Where did Arezu put THE BOX?”

306. arezu jæbæ-ro či kar kærd?

Arezu box-RA what work do.PAST.3SG

“Where did Arezu do to the box?”

307. čera arezu jæbæ-ro gozašt ru miz?

why Arezu box-RA put.PAST.3SG on table

“Why did Arezu put the box on the table?”

308. či-ro arezu ru miz gozašt?

what-RA Arezu on table put.PAST.3SG

“What did Arezu put on the table?”

309. arezu jæbæ-ro gozašt koja?

Arezu box-RA put.PAST.3SG where

“Where did Arezu put the box?”

310. emruz ki umæd-e-bud?

today who come.PAST-PART-be.PAST.3SG

“Who had come today?”

311. emruz KI umæd-e-bud?

“WHO had come today?”

312. mina ræft-e koja?

Mina go.PAST-PART.3SG where

“Where has Mina gone?”

313. bæste-hæ-ro ferest-ad-i čera?

parcel-DEF-RA send-PAST-2SG why

“Why did you send the parcel?”

314. mæge key umæd-i?

PTC when come.PAST-2SG

“When did you come then?” [With surprise]

315. bæčče-ha æz koja či xær-id-æn?

child-PL from where what buy-PAST-3PL

“What did the children buy from where?”

316. æz koja bæčče-ha či xær-id-æn?

“What did the children buy from where?”

317. diruz ki kodum mehmun-o koja bord?

yesterday who which guest-RA where take.PAST.3SG

“Who took which guest where yesterday?”

318. ki jæ'bæ-ro ru miz gozašt? [Echo question]

319. arezu či-ro ru miz gozašt? [Echo question]

320. arezu jæ'bæ-ro koja gozašt? [Echo question]

321. arezu jæ'bæ-ro či kar kærd? [Echo question]

322. čera arezu jæ'bæ-ro gozašt ru miz? [Echo question]

323. či-ro arezu ru miz gozašt? [Echo question]

324. arezu jæ'bæ-ro gozašt koja? [Echo question]

325.koja?

where

“Where?” [Echo question]

326.saye bæra-t mašin xær-id?

Sayeh for-you car buy-PAST.3SG

“Sayeh bought you a car?” [Echo question]

327.saye bæra-t MAŠIN xær-id?

Sayeh for-you car buy-PAST.3SG

“Did Sayeh buy you a CAR?”

328.arezu ŠIR-O ru miz gozašt?

Arezu milk-RA on table put.PAST.3SG

“Did Arezu put THE MILK on the table?”

329.mehræbun baš!

kind IMP.be.2SG

“Be kind!”

330.æsæbani næ-šo!

angry NEG-IMP.become.2SG

“Don’t get angry!”

331.ba mæn mehræbun baš!

with I kind IMP.be.2SG

“Be kind with me!”

332.hæmiše ba mæn mehræbun baš!
always with I kind IMP.be.2SG

“Always be kind with me!”

333.særi’ amade šo!
fast ready IMP.become.2SG

“Get ready fast!”

334.xeyli særi’ amade šo!
very fast ready IMP.become.2SG

“Get ready very fast!”

335.pænjeræ-ro be-bænd!
window-RA IMP-close.PRES.2SG

“Close the window!”

336.pænjeræ-ro bæst-æm.
window-RA close.PAST-1SG

“I closed the window.”

337.lotfæn pænjeræ-ro be-bænd!
please window-RA IMP-close.PRES.2SG

“Please close the window!”

338.miz-a-ro bi-ar-in!
table-PL-RA IMP-bring-2PL

“Bring the tables!”

339.bi-ar-in miz-a-ro!

- 340.qæza bæra-mun bi-ar-in!
 food for-us IMP-bring-2PL
 “Bring us food!”
- 341.tu hæyat værzeš+kon!
 in garden sport+IMP.do.2SG
 “Exercise in the garden!”
- 342.tu estæxr šena+kon!
 in pool swimming+IMP.do.2SG
 “Swim in the swimming pool!”
- 343.hætmæn film-a-ro be-bin!
 definitely film-PL-RA IMP-see.2SG
 “[You should] definitely see the movies!”
- 344.jæbæ-ro ru miz be-zar!
 box-RA on table IMP-put.2SG
 “Put the box on the table!”
- 345.jæbæ-ro be-zar ru miz!
- 346.xunæ-ro æz-æš be-xær!
 house-RA from-him/her IMP-buy.2SG
 “Buy the house from him/her!”
- 347.dærxast-e ezafehoquq bo-kon-in!
 request-EZ raise IMP-do-2PL
 “Ask for a raise!”

348.qæziyæ-ro qælæt bærdašt+næ-kon!

story-RA wrong take+NEG-IMP.do.2SG

“Don’t interpret the story in the wrong way!”

349.šagerd-a-o mo’ællem-a ba hæm sohbæt+kærd-æn.

student-PL-and teacher-PL with each other talk+do.PAST-3PL

“The students and the teachers talked with each other.”

350.name-he res-id væ be-heš zæng+zæd-æm.

letter-DEF reach-PAST.3SG and to-him/her bell+hit.PAST-1SG

“The letter arrived and I called him/her.”

351.name-he res-id-o be-heš zæng+zæd-æm.

letter-DEF reach-PAST.3SG-and to-him/her bell+hit.PAST-1SG

“The letter arrived and I called him/her.”

352.res-id name-he væ be-heš zæng+zæd-æm.

reach-PAST.3SG letter-DEF and to-him/her bell+hit.PAST-1SG

“The letter arrived and I called him/her.”

353.šagerd-a-o mo’ællem-a miz-a-ro avord-æn.

student-PL-and teacher-PL table-PL-RA bring.PAST-3PL

“The students and the teachers brought the tables.”

354.šagerd-a væ mo’ællem-a miz-a-ro avord-æn.

student-PL and teacher-PL table-PL-RA bring.PAST-3PL

“The students and the teachers brought the tables.”

355.diruz hæmsayæ-mun-o did-æm-o ba-haš sohbæt+kærd-æm.
 yesterday neighbour-our-RA see.PAST-1SG-and with-him/her talk+do.PAST-1SG

“Yesterday I met with our neighbour and talked to him/her.”

356.diruz hæmsayæ-mun-o did-æm væ ba-haš sohbæt+kærd-æm.
 yesterday neighbour-our-RA see.PAST-1SG and with-him/her talk+do.PAST-1SG

“Yesterday I met with our neighbour and talked to him/her.”

357.diruz hæva særd šod væ ma birun næ-ræft-im.
 yesterday weather cold become.PAST.3SG and we out NEG-go.PAST-1PL

“Yesterday the weather got cold and we didn’t go out.”

358.diruz HÆVA særd šod væ ma birun næ-ræft-im.

“Yesterday THE WEATHER got cold and we didn’t go out.”

359.diruz hæva særd šod væ ma BIRUN næ-ræft-im.

“Yesterday the weather got cold and we didn’t go OUT.”

360.ya be ramin goft-e ya xah-æd-goft.
 or to Ramin say.PAST-PART.3SG or want.PRES-3SG-say

“Either s/he’s told Ramin or will tell [him].”

361.ya mozu’-o be-heš goft-e ya bæ’dæn xah-æd-goft.
 or story-RA to-him/her say.PAST-PART.3SG or later want.PRES-3SG-say

“Either s/he’s told the story to him/her or will tell [him/her].”

362.ya unja mund-e ya ræft-e alman.
 or there stay.PAST-PART.3SG or go.PAST-PART.3SG Germany

“Either s/he’s stayed there or gone to Germany.”

363.næ æmin kado xær-id-e næ ladæn.

no Amin gift buy-PAST-PART.3SG no Ladan

“Neither Amin nor Ladan has bought a gift.”

364.hæm hæva aftabi bud hæm šæhr-eš qæšæng bud.

too weather sunny be.PAST.3SG too city-CL beautiful be.PAST.3SG

“Both the weather was sunny and the city was beautiful.”

365.hæm æli hæm reza alman-o dust+dar-æn.

too Ali too Reza Germany-RA friend+have.PRES-3PL

“Both Ali and Reza like Germany.”

366.hæm be motale’e niyaz+dar-e hæm be este’dad.

too to study need+have.PRES-3SG too to talent

“It requires both studying and talent.”

367.umæd-e-bud væli sohbæt+næ-kærd-im.

come.PAST-PART-be.PAST.3SG but talk+NEG-do.PAST-1PL

“S/he’d come but we didn’t talk.”

368.væli hæva æbri bud.

but weather cloudy be.PAST.3SG

“But the weather was cloudy.”

369.hæva væli æbri bud.

“But the weather was cloudy.”

370.dær-o baz+kærd væli daxel næ-ræft.

door-RA open+do.PAST.3SG but in NEG-go.PAST.3SG

“S/he opened the door but didn’t go in.”

371.aqa-ye emami-ro did-æm-o ba-haš sohbæt+kærd-æm-o
 mister-EZ Emami-RA see.PAST-1SG-and with-him talk+do.PAST-1SG-and
 belæxære qæbul+kærd.
 finally accepted+do.PAST.3SG

“I saw Mr. Emami, talked to him, and he finally accepted.”

372.čænd-ta-š-o una xord-æn bæqiyæ-š-æm mæn xord-æm.
 several-CLS-CL-RA they eat.PAST-3PL rest-CL-CL I eat.PAST.1SG

“They ate some of them [and] I ate the rest.”

373.æmin goft šagerd-a miz-a-ro avord-æn.
 Amin say.PAST.3SG student-PL table-PL-RA bring.PAST-3PL

“Amin said the students brought the tables.”

374.æmin goft-e-bud ke šagerd-a miz-a-ro avord-æn.
 Amin say.PAST-PART-be.PAST.3SG that student-PL table-PL-RA bring.PAST-3PL

“Amin had said that the students brought the tables.”

375.æmin goft-e-bud ke ŠAGERD-A miz-a-ro avord-æn.

“Amin had said that THE STUDENTS brought the tables.”

376.radiyo diruz goft-e-bud hæva æbri mi-š-e.
 radio yesterday say.PAST-PART-be.PAST.3SG weather cloudy DUR-become.PRES-3SG

“The radio had said yesterday that the weather will become cloudy.”

377.æmin pors-id šagerd-a či avord-æn.
 Amin ask-PAST.3SG student-PL what bring.PAST-3PL

“Amin asked what the students brought.”

378.æmin pors-id čera šagerd-a miz-a-ro avord-æn.
 Amin ask-PAST.3SG why student-PL table-PL-RA bring.PAST-3PL
 “Amin asked why the students brought the tables.”

379.ladæn goft limu dust+næ-dar-æm.
 Ladan say.PAST.3SG lemon friend+NEG-have.PRES-1SG
 “Ladan said [she] didn’t like lemons.”

380.ladæn mi-pors-e hæva æbri bud.
 Ladan DUR-ask.PRES-3SG weather cloudy be.PAST.3SG
 “Ladan asks if the weather was cloudy.”

381.æmin pors-id šagerd-a miz-a-ro avord-æn.
 Amin ask-PAST.3SG student-PL table-PL-RA bring.PAST-3PL
 “Amin asked if the students brought the tables.”

382.æmin goft šagerd-a miz-a-ro avord-æn?
 Amin say.PAST.3SG student-PL table-PL-RA bring.PAST-3PL
 “Did Amin mention the students brought the tables?”

383.behtær-e ke šagerd-a miz-a-ro bi-ar-æn.
 better-is that student-PL table-PL-RA SBJ-bring.PRES-3PL
 “It’s better if the students bring the tables.”

384.mo’ællem-e mi-xast šagerd-a miz-a-ro bi-ar-æn.
 teacher-DEF DUR-want.PAST.3SG student-PL table-PL-RA SBJ-bring.PRES-3PL
 “The teacher wanted the students to bring the tables.”

385.belæxære tunest hæme-ye film-a-ro be-bin-e.
finally be able.PAST.3SG all-EZ film-PL-RA SBJ-see.PRES-3SG

“S/he finally could see all of the movies.”

386.šagerd-a bayæd miz-a-ro bi-ar-æn.
student-PL must table-PL-RA SBJ-bring.PRES-3PL

“The students must bring the tables.”

387.šagerd-a šayæd miz-a-ro bi-ar-æn.
student-PL may table-PL-RA SBJ-bring.PRES-3PL

“The students may bring the tables.”

388.in šaye’e ke mašin ærzun šod-e qædimi-ye.
this rumour that car cheap become.PAST-PART.3SG old-is

“The rumour that the price of car has come down is old.”

389.in vaqe’iyyæt ke eštebah+kærd-i-ro bayæd qæbul+kon-i.
this reality that mistake+do.PAST-2SG-RA must acceptance+SBJ.do.PRES-2SG

“You should accept the fact that you’ve made a mistake.”

390.mælum bud ke batæjrobæ-s.
obvious be.PAST.3SG that experienced-is

“It was obvious that s/he is experienced.”

391.in ke batæjrobæ-s mælum bud.
this that experienced-is obvious be.PAST.3SG

“That s/he’s experienced was obvious.”

392. moʃæxxæs bud ke vared+bud.
obvious be.PAST.3SG that versed+ be.PAST.3SG
“It was obvious that s/he was experienced.”
393. in ke vared+bud moʃæxxæs bud.
this that versed+ be.PAST.3SG obvious be.PAST.3SG
“That s/he was experienced was obvious.”
394. narahæt-e ke šagerd-a miz-a-ro avord-æn.
upset-is that student-PL table-PL-RA bring.PAST-3PL
“S/he’s upset that the students brought the tables.”
395. æz in ke šagerd-a miz-a-ro avord-æn narahæt-e.
from this that student-PL table-PL-RA bring.PAST-3PL upset-is
“S/he’s upset [from the fact] that the students brought the tables.”
396. færamuʃ+kærd-æm be-het zæng+be-zæn-æm.
forgotten+do.PAST-1SG to-you bell+SBJ-hit.PRES-1SG
“I forgot to call you.”
397. livan-a-i ke ru miz bud mal-e mæn-e.
glass-PL-DEM REL on table be.PAST.3SG property-EZ I-is
“The glasses that were on the table are mine.”
398. livan-a-i ke RU MIZ bud mal-e mæn-e.
“The glasses that were ON THE TABLE are mine.”
399. ye ketab ke dær mored-e baqdari-ye xær-id-æm.
a book REL in case-EZ gardening-is buy-PAST-1SG
“I bought a book that is about gardening.”

400.un mærd-e ke mašin-o æz-æš xær-id-i umæd-e inja.
 that man-DEF REL car-RA from-him/her buy-PAST-2SG come.PAST-PART-3SG here

“The man you bought the car from has come here.”

401.ye mærd-e ke mæn ne-mi-šnaxt-æm zæng+zæd.
 a mæn-EZ REL I NEG-DUR-know.PAST-1SG bell+hit.PAST.3SG

“A man who I didn’t know called.”

402.ye mærd-e ke to mi-šnas-i zæng+zæd.
 a man-DEF REL you DUR-know.PRES-2SG bell+hit.PAST.3SG

“A man who you know called.”

403.mellæt-i ke færhæng-eš in-e injuri-ye dige.
 nation-DEM REL culture-its this-is like this-is PTC

“A nation with such a culture is like that.”

404.mellæt-e ma ke tarix-e tulani-yi-æm dar-e xeyli
 nation-EZ we REL history-EZ long-IND-CL have.PRES-3SG very
 rænj+keš-id-e.

suffering+pull-PAST-PART.3SG

“Our nation, which has a long history, has suffered a lot.”

405.æz qæza-i ke qæbl æz umædæn xord-e-bud-æm
 from food-DEM REL before from to come eat.PAST-PART-be.PAST-1SG

hænuz sir bud-æm.

still full be.PAST-1SG

“I was still full from the food that I’d eaten before coming.”

406.xune-hæ-ro ke ba hæm did-im xær-id-æm.
house-DEF-RA REL with each other see.PAST-1PL buy-PAST-1SG

“I bought the house that we saw together.”

407.xune-hæ-ro xær-id-æm ke ba hæm did-im.

408.mærdom-e ziyad-i hæst-æn in-o ne-mi-dun-æn.
people-EZ many-IND be.PRES-3PL this-RA NEG-DUR-know.PRES-3PL

“There’s a lot of people don’t know that.”

409.mal-e mæn-e livan-a-i ke ru miz bud.
property-EZ I-is glass-PL-DEM REL on table be.PAST.3SG

“The glasses that were on the table are mine.”

410.hær væqt mi-tunest-æn telefon+mi-kærd-æn.
each time DUR-be able.PAST-3PL telephone+DUR-do.PAST-3PL

“They called whenever they could.”

411.telefon+mi-kærd-æn hær væqt mi-tunest-æn.

412.hær væqt tunest-i telefon+kon.
each time be able.PAST-2SG telephone+IMP.do.2SG

“Call whenever you can.”

413.telefon+kon hær væqt tunest-i.

414.bæ’d æz in ke qæza-š-o ba dust-a-š xord
after from this that meal-his/her-RA with friend-PL-his/her eat.PAT.3SG
xab-id.
sleep-PAST.3SG

“After s/he ate her/his meal with her/his friends, s/he slept.”

415.dust-a-t umæd-e-bud-æn ta kar-a-t-o
friend-PL-your come.PAST-PART-be.PAST-3PL to work-PL-your-RA
be-bin-æn.

SBJ-see.PRES-3PL

“Your friends had come to see your works.”

416.DAST-A-T umæd-e-bud-æn ta kar-a-t-o be-bin-æn.

“YOUR FRIENDS had come to see your works.”

417.šagerd-a miz-a-ro avord-æn ta mo’ællem-a ja
student-PL table-PL-RA bring.PAST-3PL so that teacher-PL place
dašt-e-baš-æn.

have.PAST-PART-SBJ.be-3PL

“The students brought the tables so that the teachers will have room.”

418.umæd-e-bud-æn ke bæčče-ha-ro be-bin-æn.
come.PAST-PART-be.PAST-3PL so that child-PL-RA SBJ-see.PRES-3PL

“They’d come to see the children.”

419.čon dir ferest-ad-æm qæbul næ-šod-æm.
because late send-PAST-1SG accepted NEG-become.PAST-1SG

“Since I sent [them] late I wasn’t accepted.”

420.æge mi-umæd-i mi-did-i-šun.
if DUR-come.PAST-2SG DUR-see.PAST-2SG-them

“If you’d come, you would’ve seen them.”

421.mi-umæd-i mi-did-i-šun.

DUR-come.PAST-2SG DUR-see.PAST-2SG-them

“If you’d come, you would’ve seen them.”

422.æge unja mi-ræft-i did-e-bud-i-š.

if there DUR-go.PAST-2SG see.PAST-PART-be.PAST-2SG-him/her

“If you’d gone there, you would’ve seen him/her.”

423.did-e-bud-i-š æge unja mi-ræft-i.

424.xunæ-ro diruz xær-id-æn.

house-RA yesterday buy-PAST-3PL

“The bought the house yesterday.”

425.jiq+be-zæn!

scream+IMP-hit.PRES.2SG

“Scream!”

426.pænjeræ-ro næ-bænd!

window-RA NEG-close.PRES.2SG

“Don’t close the window!”

427.če adæm-e jaleb-i hæst-i!

what person-EZ interesting-IND be.PRES-2SG

“What an interesting person you are!”

428.hæva aftabi šod!

weather sunny become.PAST.3SG

“The weather got sunny!”

429.koja ræft-e-bud-æn væ key telefon+kærd-æn?
 where go.PAST-PART-be.PAST-3PL and when telephone+do.PAST-3PL

“Where had they gone and when did they call?”

430.ki pors-id šagerd-a miz-a-ro avord-æn?
 who ask-PAST.3SG student-PL table-PL-RA bring.PAST-3PL

“Who asked if the students brought the tables?”

431.mærdom xænd-id-æn.
 people laugh-PAST-3PL

“People laughed.”

432.xune be-xær!
 house IMP-buy.PRES.2SG

“Buy a house!”

433.hæva ali mi-š-e.
 weather excellent DUR-become.PRES-3SG

“The weather will become excellent.”

434.mina milan-æm mi-mun-e čænd ruz.
 Mina Milan-too DUR-stay.PRES-3SG a few day

“Mina stays a few days in Milan too.”

435.kæs-i ke xæbær-o be-hešun dad hæmid bud.
 person-DEM REL news-RA to-them give.PAST.3SG Hamid be.PAST.3SG

“The one who gave them the news was Hamid.”

436.hæmid bud ke xæbær-o be-hešun dad.

Hamid be.PAST.3SG REL news-RA to-them give.PAST.3SG

“It was Hamid who gave them the news.”

Sentences of the experiment in chapter 8

1. Default-h: diruz maman-æm umæd-e-bud.

yesterday mom-too come.PAST-PART-be.PAST.3SG

“Yesterday mom had come too.”

Default-l: xanum-e maman-æm bud.

woman-DEF mom-my be.PAST.3SG

“That woman was my mom.”

Focus: xanum-e MAMAN-ÆM bud.

“That woman was MY MOM.”

2. Default-h: seda-ye nalæ-mun emruz dær+umæd.

sound-EZ whimper-our today PTC+come.PAST.3SG

“Our whimper was heard today.”

Default-l: seda-ye nalæ-mun bud.

sound-EZ whimper-our be.PAST.3SG

“It was the sound of our whimper.”

Focus: seda-ye NALÆ-MUN bud.

“It was the sound of OUR WHIMPER.”

3. Default-h: tozih-e kamel-i mani næ-dad.
 explanation-EZ complete-IND Mani NEG-give.PAST.3SG

“Mani didn’t give a full explanation.”

Default-l: tozih-e kamel-i dad.
 explanation-EZ complete-IND give.PAST.3SG

“S/he gave give a full explanation.”

Focus: tozih-e KAMEL-I dad.

“S/he gave give A FULL explanation.”

4. Default-h: šæhr-e milan-o mænzur-æm næ-bud.
 city-EZ Milan-RA intention-my NEG-be.PAST.3SG

“I didn’t mean the city of Milan.”

Default-l: šæhr-e milan-o mænzur-æm bud.
 city-EZ Milan-RA intention-my be.PAST.3SG

“I meant the city of Milan.”

Focus: šæhr-e MILAN-O mænzur-æm bud.

“I meant the city of MILAN.”

5. Default-h: mæn æmin-o mædrese næ-did-æm.
 I Amin-RA school NEG-see.PAST-1SG
 “I didn’t see Amin at school.”

Default-l: mæn æmin-o mædrese did-æm.
 I Amin-RA school see.PAST-1SG
 “I saw Amin at school.”

Focus: mæn ÆMIN-O mædrese did-æm.
 “I saw AMIN at school.”

6. Default-h: diruz namæ-mun umæd.
 I letter-our come.PAST.3SG
 “Yesterday our letter arrived.”

Default-l: mal-e namæ-mun bud.
 property-EZ letter-our be.PAST.3SG
 “It was from our letter.”

Focus: mal-e NAMÆ-MUN bud.
 “It was from OUR LETTER.”

7. Default-h: dær-e qælæm-æm inja bud.
cap-EZ pen-my here be.PAST.3SG
“The cap of my pen was here.”

Default-l: dær-e qælæm-æm bud.
cap-EZ pen-my be.PAST.3SG
“It was the cap of my pen.”

Focus: dær-e QÆLÆM-ÆM bud.
“It was the cap of MY PEN.”

8. Default-h: diruz zæman-o mænzur-æm næ-bud.
yesterday time-RA intention-my NEG-be.PAST.3SG
“Yesterday I didn’t mean the time.”

Default-l: diruz zæman-o mænzur-æm bud.
yesterday time-RA intention-my be.PAST.3SG
“Yesterday I meant the time.”

Focus: diruz ZÆMAN-O mænzur-æm bud.
“Yesterday I meant THE TIME.”

9. Default-h: væz'-e mali-m-o najur kærd.
situation-EZ financial-my-RA bad do.PAST.3SG
“It made my financial situation awkward.”

Default-l: væz'-e mali-m-o mænzur-ešun bud.
situation-EZ financial-my-RA intention-their be.PAST.3SG
“They meant my financial situation.”

Focus: væz'-e MALI-M-O mænzur-ešun bud.
“They meant MY FINANCIAL situation.”

10. Default-h: belæxære tunel-o monfæjer+kærd-æn.
finally tunnel-RA exploded+do.PAST-3PL
“Finally they blew up the tunnel.”

Default-l: mæn tunel-o diruz mi-goft-æm.
I tunnel-RA yesterday DUR-say.PAST.1SG
“I was talking about the tunnel yesterday.”

Focus: mæn TUNEL-O diruz mi-goft-æm.
“I was talking about THE TUNNEL yesterday.”

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