Sentences and Prosody in Punjabi

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1 Introduction

This paper reports on the sentences and prosody system in Punjabi. In concrete, this paper describes these points; basic word order, position of adverbs, prosody, and focus in Punjabi. The data that is used in this report derives from previous papers on Punjabi grammar and elicitations from a male native Punjabi speaker from Pakistan, done in Autumn of 2020.

2 Methods

A Tascam DR-100 MK-III recorder, set at 44.1 kHz with 16-bit depth, mono, was used to record the elicitation sessions from the consultant. Also, a head-worn SHURE WH30 unidirectional microphone with an XLR connector was used during the elicitations. The distance between the microphone and the mouth of the consultant was at around 10 cm, and sentences in English were translated and repeated in Punjabi three times. The recordings were then processed and visualised in Praat (Boersma & Weenink, 2020). Figures used throughout this study are also created with this program, and all figures have the spectrogram.

3 Basic Word Order

Punjabi, like other Indo-Aryan languages, is a language with a subject-object-verb (SOV) order. This structure can be seen in the finite verb phrase in (1) below.

(1)   o   kʊtːe   vekʰda   e
    he   dogs   see   Aux-Pre.-3rd-M-Sg
    'He sees dogs.'

3.1 *Noun Phrases*   In noun phrases, we see that the constituents must precede the head noun that they modify with the exception of particles as they are postpositions in Punjabi, as seen in (2), which is supported by the research in Bhatia (1993).

(2)   a.   e   doː   ʋəɖːe   kʊtːe   Mitaka   witʃ͡
      these   two   big   dogs   Mitaka   in
      'These two big dogs in Mitaka.'

    b.   *Mitaka   witʃ͡   e   doː   ʋəɖːe   kʊtːe
      Mitaka   in   these   two   big   dogs
      intended: 'These two big dogs in Mitaka.'

    c.   *e   doː   Mitaka   witʃ͡   ʋəɖːe   kʊtːe
      these   two   Mitaka   in   big   dogs
      intended: 'These two big dogs in Mitaka.'

    d.   *e   doː   ʋəɖːe   Mitaka   witʃ͡   kʊtːe
      these   two   big   Mitaka   in   dogs
      intended: 'These two big dogs in Mitaka.'

3.2 *Adjectival Phrase and Order*   Punjabi is not a restrictive language in terms of adjectival order (cf. Squib 2). Yet, it was found that when the adjectives were presented in contrastive contexts, the contrastive element must come first, followed by the other adjectives without a specific word order. When there are two contrasted elements,

it was found that the adjective for size took precedence and had to come first before the rest could follow, without emphasis on whether the contrasted elements had to come in the second position or not. This data is seen in (3) and the corresponding tree that can be used to illustrate adjective order is seen in (4).

(3) a. ɪk   ʋəɖːa   moʈa   ləma   ɖanda
          a   big   thick   long   stick

     b. ɪk   ləma   ʋəɖːa   moʈa   ɖanda
          a   long   big   thick   stick

     c. ɪk   ləma   moʈa   ʋəɖːa   ɖanda
          a   long   thick   big   stick

     d. ɪk   moʈa   ləma   ʋəɖːa   ɖanda
          a   thick long   big   stick

     e. ɪk   moʈa   ʋəɖːa   ləma   ɖanda
          a   thick big   long   stick

(4)
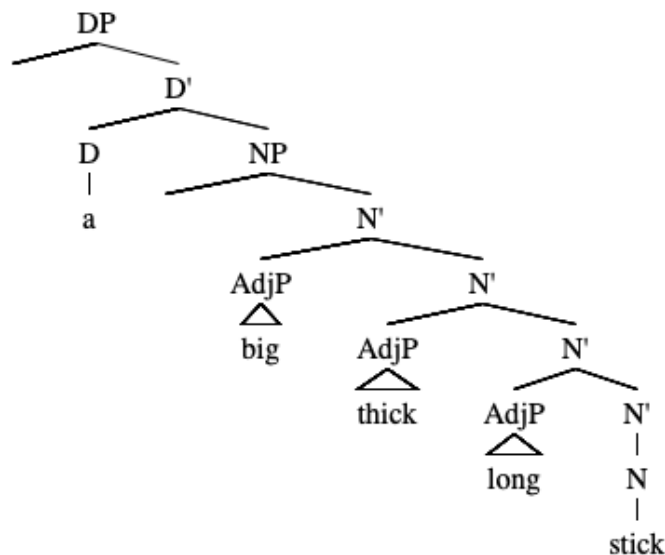
As we can see, the tree in (4) places the adjectives as adjuncts to the noun, which allows for the free ordering of adjectives.

3.3 *Negation*   In terms of negation, our data found that *nei* 'not' negates what precedes it and occurs as a pre-verbal, as seen in (5), which is supported by Bhatia (1993). However, while he states that post-verbal negation is also possible but limits the negation only to the verb or aspect of the verb, we did not find this data elicited in the present study.

(5)   o   ne   ɪk   munde   nu   ɪk   kitab   nei   dit:i
      he   erg. a   boy   acc.   a   book   not   gave
      'He did not give a book to a boy.'

What we did find in the present study, however, is the negation occurring after the contrasted element during a contrastive sentence, as seen in (6), limiting the scope of the negation to only the subordinate clause and not the main clause even though they are both preceding the negation.

(6)   o   ne   aksər   ık kʊt:e   nu   vekʰia, ık bili   nu   nei
         he   erg. often   a   dog   acc.   saw,   a   cat   acc.   not
         'He often saw a dog, not a cat.'

Additionally, while what is presented in Bhatia (1993) states that negation triggers the deletion of auxiliary verbs, the present study found that it is not the case, as seen in (7), where the auxiliary is retained. However, more research is needed to see what the cause of the discrepancy is.

(7)   a.   o   kʊt:e   un   ʋe:kɽa   e
              he   dogs   acc.   see   aux.
              'He sees dogs.'

         b.   o   kʊt:e   nei   ʋe:kɽa   e
              he   dogs   nog   see   aux.
              'He does not see dogs.'

4 Adverbs

In this section, we will focus on adverbs to discuss word order. First, let's look at the data below.

(8)   aksər   "often"
         o aksər ik kʊt:e nu veke ga   "He will often see a dog."
         o aksər ik kʊt:e nu nei veke ga   "He will not often see a dog."
         o aksər ik kʊt:a vekia   "He OFTEN saw a dog."

Note that the adverb of *aksər* follows the subject of *o* 'he' both in the positive sentence and negation. Next, we will see the sentences which have the ergative case, *ne*.

(9)   u ne aksər ik kʊt:e nu nei vekia   "He didn't often see A DOG."
         o ne aksər ik kʊt:a nei vekia   "He didn't OFTEN see a dog."

In this case, the ergative case appears before the adverb of *aksər*. What we are interested in here is the word order. It seems that negation of *nei* does not c-command the adverb. To investigate the relation between the adverb and negation, let us see the tree structure of these sentences.
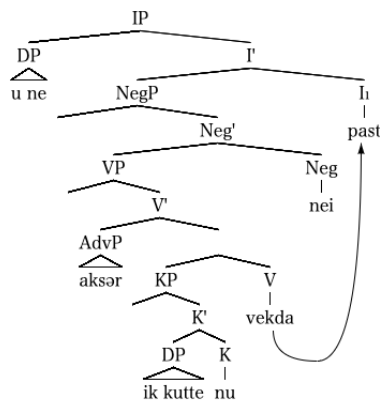
u ne aksər ik kʊt:e nu nei vekia   o ne aksər ik kʊt:a nei vekia
"He didn't often see A DOG."   "He didn't OFTEN see a dog."
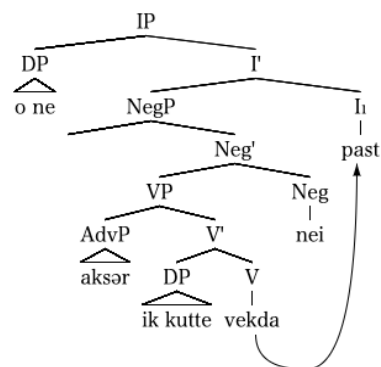
As you notice, Neg of *nei* c-command VP including AdvP and DP. Thus, these both sentences negate both "often" and "see a dog".

5   Complement clause

In this section, we examine the sentences which have the complement clause. First, we focus on the complement clause which uses "that". The basic structure of the sentence is below.

(10)   Sato kenda e ke une kal ek kʊt:a vekia.   Sato says that he saw a dog yesterday.

This sentence indicates that the word order is S V CP, although the basic structure of Punjabi is SOV. Thus, we conclude that the sentence which has a complement clause is SVO, but the CP itself has the SVO structure. This is similar to German as seen as below from Silke et al. (2010).

(11)   Ich weiß,   dass   du   morgen   Geburtstag   hast.
          I   know   that   you   tomorrow   birthday   have
          "I know that you have birthday tomorrow."

This data tells us that the basic structure of German is SVO as English, not as same as Punjabi. However, for as the sentences which have complement clause are same as Punjabi. The main clause is SVO, and the subordinate clause is SOV.

6   *Wh*-questions

In this section, we will discuss *wh*-questions. Below in the data set (8) are *wh*-questions and answer pairs in Punjabi.

(12)   a-1.   kut:e   ki   ʋe:kde   ne?
                    dogs   what   see   aux.
                    'What do dogs see?'

         a-2.   kut:e   lat:an   ʋe:kde   ne
                    dogs   legs   see   aux.
                    'Dogs see legs.'

         b-1.   puːnt͡ʃal nu   kɔɻɳ   wəd͡ʒəda   e?
                    tails   acc.   who   hit   aux.
                    'Who hits tails?'

         b-2.   kut:e   puːnt͡ʃal nu   wəd͡ʒəde   ne
                    dogs   tails   acc.   hit   aux.
                    'Dogs hit tails.'

         c-1.   kut:e   kʰad:o   lat:ã   nu   ʋaɽde   ne?
                    dogs   when   legs   acc.   bite   aux.
                    'When do dogs bite legs?'

         c-2.   kut:e   saʋarei   lat:ã   nu   ʋaɽde   ne.
                    dogs   morning legs   acc.   bite   aux.
                    'Dogs bite legs in the morning.'

         c-3.   kut:e   lat:ã   nu   kʰad:o   ʋaɽde   ne?
                    dogs   legs   acc.   when   bite   aux.
                    'When do dogs bite legs?'

         c-4.   kut:e   lat:ã   nu   saʋarei   ʋaɽde   ne.
                    dogs   legs   acc.   morning   bite   aux.
                    ' Dogs bite legs in the morning.'

d-1.   kut:e   lat:ã   nu   kjõ   ʋaɽde   ne?
        dogs   legs   acc. why   bite   aux.
        'Why do dogs bite legs?'

d-2.   kui ke   o   pukhe   honde   ne
        Because   they   hungry   be   aux.
        'Because they are hungry.'

e-1.   kut:e   lat:ã   nu   kəttɛ   ʋaɽde   ne?
        dogs   legs   acc. where   bite   aux.
        'Where do dogs bite legs?'

e-2.   kut:e   park   witʃ   lat:ã   nu   ʋaɽde   ne
        dogs   park   in   legs   acc. bite   aux.
        'Dogs bite legs in the park.'

f-1.   kut:e   lat:ã   nu   kiʋɛ   ʋaɽde   ne?
        dogs   legs   acc. how   bite   aux.
        'How do dogs bite legs?'

f-2.   kut:e   barei zor nal lat:ã   ʋaɽde   ne
        dogs   fiercely   legs   bite   aux.
        'Dogs bite legs fiercely.'

As we can see, Punjabi is mostly an in-situ language in regard to the *wh*-questions in matrix clauses, as seen exemplified by the data above. This is supported by the research in Mahajan (1990) on Hindi, which is a language from the same family tree. In (12), we see that when the questioned element is the object, the *wh*-question also appears in the object location in the SOV construction, as seen in (12a). In other words, we see S *wh*-O V. Yet, when the questioned element is the subject, we see a O *wh*-S V construction (12b), but a SOV construction in the answer. Given that adjectival order in contrastive sentences sees the contrasted adjective in the sentence-initial position, it could also then be extrapolated that Punjabi moves the focused object 'tails' to the sentence-initial position. Simply speaking, the 'who' construction is still in-situ but the object moves to the sentence-initial position for focus. For the data in (12c), it can be seen that the *wh*-question can be placed either between the subject and object or before the verb, with the appropriate answer to the *wh*-question matching the same slot. It is then possible to presume that the question 'when' occurs in the same position of the answer 'morning.' In the rest of the examples, however, it is unclear why.
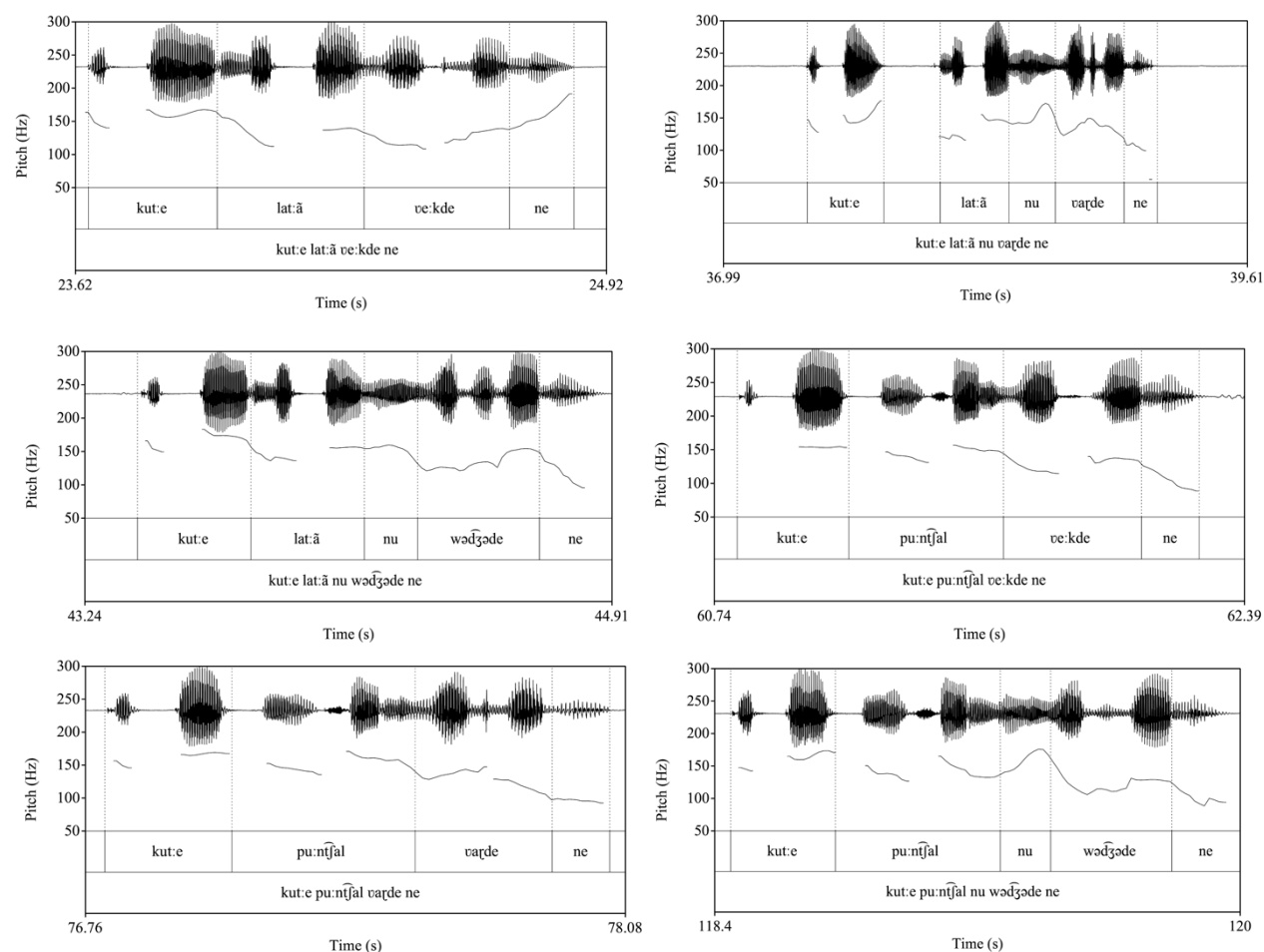
7   Prosody

In this section, the focus of the analysis will be on the prosody patterns of declarative sentences, yes-no questions, and *wh*-questions in Punjabi.

7.1   *Declarative Sentences*   First, we will look at the prosody on declarative sentences in Punjabi, which are listed in the table 1 below. The corresponding spectrograms with pitch information for each sentence are in the figure 1.

Table 1: Example declarative sentences in Punjabi

Punjabi	English
kutːe latːã ʋeːkde ne.	Dogs see legs.
kutːe latːã nu ʋaɽde ne.	Dogs bite legs
kutːe latːã nu wədʒ͡əde ne	Dogs hit legs.
kutːe puːntʃ͡al ʋeːkde ne.	Dogs see tails.
kutːe puːntʃ͡al ʋaɽde ne.	Dogs bite tails.
kutːe puːntʃ͡al nu wədʒ͡əde ne	Dogs hit tails.

Figure 1

From the pitch information in the spectrograms above, there is a clear tendency that, in declarative sentences, the pitch falls from mid to low in the clause-final word position. Joshi (1989) explains that there is a fall in pitch in declarative sentences in Punjabi, and it shows no difference with our data, except for the sentence *"kutːe latːã ʋeːkde ne"* from our data, where a pitch rise is happening in the word-final position.

7.2 *Yes-no Questions*   In comparison to declarative sentences, we will investigate the prosody on yes-no questions in Punjabi, which are listed in the table 2 below. The corresponding spectrograms with pitch information for each sentence are in the figure 2.

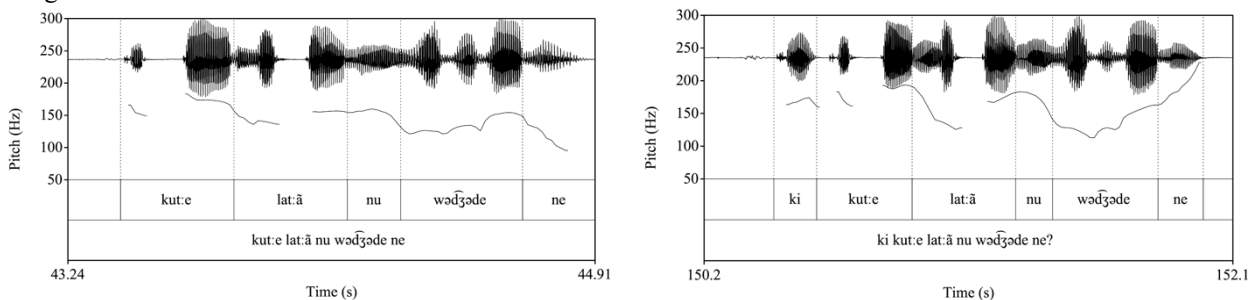Table 2: Example yes-no questions in Punjabi

Punjabi	English
ki kut:e lat:ã nu ʋe:kde ne?	Do dogs see legs?
ki kut:e lat:ã nu ʋaɽde ne?	Do dogs bite legs?
ki kut:e lat:ã nu wəd͡ʒəde ne?	Do dogs hit legs?
ki kut:e pu:nt͡ʃal ʋe:kde ne?	Do dogs see tails?
ki kut:e pu:nt͡ʃal ʋaɽde ne?	Do dogs bite tails?
ki kut:e pu:nt͡ʃal nu wəd͡ʒəde ne?	Do dogs hit tails?

Figure 2
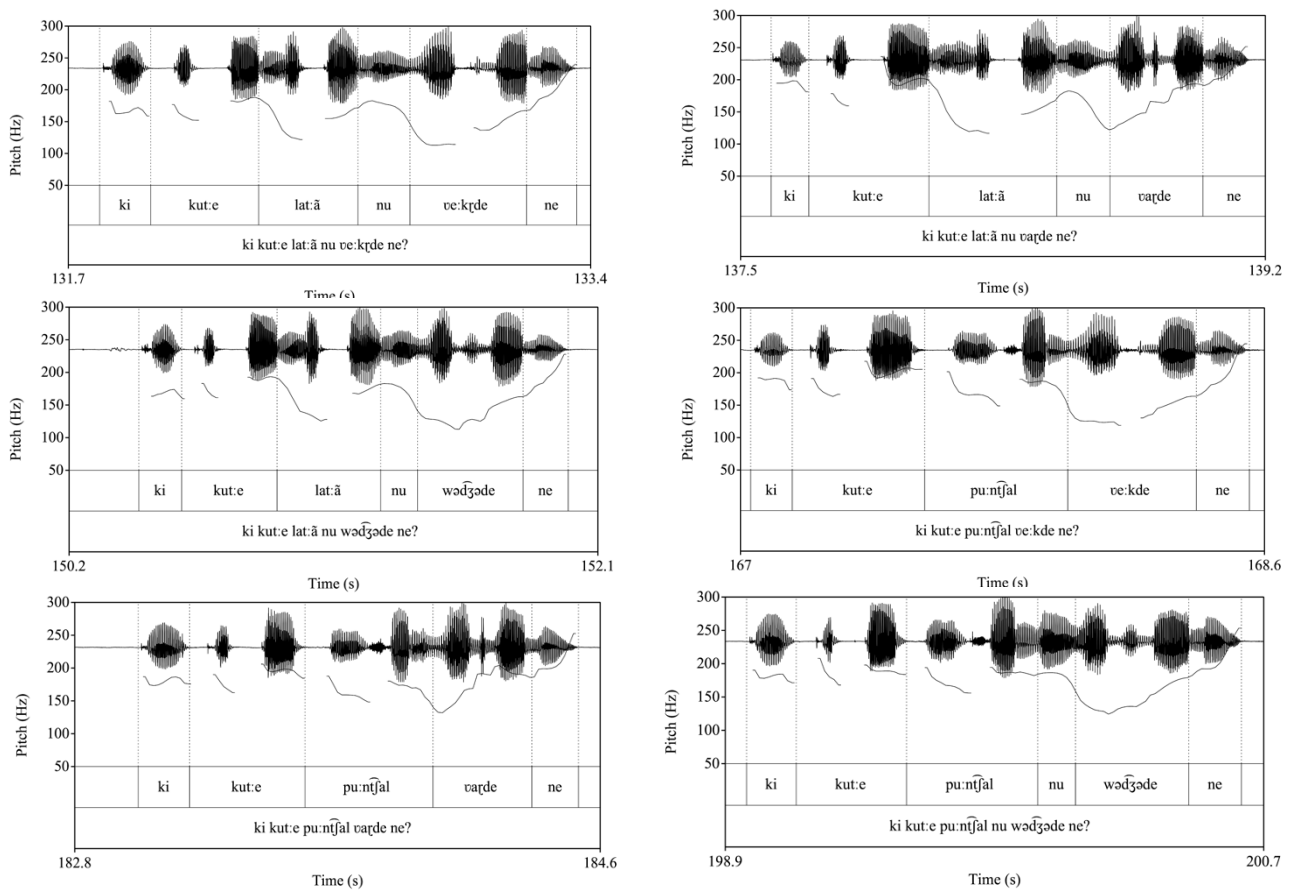
From the pitch information in the spectrograms above, it is clear that there is a pitch rise which starts from mid to high in the verbs and continues rising in the clause-final position in every sentence. According to Joshi (1989), it is seen that there is a high-rise in pitch at the end of the clause-final word in Punjabi. This discovery shows no difference with our data.

Figure 3

The figure 3 above shows that there is a clear distinction between declarative sentences and yes-no questions.

7.3   *Wh-questions*   This section describes the prosody of wh-questions in Punjabi, which are listed in the table 3. The corresponding spectrograms are in the figure 3 below.

Table 3: Example wh-questions in Punjabi

| Punjabi	English
kut:e ki ʋe:kde ne?	What do dogs see?
kut:e ki ʋaɽde ne?	What do dogs bite?
kut:e ki nu wəd͡ʒəde ne?	What do dogs hit?
pu:nt͡ʃal nu kɔɳ ʋe:kde e?	Who sees tails?
pu:nt͡ʃal nu kɔɳ wəd͡ʒəde e?	Who hits tails?
kut:e kʰad:o lat:ã nu ʋaɽde ne?	When do dogs bite legs?
kut:e lat:ã nu kjõ ʋaɽde ne?	Why do dogs bite legs?
kut:e lat:ã nu kət:ɛ ʋaɽde ne?	Where do dogs bite legs?
kut:e lat:ã nu kiʋɛ ʋaɽde ne?	How do dogs bite legs?

Figure 4
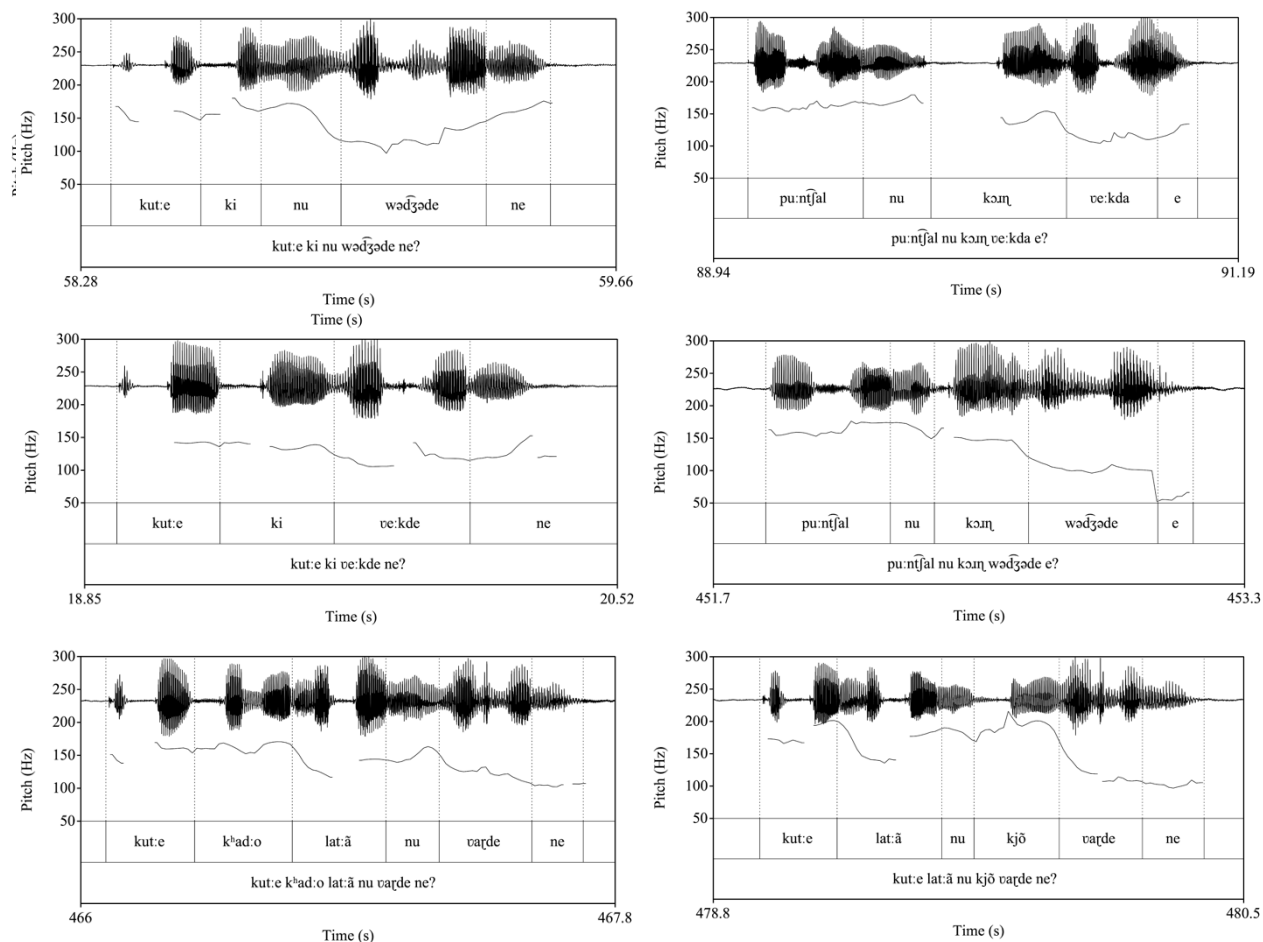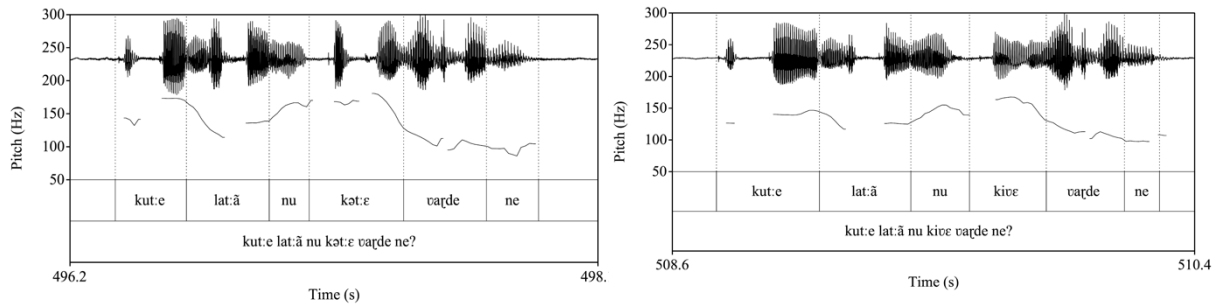
The data above shows that, while there is a pitch rise in the clause-final word in what and who questions, there is no pitch rise in the clause-final word in the other wh-questions. There is also a post-focal pitch compression right after the wh-words, which are *kjõ*, *kət:ɛ*, and *kivɛ*.
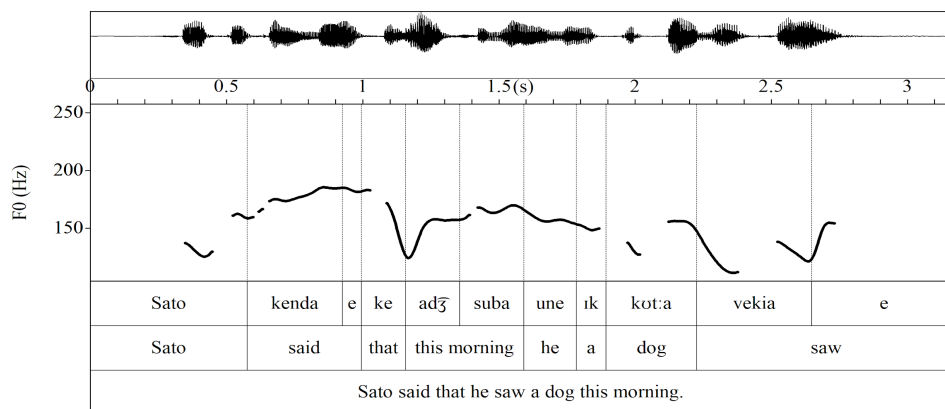
8 Focus

Focus in Punjabi was found in this study to manifest in two main ways: 1) f0 rising towards the end of the focused word followed by pitch compression (peak), or 2) a pause after the focused segments. This is seen in the examples below.
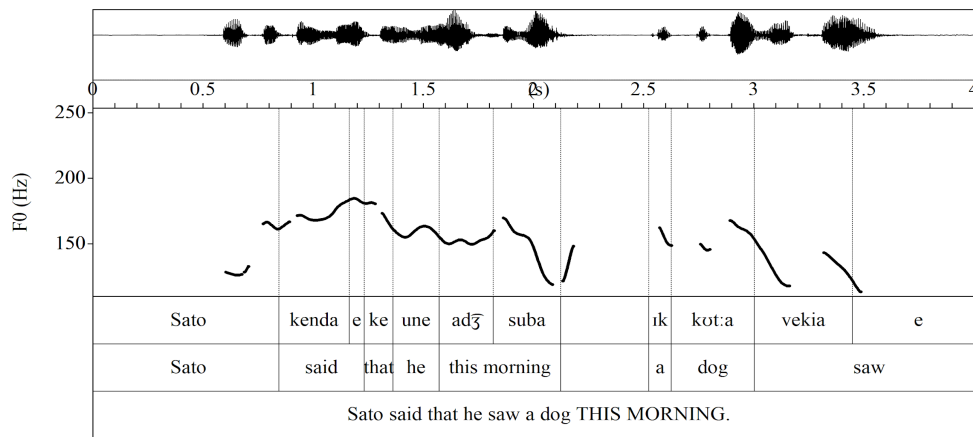
(13)   Sato wants to see his dog AGAIN.
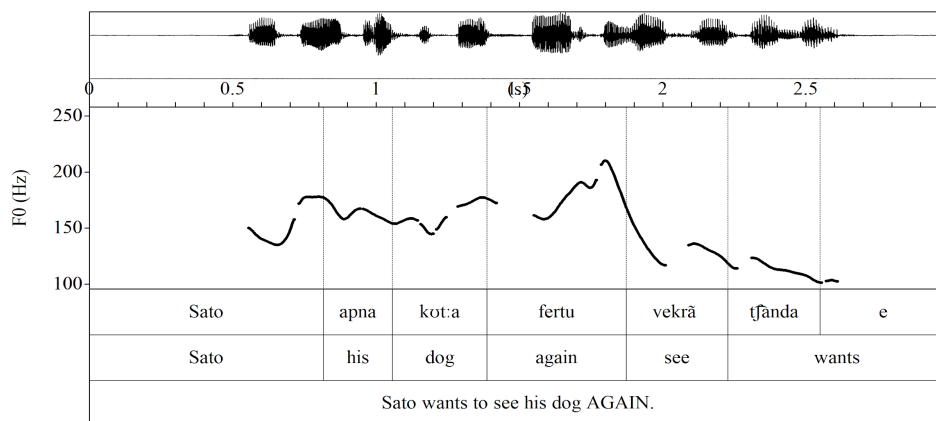
Fertu is the target for focus in this sentence. Looking at the pitch (f0) contour, we see that after f0 rises in *Sato*, it plateaus until *fertu*, and an f0 peak is seen in the *tu* syllable. What we also see is that f0 falls drastically from *tu* to *vekrã*, and there is an observable downtrend after the focus.
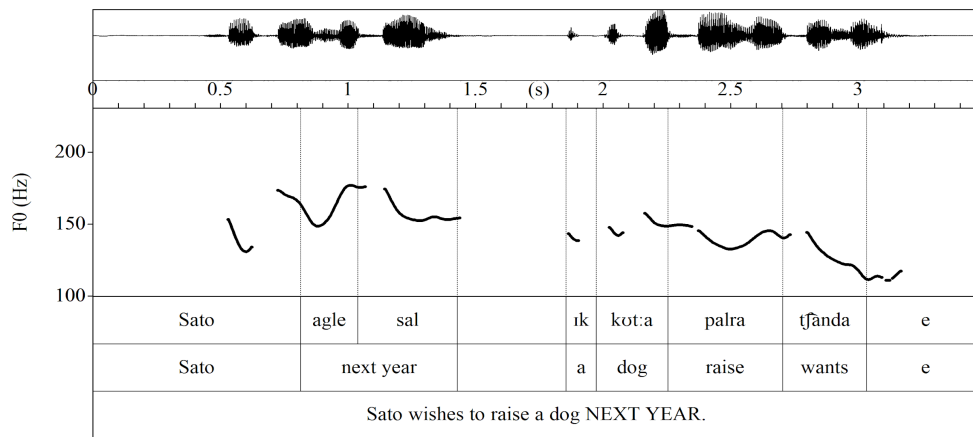
(14)   Sato said that he saw a dog this morning.
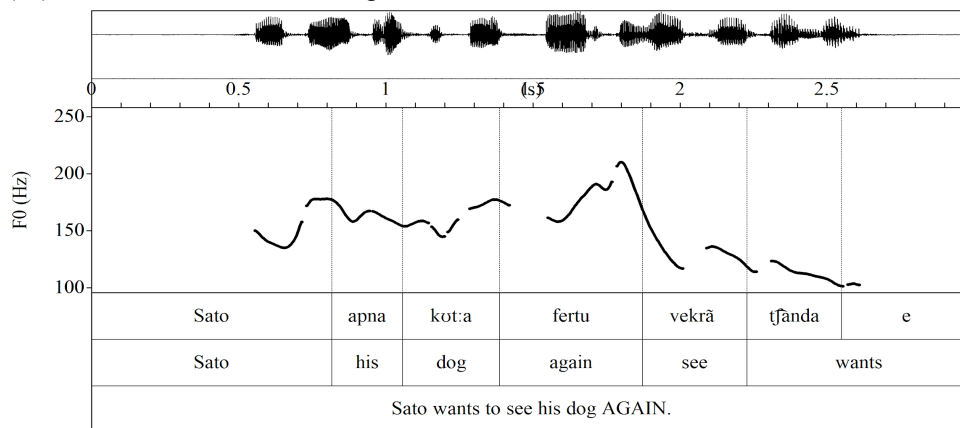

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(15)   Sato said that he saw a dog THIS MORNING.

Sato	kenda	e	ke	une	ad͡ʒ	suba		ɪk	kʊt:a	vekia	e
Sato	said	that	he	this morning				a	dog	saw	
Sato said that he saw a dog THIS MORNING.											

(16)   Sato wishes to raise a dog NEXT YEAR.

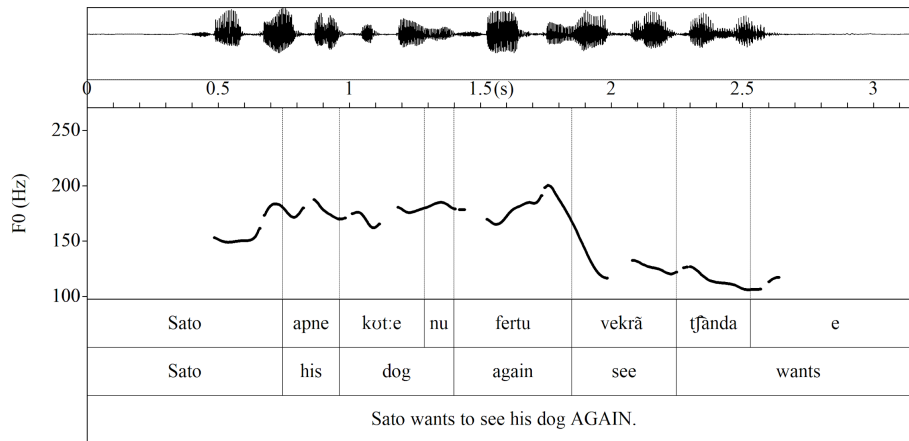| Sato	agle	sal		ɪk	kʊt:a	palra	tʃanda	e
Sato	next year			a	dog	raise	wants	e
Sato wishes to raise a dog NEXT YEAR.								

The target for focus in (15) is *ad͡ʒ suba* while in (14), there is no focus produced. Comparing the two sentences, we see a pause after *ad͡ʒ suba* that is focused in (15), but this is not seen in (14). Similarly, *agle sal* is also focused in (16), and we see a pause after *agle sal* in that sentence. However, unlike what was seen in (13) is a lack of an f0 peak in the focused segments for both (15) and (16). This leads us to suggest that focus in Punjabi can manifest as either an f0 peak in the focus target, or a pause after the focus target. We did not elicit any focus patterns where both of these patterns occurred simultaneously.

8.1   *Accusative 'nu' postposition*   In an earlier study, we established that the accusative nu postposition is distributed based on focus. In other words, if an accusative object takes on the nu postposition, then it becomes focused in a sentence. What we found was that this had an effect on existing focus patterns, as seen below:
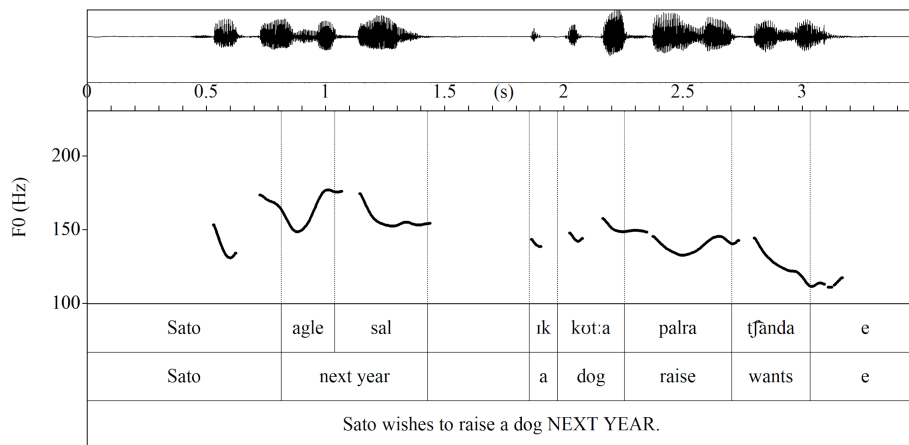
(17)   Sato wants to see his dog AGAIN.

Sato	apna	kʊt:a	fertu	vekrã	tʃanda	e
Sato	his	dog	again	see	wants	
Sato wants to see his dog AGAIN.						

(18)   Sato wants to see his dog AGAIN.

Sato	apne	kʊt:e	nu	fertu	vekrã	tʃanda	e
Sato	his	dog		again	see	wants	
Sato wants to see his dog AGAIN.

(19)   Sato wishes to raise a dog NEXT YEAR.

Sato	agle	sal		ɪk	kʊt:a	palra	tʃanda	e
Sato	next year			a	dog	raise	wants	e
Sato wishes to raise a dog NEXT YEAR.

(20)   Sato wishes to raise a dog next year.

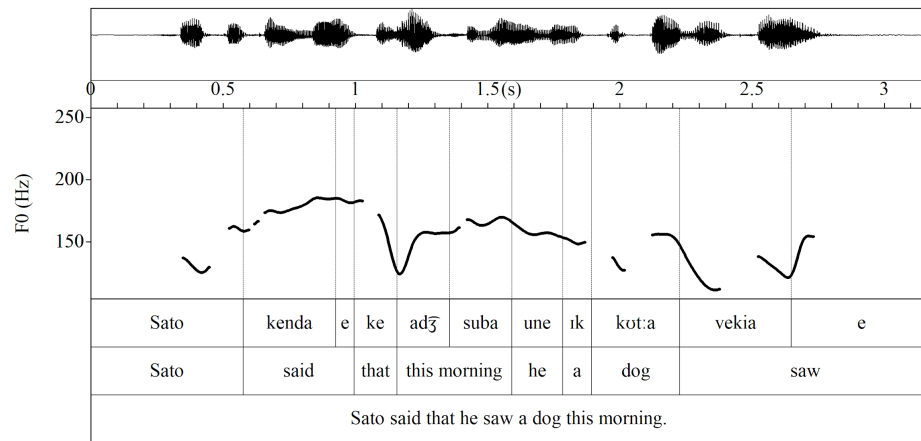| Sato	agle	sal	ɪk	kʊt:e	nu	palra	tʃanda	e
Sato	next year		a	dog		raise	wants	
Sato wishes to raise a dog next year.
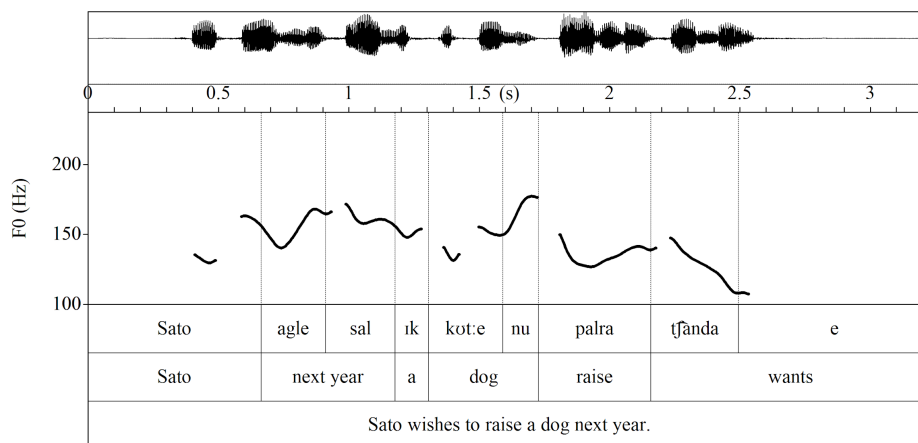
The effects are seen when *kʊt:a* in (17) and (19) is changed to *kʊt:e nu* in (18) and (20). (13) here is a repeat of (17) above, and (15) is a repeat of (19). As aforementioned, the focused parts are *fertu* and *agle sal*, and the focus is manifested as an f0 peak in (17) and as a pause after the focus in (15). When comparing (17) and (14), however, we see that even though there is still a peak in *fertu*, f0 is much lower in (18) (193 Hz) than in (17) (230 Hz). When comparing (19) and (20), we see that the pause after *agle sal* in (19) does not occur in (20). Instead, we see an f0 peak in the *nu* of *kʊt:e nu* instead, signalling that the focus shifts from *agle sal* to *kʊt:e nu* when the accusative

nu is taken by the object. Hence, it is possible to say that when the accusative *nu* occurs in a sentence, it can either become the target of focus, or weaken pre-existing focus markings.

8.2 *Distribution of adverbs*   In our data, a pattern we found was that adverbs were focused when they come immediately after the subject in a sentence. This is shown below.

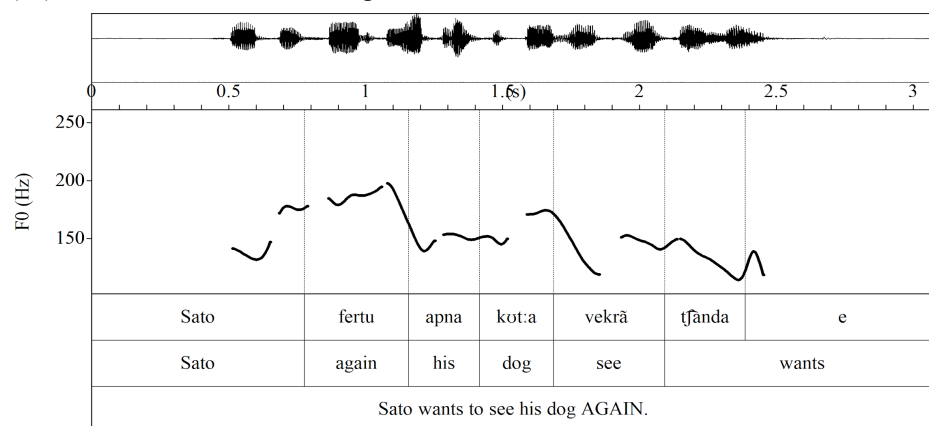(21)   Sato said that he saw a dog this morning.

Sato	kenda	e	ke	ad͡ʒ	suba	une	ɪk	kʊt:a	vekia		e
Sato	said		that	this morning		he	a	dog	saw		
Sato said that he saw a dog this morning.												

(22)   Sato said that he saw a dog THIS MORNING.

| Sato	kenda	e	ke	une	ad͡ʒ	suba		ɪk	kʊt:a	vekia	e
Sato	said		that	he	this morning			a	dog	saw	
Sato said that he saw a dog THIS MORNING.												
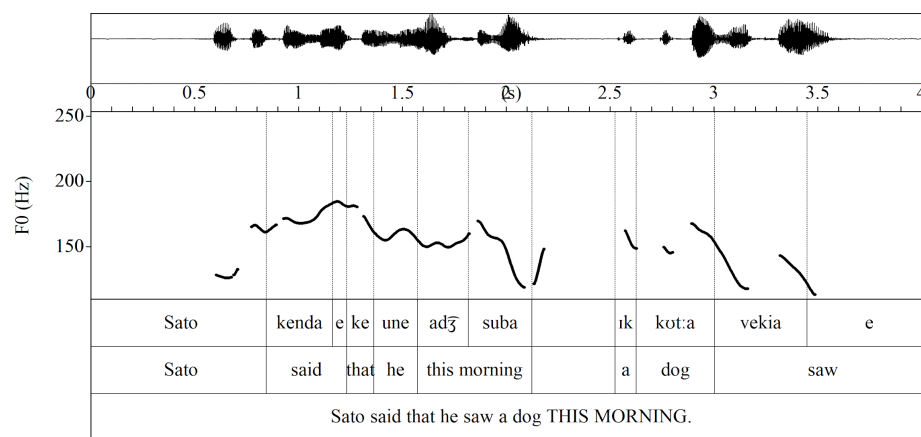
In (21), the pitch contour is relatively level and there is no evidence of focus in the sentence. However, when the adverb *ad͡ʒ suba* 'yesterday' moves to the position immediately after the subject of the embedded sentence *une* 'he', then *ad͡ʒ suba* becomes focused, and a pause is seen.
     Similar patterns were also elicited:

(23)   Sato wants to see his dog AGAIN.

Sato	fertu	apna	kʊt:a	vekrã	t͡ʃanda	e
Sato	again	his	dog	see	wants	
Sato wants to see his dog AGAIN.							

(24)   Sato wishes to raise a dog NEXT YEAR.

				ık	kʊt:a	palra	tʃanda	e
Sato	agle	sal						
Sato	next year			a	dog	raise	wants	e

Sato wishes to raise a dog NEXT YEAR.
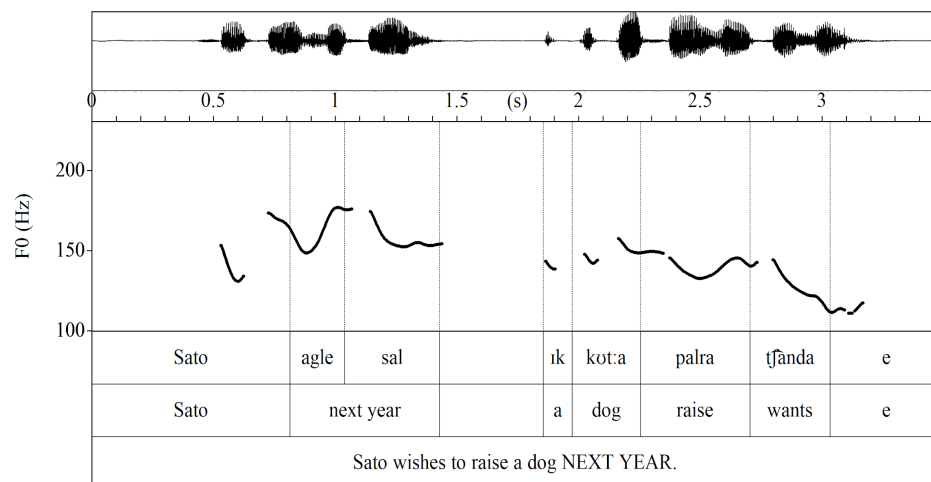
In both (23) and (24), the adverbs come immediately after the subject of the sentence, and the adverbs are both focused, with an f0 peak in (23) and a pause in (24). However, it is not possible for us to conclude that there is a direct correlation between adverb position and focus because of two reasons: 1) There were no sentences elicited where *fertu* was not focused i.e. *fertu* was still focused even when it did not come immediately after the subject in the sentence, and 2) There were no sentences elicited where *agle sal* does not come immediately after the subject of the sentence. Hence, there is not enough evidence to confirm whether or not the distribution of adverbs has an effect on focus in Punjabi.

9   Conclusion

This paper described the sentences and prosody in Punjabi, focusing on its basic word order, position of adverbs, prosody, and focus. The basic word order of Punjabi is SOV, which is, for example, similar to Japanese. Our research found that in the noun phrases, constituents precede the head noun, while the particles follow the noun. Adjectival phrases do not have restriction in order they occur except for during contrastive situations. As such, they should be illustrated as adjuncts to the noun. Our data showed that *nei*, which indicates negation, only occurs right before the verbs, not in the post verbal positions. In contrastive sentences with a subordinate clause, negation is only limited to the subordinate. Our data also found that it is possible for there to be negation without triggering a deletion of the auxiliary verb, which is a difference from that of bhatia 1993. In order to investigate this possibility, more research is required. For adverbs, we again found some relations to the negation, saying that NegP c-commands VP, which includes AdvP and DP. During the research, we found that there is an exception to the basic word order in the complement clauses; the main clause takes the SVO and the subordinate clause is SOV. Wh-questions take the in-situ form, although it seems there is a movement to obtain focus in 'who' questions by moving it to the sentence-initial position. The latter half of this paper mainly describes the prosody, in terms of declarative sentences, yes-no questions, and wh-questions, and the focus,with the discussion of accusative postposition and distribution of adverbs, in Punjabi. Our data showed that the declarative sentences have a pitch fall in the final-clause word, while there was a pitch rise in the final-clause word of yes-no questions. In wh-questions, there was a distribution within it, that while there is a pitch rise in the clause-final word in what and who questions, there is no pitch rise in the clause-final word in the other wh-questions. Focus is expressed in either f0 rising followed by f0 lowering or a pause after the focused segments. Additionally, in the discussion of accusative 'nu' postposition, the result is that when the accusative *nu* occurs in a sentence, it can either become the target of focus, or weaken pre-existing focus markings. Finally, in the research of the distribution of adverbs, we found one specific pattern where adverbs are focused when they come immediately after the subject in a sentence.

10 References

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