

# The prosody of positively biased negative polar interrogatives in Japanese: Post-focal reduction or deaccenting?

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## 1 Introduction

- In many languages, negative polar interrogatives are used to convey the speaker's epistemic bias toward a specific answer (e.g., Romero & Han 2004).

(1) Aren't you a little short for a stormtrooper?  
(**positive bias**; 'I guess you are a little short for a stormtrooper.')

(2) H: Have fun!  
S: Oh, {aren't you/are you not} coming?  
(**negative bias**; 'I infer that you are not coming.')

- In Japanese, the (existence and) direction of the bias is reflected in prosody (Tanomura 1988, Ito & Oshima 2016).
  - One variety of negative polar interrogatives – which Ito & Oshima call the “**P(positive)-type**” – conveys a positive epistemic bias. In this variety, the tonal movements due to a phrase tone (i.e., a rise that takes place at the left edge of an accent phrase) and/or a lexical accent (i.e., a steep pitch fall following a mora carrying a lexically specified accent nucleus) within the predicate containing the negation are often subdued (underlines mark tonal subdual).<sup>1</sup>

(3) Ano hito, warito tetsudatte kurenai?  
that person quite help.Ger BenAux.Neg.Prs  
'Doesn't (he) help (you) quite well?' (positive bias)

- Another variety – Ito and Oshima's “**N(egative)/N(eutral)-type**” – (typically) conveys a negative bias (but allows an unbiased/neutral interpretation in certain contexts). In this variety, tonal subdual does not take place.<sup>2</sup>

(4) Ano hito, amari tetsudatte kurenai?  
that person particularly help.Ger BenAux.Neg.Prs  
'Does (he) not help (you) much?' (negative bias)

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<sup>1</sup> The abbreviations used in the glosses are: Acc = accusative, Aux = auxiliary, Ben = benefactive, Cop = copula, Dat = dative, Ger = gerund, Inf = infinitive, Loc = locative, Neg = negation, Npfv = nonperfective, Plt = polite, Prs = present, Pst = past, QP = question particle, Top = topic.

<sup>2</sup> Negative polar interrogatives in Japanese allow a neutral (unbiased) interpretation in certain contexts. Unbiased negative polar interrogatives and negatively-biased negative polar interrogatives are prosodically and syntactically alike, and grouped as the N(egative)/N(eutral) type in Ito and Oshima (2016).

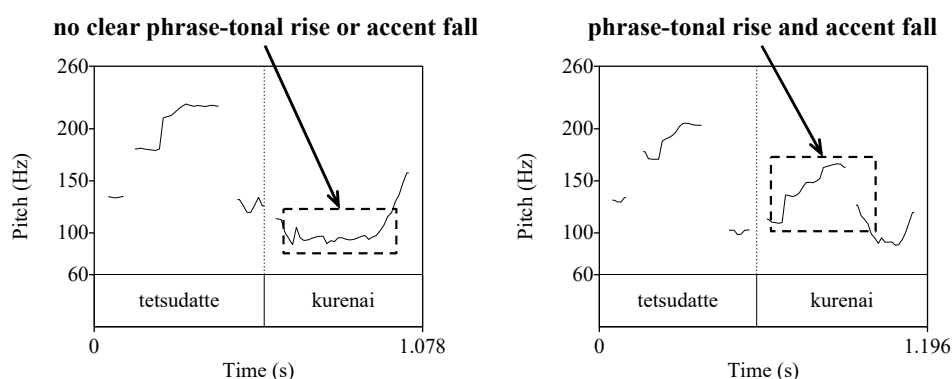


Figure 1: The string “tetsudatte kurenai” in (3) (left) and (4) (right)

- This work investigates, utilizing experimental data, how the prosodic features that characterize positively biased negative polar interrogatives in Japanese (the P-type interrogative) are brought about.

## 2 How subdual occurs

- There are two phonological processes that have been claimed to contribute to the prosodic features of the P-type interrogative: (i) post-focal reduction and (ii) deaccenting of the word involving the negation.
  - Ito & Oshima (2016) suggest that in the P-type, the negation is part of information-structural ground, and consequently the predicate within which it is realized undergoes the process known as **post-focal reduction** (Kori 1997, Ishihara 2015).

- (5) Kyonen wa haru Rooma ni ikimashita.  
 last.year Top spring Rome Dat go.Plt.Pst  
 ‘Last year, I went to Rome in the spring.’ (Kori 1997: 173)

- (6) (boldface indicates focuhood; underlines indicate tonal subdual)

- a. [kyo'neNwa] [ha'ru] [**ro'Hmani**] [ikima'sita]  
 b. [kyo'neNwa] [**ha'ru**] [ro'Hmani] [ikima'sita]

- It has been observed, on the other hand, that the negative auxiliary in a negative polar interrogative, and sometimes the main predicate preceding it too, may undergo **deaccenting** (accent deletion; Tanaka 2010, Hara *et al.* 2014, Ito & Hwang 2015).

- (7) a. [... [infinitive adjective + *nai* (the present form of the negative auxiliary NAI)]]  
 b. [... [noun + *ja* (the infinitive form of the copula DA)] + *nai* (the present form of the negative auxiliary NAI)]

- (8) a. Yoku nai?  
good.Inf NegAux.Prs  
'Isn't it good?'
- b. [yo'ku] [na'i] *no accent deletion*  
c. [yo'ku] [nai] ([ne(H)]) *auxiliary predicate deaccented*  
d. [yoku] [nai] ([ne(H)]) *main & auxiliary predicates deaccented*<sup>3</sup>
- (9) a. Ame ja nai?  
rain Cop.Inf NegAux.Prs  
'Isn't it rain(ing)?'
- b. [a'meža] [na'i] *no accent deletion*  
c. [a'meža] [nai] ([ne(H)]) *auxiliary predicate deaccented*  
d. %[ameža] [nai] ([ne(H)]) *main & auxiliary predicates deaccented*

### 3 A hybrid account

- It can be shown that neither an analysis solely based on post-focal reduction, nor one solely based on deaccenting, can account for the full range of phonological features exhibited by the P-type interrogative.
  - The prosody of the P-type interrogative can be derived by *either* of the two processes, which take place under overlapping but distinct sets of conditions.
- A production experiment with 11 native speakers of Tokyo Japanese was conducted to obtain qualitative data that endorse some of the key claims.

#### 3.1 Limitations of an analysis based on post-focal reduction alone

- Some P-type interrogatives have a prosodic pattern that cannot be regarded as resulting from post-focal reduction.
- Post-focal reduction does not lead to the neutralization of accent patterns.

- (10) a. (**Situation:** Your friend is an expert on animals you and always tells you interesting stories about animals. He once told you that the average weight of the giraffe is twice as much as that of a certain animal. You cannot recall what animal it is, so you ask him.)
- Kirin-no taijuu tte roba no bai? Soretomo  
giraffe-Gen weight Top donkey Gen double or  
uma no bai?  
horse Gen double  
'Is the weight of the giraffe twice as much that of [the mule]<sub>F</sub>? Or is it twice as much as that of [the horse]<sub>F</sub>?'  
b. ... [**umano**] [bai]

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<sup>3</sup> Some speakers use unaccented [yoku] in environments other than the P-type interrogative, too.

- (11) a. (**Situation:** Your friend and you are doing chores in a farm. You are arranging in order the tools for caring for farm animals. You are going to put away a step-ladder. You are not certain whether it is the one used in caring for the horses or the one used in caring for the donkeys, so you ask your friend.)

Kore, roba no dai? Soretomo, uma no dai?  
 this donkey Gen step or horse Gen step  
 ‘Is this the step for [the mules]<sub>F</sub>? Or is it the step for [the horses]<sub>F</sub>?’

b. ... [umano] [da’i]

- Eight out of the nine participants pronounced the last two phrases of (12) with the same pattern as they pronounced *uma no bai* in (10) – i.e., with the pattern shown in (13).<sup>4</sup>

- (12) (**Situation:** You have heard that the newly developed apple variety called “Fuji Gold” is very sweet, but you have not eaten one yet. A friend sitting in front of you, who is younger than you, is eating a Fuji Gold.)

Sore, amaku nai?  
 that sweet.Inf NegAux.Prs  
 ‘Isn’t that sweet?’ (positive bias)

(13) [amaku] [nai]

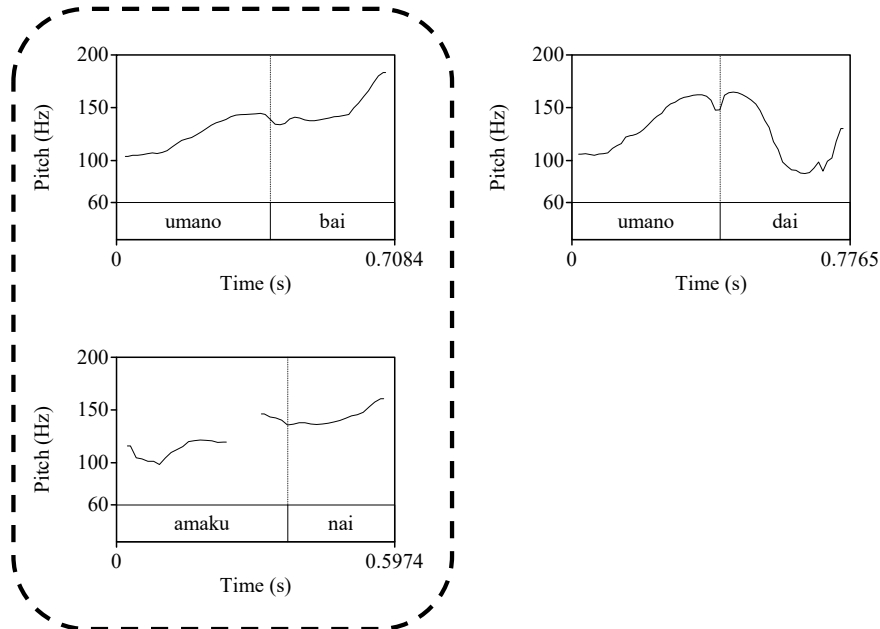


Figure 2: Productions of (10), (11), and (12)

<sup>4</sup> The one other participant produced the pattern: “[a’maku] [na’i]”. According to the judgements by the author (a 40-year-old native speaker of Tokyo Japanese), all six combinations of (i) [amaku], [a’maku], [ama’ku] and (ii) [nai] and [na’i] in a P-type interrogative are acceptable.

### 3.2 Limitations of an analysis based on deaccenting alone

#### 3.2.1 Limited applicability of deaccenting

- Predicate forms that may undergo deaccenting in the P-type interrogative are not limited to *nai*, but include, e.g., *kurenai* ‘BenAux.Neg.Prs’, (*i*)*masen* ‘NpfvAux.Plt.Neg’, *harenai* ‘swell.up.Neg.Prs’.
- However, accent deletion within the negative predicate is possible only when it (i) is canonically accented on its penultimate mora and (ii) occurs at the very end of the clause, not being followed by a(nother) auxiliary predicate and/or a particle.
  - (14) exemplify cases where deaccenting *cannot* be applied.

- (14) a. Amaku        nakatta?  
sweet.Inf    NegAux.Pst  
... {[na’kaQta]/\*[nakaQta]}
- b. Tetsudatte *kurenai*        ka?  
help.Ger    NegAux.Prs    QP  
‘Won’t (he) help (us)?’ (positive bias)  
... {[kurena’i]/\*[kurenai]}...
- c. Taorete    *imasen*        deshita?  
fall.Ger    Npfv.Plt.Neg    Plt.Pst  
‘Wasn’t (it) laying on the ground?’ (positive bias)  
... {[imase’N]/\*[imaseN]}...

- In all nine analyzed tokens of (15), it was possible to observe a relatively steep pitch fall around the putative accent nucleus within the negative auxiliary predicate. (Figure 3 illustrates an actual production of (15).)

- (15) a. (**Situation:** Your colleague, who is older than you, and you are looking for somebody who can give you a hand on the task that have been assigned to you. Your colleague says: “Since we asked Suzuki for help last month, how about asking Yamada this time?”. But as you recall, it was Yamada who helped you last month.)  
Sengetsu    wa    Yamada-san    ni        tetsudatte    moraimasen  
last.month   Top   Y.-Suffix        Dat    help.Ger    BenAux.Neg  
deshita?  
Plt.Pst  
‘Weren’t we helped [by Yamada]<sub>F</sub> last month?’ (positive bias)
- b. ... [yamadasa**N**ni] [tetsuda’tte] [moraimase’n] [de’sita]

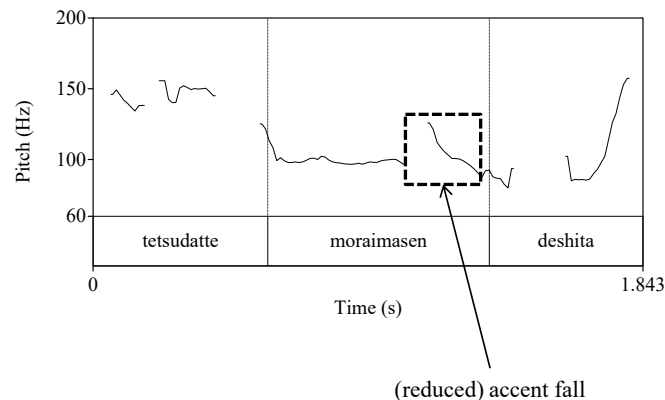


Figure 3: “(Sengetsu wa Yamada-san ni) tetsudatte moraimasen deshita?”

- Crucially, the prosodic contrast between the P-type and NN-type is not neutralized when deaccenting is expected to be blocked.
  - This implies that the prosodic features of the P-type cannot be fully reduced to the effect of deaccenting.

(16) Tsukarete imasen ka?  
 become.tired.Ger Npfv.Plt.Neg QP  
 ‘Aren’t (you) tired?’  
 ... [imase’Nka] → P-type  
 ... [**imase**’Nka] → NN-type

(17) Tetsudatte kurenakatta?  
 help.Ger BenAux.Pst  
 ‘Didn’t (he) help (you)?’  
 ... [kurenaka’Qta] → P-type  
 ... [**kurenaka**’Qta] → NN-type

### 3.2.2 The relevance of information structure

- When a P-type interrogative does not involve an auxiliary and the negation is realized within the main predicate, the pitch movements within the main predicate are not necessarily compressed, so that the prosodic contrast between the P-type and NN-type may be neutralized (Ito & Oshima 2016: 236-237),.

(18) Iwashi tabenakatta?  
 sardine eat.Neg.Pst  
 ‘Didn’t (she) eat the sardine?’  
 ... [**tabe**’nakatta] (no tonal subdual)

(19) **negative bias scenario:** Mrs. Abe gave sardine to her cat. 15 minutes later, Mr. Abe notices that the sardine is still in her food bowl. He asks his wife (18).

(20) **positive bias scenario:** In the morning, Mrs. Abe tells her husband that she will give sardine to their new cat, who has been fussy about her food. Later in the day, Mr. Abe comes across the previous owner of the cat and learns that she loves sardine and never refuses to eat it. He comes home in the evening and asks his wife (18).

- The tonal subdual within negative main predicate forms takes place only when the meaning of their stem is not part of the focus.

(21) (in reply to: “The cat had mackerel for her dinner yesterday.”)

E? Iwashi (o) tabenakatta?

huh sardine Acc eat.Neg.Pst

‘Huh? Didn’t she eat sardine?’ (positive bias)

[iwaši(o)] [tabe’nakatta]

- If the prosody of the P-type interrogative is brought about solely by phonological operations (such as deaccenting of the negative predicate) that specifically encode a positive epistemic bias, then it is unclear why the information-structural status of the stem may affect the applicability of such operations.

#### 4 Conclusion

- Both post-focus reduction and deaccenting contribute to the prosodic characteristics of the P-type interrogative. (They are not mutually exclusive, and may be used together in a single sentence; e.g. Figure 1.)
  - In many cases, the prosody of the P-type does not involve a special tonal feature specifically having to do with particular pragmatic meaning, but simply reflects the groundhood of the predicate containing the negation.
  - Under certain limited configurations, however, deaccenting of the negative predicate and/or of the main predicate preceding a negative auxiliary predicate may optionally take place, specifically signaling a positive epistemic bias.
- Deaccenting of the negative predicate can be seen as an innovative phonological means to indicate the P-type interpretation.
  - The “reduction” strategy is not fully reliable (i) when the negation is realized within the main predicate, as in (18), and (ii) when the focus phrase is unaccented, as in (22).<sup>5</sup>
  - The “deaccenting” strategy largely compensates these limitations.

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<sup>5</sup> As demonstrated by Ishihara (2011, 2015), the effect of post-focal reduction can be rather subtle when the focus phrase is unaccented.

- (22) Ame ja nai?  
 candy Cop.Inf NegAux.Prs  
 ‘Isn’t (it) candy?’  
 [ameʒa] [na(‘)i]

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