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A Natural History of Japanese Pressed Voice[†]

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日本語りきみ音声の自然誌

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要旨: 声質は話し手の気持ちと対応するが、両者の対応は単純な形ではつかみ難いとされている。本稿は、この対応の複雑さを多少とも解きほぐすには何が有効かという問題を検討するために、「りきみ」と呼ばれる現代日本語の一つの声質を考察した。自然対話と母語話者の直観を併用した観察の結果、以下の結論が得られた: 第1点, りきみとは、何らかの気持ちを「表す」ことではなく、何らかの気持ちに「なってみせる」ことである。そう考える方が実態(たとえば、その気持ちになった体験を持つ者しかりきめないということ)に合致する; 第2点, りきみ話し手が「なってみせる」気持ちとは、基本的に、苦しみか感心である。苦しみや感心と関わらず、強調を表すかに見える場合は、りきみの生起環境が修飾構造内に限られており、「修飾構造内での態度的意味の抑制」という文法現象として理解できる; 第3点, 以上の2点が正しければ、声質と気持ちの対応の複雑さを解きほぐすには、文法、情報、コミュニケーションを統合した観点が有効である。

Key words: voice quality, emotion, attitude, Japanese, pressed voice, culture-dependent pragmatics, experience vs. knowledge, territory of information

1. Introduction

Voice quality conveys meaning in many ways. Voice quality can denote a phonological contrast, as is commonly observed in South-East Asian, South African, and Native-American languages. According to Ladefoged and Maddieson (1996), for example, the meaning of *ja* in the Jalapa de Diaz dialect of Mazatec depends on whether the final vowel *a* is modal ("tree"), breathy ("he wears"), or creaky ("he carries"). Voice quality can also be used in a demarcative way, as is argued by Gordon and Ladefoged (2001: 391-392). They reviewed several studies and showed that creaky voice is commonly used in languages such as Swedish, English, Finnish, Czech, and Serbo-Croatian to mark prosodic boundaries. Chafe (2001: 674) also describes that there is likely to be a new voice quality at the onset of speech in which a newly introduced topic occurs. It is also well known that voice quality reveals the speaker's physical and mental

health. In addition to these cases, voice quality can be used to show the speaker's emotion and/or attitude (henceforth "emotion/attitude"). As is shown by Gobl and Ní Chasaide (2000), however, there is no one-to-one mapping between the speaker's emotion/attitude and voice quality.

In Japanese, voice quality does not seem to convey meaning in a contrastive way, and it is uncertain whether it conveys meaning in a demarcative way. But Campbell and Mokhtari (2003) and Campbell (forthcoming) showed that Japanese voice quality varied consistently in accordance with the speaker's emotion/attitude in much the same way as (but independently of) fundamental frequency.

Pressed voice, a type of Japanese creaky voice quality (called *rikimi* in Japanese), is common in daily communication. Nevertheless, it has been almost neglected in Japanese language study except for Kori (1989) and our preliminary studies (Matsumoto (1998); Sadanobu *et al.*

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(2001); Matsumoto and Sadanobu (2001)). Kori (1989) pointed out that pressed voice can be associated with feelings/attitudes of *exclamation*, *surprise*, *disgust*, *irritation* and *anger*, which means that there is not a one-to-one mapping between pressed voice quality and the speaker's emotion/attitude. This paper aims to find a way to disentangle this complex mapping, by focusing on grammatical environment, informational content, and social context of pressed voice.

2. Data

Our data differs from those which many previous studies of emotional/attitudinal speech characteristics have been based on. Our data do not include recordings of semantically neutral or nonsense utterances with various emotions simulated by actors. Instead we observe recordings of spontaneous Japanese speech spoken by ordinary people in social interactions. As presented in Campbell (2000), speech collected in a laboratory environment is likely only to be representative of laboratory speech, and he suggests that the difficulty of balancing natural speech data for controlled scientific analysis can be compensated for by increasing the number of utterances collected. Since our data collection is in progress, however, I shall focus on examining individual utterances, rather than analyzing them statistically. All data referred to in this paper were extracted from one-on-one conversations.

I described and analyzed the data based on introspection of at least 10 native Japanese speakers including myself. Below, I also bring some grammatical arguments into discussion mainly based on my own introspection. The reliance on introspection, of course, tends to lack objective basis, so I do not insist that this method is flawless. But I think introspection is essential for us to step more deeply into the realm of emotional/attitudinal meanings, as did Wallace Chafe, who regarded introspection as an "indispensable guide" in his linguistic analysis of natural speech (Chafe (1992: 234)).

3. Preliminary Observations

In 13 hours of recordings of 11 speakers, 4 male and 7 female, 85 utterances of pressed voice were found. Judgment was done by the auditory impression of 2 native Japanese speakers including myself. As pointed out by Ní Chasaide and Goble (1997), voice qualities differ from each other in a scalar rather than discrete way, and there were many borderline cases where voice quality was difficult to judge. These peripheral data deserve closer examination, with special consideration to the changes in voice quality, vowel quality, length, pitch, larynx state, etc. frequently found in South-East Asian languages. (For instance, creaky, tense, or harsh voice quality tends to be associated with higher-pitched vowels which have an open vowel quality, are more fronted, shorter and have a tense larynx; while breathy-voiced vowels are associated with lower-pitched vowels which have a closed vowel quality, are more backed, longer and have a lax larynx. See Thurgood (2000), for example, for a more detailed explanation.)

Waveforms, F0 and spectrograms of a prototypical pressed voice appear in the top panel (a) of Fig. 1. The modal voice, by contrast, is in the bottom panel (b) of Fig. 1.

The pressed and modal voices in Fig. 1 have many similarities. They both have the same segmental make-up, and are uttered a minute apart from each other by the same speaker on the same topic with the same listener. Despite these similarities, the first *kimochiwarii* was uttered with pressed voice and the second without. The difference in voice quality reflects the difference in the speaker's emotions/attitudes. The first excerpt is embedded in the phrase *Nanka koo "Kimochiwarii!"-tte natte-shima-u-nen* (I don't know, it seems kind of, well, gross!), which seriously informs the listener of the speaker's feeling of being grossed-out by the topic, whereas the second excerpt is uttered not so seriously with a slight laughter, a reaction to the listener's joke which was made to amplify the weird image of the topic. The difference in syntactic structures — the first excerpt is a quoted phrase and the second, an independent phrase — might also

A Natural History of Japanese Pressed Voice

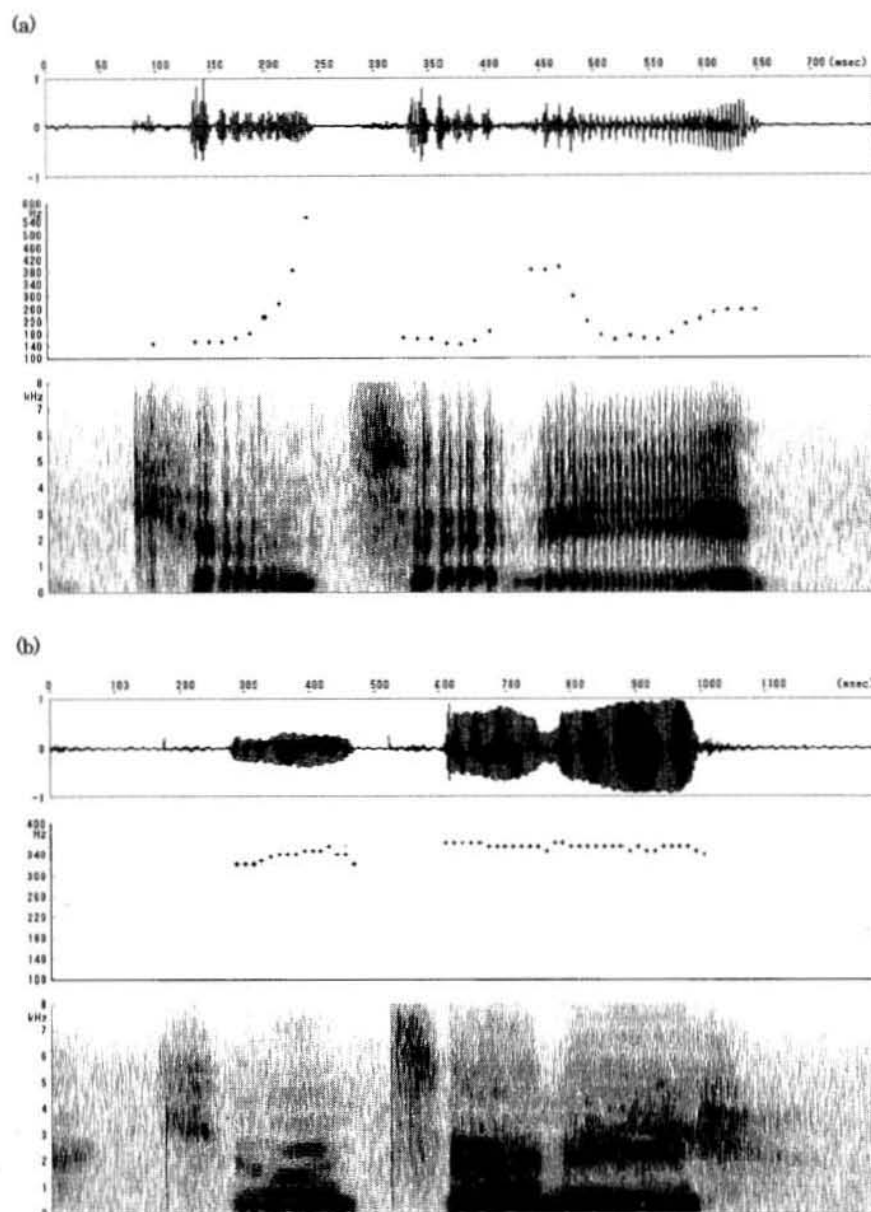


Fig. 1: Waveform, F0, and spectrograms of pressed voice (top panel (a)) and modal voice (bottom panel (b)) in the Japanese phrase *kimochiwarii* (*gross, disgusting*) (female voice)

influence the voice quality, but I do not address this in this paper.

Pressed voice in Fig. 1(a), compared with modal voice in Fig. 1(b), is characterized by an irregularly spaced waveform and large striations in the spectrogram, as Monsen and Engebretson (1977: 989) says that the glottal waveform of creaky voice is highly irregular. As for the F0 tracing, there is no tracing for the *chii*-segment, and the tracings for the other segments are half

as high as those for the modal voice in Fig. 1(b), which suggests that the pitch tracker is halving the pitch period, because of the irregularity of the vocal fold vibration during pressed voice. This is in accord with the description by Laver (1980:122) which, citing much research, says F0 of creaky voice is lower than that of harsh voice. These acoustic characteristics shown here reflect the instability of energy involved in producing pressed voice.

Table 1: Distribution of pressed voice among speakers

speaker	A	B	C	D	E	F	G	H	I	J	K	total
age,sex	70f	60m	60f	40m	40f	30f	30m	20f	20f	20m	10f	
rec. hrs	1	1	2	1	1	2	0.5	1	1	0.5	2	13
p.v.data	43	10	7	0	9	0	4	0	4	1	7	85

The data of pressed voice are not well distributed among speakers, as is shown in Table 1 above.

Pressed voice utterances frequently occur in the recordings of Speakers A, B, E, and G, whereas not in that of Speakers D, F, and H. This difference of frequency cannot be easily attributed to dialects (Speaker D is from Shizuoka, G from Shimane, H from Hiroshima, and the others are from Kansai). In order to ascertain if pressed voice is an idiosyncratic habit which conveys no meaning to the listener, a perceptual experiment was conducted (Sadanobu (forthcoming a)). 13 utterances of prototypical pressed voice were extracted and used in a forced judgment decoding test. After a brief instruction of what is pressed voice and what is modal voice, these 13 utterances were presented to 10 subjects, who were also recorded (except Speaker K). Each utterance was preceded by a number and repeated three times with a two-second interval between each and about eight second interval before the following number. Subjects were offered 5 Japanese sentences from which to choose a single impression of pressed voice for each utterance in comparison with its modal counterpart. The results show that the listeners' impressions generally coincide highly with one another. For example, the utterance *Umainaa!* (How delicious!) was unanimously judged to impart stronger impression of deliciousness than its modal counterpart. Whether a subject uses pressed voice or not does not seem to affect the judgment of pressed voice in these utterances. On the whole, all the subjects share the knowledge about what pressed voice contributes to the meaning of these utterances, even if the subject himself/herself does not use it. This suggests that pressed voice is one important manner of con-

veying emotional/attitudinal information in Japanese communication.

Creaky voice is said to signal *bored resignation* in English and commiseration and complaint in Tzeltal (Laver (1980: 126); Brown and Levinson (1978: 272)). And in one of our previous studies (Matsumoto and Sadanobu (2001)), 36 of 61 Chinese people who studied Japanese language on or above an advanced level judged the pressed voice utterance *Umainaa!* (How delicious!) in a different way from native Japanese speakers, though the utterances used in that research was acted rather than extracted from spontaneous conversation. These things imply that pressed voice as a manner of conveying emotional/attitudinal information is not universal but culturally determined. In order to clarify the meaning of pressed voice, it is therefore essential to investigate its usages in the context of Japanese communication.

So far I have identified three usages of pressed voice. The first usage is concerned with *suffering*, the second with *admiring*, and the third with so-called *emphasizing*, though I do not claim they are exhaustive, since our investigation is in progress. In all of them the effect of pressed voice varies in accordance with the individual context where it is used, and understanding them fully requires consideration of cultural differences, social interaction, and grammatical factors.

4. Suffering

The first usage of pressed voice I shall discuss is concerned with the speaker's *suffering* from some agony. When Japanese people are trying to lift up something very heavy on the

ground, for example, they often unintentionally utter sounds like *nnnn* with strained pressed voice, from where probably comes the Japanese name *rikimi* (straining oneself) of pressed voice. The agony suffered can be cognitive as well as

physical, and words and phrases are pronounced with pressed voice when the speaker is annoyed in solving the problem s/he is confronted with, as in (1).

- (1) *Yakedo yappari "umi-ga kitanai"-tte kai-te an-noni wazawaza iku-n-mo naaa nnnn. Ma, mayoi-masu-wa. Koko ichi ka iika futsuka-de kimeru-wa.*

[But do you really want to go there, even though it says (here in this brochure) "The ocean is dirty"? mmmm. I... I don't know what to do? I'll make up my mind in one, one or, one or two days.]

Speaker E in Table 1 above uttered this excerpt. The underlined part *nnnn* is pronounced with pressed voice by her to show that she is feeling difficulty in deciding whether to go to the place being talked about.

4.1 Culture-sensitive politeness and action of displaying *kyoshuku*

The motivation of uttering phrases like *nnnn* in (1) above with pressed voice might look purely speaker-internal (i.e. physical or cognitive), but in many cases, the speaker's motivation is social as well as speaker-internal. Let us see (2), where pressed voice is used in an utterance of request.

- (2) *"Nande-ya?"-to. "Omae sonna hakkiri yuu-tara-na, o-kyaku-san kii waru-suru-ya-nai-kai," yuu-tara, "Nai mono-wa nai-deshoo"-to. "Nanbo doryoku-shi-te-mo, nai mono-wa nai-n-desu. Dakara, o-kyaku-san-ni hayaku akirame-te-mora-tte, jizen-no saku-o ne-tte-morau-no-ga ichiban shinsetsu-deshoo"-to yuu-nen, senmu-wa-na. Tokoroga joomu-wa oosakajin-ya. Chigau-nen. "Iyaa, sora, mutsukashi-deshoo-naa. Seyakedo isshookenmee korekara ganba-tte mimasu. Omoikiri ganba-tte, sono toki-wa, ano, na-ka-tta toki-wa, sunmasengaa maa chotto yurushi-te kudasa-i-yoo"-to koo ii-yoru wake-ya. Heyakedo hontoni doryoku-shi-yor-a-hen-nen [laughter].*

["Why?" I asked the senior executive managing director, "Why do you refuse so easily (your customer's expectation to get travel tickets because you cannot get them)? Don't you think it makes the customer angry?" Then he answered, "What else can we do? There's no way we can get them. So the kindest way to react is to just tell them the truth (we can't get tickets) honestly as soon as possible and let him/her plan something else?" This is the answer by the senior executive managing director. But, the executive managing director, who is from Osaka, reacts differently. (When he was asked by a customer to get travel tickets which are in fact impossible to get) he answers to his customer "Oh, I think those tickets are tremendously difficult to get! But I'll get on it right away and do whatever I can. I'll do my best, but uh please promise to forgive me if it turns out I can't get them in the end in spite of all my effort." And actually, he makes no effort [laughter].]

This excerpt is elicited from a dialogue but here one speaker (i.e. Speaker B in Table 1 above) takes the floor. The utterance of request *sunmasengaa maa chotto yurushi-te kudasa-i-yoo* (please promise to forgive me.) is under-

lined in the above transcription, which means that this part is uttered with pressed voice. Utterances of request are often done with pressed voice and grimace.

I think the content of this excerpt is no less

useful than its sound for our understanding the relation between a request on one hand and pressed voice and grimace on the other. What Speaker B is talking about in this excerpt is the ways in which the senior executive managing director and the executive managing director of a travel agency he knows well, reject the customer's request to get travel tickets. According to Speaker B, there are at least two ways of politely reacting to others' requests in Japanese culture. One way is to reject the request explicitly and instantly, if the person who the request is made of (henceforth, requestee) is not sure s/he can really carry it out. This may hurt the requester's feeling for its bluntness, as is pointed out by Speaker B at the beginning of this excerpt. But in reply to this, the senior executive managing director expresses his belief that this way of rejecting is polite, because it enables the customer to make an alternative plan soon. The other way of politely reacting to others' requests is to display the requestee's effort to the requester, whether the requestee finally can accomplish the request or not. Note here that the requestee's effort to satisfy the request does not by itself guarantee the politeness of this reaction. If the requestee makes his/her effort in a secret way so that the requester does not notice, it is not polite at all (though ethically good it may be). What makes the reaction polite is the requestee's action of displaying his/her own effort to the requester. This is the case even if the requestee's effort is actually a fake one, which is just the way that the executive managing director often rejects the customer's request without being discredited. Speaker B says that cultural factors influence which one of these two polite ways of reacting is preferred, and attributes the somewhat cheating way of the executive managing director to the Osaka area, which is his hometown. (But we can assume that this is not an utterance of accusation toward Osaka people, firstly, because Speaker B is laughing while saying the last part, and secondly, because Speaker B himself is also from Osaka.)

Once we accept such conceptions of culture-sensitive pragmatics that allow the variability of the politeness strategy among different

cultures like Anna Wierzbicka, who questions the culture-independent universal pragmatics of politeness (e.g. Wierzbicka (2003)), it does not seem to be so difficult for us to understand why utterances of request like the underlined part of (2) are often uttered with pressed voice and grimace. An utterance of request can easily sound arrogant and impolite, because it imposes a burden to the listener. To avoid such arrogance and impoliteness, the English society has developed the strategy of laughing, as is discussed by Wallace Chafe on a subtype of request: "The act of influencing another person not through overt persuasion but simply by providing information the other person did not previously have — by inserting one's own knowledge into another's mind — can be a mind imposition. In a small way, one is trying to make the other person's mind conform to one's own. People sometimes laugh for no other purpose than to remove the seriousness of this imposition" (Chafe (2003: 47)). Likewise, Japanese has the strategy of laughing, as has been described in Hayakawa (1999: 176, 180–182), for example. Besides that, another strategy to make the utterances of request less arrogant and more polite has been developed in the Japanese society. This strategy is to display to the listener the speaker's emotion/attitude called *kyooshuku* in terms of pressed voice and grimace. The emotion/attitude *kyooshuku*, very roughly corresponding to a mixture of suffering ashamedness and embarrassment, comes from the speaker's consciousness of the fact that his/her utterance of request imposes a burden to the hearer. In many occasions Japanese speakers prefer the strategy of displaying *kyooshuku* to that of laughing, as is shown in emoticon used in e-mail, for example. Japanese e-mail sentences of request are often accompanied at the tail of them with an emoticon called *dogeza* mark "m(_ _)m", which designates a front view of a person (i.e. the sender of that e-mail) prostrating himself/herself on the ground for the feeling of *kyooshuku*.

The *kyooshuku* strategy dependent on Japanese culture can be observed also in utterances of rejecting, as is exemplified in (3).

- (3) *Nakanaka demo hontoni tashikanii ano iken-o yuu-no-wa muzukashi-i-desu-yo-ne. Sonoo jooshi toka-gaa i-te-tee "Iyaa kore-waa chottoo yapparii yoku-nai-too omoi-masuu"-tte-no-wa sugokuu yuuki-gaa iri-masu.*

[Yeah, but it must be really hard, uh, speaking out like that (criticizing a senior person's idea) you know? Umm, imagine trying to tell your boss "Oh, your idea is no good." It's gotta take a great deal of courage.]

In the excerpt (3), the underlined part *Iyaa kore-waa chottoo yapparii yoku-nai-too omoi-masuu* (Oh, your idea is no good) is uttered with pressed voice, which is a part of rejecting the boss's idea. The existence of such data is one of the reasons why I do not hold a simplistic view of pressed voice as a mere emphatic expression. If pressed voice emphasized the meaning of the phrase "Oh, your idea is no good," it would lower the politeness of the utterance, because the phrasal meaning is unsatisfactory to the listener (i.e. the boss). But actually, as opposed to such an expectation, pressed voice increases the politeness of such an utterance. The occurrence of pressed voice in these utterances is best understood by the *kyooshuku* strategy. The utterance of rejecting other's ideas or other's requests is apt to sound rude and impolite, and Japanese culture has developed various communicative strategies to make such utterances sound less rude and more polite. Among these strategies is the *kyooshuku* strategy. In terms of pressed voice which is concerned with the emotion/attitude of *suffering*, Japanese speakers display their emotion/attitude of *kyoshuku*, thereby lightening the rudeness and impoliteness conveyed by the phrase. (See Sadanobu (forthcoming a) for detailed discussion against the simplistic view.)

It is important to note that the notion of

display used here is different by nature from that of expression. Displaying the emotion/attitude of *kyoshuku* (*suffering*) by pressed voice (and grimace) is one thing, and uttering the sentence *Kyooshuku-desu* (I am feeling *kyoshuku*) with an unmoved voice and face is quite another. The latter is much less polite than the former. If we regard pressed voice as expressing the speaker's emotion/attitude of *kyoshuku* as well as the linguistic expression *Kyoshuku-desu*, we cannot explain their difference on the degree of politeness. For the speaker, the action of uttering with pressed voice is not the action of expressing his/her emotion/attitude. Rather, it is the action of revealing his/her emotion/attitude in the presence of the listener, whether the emotion/attitude is real or faked.

4.2 The "right" to utter with pressed voice

This aspect of pressed voice as a displaying action is closely connected with the fact that the speaker needs the "right" to utter with pressed voice. It is only those who convey the message as their experience (*taiken*, in Japanese) rather than as knowledge (*chishiki*, in Japanese) who can utter with pressed voice. We can see it in the clearest way when the speaker conveys their remote experiences. See the excerpt (4).

- (4) *Demo sono ano noomiso-no koozoo-te doi na-tten-no-yaro-naa, ano wasure-te-iku-non-demo. Watashi are kyoofu-ya-waa.*

[But uh you know the, the brain structure, I wonder how in the world our brains are constructed? You know, what is it that when we lose our memories little by little as we are getting older. That's what I'm afraid of.]

At the point of uttering (4), Speaker C is chatting cheerfully with the other person (Speaker E in Table 1). She is not feeling the fear of

losing memories, in the ordinary sense. (We will discuss this point later again.) Rather, while chatting she was recalling her feeling of fear of

losing her memory which she had experienced many times repeatedly so far through her life in various places at various time points. This is what I call a “remote” experience, in contrast with “immediate” experience which is experienced at the place and moment of the utterance (cf. Chafe (1992)). In the case of (1) through (3) above, the *agony/kyoshuku* exist at the situation of the utterance, so these *agony/kyoshuku* are immediate experiences.

At the end of (4), Speaker C talks of her fear of losing her memory and this part is uttered with pressed voice, as is shown by its underline. After this conversation, Speaker E, who listened to Speaker C’s utterance (4), can utter (5) to the third party, but unlike C, Speaker E cannot utter it with pressed voice.

- (5) *Ano hito are kyooofu-ya-tee.*
[I heard she’s afraid of that.]

This is because the experiencer of fear is

- (6) *Nihongo-no furui sugata-tte-yuu-no-wa, choosen shiryoo-nanka-mo mi-nai-to wakan-nai-yoo.*
[In order to elucidate the ancient state of Japanese language, it is necessary to check Korean documents.]

This is an utterance made at an informal linguistic meeting last year, though I missed recording it. The speaker of this utterance was a professor who had been studying the ancient state of Japanese language for a long time, and this is a part of his remark from a professional point of view asked for by one of the other participants. The underlined part was pronounced very slowly with pressed voice and a serious grimace. Let us imagine a high school boy happened to be there and hear this remark. On the next day this boy can say (6) to his classmates at school (without a hearsay marker necessarily), but never with pressed voice. This is because the experience of struggling with huge documents including Korean ones in the hope of elucidating the ancient state of Japanese language is owned by the professor, not by the high school boy.

Speaker C, not Speaker E, (as is shown by the presence of the hearsay marker *tee* (I heard) at the end of (5)). The right to tell Speaker C’s having the feeling of fear as an experience rather than as knowledge is exclusively possessed by Speaker C herself. This is also evidence against the simplistic view that the pressed voice is an emphatic expression like the lexical item *sugoi* (very much). Listeners to the utterance *Watashi are sugoi kyooofu-ya-waa* (I fear that very much) can utter to the third party with ease the corresponding utterance *Ano hito are sugoi kyooofu-ya-tee* (I heard she fears that very much). If pressed voice were emphatic in meaning like *sugoi*, anyone could use it freely. But actually, the user of pressed voice is limited to experiencers. In this respect, pressed voice is deeply concerned with the concept of “the territory of information” (*Jouhou-no nawabari*, in Japanese) by Akio Kamio (cf. Kamio (1990; 2002)). Here is another example.

What I would like to add here is that the right to convey the message as an experience rather than as knowledge is not solid but flexible. It can spread in accordance with the situation of utterance. A researcher of modern Japanese grammar, for example, can utter (6) with pressed voice in a pub if s/he is asked a “professional comment” on the ancient state of Japanese by some other customers who are totally laymen. In this case the speaker does not have actual experience of studying the ancient state of Japanese itself, but unlike the case of the high school boy, s/he has some “base” experience of studying Japanese language. This enables him/her to convey (6) as an extended, imaginable or sympathizable experience, with the support by the situation where such a “professional comment” is requested by the other people in an informal space like a pub.

The right to convey the message as experience can shrink as well as extend. The professor above cannot utter (6) with pressed voice so easily if his/her master, who is still more authoritative on the ancient state of Japanese language through a much longer experience, attends the meeting.

So our problem is "why do Japanese speakers use pressed voice when the message they convey is their recalled experience of *suffering*?" This problem becomes hard to solve once we presuppose the idea that the speaker used pressed voice to "express" something, since there seems no reason or merit why the speaker must take the trouble to express that the message is a recalled experience of *suffering*. If we instead admit the idea that to utter with pressed voice is to display (i.e. to reveal at the face of the listener) the speaker's emotion/attitude, the an-

swer is automatically given in the following passage by William Labov: "[In narratives of personal experience] the speaker becomes involved in rehearsing or even reliving events of his past" (Labov (1972: 354)). The speaker recalling his/her remote experience of *suffering* is also suffering now at least to some degree, which motivates the use of pressed voice.

4.3 Sincerity

The advantage of the "display" view compared with the "expression" view of pressed voice can be also seen in its "sincerity." It is not only pressed voice that may convey a distinction between experience and knowledge. Japanese has a group of verbal expressions, the usage of which is closely related to experience in contrast to knowledge. Let us see the locative marker *de* for example.

- (7) a. *Niwa-ni ki-ga ari-mashi-ta-yo.*
garden-LOC tree-NOM exist-POLITE-PAST-I tell you
[There was a tree in the garden.]
b. ??*Niwa-de ki-ga ari-mashi-ta-yo.*
garden-LOC tree-NOM exist-POLITE-PAST-I tell you
[There was a tree in the garden.]
- (8) a. ??*Niwa-ni paatii-ga ari-mashi-ta-yo.*
garden-LOC party-NOM exist-POLITE-PAST-I tell you
[There was a party at the garden.]
b. *Niwa-de paatii-ga ari-mashi-ta-yo.*
garden-LOC party-NOM exist-POLITE-PAST-I tell you
[There was a party at the garden.]
- (9) a. ??*Nattou-nara uchino-reizouko-de ari-mashi-ta-yo.*
fermented beans-TOP my house-fridge-LOC exist-POLITE-PAST-I tell you
[There were fermented soybeans in the fridge of my house.]
b. *Nattou-nara Pekin-de ari-mashi-ta-yo.*
fermented beans-TOP Peking-LOC exist-POLITE-PAST-I tell you
[There were fermented beans in Peking (and I saw/tasted them).]

As is well known by many articles including Alfonso (1980), Matsumura (1957), and Nakau (1998), Japanese has two locative markers *ni* and *de*, the former being for a thing's location and the latter for an event's location. Since a tree is not an event but a thing, the *ni*-sentence (7a) is natural and the *de*-sentence (7b) is unnatural, which is shown by double question marks at the

top of it. On the contrary, the *ni*-sentence (8a) is unnatural and the *de*-sentence (8b) is natural because a party is not a thing but an event, at least to a certain degree. The unnaturalness of the *de*-sentence (9a) can be explained in the same way as in (7b), because fermented soybeans, which is a Japanese traditional food, is not an event but a thing. The *de*-sentence (9b) is,

however, quite natural in spite that it expresses the existence of things, (i.e. fermented soybeans) as well as (9a). This is because (9b), as shown in the English translation, expresses the existence of fermented soybeans as an event of the speaker's experience of exploring the town of Peking rather than as mere knowledge. The town of Peking is huge and it is plausible that the speaker explores it. On the other hand, the sentence (9a) cannot be taken in the same way, because the refrigerator (*fridge*) in the speaker's house is too familiar to the speaker, and it is not natural to express the existence of fermented soybeans there as an experience of exploring rather than as mere knowledge. Besides the locative marker *de*, expressions of frequency, tense, limitation, condition, and quotation are related with the notion of experience (Sadanobu (2001a; 2001b; 2002a; 2002b; 2003a; 2003b; 2003c; forthcoming b; forthcoming c)).

There is a great difference of "sincerity" between these verbal expressions and pressed

voice quality. Of course, there is no difference between them in allowing a possibility that the speaker is uttering phrases not from his/her heart but just pretending. However, it is much more difficult for the speaker to deny the reality of his/her experience in the case of pressed voice than it is in the case of verbal expressions. This cancelability of reality is what I call the difference of "sincerity" (cf. Sadanobu (forthcoming a)). This difference is ascertained by a test of attaching the enclitic *tarishite*. The Japanese enclitic *tarishite* is often attached to clause-end predicate to mean that the clause content is not real to the speaker (i.e. uncertain, imaginative, or joking). For example, the reality of the experience depicted verbally in (9b) can be canceled by attaching *tarishite* to it, as in (10), which is natural as a joking sentence uttered by a speaker on his/her first way to Peking, who does not know that there actually are fermented soybeans in Peking.

- (10) *Nattou-ga Peking-de a-ttarishite.*
 fermented beans-NOM Peking-LOC exist-not real
 [What if there were fermented beans in Peking?.]

On the other hand, it is difficult to cancel the reality of experience in the case of pressed voice by attaching *tarishite*. The following sentence (11a) is unnatural with the underlined part ut-

tered with pressed voice, while its counterpart (11b) without pressed voice is completely natural.

- (11) a. ??*Nihongo-no furui sugata-tte-yuu-no-wa, choosen shiryoo-nanka-mo mi-nai-to waken-*
naka-ttarishite.
 b. *Nihongo-no furui sugata-tte-yuu-no-wa, choosen shiryoo-nanka-mo mi-nai-to waken-*
naka-ttarishite.
 [Let's imagine that in order to elucidate the ancient state of Japanese language, it is necessary to check Korean documents.]

This difference of sincerity between verbal expressions and pressed voice remains unsolved if we regard pressed voice the same as verbal expressions. It requires us to regard the speaker's uttering with pressed voice not as an expressing but as a displaying action of experiences.

In sum, compared with the expression view, the display view of pressed voice has the following three advantages. Unlike the expression view, the display view of pressed voice is compatible with the observations (i) Utterances of request and rejection with pressed voice are much more polite than those with verbal expres-

sion of *kyoshuku*; (ii) The right to utter the remote experience of suffering with pressed voice is limited to the experiencer; and (iii) Utterances with pressed voice are much more sincere and difficult to cancel their reality than those without pressed voice.

- (12) *Saigo-made oishi-ka-tta-no-wa meron hamu-ya-na. Meron hamu-noo, anoo meron-wa maa, umai mono doko-ni-demo aru-wa-na. Seyakedo sonoo namahamu-ga moo kore ijoo sono doo yuu-n-ka-naa usuku kire-hen yuu-gurai monosugoi usui, sono usui meron-ni kake-ta hamu-ga moo moo honto-ni toroo-tto sono nebaneba-shite, oishii, namahamu-ga kaka-tte-oru, [Gulp] kore-wa shinsoko umainaa-to omo-ta-ne.*

[The food I liked the best was the melon ham. Melon ham, you know you can get good melons anywhere, but oh that raw ham was so thin, oh how should I say, thin as thin can get, that thin ham, on melon, that was so wonderful, that delicious raw ham. [Gulp] It was heaven.]

This example was elicited from a dialogue, but one person (Speaker B again) keeps on track throughout. What he is talking about is basically his recalled experience of taking a business trip around European countries about forty years ago. In the preceding context of (12), he said that too much food served to him in each country every day and night made him sick and unable to enjoy food any more, and this excerpt is the following part in which he says that the melon ham was the only exception. The underlined phrase *umainaa* (really delicious), in which the speaker is admiring the deliciousness of the melon, is pronounced with pressed voice.

5.1 The right and sincerity of *admiring*

The *admiring* type of data like (12) above may tempt us to think that uttering with pressed voice is an action of “expressing” the speaker’s emotion/attitude of admiring (the deliciousness of melon, in the case of (12)), but it is too simplistic to hold this view. The reason is as follows.

Firstly, as well as in the case of *suffering* we discussed in the previous section, this type of pressed voice also requires the “right.” Everyone cannot utter freely with pressed voice just for admiring something. Speaker B of (12), for example, can utter *Uma-ka-tta-naa* ((Melon ham) was delicious) with pressed voice, only if

5. *Admiring*

Another usage of pressed voice is concerned with *admiring*. See the excerpt (12) for example.

he recalls the experience of admiring the deliciousness of melon ham he had been eating, but the listener of (12) cannot utter to the third party *Uma-ka-tta-rashii* (I heard that (melon ham) had been delicious) with pressed voice after this conversation, even if the s/he has the feeling of admiring the deliciousness of the melon ham talked about by Speaker B.

Secondly, the experience of *admiring*, uttered with pressed voice is more “sincere” and difficult to cancel than verbal expressions of *admiring*. The experience of *admiring* like *Umainaa* (It’s delicious) without pressed voice can be canceled easily by attaching *tarishite*, as in *Uma-ka-ttarishite* (Let’s imagine it’s delicious), whereas it is difficult to cancel the experience of admiring like *Umainaa* with pressed voice and it is unnatural to say *Uma-ka-ttarishite* with pressed voice.

Therefore we conclude that uttering with pressed voice in this type of data is an action of displaying, rather than expressing the speaker’s emotion/attitude of *admiring*.

5.2 *Suffering and admiring*

Then, how can one voice quality be used for displaying the emotion/attitude of *suffering* and of *admiring*? As well as in the case of request/rejection speech (Section 3.1), I would like to answer this question in a rather ethno-

logical way: The emotion/attitude of *suffering* and that of *admiring* are interconnected with each other, at least in Japanese language society. Such a radical idea, of course, requires independent justifications. Two of them will be shown below.

The first evidence is the polysemy of lexi-

- (13) a. *"Kore-kara doo naru-n-desu-ka?"-to buka-ni kik-are-ta-ga, watashi-ni-mo wakar-a-nai. Unaru-yori hoka-ni na-ka-tta.*

[One of my subordinates asked me "What's going to happen to us?", but I had no idea either. I could do nothing but groan.]

- b. *Engi-no subarashii dekibae-ni-wa, kibishii koto-de shir-areru shishoo-mo sasugani una-tta.*

[The excellent performance by the apprentice made the severe master groan.]

In the case of (13a), the verb *unaru* depicts an action of *suffering*, but this does not hold in the case of (13b). The sentence (13b) does not require the assumption that the master secretly felt an enmity towards his apprentice and therefore the excellent performance by the apprentice made the master feel bad. Although the usage of *suffering* seems more basic than that of *admiring* to me, the verb *unaru* in (13b) can completely express the master's pure action of admiring his apprentice. As well as *unaru*, the idiomatic verb *tameiki-o tsuku* (sigh) is also polysemous for *suffering* and *admiring*, and we can paraphrase *unaru* in (13a) and (13b) with *tameiki-o tsuku*.

The second piece of evidence for the inter-

cal items such as *unaru* (roughly corresponding to English *groan*) and *tameiki-o tsuku* (roughly corresponding to English *sigh*). These verbs are used for the description of the action of *suffering* and of *admiring* both, as briefly exemplified in (13) below.

connection between *suffering* and *admiring* is concerned with the polysemy of an intonation pattern which I tentatively call "low peak to high peak" (*hikui yama, takai yama*, in Japanese). This naming is after the following description by Isamu Abe: "The word *hai* may be repeated. *Hai hai* with the first *hai* forming a higher peak than the second would imply a "willing" yes, while the same expression with the second *hai* forming a higher peak would imply a "reluctant" yes" (Abe (1998: 372)). What I would like to point out first is that Japanese speakers utter various phrases with this intonation pattern to convey a somehow suffering (pessimistic) feeling, as is shown in the example (14a) below:

- (14) a. *Dokko-mo issho-ya-kara-nee.*

[Wherever you may go, there is no difference.]

The speaker of (14a) (Speaker C in Fig. 1), who is tired of overseas sightseeing travel, utters it with this intonation pattern. Figure 2 shows that the initial part *dokko-mo* (everywhere) is uttered with the lowest F0, the second part *issho-ya-kara* (all the same) a little higher, and the last

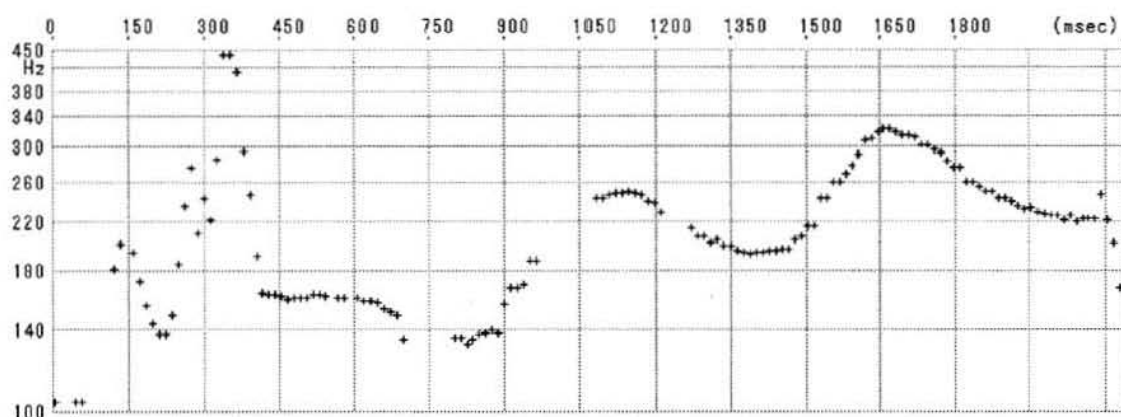
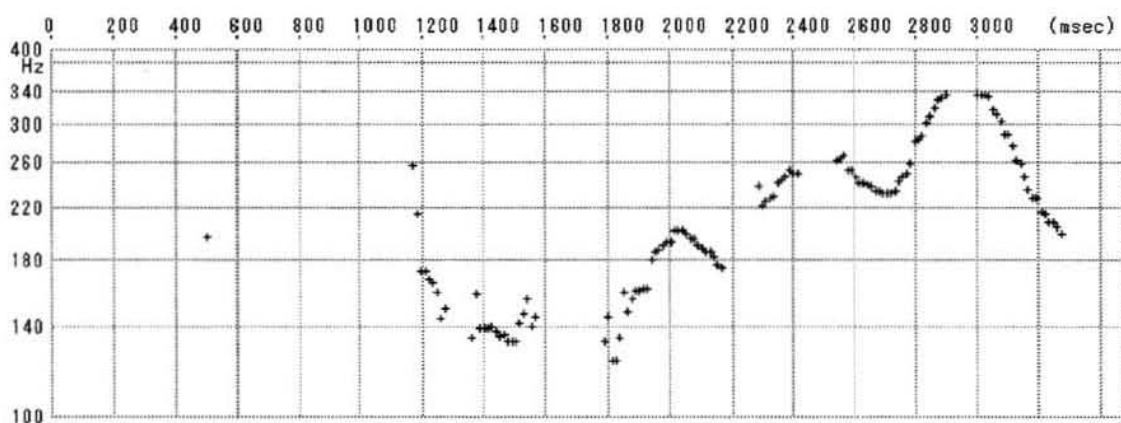
part *nee* (sentential-final particle) with the highest.

And we find the same intonation pattern in utterances by the same speaker (Speaker C) when she admires something like in (14b):

- (14) b. *O-shoogatsu-kara erai shigoto-ya-nee.*

[He begins working on New Years Day! What a hard worker he is!]

A Natural History of Japanese Pressed Voice

Fig. 2: F0 of (14a) *Dokko-mo issho-ya-kara-nee*.Fig. 3: F0 of (14b) *O-shoogatsu-kara erai shigoto-ya-nee*.

Again, the initial part *O-shoogatsu-kara* (New Years Day) is uttered with the lowest F0, the second part *erai* (hard) higher, the third part *shigoto-ya* (work) still higher, and the final particle *nee* (sentential-final particle) with the highest F0, as is shown in Figure 3.

The interconnectedness between *suffering* and *admiring* in the Japanese society is not an ad-hoc idea just for understanding the variety of usages of pressed voice. It is also useful at least

for explaining the polysemy of lexical items such as *unaru* and *tameiki-o tsuku*, and that of the intonation pattern “low peak to high peak”.

6. Emphasizing

The third usage of pressed voice is concerned with so-called emphasis. See the excerpt (15) for example.

- (15) *Seyakara hazu, sore-wa kore-wa hazus-are-hen-wa yuu-te-n-kedo-ne. Hona, konaida moo, gibusu-o gaa-to ki-tte hiraki-hatte*
[So we said it was too early to get, get this, this cast off my leg. But at last the doctor recently cut it off.]

The speaker of (15) (Speaker A in Fig. 1), while narrating the recent experience of curing her broken leg, expresses the news that the doctor at

last cut her cast off by using an electric saw. The pressed voice of the underlined onomatopoeia *gaa* vivifies the way the electric saw cut the cast.

It is this type of data that tempts us most to agree with the view that pressed voice emphasizes something.

It must be admitted that pressed voice is actually used for this kind of emphasis. It does not follow, however, that pressed voice has a separate meaning of emphasis independent of *suffering* and *admiring*. The emphatic meaning of pressed voice can be explained by its grammatical environment.

In these data, pressed voice always occurs in modifying phrases, as the onomatopoeia *gaa* in (15) occurs in the adverbial phrase *gaa-to* which modifies the immediately following verb *ki-tte* (cut). What we should pay attention to is that modifying phrases in general suppress emotional/attitudinal meaning. Again I shall exemplify this by words and intonations: *wa* and “low peak to high peak”.

Wa means the speaker's attitude of raising some topic, and it cannot occur in the modifying phrase in general. The relative noun phrase *watashi-wa ka-tta hon* (a book I [topic] bought), for example, is unnatural, because *wa* occurs in the modifying phrase of the head noun *hon* (book). Likewise, the sentence *Yubi-wa itai-node kaeri-masu* (Since my finger [topic] hurts I will go home) is unnatural, because in this sentence *wa* occurs in the adverbial phrase modifying the head predicate *kaeri-masu* (I will go home). Some adverbial clauses may exceptionally contain *wa*, as in *Yubi-wa itai-kedo mada kaeri-mase-n* (Although my finger [topic] hurts I won't go home yet), but it is restricted in two ways: (i) Only less subordinate, nearly independent clauses such as the *kedo*-clause can contain *wa*, and (ii) In many cases some supportive context — an utterance preceding the question about the speaker's finger, such as “Why don't you go home? Doesn't your finger hurt any more?” in the above case, for example — is required.

Likewise in the case of *wa*, the occurrence of the intonation pattern “low peak to high peak” in modifying phrases is also restricted. It is only repetitive phrases, such as *nagai nagai* (long, long) and *hosoku hosoku hosoku* (thin, thin, thin), that can be uttered in modifying phrases with this intonation pattern, and non-repetitive

phrases, such as *o-shoogatsu-kara erai shigoto* (working hard on New Years Day), cannot occur in modifying phrases with this intonation pattern. Moreover, as is pointed out by Matsumoto (2002: 126–127), the pessimistic/reluctant emotion/attitude this intonation pattern expresses is reduced to a mere emphatic one in modifying phrases. The phrases *nagai nagai hashi* and *hosoku hosoku hosoku kirimasu* mean ‘a very long bridge’ and ‘cut very thinly,’ respectively.

As is shown above, the idea that emotional/attitudinal meaning is suppressed in modifying phrases has its own motivation. It is effective for understanding the restriction of the topic marker *wa* and the intonation pattern “low peak to high peak” in modifying phrases. If we adopt this idea, the emphatic meaning of pressed voice in a modifying phrase also can be explained as the suppression of its original emotional/attitudinal meaning of *suffering* and *admiring* due to its grammatical environment.

7. Conclusion

This paper attempted to find a way to disentangle the complex mapping between Japanese pressed voice quality and the speaker's emotions/attitudes. Observations of natural spontaneous conversation data by using the introspection of native speakers lead to the following conclusions.

Firstly, for the speaker, the action of uttering with pressed voice is not expressing but displaying, or revealing, in the presence of the listener his/her emotion/attitude. This is based on the three observations: (i) Utterances of *kyoshuku* (in the cases of request and rejection) with pressed voice are much more polite than those with verbal expression of *kyoshuku*; (ii) Uttering with pressed voice is not allowed for the non-experiencers; (iii) The experience uttered with pressed voice is more “sincere” and difficult to cancel.

Secondly, the emotions/attitudes displayed by pressed voice are primarily *suffering* or *admiring*. Sometimes pressed voice is used for emphasis, and it seems not related to *suffering* or

admiring, but its grammatical environment is limited to within modifying phrases. Its usage is understood as a part of a more general phenomenon that emotional/attitudinal feelings are suppressed in modifying phrases, and this influences the behavior of the topic *wa* and the intonation pattern "low peak to high peak" in a parallel way.

Thirdly, if these two conclusions above have validity, it would require an integrated view of grammar, information (with the focus on the distinction between experience and knowledge), and communication on culture-specific contexts for us to disentangle the complex mapping between voice quality and the speaker's emotions/attitudes.

The two main usages of pressed voice — *suffering* and *admiring* — might be further generalized into a single notion (*being under high pressure*, for example). This paper does not deny that possibility, though, as is noted by Haspelmath (2003: 214, 239), pursuing a highly abstracted meaning of a linguistic item often obscures what individual speakers are doing with that item. This paper focused on individual usages of pressed voice, which are closely connected with communicative strategies which we use to interact with each other in daily life.

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References

- Abe, Isamu (1998) "Intonation in Japanese." In Daniel Hirst and Albert Di Cristo (eds.) *Intonation Systems: A Survey of Twenty Languages*. (pp. 360–375). Cambridge: Cambridge University Press.
- Alfonso, Anthony (1980) *Japanese Language Patterns: A Structural Approach* 1. Tokyo: Sophia University.
- Brown, Penelope and Stephen C. Levinson (1978) "Universals in language usage: politeness phenomena." In Esther N. Goody (ed.) *Questions and Politeness: Strategies in Social Interaction*. (pp. 56–289). Cambridge: Cambridge University Press.
- Campbell, Nick (2000) "Databases of emotional speech," *Proceedings of the ISCA Workshop on Speech and Emotion: A Conceptual Framework for Research*, 34–38.
- Campbell, Nick (forthcoming) "Accounting for voice-quality variation," *Proceedings of Speech Prosody 2004*.
- Campbell, Nick and Parham Mokhtari. (2003) "Voice quality: the 4th prosodic dimension," *Proceedings of the 15th International Congress of Phonetic Sciences*, 2417–2420.
- Chafe, Wallace (1992) "Immediacy and displacement in consciousness and language." In Dieter Stein (ed.) *Cooperating with Written Texts: The Pragmatics and Comprehension of Written Texts*. (pp. 231–255). Berlin: Mouton de Gruyter.
- Chafe, Wallace (2001) "The analysis of discourse flow." In Deborah Schiffrin, Deborah Tannen, and Heidi Ehnberger Hamilton (eds.) *The Handbook of Discourse Analysis*. (pp. 673–687). MA: Blackwell.
- Chafe, Wallace (2003) "Laughing while talking." In Deborah Tannen and James E. Alatis (eds.) *Georgetown University Round Table on Languages and Linguistics 2001: Linguistics, Language, and the Real World: Discourse and Beyond*. (pp. 36–49). Washington, D.C.: Georgetown University Press.
- Gobl, Christer, and Ailbhe Ní Chasaide (2000) "Testing affective correlates of voice quality through analysis and resynthesis," *Proceedings of the ISCA Workshop on Speech and Emotion: A Conceptual Framework for Research*, 178–183.
- Gordon, Matthew, and Peter Ladefoged (2001) "Phonation types: a cross-linguistic overview," *Journal*

- of *Phonetics* 29, 383–406.
- Haspelmath, Martin (2003) “The geometry of grammatical meaning: semantic maps and cross-linguistic comparison.” In Michael Tomasello (ed.) *The New Psychology of Language: Cognitive and Functional Approaches to Language Structure*. (Book 2, pp. 210–242). Mahwah, N.J.: Lawrence Erlbaum Associates.
- Hayakawa, Haruko (1999) “‘Warai’ no ito to danwa tenkai kinou.” In Gendai Nihongo Kenkyukai (ed.) *Josei no Kotoba, Shokubahen*. (pp. 175–196). Tokyo: Hitsuji Shobo.
- Kamio, Akio (1990) *Jouhou no Nawabari Riron*. Tokyo: Taishukan.
- Kamio, Akio (2002) *Zoku Jouhou no Nawabari Riron*. Tokyo: Taishukan.
- Kori, Shiro (1989) “Kyocho to intoneeshon.” In Miyoko Sugito (ed.) *Nihongo no On-in Onsei*. (Book 1, pp. 316–342). Tokyo: Meiji Shoin.
- Labov, William (1972) *Language in the Inner City: Studies in the Black English Vernacular*. Philadelphia: University of Pennsylvania Press.
- Ladefoged, Peter and Ian Maddieson (1996) *The Sounds of the World's Languages*. Cambridge, MA: Blackwells.
- Laver, John (1980) *The Phonetic Description of Voice Quality*. Cambridge: Cambridge University Press.
- Matsumoto, Emiko (1998) “Kyouchou hyougen no ichi to kouka nitsuite no oboegaki: gendai nihongo no keiyoushi no baai,” *Papers in Linguistic Science* 4, 55–68.
- Matsumoto, Emiko (2002) “Rentai shuushokusetsuno purosodii.” In Zhongguo Riyu Jiaoxue Yanjiuhui (ed.) *Donya Riyu Jiaoyu Guoji Yantaohui Lunwenji* (Book 1). (pp. 124–131). Tianjin, China: Tianjian Waiguoyu Xueyuan.
- Matsumoto, Emiko and Toshiyuki Sadanobu (2001) “Nihongo no inritsu niokeru rikimi to, nihongo gakushuusha no rikaido.” In Department of Japanese Studies, The Chinese University of Hong Kong and Society of Japanese Language Education (ed.) *Quality Japanese Studies and Japanese Language Education in Kanji-Using Areas in the New Century*. (pp. 455–461). Hong Kong: Himawari Publishing Company.
- Matsumura, Akira (1957) *Edogo Toukyougo no Kenkyuu*. Tokyo: Tokyodo.
- Monsen, Randall B. and Maynard A. Engebretson (1977) “Study of variations in the male and female glottal wave,” *Journal of the Acoustic Society of America* 62, 4, 981–991.
- Nakau, Minoru (1998) “Kuukan to sonzai no kouzu.” In Minoru Nakau and Yoshiki Nishimura, *Koubun to Jishou Kouzou*. Part I. Tokyo: Kenkyusha.
- Ní Chasaide, Ailbhe and Christer Gobl (1997) “Voice source variation.” In William J. Hardcastle and John Laver (eds.) *The Handbook of Phonetic Sciences*. (pp. 427–461). Oxford, UK: Blackwell.
- Sadanobu, Toshiyuki (2001a) “Tansaku to gendai nihongo no dake, shika, bakari,” *Nihongo Bunpou*, 1, 1, 111–136.
- Sadanobu, Toshiyuki (2001b) “Jouhou no access point,” *Gengo* 30, 13, 64–70.
- Sadanobu, Toshiyuki (2002a) “Jikan kara kuukan e?: ‘kuukanteki bunpu o arawasu jikan goi’ o megutte.” In Naoki Ogoshi (ed.) *Taishougengogaku*. (pp. 183–215). Tokyo: Tokyo Daigaku Shuppankai.
- Sadanobu, Toshiyuki (2002b) “Interaction no bunpo ni mukete: gendai nihongo no giji ebidensharu,” *Kyoto Daigaku Gengogaku Kenkyuu* 21, 147–185.
- Sadanobu, Toshiyuki (2003a) “Taiken to chishiki: communicative strategy,” *Kokubungaku: Kaishaku to Kyouzai no Kenkyuu* 48, 12, 54–64.
- Sadanobu, Toshiyuki (2003b) “Interaction no bunpou, kizoku no bunpou,” *Chuugokugogaku* 250, 250–263.
- Sadanobu, Toshiyuki (2003c) “Gendaigo no genteikei no toritate.” In Hisashi Noda and Yoshiko Numata (eds.) *Nihongo no Toritate: Gendaigo to Rekishiteki Henka, Chiriteki Hen-i*. (pp. 145–158). Tokyo: Kurosio Publishers.
- Sadanobu, Toshiyuki (forthcoming a) “Nihongo no rikimi: junbiteki kousatsu.” In Onsei Bunpou Kenkyukai (ed.) *Bunpou to Onsei*. IV. Tokyo: Kurosio Publishers.
- Sadanobu, Toshiyuki (forthcoming b) “Mono no sonzai basho o arawasu de.” In Taro Kageyama and Hideki Kishimoto (eds.) *Nihongo no Bunseki to Gengo Ruikai*. Tokyo: Kurosio Publishers.
- Sadanobu, Toshiyuki (forthcoming c) “Muudo no ta no kakosei,” *Kokusai Bunkagaku Kenkyuu* 21.
- Sadanobu, Toshiyuki, Hiroko Sawada, Masayuki Nakagawa, and Emiko Matsumoto (2001) “Kategoriai to purosodii,” *Proceedings of the 18th Annual Meeting of Japanese Cognitive Science Society*, 52–53.
- Thurgood, Graham (2000) “Voice quality differences and the origin of diphthongs,” *Proceedings of the Twenty-Sixth Annual Meeting of the Berkeley Linguistic Society*, 295–303.
- Wierzbicka, Anna (2003) *Cross-cultural Pragmatics: The Semantics of Human Interaction*. [2nd ed.] Berlin: Mouton de Gruyter.