YUSUKE IMANISHI

HYPOCORISTIC FORMATION IN KANSAI JAPANESE*

1 INTRODUCTION

Languages are equipped with various strategies to express a speaker's affinity with its addressee or other entity in the context. A vast majority of languages make use of hypocoristics to this end. It has been reported that many languages impose certain requirements on the output of hypocoristics. The languages studied in this context include English (Benua 1995), German (Itô and Mester 1997), Hebrew (Bat-El 2005), (Tokyo) Japanese (Itô 1990, Mester 1990, Poser 1990) and Jordanian Arabic (Davis and Zawaydeh 2001), although this list is not exhaustive. One type of hypocoristics conforms to a templatic requirement, thereby exhibiting an invariable size of the hypocoristics. For example, hypocortistics in (Tokyo) Japanese display a bimoraic foot (Itô 1990, Mester 1990, Poser 1990; see also 2.2 for the relevant discussion). The hypocoristics with the suffix *-i* in English are a disyllabic trochaic foot (e.g., *Samantha-Sami* and *Robert-Robi*), as shown in Benua (1995). The similar constraint holds for the hypocoristics in German (Itô and Mester 1997) and Hebrew (Bat-El 2005). On the other hand, Davis and Zawaydeh (2001) observe that hypocoristics in Jordanian Arabic are fixed by a prosodic structure whose vocalic shape is [CaCCuuC].

In this paper I will investigate a different type of hypocoristics in Kansai Japanese (KJ). As it will turn out, the KJ hypocoristics respect no constraint on the size of their outputs that would be characterized either by a template (e.g., a binary foot) as in English, German, Hebrew and Tokyo Japanese or by a fixed prosodic structure as in Jordanian Arabic. It will be proposed that the patterns of the KJ hypocoristics be explained without utilizing the markedness constraints that impose a binary foot requirement on the output of hypocoristics such as PrWd = FT and FTBIN (see Benua 1995 and Bat-El 2005, for instance, for details on the relevance of these constraints to hypocorisitcs). I will claim that the KJ hypocoristics can be best explained on the basis

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of coalescence, which is achieved by interaction of a set of basic faithfulness and markedness constraints such as MAX and IDENT, and an OCP constraint along with a few more markedness constraints to be developed in the course of discussion.

In a subset of KJ, hypocoristics can be formed by applying phonological changes to a surname base[1]. The type of hypocoristic formation I will address is that when the polite marker -*san* follows a surname, both truncation and gemination occur in the following way: The surname is truncated, and the first consonant of -*san* is geminated, as shown in (1)[2].

(1) a. Hayashi san → Haya-ssan
    b. Kubota san → Kubo-ssan

However this type of hypocoristics are not freely allowed. As the illegitimate examples in (2) as well as the legitimate ones in (1) suggest, hypocoristic formation in KJ must be constrained in a systematic way.

(2) a. Yamada san → *Yama-ssan
    b. Murakami san → *Muraka-ssan
    c. Watanabe san → *Watana-ssan
    d. Aoki san → *Ao-ssan

Furthermore, the fact that the hypocoristics of this type are fairly productive and systematic can be confirmed by foreign surnames. While hypocoristic forms are rarely formed out of foreign names, native speakers of KJ can distinguish possible forms from impossible ones. The American names in (3) can form hypocoristics, whereas the ones in (4) cannot. For the purposes of the paper, I will confine myself to native Japanese surnames.

(3) a. Sumisu san (from Smith) → Sumi-ssan
    b. Deibisu san (from Davis) → Deibi-ssan

(4) a. Andaason san (from Anderson) → *Andaaso-ssan or *Andaa-ssan
    b. Howaito san (from White) → *Howai-ssan

In what follows I will propose an optimality theoretic analysis of the KJ hypocoristics illustrated above.

The organization of the paper is as follows. Section 2 will describe the properties of

1 Although the type of hypocoristics to be addressed can be also formed from first names in KJ, I will confine myself to surnames since they are more widespread than first names.
2 Throughout the paper I will use Hepburn Romanization for illustrating Japanese examples.

hypocoristic formation in KJ and articulate the type of truncation to be addressed in the paper. Section 3 will propose the phonological constraints that will account for the properties introduced in Section 2, and provide a solution to a potential problem for our analysis by pointing out that hypocoristic formation in KJ instantiates the emergence of the unmarked (McCarthy and Prince 1994). Section 4 will claim that hypocoristic formation in KJ should be treated separately from another type of hypocoristic formation discussed by Poser (1990) (see also Itô 1990 and Mester 1990) by demonstrating that evaluating them in the same constraint ranking will create wrong predictions. Section 5 will conclude the paper with a summary of the proposed constraint ranking.

2 HYPOCORISTICS IN KJ

2.1 Geminated truncation in KJ

In this section I will describe the properties of hypocoristics in KJ. As briefly described in Section 1, when a surname is followed by *-san*, truncation and gemination apply to the two lexical items, respectively. In other words, the surname is truncated, and the initial consonant of *-san* is geminated, as shown below.

(5) a. Hayashi san → Haya-ssan
    b. Kubota san → Kubo-ssan

Here it is important to note that the present analysis does not assume that vowel deletion in the surname feeds gemination. One might argue that the deletion of the final vowel in *Hayashi* in (5a) creates the phonotactically disallowed consonant cluster **Haya**sh* ***san***, and that this illegitimate cluster is resolved by gemination, thereby deriving *Haya**ss**an*. Instead, I will argue for an OT analysis, which entertains the proposal to the contrary. To put it differently, the analysis claims that vowel deletion occurs in order to satisfy the need to have a geminate in the hypocoristic. This claim will be expressed by the phonological constraints and constraint ranking to be proposed in Section 3.

As I will argue, furthermore, gemination in (5) is not the result of deletion of the consonant *t* in *Kubot* followed by gemination of the initial consonant of *-san*, but instead the result of coalescence of the phonological features of *t* and *s*. Nevertheless, I will use “truncation/truncatable + X” to descriptively state the process of hypocoristic formation like (5) simply for expository purposes.

It seems relevant to mention that the gemination analogous to the hypocoristics in (5) is independently observed in Japanese phonology. For example, the numerals *iti* “one” and *hati* “eight” and the classifier *sen* “thousand” combine to form *issen* “one thousand” and *hassen* “eight thousand”[3]. This is shown in (6).

(6)	a.	ichi + sen	→	issen	“one thousand”
	b.	hachi + sen	→	hassen	“eight thousand”

While I remain agnostic about whether vowel deletion feeds gemination or conversely in the geminates of (6), the examples suffice to suggest that the gemination process in the hypocoristics of KJ is not an isolated phenomenon.

Now I will state the conditions on hypocoristics in KJ. Let us suppose the following configuration for a family name followed by the suffix -*san*.

(7) … $(C_4V_4C_3V_3)(C_2)V_2C_1V_1$ (V)+ san

First, C_1 must be a voiceless coronal obstruent in order to form hypocoristics. This can be seen by the contrast between (8) and (9).

(8)
a. Hayashi + san → Hayassan
b. Kubo**t**a + san → Kubossan
c. Yamamo**t**o + san → Yamamossan
d. Koma**ts**u + san → Komassan
e. Tanigu**ch**i + san → Tanigussan

(9)
a. Yama**d**a + san → *Yama-ssan
b. Tsuka**j**i + san → *Tsukassan
c. Numa**z**u + san → *Numassan
d. Muraka**m**i + san → *Muraka-ssan
e. Watana**b**e + san → *Watana-ssan
f. Ao**k**i + san → *Ao-ssan

One can see that C_1s in the examples of (8) are all voiceless coronal obstruents: An

[3] It has been argued that Sino-Japanese stems undergo a process called *root fusion* in certain environments (Kurisu 2000). Root fusion is a case in which “two consonants are merged into a single segment across Sino-Japanese stems” (Kurisu 2000: 148). A stem bears the shape of CVC in the case of root fusion, whereas the same stem surfaces as C_1VC_2V. C_2 can be either a voiceless coronal stop (*t*-stem) or a voiceless dorsal stop (*k*-stem). For instance, the stem *hat(s)u* ‘departure’ and *gaku* ‘learning’ are realized as *hat* (= root fusion) in *hat-tat(s)u* ‘development’ and *gak* (= root fusion) in *gak-koo* ‘school’, respectively. A *t*-stem undergoes root fusion when it is followed by a voiceless obstruent, while a *k*-stem does so when it is followed by a voiceless dorsal stop. Recall now that geminated truncation in question occurs when a voiceless coronal obstruent is followed by -*san* (whose initial consonant is a voiceless coronal fricative). While there is no complete parallelism between root fusion and geminated truncation regarding when they take place, it appears that the latter is a subset case of the former. I leave it for future investigation how two phenomena are related to each other.

alveopalatal voiceless fricative in (8a), an alveolar voiceless stops in (8b) and (8c), an alveolar voiceless affricates in (8d) and an alveopalatal voiceless affricate in (8e). In contrast, C_1s in the names of (9) do not satisfy the condition. The C_1s in (9a), (9b) and (9c) are coronal obstruents, yet are voiced. The C_1s in (9d) and (9e) are not voiceless coronal obstruents, and the one in (9f) is not coronal.

Second, two sibilants may not be adjacent in the output of hypocoristic formation.

(10) Yamashita san → *Yama**shiss**an

The C_1 *t(a)* in (10) is in principle truncatable, as it is a voiceless coronal obstruent. However, the resulting hypocoristic form contains two adjacent sibilants ***sh****i* + ***ss****an*. This leads to an ill-formed hypocoristic. Third, the vowel immediately preceding the geminated -*ss(an)* may not be accented, even when C_1 is truncatable. This is shown by (11).

(11) a. Nar**í**ta + san → *Nar**í**ssan
b. Shib**á**ta + san → *Shib**á**ssan

In (11) the last consonants in the name (i.e., C_1) are *t*, which is a voiceless coronal obstruent. From the discussion above, this consonant should be able to be truncated (see (8)). However, the vowels preceding the geminate -*ss* in the hypocoristic forms bear accent. The examples in (11) contrast with the possible hypocoristic form *Mun**á**kassan* from *Mun**á**kata san*. In *Mun**á**kassan*, the accented vowel does not immediately precede the geminated consonant in -*ssan*. This confirms that the accent immediately preceding the geminate renders the hypocoristics in (11) impossible. It should be also noted here that the sequences *ri+ssan* in (11a) and *ba+ssan* in (11b) are not responsible for the ill-formedness of (11). This is confirmed by the possible hypocoristics like *Ku**riss**an* from *Kurita san* and *Ish**ibass**an* from *Ishibashi san*. In these forms *ri* and *ba* precede the geminate, yet they do not bear accent on the relevant consonants, as opposed to the names in (11). This strongly suggests that the source of the ill-formedness of (11) is the presence of accent before the geminate.

Another characteristic of hypocoristic formation in KJ is that if a truncatable consonant is followed by other non-truncatable ones, it can be truncated along with those consonants that would be otherwise non-truncatable. The relevant examples are given in (12).

(12) a. Ho**sh**ida + san → Hossan (or Hosshan)
b. Ki**sh**ida + san → Kissan (or Kisshan)
c. Ni**sh**imura + san → Nissan (or Nisshan)
d. Ki**t**ahara + san → Kissan

In (12a) and (12b) the C_1s in the names are voiced consonants, and hence cannot be truncated. However, the C_2s (i.e., *sh*) are truncatable, as they are voiceless coronal obstruents. As a result, *sh* can be truncated together with *d*, yielding *Hossan* (or *Hosshan*) and *Kissan* (or *Kisshan*). (12c) and (12d) further demonstrate that a truncatable consonant can be followed by more than one non-truncatable consonant: *m* and *r* in (12c) and *h* and *r* in (12d). In these cases, too, the truncatable consonants *sh* and *t* are truncated along with the two non-truncatable ones. Crucially, (12) suggests that the size of truncation in hypocoristics *need not be minimal* so long as there is a truncatable consonant: More than one consonant can be targets of truncation. This requires restating the first condition stated above: C_1 must be a voiceless coronal obstruent. On the basis of (12), it should be instead said that the truncatable consonant need not be the last consonant (i.e., C_1) in a name.

The possible truncation patterns in (12) raise the question what would happen if there were two truncatable consonants in the name base. As (13) suggests, the rightmost one must be truncated in such a case.

(13) I**sh**iba**sh**i + san → Ishibassan (*Issan)

Here the name contains two consonants (i.e., *sh*) that can be in principle truncated. However, what is truncated is the C_1, the rightmost truncatable consonant. This results in *Ishibassan*. The other truncatable consonant cannot be a target of truncation by yielding **Issan*. Interestingly, the case in (13) represents a *minimal* requirement on truncation in hypocoristics, as opposed to (12). In other words, the size of truncation must be minimal if there are (more than) two truncatable consonants. This prohibits the production of *Issan* from *Ishibashi san*. In contrast, (12) showed that truncation can apply to more than one consonant (i) iff these consonants are not truncatable and (ii) iff there is a truncatable consonant preceding those non-truncatable consonants.

To summarize, the following properties of hypocoristic formation in KJ need be accounted for.

(14) a. A consonant targeted for truncation must be a voiceless coronal obstruent (i.e., a truncatable consonant).
b. Two sibilants may not be adjacent in the output form of hypocoristics.
c. The vowel immediately preceding the geminate consonant in *-ssan* may not bear accent.
d. Truncation can apply to non-truncatable consonant(s) iff there is a truncatable consonantpreceding the consonant(s).
e. If there is more than one truncatable consonant, the right-edge truncatable consonant must be a target of truncation.

In Section 3, I will provide an optimality theoretic account for the (im)possible patterns of hypocoristics in KJ.

2.2 Poser truncation

Before presenting a phonological account of the hypocoristics introduced in the preceding sections, we need to disassociate the hypocoristic forms we will address from the ones that have been discussed by Poser (1990), Mester (1990) and Itô (1990). As touched upon in Section 1, the type of hypocoristics they analyze is always *bimoraic*. The examples illustrating this are given in (15). Below surnames are followed by the suffix *-chan*. Truncation applies to the name base, yielding the bimoraic stem, where the suffix is attached.

(15) a. Midori + chan → **Mido**chan, **Mii**chan
b. Yooko + chan → **Yoko**chan, **Yoo**chan
c. Mariko + chan → **Mari**chan, **Mako**chan
(Poser 1990, see also Benua 1995)

In this type of hypocoristic formation, various strategies may be employed in order to obtain a bimoraic stem. In a simplest case, the CV *ri* may be deleted in (15a) for *Midochan*. Vowels may be lengthened in (15a) for *Miichan* or shortened in (15b) for *Yokochan*. Furthermore, non-contiguous segments may form a hypocoristic stem in (15c) for *Makochan*, skipping the intermediate CV *ri*. We call this type of truncation in hypocoristics *Poser truncation*, as it is extensively discussed in Poser (1990).

In contrast to Poser truncation, geminated truncation in the hypocoristics of KJ does not necessarily impose a bimoraic condition on a truncated stem. This can be seen in the cases like *Ha.ya.s -san* from *Hayashi+san* and *Ku.bo.s -san* from *Kubota+san*. The truncated stem is trimoraic in these hypocoristics. Moreover, hypocoristic formation in KJ always requires creation of the geminated suffix *-ssan*, whereas this is not the case for the suffix in Poser truncation: *-chan*, not *-cchan*. Based on these substantial differences between the two types of truncation in hypocoristics, we will not consider hypocoristic forms characterized by Poser truncation in our analysis to be developed in the next section: The only hypocoristic forms that involve gemination will be considered. Although the above-mentioned different properties of geminated truncation in KJ and Poser truncation may suffice to disassociate the two hypocoristics, we will illustrate in Section 4 how inclusion of Poser truncation in our discussion creates undesirable situations in which neither geminated truncation nor Poser truncation can be correctly predicted. We will thus take it that geminated truncation and Poser truncation are derived in different evaluations, and we will only address the former.

3 PHONOLOGICAL ACCOUNT OF HYPOCORISTICS IN KJ

3.1 Gemination is coalescence

In this section we will outline the phonological constraints that interact to correctly capture (im)possible hypocoristic forms in KJ. First, I adopt the following constraints, following Correspondence Theory (McCarthy and Prince 1995, 1997).

(16) a. MAX: Every segment in the input corresponds to a segment in the output.
b. UNIFORMITY: No segment in the output corresponds to more than one segment in the input.

I argue that gemination in truncated hypocoristics of KJ is a result of coalescing the initial consonant of *-san* with a preceding consonant under featural identity, and not simply a result of deleting the preceding consonant(s) and reduplicating the initial consonant of *-san*. As mentioned in 2.1, we have assumed that truncation involves (i) vowel deletion of a name stem and (ii) gemination of the suffix. After undergoing vowel deletion, the last consonant of a name stem is adjacent to the initial consonant of the suffix as shown below.

(17) [$_{base}$…C~~V~~ . . .] san

At this point, gemination of the initial consonant *-s* of the suffix occurs, as a result of coalescing C with *s*. Recall that geminated truncation is possible only when a voiceless coronal obstruent (e.g., *t*, *sh*, *ch*, *ts*) precedes *-s(an)*. Given that the initial consonant of the suffix *-san* shares phonological features [+consonant], [-sonorant], [-voice], [+coronal], [+obstruent] with the preceding consonant, we can descriptively state the following.

(18) C ~~V~~ -san: C must be [+consonant], [-sonorant], [-voice], [+coronal], [+obstruent].

The initial consonant of the suffix and its preceding consonant thus must match in those features in (18).

With (18) in place, let us now suggest that under our analysis the geminate *-ss(an)* created by coalescence can preserve the features of (18) in the input when the C and *s* match in these features. In contrast, when C does not have those features in which it matches with *s*, coalescence of the two consonants will result in deletion of the features of C. This situation must be blocked in order to derive the fact that only voiceless coronal obstruents can be targets of truncation.

For this purpose, I propose an identity condition on strings undergoing coalescence in (19), building on de Lacy (1999).

(19) IDENT-F: If an input segment is αF, then its output correspond is αF. (i) F is a feature (ii) α is a featural specification (+ or -), where αF is neither [-anterior] nor [-continuant][4].

Here I suggest that the manner, place and voice features other than [-anterior] and [-continuant] (we will return to this immediately below) of a segment in the input must be preserved in the output (i.e., a truncated form). If gemination occurs in the environment of (18), *-ss(san)* in the output preserves features of both C and *s*, and hence satisfies (19) since no features are deleted from the input. Suppose now that the geminated *-ssan* appears due to coalescence when the consonant preceding the suffix does not have features in (18): e.g., *d~~a~~* + *san*. This coalescence violates (19) because the [+voice] feature of *d* is lost in the output *-ssan*. Thus the specified constraint IDENT-F in (19), combined with our analysis that the geminate *-ss* is a result of coalescence, can derive feature matching effects in coalescence of adjacent consonants.

In contrast to the phonological features in (18), the place feature [-anterior] and the manner feature [-continuant] need not be preserved after coalescence. This can be seen in *Hayash~~i~~* + *san* → *Hayassan* and *Kit~~ahara~~ san* → *Kissan*. In the former case *sh* (i.e., [-anterior]) and *s* differ in place features, while in the latter *t* (i.e., [-continuant]) and *s* bear different manner features. Despite these differences, coalescence is possible. This suggests that preservation of [-anterior] and [-continuant] is not required. I propose that this fact can be captured by the following constraint ranking. Under this ranking, coalescence of two consonants that differ in [-anterior] or [-continuant] feature is tolerated so long as these consonants share phonological features other than the specified place and manner features.

(20) IDENT-F >> IDENT[-anterior], IDENT[-continuant]

Furthermore, let us elaborate on the constraint MAX. Given that many Japanese native surnames are bimorphemic, I will differentiate segments of a name based on a morphemic boundary. To be precise, I define the left side of a bimorphemic name as a root, and the right side as an affix. A monomorphemic name is assumed to consist only of a root. This is illustrated below.

(21) a. Yamada = [$_{\text{root}}$ Yama] “mountain” + [$_{\text{affix}}$ da] “field”
b. Hayashi = [$_{\text{root}}$ Hayashi] “woods”

Now I propose the more specific MAX constraints in (22), on the basis of the root-affix distinction.

[4] In what follows, ID(ENT)-F is intended to refer to the specified feature (i.e., ¬ [-anterior] and [-continuant]).

(22) a. MAX C (root): Every segment in the input of a name root corresponds to a segment in the output of a name root.
b. MAX C (affix): Every segment in the input of a name affix corresponds to a segment in the output of a name affix.

(22a) and (22b) penalize deletion of a consonant of the root of a name and the affix of a name, respectively. I propose to rank (22a) above (22b).

(23) MAX C (root) >> MAX C (affix)

As the result of this ranking, deletion of a consonant in the root of a name is more fatal than deletion of a consonant in the affix of a name[5].

We also need to posit a constraint that triggers geminated truncation. It was observed that gemination itself is employed to rescue the illegitimate consonant cluster created by vowel deletion. We also observed that the hypocoristics in KJ differs from the ones characterized by Poser truncation in that the former require gemination, while the latter does not allow it. However, it is unclear why the vowel deletion that feeds gemination is obligatory in the KJ hypocoristics. While I cannot provide a satisfactory account of this issue now, I assume a markedness constraint triggering gemination of the initial consonant of the suffix *-san* stated in (24).

(24) Gem(ination): The initial consonant of the suffix *-san* must be geminated.

This constraint outranks the faithfulness constraint penalizing deletion of a vowel (i.e., MAX V) in order to ensure that resolution of a consonant cluster created by deletion of a vowel is done by gemination.

(25) Gem >> MAX V

In addition, consider a derivation in which the geminate *-ss(an)* is created by deleting the preceding consonant and reduplicating the initial consonant of *-san*. As claimed above, this derivation must be blocked to ensure that gemination is done via coalescence. To achieve this, we need to propose a faithfulness constraint that blocks reduplication of *s*. Let us then adopt DEP, which militates against insertion of a segment that is not present in the input (see 3.2 for a demonstration that coalescence, not deletion and reduplication, is a source of hypocoristics in KJ).

[5] It will be assumed that deleting a consonant segment as well as a vowel segment does not result in deletion of its feature(s): It only deletes a segment. Deletion of a consonant itself does not violate IDENT-F, therefore. It only incurs a violation of MAX C or MAX V.

(26) DEP: Every element in a truncated form has a correspondent in its base.

With the proposed constraints at hand, let us propose a global ranking as shown below.

(27) MAX C(root), ID(ENT)-F, DEP >> Gem(ination) >> MAX C(aff(ix)), ID(ENT)[-anterior], ID(ENT)[-continuant], MAX V, UNI(FORMITY)

We will argue for this constraint ranking in the following sections.

Before closing the section, it is necessary to note that we will assume that the proposed faithfulness constraints such as MAX and IDENT F evaluate the correspondence between a truncated form and its base (i.e., Output-to-output correspondence) in the sense of Benua (1995), and militate against the dissimilarities between them. In other words, the correspondence between an input of the base and the truncated form will not be relevant to our discussion. As we will show, this will be confirmed by some properties about the KJ hypocoristics: (i) the position of accent relative to geminates and (ii) the adjacent sibilants in hypocoristic forms.

3.2 Kubota vs. Yamada

Let us first consider the contrast between *Kubota* + *san* and *Yamada* + *san*. The hypocoristic form *Kubossan* can be formed, while *Yamassan* cannot. This contrast can be captured correctly by the proposed constraint ranking.

(28)

/[Kub$_1$o] [t$_2$a] + s$_3$an/	DEP	MAX C(root)	ID-F	Gem	MAX C(aff)	ID[-ant]	MAX V	UNI
a. ☞ Kub$_1$oss$_{2,3}$an						*	*	*
b. Kuss$_{1,2,3}$an			*!			*	**	*
c. Kuss$_{2,3}$an		*!				*	**	*
d. Kub$_1$os$_3$s$_3$an	*!				*		*	
e. Kubotasan				*!				

(28b) violates the high ranked constraint IDENT-F since the coalesced consonants *b*, *t* and *s* do not share matching features. The [+labial] and [+voice] features of *b* are deleted and lose their correspondents in the output. It is thus ruled out. (28c) involves deletion of the consonant *b* in the root of the name, and coalescence of *t* and *s*. While the coalescence satisfies IDENT-F, deletion of *b* incurs a fatal violation of MAX C (root) as the consonant belongs to the name base. This violation eliminates (28c). The candidate in (28d) deletes the consonant *t* in the affixal part of the name, and redupulicates the initial consonant of the suffix *-san*, yielding the geminated *-ssan*. Given that the first *s* of *ss* is a moraic obstruent, the derivation of (28d) adds a mora, thereby violating the highest ranked DEP. This fatal violation rules out the candidate. (28e) is ruled out because it does not involve gemination, thereby violating Gem(ination). In (28a) the last consonant *t* of the name base and the initial consonant of the suffix *-san* coalesce due to the matching features. IDENT-F is thus satisfied. (28a) violates UNIFORMITY since coalescence creates an output in which the segment (i.e., $ss_{2,3}$) corresponds to more than one input segment (i.e., t_2 and s_3). It also violates IDENT-[-anterior], as the relevant feature of *t* is lost. However, since these constraints are low ranked, violation of them will not be fatal. (28a) is then selected as an optimal output.

Consider the tableau in (29) for the hypocoristic form of *Yamada+san*[6].

(29)

/[Yam$_1$a] [d$_2$a] + s$_3$an/		MAX C(root)	ID-F	Gem	MAX C(aff)	IDENT[-ant]	MAX V	UNI
a.	Yam$_1$ass$_{2,3}$an		*!			*	*	*
b.	Yass$_{1,2,3}$an		*!			*	**	*
c.	Yass$_{2,3}$an	*!	*			*	**	*
d. ☞	Yamadasan			*				

(29a) violates IDENT-F since *d* and *s* do not share the relevant features in (18). IDENT-F is also violated by (29b) since the coalescing consonants *m*, *d* and *s* do not share the features. In (29c) the consonant *m* is deleted, and *d* and *s* coalesce. Deletion of *m* incurs a violation of MAX C (root) as the consonant belongs to the root of a name. In addition, coalescence of *d* and *s* violates IDENT-F. The non-truncated form in (29d) violates Gemination, yet violation of this constraint is less fatal than violation of MAX C (root) and ID-F by (29a-c). Thus (29d) is correctly selected as an winning candidate.

The contrast between *Kubota+san* and *Yamada+san* further confirms that our treatment of gemination as coalescence is tenable. Consider the hypothesis that gemination simply involves deletion of CV and reduplication of the initial consonant of *-san*. As it turns out, this does not correctly distinguish between *Kubossan* and **Yamassan*. Suppose that these two hypocoristic forms both involve deletion of the last syllables (i.e., *ta* in *Kubota* and *da* in *Yamada*) along with vowel deletion, and that this deletion is followed by reduplocating *s* in *-san*, yielding *Kubossan* and *Yamassan*. Under this analysis, both forms violate MAX C (affix) and MAX V. In addition, both equally violate DEP by inserting a moraic stop (i.e., *s*) in the geminate. IDENT-F does not come into play since coalescence is not involved in this derivation. This analysis thus incorrectly predicts that *Kubossan* and *Yamassan* are both equally possible

6 In what follows we will omit the undominated constraint DEP from illustration of tableaux for ease of exposition. We will also leave out the discussion of the candidate ruled out by the relevant constraint, as the candidate does not involve coalescence and hence incur a fatal violation.

winning candidates. One can then argue that gemination in *Kubossan* should involve coalescence, which can correctly distinguish the ill-formed hypocoristic form like *Yamassan* from the well-formed one.

3.3 The position of accent in hypocoristics

In this section we address accented names in the context of hypocoristic formation. Recall that accented names like *Na**rí**ta* and *Shib**á**ta* cannot form geminated hypocoristic forms, yielding **Nar**í**ssan* and **Shib**á**ssan*. This is surprising given that the last consonants in these names are voiceless coronal obstruents, which would allow them to coalesce with the initial consoant of *-san*. We also observed that accented names like *Mu**á**kata* can have *Mun**á**kassan* as its hypocoristic form. Based on the constrast between **Nar**í**ssan* and **Shib**á**ssan* on the one hand and *Mun**á**kassan*, we stated the constraint that the vowel immediately preceding the geminate consonant in *-ssan* may not bear accent. Although *Mun**á**kassan* bears accent on the second mora of the name base, it does not immediately precede the geminated *ss*. It does not violate the constraint, therefore. In contrast, **Nar**í**ssan* and **Shib**á**ssan* bear accent on the mora immediately preceding the geminate. This violates the relevant constraint.

Let us define this constraint in an OT term. Given that pitch accent is usually followed by low pitch, the constraint in question can be taken to penalize a case in which low pitch falls on the vowel following the geminated *ss* of *-ssan*, as shown below. (30) is intended to mean that L may not fall on the vowel consisting a syllable in which the second of the homorganic consonants in a Gem(inated) consonant is contained[7].

(30) *V́ Gem(=ss)
H L

This markedness constraint would predict that shifting accent in **Nar**í**ssan* and **Shib**á**ssan* from the second mora to the first mora will yield possible hypocoristic forms. However, *N**á**rissan* and *Sh**í**bassan* are still not well-formed hypocoristics. This suggests that deleting and adding accent is prohibited. Given this, I define the following faithfulness constraint.

(31) IDENT[γaccent]: Let α be a segment in S_1 and β be a correspondent of α in S_2. If α is [γaccent], then β is [γaccent], where γ is either + or -.

---

[7] Bat-El (2005) shows that the Hebrew hypocoristics impose a restriction on the position of stress, depending on a type of suffix (e.g., penultimate stress). It does not thus seem unusual that hypocoristic forms require a certain position of accent/stress crosslinguistically.

With these two newly added constraints, I propose the ranking in (32).

(32) MAX C(root), ID(ENT)-F, DEP, *H L(=Gem), IDENT[γaccent] >> Gem(ination) >> MAX C(aff(ix)), ID(ENT)[-anterior], ID(ENT)[-continuant], MAX V, UNI(FORMITY)

Consider how this ranking correctly blocks ***Narís**san* and ***Shibá**ssan*, while allowing *Munákassan*. I take ***Narís**san* as a representative example of the ill-formed hypocoristics containing accent[8].

(33)

/[Nar$_1$i] [t$_2$a] + s$_3$an/		MAX C (ROOT)	IDENT-F	*HL(=GEM)	ID[γACCENT]	GEM	MAX C(AFF)	ID[-CONT]	MAX V
a.	Nar$_1$íss$_{2,3}$an			*!				*	*
b.	Nár$_1$iss$_{2,3}$an				*!			*	*
c.	Nass$_{2,3}$an	*!			*			*	**
d.	Nass$_{1,3}$an		*!		*		*		**
e.	Nass$_{1,2,3}$an		*!		*			*	**
f. ☞	Naritasan					*			

The candidate (33a) violates the high ranked *HL (=Gem) since accent immediately precedes the geminated consonant. (33b) does not violate *HL (=Gem) due to the shifted accent, but shifting accent incurs a fatal violation of IDENT[γaccent]. (33c) violates MAX C (root) because the consonant *r* in the root of a name is deleted. It also violates IDENT[γaccent] since the accent is deleted together with the vowel. (33d) coalesces those consonants that do not match in the relevant features, thereby incurring a violation of IDENT-F. (33e) violates IDENT-F and IDENT[γaccent] for the same reason as (33d) does. The optimal candidate in (33f) violates Gemination, which is lower ranked than the constraints violated by the other constraints.

Let us now illustrate how *Munákassan* is allowed to be a possible hypocoristic form of *Muná**kata* + *san*.

(34)

/[Muná] [kata] + san/		MAX C (ROOT)	ID-F	*HL(=GEM)	ID[γACCENT]	GEM	MAX C(AFF)	ID[-CONT]	MAX V
a. ☞	Munákassan							*	*

[8] We will omit UNI(FORMITY) in the following discussion, as it will not play a decisive role in constraint interaction.

Although (34a) bears accent, the accent does not immediately precede the geminate. Hence it does not violate *HL (=Gem). Furthermore, (34a) does not violate any high ranked constraints. As a result, it is selected as the optimal output.

Consider now *Yamáshita + san*. The name has the truncatable consonants such as *t* and *sh*. If *t* coalesces with *s* in *-san*, the truncated form *Yamáshissan* would be expected to be well-formed since the accent in the second mora of the base does not immediately precede the geminate. Hence the output does not violate the constraint in (30). However, the hypocoristic form *Yamáshissan* is not possible, contrary to the prediction. Another possible output *Yamássan*, which is derived as a result of coalesceing *t* and *sh* with the initial consonant of the suffix, is not a possible hypocoristic form, either. This is because accent immediately precedes the geminate. We thus need to explain the unexpected ill-formedness of *Yamáshissan*. A crosslinguistic fact captured by the Obligatory Contour Principle (OCP) by McCarthy (1986), Odden (1988) and Yip (1998) among others now becomes relevant. The OCP states that output must not contain two identical (phonological) elements. For instance, the impossibility of the possessive /s/ to cooccur with the plural /s/ in English can be captured by the OCP: *cats'* vs. **cats's* (Yip 1998). The OCP bans two adjacent sibilant consonants. In such a case haplology normally applies, resulting in a single instance of [s]. In contrast, the possessive suffix can attach to nouns with an irregular plural form such as child: *children's*.

To correctly rule out the ill-formed candidate *Yamáshissan*, I propose an OCP constraint as stated in (35) (see Yip 1998, for instance, for implementation of a feature-based OCP constraint).

(35) OCP (*[+strident] V [+strident])

This constraint is intended to penalize the adjacent sibilants (i.e., [+strident]) though a vowel appears between two sibilants as a consonant cluster is normally disallowed in the Japanese phonotactics except in the cases where a moraic consonant such as /N/ and /Q/ is adjacent to a syllable-initial consonant. The OCP constraint in (35) explains why *Yamáshissan* is not possible, since the hypocoristic form contains two adjacent sibilant (i.e., ***sh**i* and ***ss**an*). By ranking (35) as the highest constraint, we can correctly rule out *Yamáshissan*. The tableau below shows how *Yamáshissan* as well as *Yamássan* is excluded.

(36)

/[Yam_1á] [sh_2it_3a]+$s_4$an/		MAX C (ROOT)	OCP	ID-F	*HL(=GEM)	GEM	ID[-ANT]	ID[-CONT]	MAX V
a.	Yam_1ásh_2i$ss_{3,4}$an		*!					*	*
b.	Yam_1á$ss_{2,3,4}$an				*!		*	*	**
c.	$Yass_{1,2,3,4}$an			*!			*	*	***
d.	$Yass_{2,3,4}$an	*!					*	*	***
e. ☞	Yamashitasan					*			

As mentioned above, (36a) violates the highest ranked OCP constraint banning two adjacent sibilants. (36b) bears accent that immediately precedes the geminated *ss*, violating *HL(=Gem). (36c) coalesces consonants that do not match in the features of (18). While (36d) is identical with (36c) in the output form, it deletes the consonant *m* in the root of the name base. This violates the highest ranked MAX C (root). As a result of the constraint interaction in (36), the non-truncated form *Yamashitasan* is selected.

3.4 The emergence of the unmarked

One might now argue that the proposed markedness constraints *HL(=Gem) and OCP **(***sib sib) will pose under-generation problems. Concerning *HL(=Gem), let us consider the past inflection patterns of Japanese in (37). The past tense suffix *-ta* can be attached to verbal stems that originally bear accent.

(37) a. kát- “to win” + -ta → k**átt**a “won”
b. tát- “to stand” + -ta → t**átt**a “stood”
c. mát- “to wait” + -ta → m**átt**a “waited”

Notice that in this paradigm accent precedes the geminated consonant, and the resulting verbal inflections are grammatical. The verbs in (37) then appear to violate *HL(=Gem), and would be incorrectly ruled out if they were evaluated in the same constraint ranking as in hypocoristics under discussion. Furthermore, OCP **(***sib sib) would also block legitimate words like ***sush**i* “sushi”, ***shish**i* “lion”, *ku**tsush**ita* “socks” and many other Japanese words since these words contain two adjacent sibilants.

However, I argue that those cases ruled out by *HL(=Gem) and OCP **(***sib sib) in hypocoristic formation instantiate the emergence of the unmarked (McCarthy and Prince 1994, Benua 1995) among many others. As briefly mentioned at the end of 3.1, the faithfulness constraints that have been proposed so far such as MAX, IDENT, and Gemination evaluate the correspondence between a base and its truncated form: Output-to-Output Correspondence (Benua 1995, Kager 1999 among others). Crucially, these constraints do not apply to the mapping between an input and its output. In other words, these constraints do not apply to underived words, but only to derived words such as hypocoristics and loanwords (see also Itô 1990). Let us then suggest that MAX-I(nput)O(utput) and IDENT[γaccent]-IO be ranked above the markedness constraints like *HL(=Gem) and OCP **(***sib sib), following McCarthy and Pricne (1994) and Benua (1995). The Input-Output faithfulness constraints penalize deletion of segments in the input and addition/deletion/shift of accent in the input. Therefore, every output must preserve its segment and accent even in the environments where two sibilants are adjacent or where accent immediately precedes the geminate. This correctly derives the past verbal inflections that contain accent and the words that have two adjacent sibilants. In (38) the output deleting accent in (38b) incurs a fatal violation of the highest ranked faithfulness constraint IDENT[γaccent]-IO. The candidate in (38c) deletes a part of the geminate, thereby violating MAX-IO. The winning candidate in (38a) violates the markedness constraint *HL(=Gem), yet this constraint is lower ranked than MAX-IO and IDENT[γaccent]-IO. (38a) is thus an optimal candidate.

(38)

/kát + ta/	MAX-IO	ID[γaccent]-IO	*HL(=Gem)
a. ☞ kátta			*
b. katta		*!	
c. káta	*!		

(39) illustrates how underived words containing adjacent sibilants are allowed.

(39)

/sushi/	MAX-IO	OCP (*sib sib)
a. ☞ sushi		*
b. sui	*!	
c. ushi	*!	

Both (39b) and (39c) violate MAX-IO by deleting one of the sibilants (i.e., *sh* or *s*, respectively). The winning candidate in (39a) violates the OCP, yet this violation is not fatal. It has been shown that the markedness constraints such as *HL(=Gem) and OCP **(***sib sib) will not incorrectly block the generation of underived words like past tense verbs bearing accent and words containing adjacent sibilants. This is done by ranking the highest ranked faithfulness constraints such as MAX-IO and IDENT[γaccent]-IO above those markedness constraints.

Once a base of a truncated form is mapped to the output, MAX-I(nput)O(utput) and IDENT[γaccent]-IO cease to apply to the relevant mapping. As a result, the markedness constraints like *HL(=Gem) and OCP **(***[+strident] V [+strident]) start to play a decisive role in ruling out the outputs (i) that have accent immediately preceding the geminate and (ii) that contain adjacent sibilants. In this respect, hypocoristic formation in KJ represents an instance of the emergence of the unmarked.

3.5 Minimal vs. Maximal truncation

The next truncation patterns we address are those cases in which more than one consonant can be targets of truncation so long as there is a truncatable consonant preceding these consonants. This can be illustrated by hypocoristic forms of the names like *Hoshida*, *Nishimura* and *Kitahara*. These names can form *Hossan* (or *Hosshan*), *Nissan* (or *Nisshan*) and *Kissan* as their hypocoristic forms. Crucially, they contain untruncatable consonants, and hence coalescence of them with *s* of *-san* will incur a fatal violation of IDENT-F: **d~~a~~** in *Hoshida*, **m~~ura~~** in *Nishimura*, **h~~ara~~** in *Kitahara*. These consonants are not voiceless coronal obstruents. However, those names contain the consonants that match in the relevant features with *s*: *sh* in *Hoshida*, *sh* in *Nishimura*, *t* in *Kitahara*. Coalescing these consonants with *s* thus do not violate IDENT-F. Our constraint ranking needs to permit *maximal* truncation to derive the truncated forms like *Hossan* (or *Hosshan*), *Nissan* (or *Nisshan*) and *Kissan*. I will show below how this type of truncation can be correctly derived.

Let us now consider *Hoshida* + *san*.

(40)

/[Hosh$_1$i] [d$_2$a] + s$_3$an/	OCP	ID-F	Gem	MAX C(aff)	ID[-ant]	MAX V
a. ☞ Hoss$_{1,3}$an				*	*	**
b. Hoss$_{1,2,3}$an		*!			*	*
c. Hosh$_1$iss$_{2,3}$an	*!	*			*	*
d. Hoshidasan			*!			

The winning candidate in (40a) violates MAX C (affix) because it deletes the untruncatable consonant *d* in the affixial part of the name. Once this consonant is deleted, *sh* and *s* can coalesce due to their matching features, satisfying IDENT-F. Deletion of the consonant feeds coalescence of *sh* with *s*. (40a) is then the optimal output. While (40b) is identical with (40a) in its output form, it coalesces *sh* and *d* with *s*, instead of deleting *d*. This incurs a fatal violation of IDENT-F, and thus is ruled out. (40c) violates the OCP since its output has two sibilants in adjacent positions. It also violates IDENT-F as a result of coalescence of *d* and *s*. These fatal violations rule out (40c). Another losing candidate (40d) violates Gemination. The formation of *Nissan* (or *Nisshan*) from *Nishimura san* can be derived in much the same way as in *Hossan* (or *Hosshan*), as it simply deletes an additional untruncatable consonant as well as an additional vowel. Note in passing that the alternation between *Hossan/Nissan* and *Hosshan/Nisshan* is due to the fact that in the latte case the place feature of *sh* in the name base rather than the place feature of *s* in the suffix is preserved.

Kissan from *Kitahara* + *san* can be also derived in a similar manner to the above cases.

(41)

/[Kit$_1$a] [h$_2$ar$_3$a] + s$_4$an/	ID-F	Gem	MAX C(aff)	ID[-cont]	MAX V
a. ☞ Kiss$_{1,4}$an			**	*	**
b. Kit$_1$ah$_2$ass$_{3,4}$an	*!				*
c. Kit$_1$ass$_{2,3,4}$an	*!				**
d. Kitaharasan		*!			

The winning candidate (41a) deletes two untrancatable consonants *r* and *h*, which incur two violations of MAX C (affix). However this allows it to coalesce *t* with *s*, satisfying IDENT-F. While (41b) and (41c) do not violate MAX C (affix), IDENT-F militates against them because they involve coalesce of the consonants that do not have the relevant matching features. They are thus ruled out. The non-truncated form (41d) violates Gemination. Therefore (41a) is chosen as an optimal candidate.

We have shown that the proposed ranking allows maximal truncation in cases where a truncatable consonant precedes untruncatable ones. The truncation of this kind can be made possible particularly by the ranking IDENT-F >> Gem >> MAX C (affix). IDENT-F requires featural identity between/among coalescing consonants. Ranking it above MAX C (affix) creates a situation where deletion of consonants in the affixial part of a name feeds the coalescence of a truncatable consonant preceding them with *s*.

Let us now address minimal truncation in which truncating more consonants than necessary is banned. *Ishibashi + san* illustrates such case. It contains two potentially truncatable consonants: Two instances of *sh*. Given the discussion made above, both *Ishibassan* and *Issan* should be in principle possible. However only the former is possible. This suggests that only the rightmost truncatable consonant can be a target of truncation, and that it blocks further truncation.

I claim that our constraint ranking can correctly derive the minimal truncation (i.e., *Ishibassan*) over *the-more-than-necessary truncation* (i.e., *Issan*).

(42)

/[Ish$_1$i] [b$_2$ash$_3$i] + s$_4$an/	ID-F	OCP	Gem	MAX C(aff)	ID[-ant]	MAX V
a. ☞ Ish$_1$ib$_2$ass$_{3,4}$an					*	*
b. Ish$_1$iss$_{2,3,4}$n	*!	*			*	**
c. Ish$_1$iss$_{3,4}$an		*!		*	*	**
d. Iss$_{1,2,3,4}$an	*!				**	***
e. Iss$_{1,3,4}$an				*!	*	***
f. Ishibashisan			*!			

Let us first focus on the competing candidates, namely (42a) and (42e). Both of these candidates satisfy IDENT-F, as they involve coalesce of those consonants that have the relevant matching features in (18). They also tie with respect to other high ranked constraints such as the OCP and Gem. However, these two candidates differ in a crucial respect. (42a) deletes fewer vowels in the name base than (42e) does. (42e) incurs three violations of MAX V, while (42a) only violates it once. Besides, (42e) involves deletion of *b* in the affixal part of the name, violating MAX C (affix). As a result, (42e) is eliminated. The low ranked faithfulness constraint thus plays a decisive role in selecting (42a) over (42e). Other candidates such as (42b), (42c) and (42d) violate the highest ranked constraints IDENT-F (= 42d) or the OCP, (= 42c) or both (= 42b). Since (42f) does not involve gemination, it violates Gemination. (42a) will be thus selected as the optimal output.

It has been shown that *the-more-than-necessary truncation* is correctly blocked particularly by the faithfulness constraints penalizing the unnecessary deletion of consonants and vowels. The resulting truncation is the minimal hypocoristic form *Ishibassan*.

4 On the distinction between geminated truncation and Poser truncation

We have addressed the type of truncated hypocoristics in KJ that requires gemination of the suffix *-san*. As touched upon in 2.2, we have treated it separately from *Poser truncation*, which requires a bimoraic base of a truncated form and does not involve gemination of the suffix. In this section we will demonstrate that evaluating both geminated truncation in KJ and Poser truncation in the same constraint ranking creates wrong predictions of the hypocoristic forms.

One might claim that Poser truncation is also active in the grammar of KJ in cases such as hypocoristic formation from *Yamada* + *san*. Recall that the geminated truncation *Yamassan* cannot be formed from *Yamada* + *san* since the name does not contain a truncatable voiceless coronal obstruent. Nevertheless, speakers of KJ freely allow *Yamasan*, which contains a singleton *s* of the suffix. Crucially, the name base is bimoraic in accordance with Poser’s (1990) proposal that truncation in Japanese is mapped to a bimoraic foot template (see also Mester 1990). This would give the impression that geminated truncation in KJ and Poser truncation are in complementary distribution. If this were the case, one would have to evaluate candidates derived by both types of truncation in the same constraint ranking. However I claim that there is good reason to evaluate these two types of truncation in different ranking tableaux.

The complementary distribution between geminated truncation and Poser truncation falls apart once we take a careful look at the following names.

(43) a. [Yama] [moto] san: Yamamossan, **Yama**san
b. [Koma] [tsu] san: Komassan, **Koma**san
c. [Oka] [moto] san: Okamossan, **Oka**san
d. [Tani] [guchi] san: Tanigussan, **Tani**san
e. [Tomi] [ta] san: Tomissan, **Tomi**san
f. [Wata] [nabe]: Wassan, **Wata**san

These names allow both geminated truncation and Poser (bimoraic) truncation. Following Benua (1995) in that the markedness constraint FTBIN triggers formation of a bimoraic name base, let us assume the following constraints and their ranking for Poser truncation.

(44) a. FTBIN: Feet are binary on a syllabic or moraic analysis.
b. ALIGN-Ft-L: Every foot is initial in the PrWd.
c. PARSE-SYLL: All syllables are parsed into feet.
(Benua 1995)

(45) FTBIN, ALIGN-Ft-L, PARSE-SYLL >> MAX-B(ase)T(runcation)
(Benua 1995)

(46) illustrates how the bimoraic name base *Mido chan* is derived from *Midori+chan*.

(46)

/(mi.do){ri}/	FT-BIN	PARSE-SYLL	ALIGN-Ft-L	MAX-BT
a. (mi.do.ri)	*!			
b. (mi.do)(ri)	*!		*	
c. (mi.do){ri}		*!		
d. ☞ (mi.do)				**

(Benua 1995: 44)

(46a) has a trimoraic foot, and violates FTBIN. (46b) has the monomoraic foot *(ri)*, which is non-initial in the prosodic word of *midori*. These violate FTBIN and ALIGN-Ft-L. (46c) contains a syllable that is not parsed into foot (i.e., {ri}), thereby violating PARSE-SYLL. The winning candidate (46d) violates MAX-BT by deleting the CV (=ri) in the base, yet it satisfies the other high ranked constraints. *Mido chan* will be thus derived as the optimal candidate.

Let us consider whether the markedness constraints deriving Poser truncation should be incorporated into the constraint ranking we have defended[9]. We assume that MAX-BT in (46) corresponds to our MAX C (affix) and MAX V. It can be then argued that FTBIN, PARSE-SYLL and ALIGN-Ft-L must be ranked above MAX C (affix) and MAX V in order to derive a bimoraic base name. However, this ranking will always select a bimoraic truncated form over a geminated truncated form, even when both types of truncation are equally available. This can be clearly demonstrated by names such as *Tomita*. (47) shows how *Tomisan* is selected over *Tomissan*, although both should be available[10].

[9] Here we do not consider the constraint Gemination since this will exclude any candidate that lacks gemination.
[10] For ease of illustration, we ignore the other two markedness constraints PARSE-SYLL and ALIGN-Ft-L

(47)

$/\text{Tom}_1\text{it}_2\text{a} + \text{s}_3\text{an}/$		FTBIN	MAX C (aff)	MAX V
a.	$(\text{To.m}_1\text{i.s})\ \text{s}_{2,3}\text{an}$	*!		
b. ☞	$(\text{To.m}_1\text{i})\ \text{s}_3\text{an}$		*	*

(47a) has a trimoraic foot, incurring a fatal violation of FTBIN. In contrast, (47b) satisfies FTBIN due to its bimoraic foot while it violates the lower ranked faithfulness constraints by deletion the CV (i.e., *ta*). If we alternatively rank MAX C (aff) and MAX V above FTBIN, we will obtain the reverse result: *Tomissan* will be selected over *Tomisan*. A similar explanation holds for other names in (43). One can now see that treating geminated truncation and Poser truncation in the same constraint ranking creates underirable situations in which neither of the truncation types can be correctly derived.

We can thus conclude that geminated truncation in KJ should be derived from the constraint ranking that have been argued for in Section 3, while Poser truncation, which always yields a bimoraic foot, should be derived independently from the ranking suggested by Benua (1995) in (45), for instance. The break of complementary distribution between the two types of truncation in (43) can be thus explained by arguing that each of them is yielded by different constraint rankings.

5 CONCLUSION

The global constraint ranking that has been supported throughout the paper can be summarized in (48).

(48) MAX C(root), ID(ENT)-F, DEP, *H L(=Gem), IDENT[γaccent], OCP (*[+strident] V [+strident]) >> Gem(ination) >> MAX C(aff(ix)), ID(ENT)[-anterior], ID(ENT)[-continuant], MAX V, UNI(FORMITY)

It has been claimed that (48) can account for the properties of hypocoristic formation in KJ, repeated below as (49).

(49) a. A consonant targeted for truncation must be voiceless coronal obstruent.
b. Two sibilants may not be adjacent in the output form of hypocoristics.
c. The vowel immediately preceding the geminate consonant in *-ssan*

and the candidates that violate these constraints, as illustration of these constraints and candidates will be identical with the one in (46).

may not bear accent.

d. Truncation can apply to more than one consonant (i) iff these consonants are not truncatable and (ii) iff there is a truncatable consonant preceding those non-truncatable consonants

One of the remaining issues is how to derive a constraint requiring gemination in hypocoristics in KJ, which crucially distinguishes the truncation patterns in KJ from the ones characterized by Poser truncation. It is also necessary to explain the fact that a certain group of names allows both geminated truncation and Poser truncation as we saw in (43), while this alternation is not available to all names in Japanese (e.g., *Kissan* vs. **Kita san* from *Kitahara san*, and *Kubossan* vs. **Kubo san* from *Kubota san*). I leave these issues for my future research.

APPENDIX: A LIST OF SURNAMES

i. Surnames whose last consonant (= right-edge) is a voiceless coronal obstruent: geminated truncation is possible (i.e., a *Kubota*-type name)
Hayashi, Kobayashi, Takahashi, Funakoshi, Imanishi, Oonishi, Yamamoto, Kanemoto, Fujimoto, Sakamoto, Okamoto, Miyamoto, Sugimoto, Komatsu, Taniguchi, Yamaguchi, Takeuchi, Noguchi, Kikuchi, Kubota, Morita, Kiyota etc.

ii. Surnames whose last consonant is not a voiceless coronal obstruent: geminated truncation is impossible (i.e., a *Yamada*-type name)
Tanaka, Suzuki, Yamazaki, Miyazaki, Nakamura, Kimura, Sugawara, Fujiwara, Tamura, Hara, Okuda, Yamada, Ikeda, Maeda, Okada, Fukuda, Harada, Wada, Takada, Shimizu, Mori, Ogawa, Nakajima, Nakayama, Murakami, Nakano, Hirano, Kaneko, Takagi, Chiba, Kubo etc.

iii. Surnames that bear accent[11]. . .
(a) before a voiceless coronal obstruent: geminated truncation is impossible (i.e., a ***Narí****ta*-type name)
Sak**í**ta, Shib**á**ta, Nak**á**ta, Hir**á**ta, Iw**á**ta, Yok**ó**ta, Kam**á**ta, Miy**á**ta, Tom**í**ta, Sak**á**ta, Toy**ó**ta, Kak**ú**ta, Fur**ú**ta, Sug**í**ta, Tsur**ú**ta, Kats**ú**ta, Kik**ú**ta, Hay**á**ta, Hor**í**ta, Kaw**á**ta etc.

(b) before a voiceless coronal sibilant that precedes a voiceless coronal obstruent: geminated truncation is impossible (i.e., a *Yamáshita*-type name)
Yam**á**shita, Mats**ú**shita, Mor**í**shita, Miy**á**shita, Kin**ó**shita

iv. Surnames that contain a voiceless coronal obstruent in a non-right-edge position (= *Maximal truncation*): geminated truncation is possible (i.e., a *Hoshida*-type name)

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11 The accent patterns given here come from a subset of Kansai Japanese under discussion.

Hoshida, Kishida, Yoshida, Nishida, Ishida, Hashida, Nishimura, Yoshimura, Kitahara, Kitagawa, Ishikawa, Ishihara, Yoshikawa, Hoshikawa, Kishimura, Ishimura, Hoshimura, Matsuda etc.

v. Surnames that contain one voiceless coronal obstruent in a right-edge position and another in a non-right-edge position (= *Minimal truncation*): gemeinated truncation is possible (i.e., an *Ishibashi*-type name)
Ishibashi, Itahashi, Kitahashi, Ichihashi Kitaguchi, Nishiguchi, Ishimatsu, Nishimatsu, Kishimoto, Nishimoto, Ishimoto, Tsuchimoto, Nishimitsu etc.

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Yusuke Imanishi
imanishi@mit.edu