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# Kattobase: The Linguistic Structure of Japanese Baseball Chants

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### **1** Introduction

This paper develops the first constraint-based analysis of Japanese baseball chants, whose intricate organization casts a very revealing sidelight on the prosodic organization of the Japanese language itself. The source of most data and basic generalizations is the last author's dissertation (Tanaka 2008), supplemented by further empirical probing which clarified a number of unclear points.

Since the beginnings of metrical phonology, the analysis of chants has played an important role in the development of the theory. Liberman (1975) uses the English vocative chant ("Jo-ohn!", with a High-Mid tune) to motivate basic properties of what came to be known as the "metrical theory of stress". He shows that, in order to formalize *tune-to-text* alignment, and to define what it means for a tune to be *congruent* with a text and its metrical pattern, a relational understanding of stress is necessary, as instantiated in metrical trees with their "strong-weak" labeling of all nodes.

Japanese baseball chants, an obligatory and quasi-ritual part of virtually every baseball game, are delivered by fans each time their team is at bat. They are accompanied by a variety of musical instruments (drums, trumpets, etc.) and take the form in (1). They consist of two measures of four beats, each composed of three notes plus one pause. 'XXX' is a rhythmically adapted form of the player's name. At issue here is the form of the rhythmic adaptation, which is tightly regulated and grounded, as we will show, in the rhythmic structure of the language itself.

(1) kat to ba see 
$$X X X$$
  
 $\frac{1}{2} y \vdash n t = -$ 

Morphological structure: kat- tob - as - eINTENSIFIER-fly-CAUS-IMP 'send it flying, hit a homerun'

The examples in (2) illustrate the phenomenon.<sup>1</sup>

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<sup>&</sup>lt;sup>1</sup> Our transcription is approximately phonemic and largely follows the Hepburn style of Romanization used by the leading dictionaries (Kenkyusha, among others), with some minor modifications: Vowel length is denoted by doubling;  $chi=[\widehat{tJi}]$ ,  $su=[\widehat{tsu}]$ ,  $shi=[\widehat{Ji}]$ ,  $ij=[\widehat{dJi}]$ , hi=[ci],  $fu=[\varphi u]$ ; and n stands for the moraic nasal of Japanese, realized as a nasal glide (assimilating in place to following stop consonants).

| (2) |              |                           | Source | name  | Team <sup>2</sup> |
|-----|--------------|---------------------------|--------|-------|-------------------|
| a.  | kat toba see | kaa kee fuu               | kakefu | 掛布    | Hanshin Tigers    |
| b.  | •••          | oo ota nii                | ootani | 大谷    | LA Angels         |
| c.  | •••          | baa aa suu, *baa su uu    | baasu  | Bass  | Hanshin Tigers    |
| d.  | •••          | ee too oo, *ee ee too     | etoo   | 江藤    | Chunichi Dragons  |
| e.  |              | shii pii nn, *shii ii pin | shipin | Sipin | Yomiuri Giants    |

By way of introduction, we first summarize Tanaka's (2008) analysis, and at the same time present relevant examples. There are three separate rules, depending on the length of the input name, measured in moras ( $\mu$ ). Each CV- or V-unit is one mora, so *ichiroo= i-chi-ro-o* is a 4 $\mu$  name. Syllable-final consonants (mostly nasals) are also one mora (*son = so-n =* 2 $\mu$ ).

Rule 1 in (3) deals with names up to  $3\mu$ . The simplest case is names of exactly  $3\mu$ , which fit the  $X_1X_2X_3$  template exactly, as seen in (4) (we write "L" for "light syllable", "H" for "heavy syllable", and "S" for "superheavy syllable").

| (3) | Rule 1a | 3-mora names: Align the initial mora to the initial beat $(X_1)$ , the final mora |
|-----|---------|---|
|     |         | to the final beat $(X_3)$ , the medial mora to the medial beat $(X_2)$ .          |

| (4) | Moras | Profile |    | Input    |      | Output      |
|-----|-------|---------|----|----------|------|-------------|
|     | 3     | LLL     | a. | ka-ke-fu | 掛布   | kaa-kee-fuu |
|     |       | HL      | b. | ba-a-su  | Bass | baa-aa-suu  |
|     |       |         | c. | ge-n-da  | 源田   | gee-nn-daa  |
|     |       |         | d. | sa-i-ki  | 才木   | saa-ii-kii  |
|     |       | LH      | e. | e-to-o   | 江藤   | ee-too-oo   |

It is important that the final mora goes to X<sub>3</sub>, not the final syllable: This is why LH  $[e_1]$ - $[to_2-o_3] \rightarrow [e_1-e]$ - $[to_2-o]$ - $[o_3-o]$  and not \* $[e_1-e]$ -[e-e]- $[to_2o_3]$ . By the same rule, HL  $[ba_1-a_2]$ - $[su_3] \rightarrow [ba_1-a]$ - $[a_2-a]$ - $[su_3-u]$ , not \* $[ba_1-a_2]$ - $[su_3-u]$ - $[su_3-u]$ -[u-u].

Rule 1b in (5) deals with shorter names. The crucial point is that the first mora fills  $X_1$  and  $X_2$  (*ta*<sub>1</sub>-*ni*<sub>2</sub> $\rightarrow$ *ta*<sub>1</sub>*a*-*aa*-*ni*<sub>2</sub>*i*), not the second mora  $X_2$  and  $X_3$  (\**ta*<sub>1</sub>*a*-*ni*<sub>2</sub>*i*-*ii*).

(5) Rule 1b In  $2\mu$  names, there is no medial mora. Spread from the left to fill X<sub>2</sub>. In  $1\mu$  names, there is only an initial mora. Spread from the left to fill X<sub>2</sub> and X<sub>3</sub>.

Illustrative examples appear in (6).

| (6) | Moras | Profile |    | Input |     | Output     |
|-----|-------|---------|----|-------|-----|------------|
|     | 2     | LL      | a. | tani  | 谷   | taa-aa-nii |
|     |       |         | b. | yano  | 矢野  | yaa-aa-noo |
|     |       | Н       | c. | son   | 宣   | soo-oo-nn  |
|     |       |         | d. | chen  | 陳   | chee-ee-nn |
|     |       |         | e. | rii   | Lee | rii-ii-ii  |
|     |       |         | f. | kai   | 甲斐  | ka-aa-ii   |
|     | 1     | L       | g. | ri    | 李   | rii-ii-ii  |

(6cd) again illustrate the final-mora rule: *n* alone fills X<sub>3</sub>, not the final rhyme *on*:  $[so_1-n_2] \rightarrow [so_1-o]-[o-o]-[n_2-n]$ , not \* $[so_1-o]-[o-o]-[o-n_2]$ .

Things are different with 4µ names, and longer names: Now the whole final syllable goes to X<sub>3</sub>, whether light or heavy:  $[i_1]$ - $[chi_2]$ - $[ro_3-o_4]$   $\rightarrow$   $[i_1i]$ - $[chi_2i]$ - $[ro_3-o_4]$  (8e), and not the final mora (\* $[i_1i]$ - $[chi_2ro_3]$ - $[o_4-o]$ . A new rule is therefore needed, given in (7).

<sup>&</sup>lt;sup>2</sup> See the Appendix for an alphabetized list of source names and player affiliation.

#### (7) Rule 2 4-mora names: Align the initial mora to $X_1$ , the final syllable to $X_3$ , medial moras to $X_2$ .

| (8) | Moras | Profile |    | Input     |           | Output        |
|-----|-------|---------|----|-----------|-----------|---------------|
|     | 4     | LLLL    | a. | kiyohara  | 清原        | kii-yoha-raa  |
|     |       |         | b. | tatsunami | 立浪        | taa-tsuna-mii |
|     |       |         | c. | rinaresu  | Linares   | rii-nare-suu  |
|     |       |         | d. | kuromati  | Cromartie | kuu-roma-tii  |
|     |       | LLH     | e. | ichiroo   | イチロー      | ii-chii-roo   |
|     |       |         | f. | ochiai    | 落合        | oo-chii-ai    |
|     |       |         | g. | wiruson   | Wilson    | wii-ruu-son   |
|     |       | HLL     | h. | joojima   | 城島        | joo-oji-maa   |
|     |       |         | i. | ootomo    | 大友        | oo-oto-moo    |
|     |       | HH      | j. | hansen    | Hansen    | haa-nn-sen    |
|     |       |         | k. | taihoo    | 大豊        | taa-ii-hoo    |
|     |       |         | 1. | shinjoo   | 新庄        | shii-nn-joo   |
|     |       | LHL     | m. | furanko   | Franco    | fuu-ran-koo   |

More examples illustrating the pattern are given in (8).

Besides the emergence of the final syllable as a mapping target, the mapping of HLL names (8hi) is remarkable:  $[jo_1-o_2]-[ji_3]-[ma_4] \rightarrow [jo_1o]-[o_2-ji_3]-[ma_4a]$ , not  $*[jo_1-o_2]-[ji_3i]-[ma_4a]$ . As indicated, we understand the winning output as mapping the two *o*-moras to different beats (with an onset violation). Here we simply note the facts, and will return to their explanation in the next section.

A special case are  $4\mu$  names like  $[ku_1]$ - $[ra_2-i_3-n_4]$  (*Klein*) (9a), whose profile seems to be LS. If it is the case that the superheavy syllable is actually broken up into L+H  $[ku_1]$ - $[ra_2]$ - $[i_3-n_4]$ , as argued by several authors, including Vance (2008, 125–127), Kubozono (2015, 13–16), and Ito and Mester (2018, 212–216), the final syllable rule already covers this case. The long vowel in (9b) seems to resist this kind of splitting.

| (9) | Moras | Profile   |    | Input  |        | Output                  |
|-----|-------|-----------|----|--------|--------|-------------------------|
|     | 4     | LS or LLH | a. | kurain | Klein  | kuu-raa-in <sup>3</sup> |
|     |       |           | b. | kuruun | Kroon  | kuu-ruu-nn              |
|     |       | SL or LHL | c. | baanzu | Barnes | baa-an-zuu              |
|     |       |           | d. | joonzu | Jones  | joo-on-zuu              |

Names with 5 or more moras follow the same final syllable rule, but we need to distinguish two cases on the basis of the weight of the penultimate syllable. Names with penultimate H map this syllable to  $X_2$ , as formulated in (10) and illustrated in (11).

(10) Rule 3a  $\geq 5\mu$  names with H penultimate syllable: Align the final syllable to X<sub>3</sub>, the penultimate H syllable to X<sub>2</sub>, the remainder (which can be of any length) to X<sub>1</sub>.

| (11) | Moras | Profile |    | Input       |           | Output         |
|------|-------|---------|----|-------------|-----------|----------------|
|      | 5     | HHL     | a. | boochaado   | Borchard  | boo-chaa-doo   |
|      |       | LLHL    | b. | seginooru   | Seguignol | segi-noo-ruu   |
|      |       | LHH     | c. | deshinsei   | DeCinces  | dee-shin-sei   |
|      | 6     | LLLHL   | d. | desutoraade | Destrade  | desuto-raa-dee |

In (12) we give the corresponding rule for names with L in the penult, as illustrated in (13).

<sup>&</sup>lt;sup>3</sup> Another less preferred variant is *kuu-rai-nn*.

(12) Rule 3b  $\geq 5\mu$  names with L penultimate syllable: Align the final syllable to X<sub>3</sub>, the penultimate L syllable and the antepenultimate syllable (whether L or H) to X<sub>2</sub>, the remainder (which can be of any length) to X<sub>1</sub>.

| (13) | Moras | Profile |    | Input        |           | Output          |
|------|-------|---------|----|--------------|-----------|-----------------|
|      | 5     | HLLL    | a. | gonzaresu    | González  | gon-zare-suu    |
|      | 6     | LLLLLL  | b. | makudonarudo | Macdonald | makudo-naru-doo |
|      |       | LHLH    | c. | robaatoson   | Robertson | roo-baato-son   |

In (14), we give more examples of  $\geq 5\mu$  names.

| (14) | Moras    | Profile |    | Input                 |           | Output          |
|------|----------|---------|----|-----------------------|-----------|-----------------|
|      | 5        | LLLLL   | a. | ogasawara             | 小笠原       | oga-sawa-raa    |
|      |          | LLLLL   | b. | kobayakawa            | 小早川       | koba-yaka-waa   |
|      |          | LHLL    | c. | arekkusu              | Alex      | aa-rekku-suu    |
|      |          | LHLL    | d. | mahoomuzu             | Mahomes   | maa-hoomu-zuu   |
|      |          | LLHL    | e. | kitabeppu             | 北別府       | kita-bep-puu    |
|      |          | LLLH    | f. | oguribii              | Oglivie   | oo-guri-bii     |
|      |          | HHL     | g. | g. infante Infante i  |           | in-fan-tee      |
|      |          | HHL     | h. | n. boochaado Borchard |           | boo-chaa-doo    |
|      |          | LHH     | i. | i. buranboo Bruml     |           | buu-ran-boo     |
|      |          | HLH     | j. | oosutin               | Austin    | oo-osu-tin      |
|      |          | HLH     | k. | doddoson              | Dodson    | doo-oddo-son    |
|      |          | HLH     | 1. | bansuroo              | Vance Law | baa-nsu-roo     |
|      | 6        | HLLLL   | m. | kontorerasu           | Contreras | konto-rera-suu  |
|      | LHLLL n. |         | n. | furanshisuko          | Francisco | furan-shisu-koo |
|      |          | LLHLL   | 0. | ferunandesu           | Fernández | feru-nande-suu  |
|      |          | LLLHL   | p. | desutefaano           | Distefano | desute-faa-noo  |
|      |          | LLLLH   | q. | makanarutii           | McAnulty  | maka-naru-tii   |
|      | 7        | HLHLL   | r. | gengoroomaru          | 源五郎丸      | gengo-rooma-ruu |

# 2 Analysis

The challenge any analysis must cope with is that we seem to be dealing with three separate patterns, as summarized in (15).

- (15) 1. for  $\leq$ 3-mora names: last mora goes to last beat
  - 2. for 4-mora names: last syllable goes to last beat
  - 3. for ≥5-mora names: last syllable goes to last beat, and special provisos for H and L penults

Ideally we would like to unify everything into a single rule, but the distinction between the three patterns seems very well motivated, having to do with the length of the input. Since the overall goal is to split the input into three parts, which are then mapped to the three beats, it makes sense that what goes into the last beat is different for short names and for longer names. But "making sense" is not yet an explanation—our goal is now to give an analysis in Optimality Theory (OT, Prince and Smolensky 1993), in terms of ranked and violable constraints, and capture the different aspects of the pattern in one single and uniform constraint ranking, instead of having three distinct procedures.

We first lay out our constraints, beginning in (16), where "K" stands for "kattobase form".

| a. | $\mathbf{K} = \mathbf{X}_1 \mathbf{X}_2 \mathbf{X}_3$ | A kattobase form consists of 3 beats, $X_1X_2X_3$ .                              |
|----|---|--|
| b. | $X \ge FOOT$  | A beat is minimally a foot (Ft).   |
| c. | FOOTFORM $(X_2)$                                      | X <sub>2</sub> is a quantitative trochee (H, LL, or HL).                         |
| d. | MAX   | Every element of the input is present in K.                                      |
| e. | ALIGN-LEFT(X <sub>3</sub> , $\mu$ ])                  | The left edge of $X_3$ corresponds to the left edge of (the content of) the last |
|    |   | mora of the input. One violation when the edges do not coincide.                 |
| f. | ALIGN-LEFT( $X_3,\sigma$ ])                           | The left edge of $X_3$ corresponds to the left edge of (the content of) the last |
|    |   | syllable of the input. One violation when the edges do not coincide.             |

(16)

For our purposes, the basic rhythmic structure of Japanese is the trochaic (strong-weak, sw) foot with the three forms in (17), which include the uneven trochee HL, for reasons we will return to.

| (17) | Ft     | Ft  | Ft     |
|------|--------|-----|--------|
|      | $\sim$ |     | $\sim$ |
|      | s w    | S   | s w    |
|      | L L    | Н   | H L    |
|      | ta ta  | taa | taa ta |

(16c) raises an immediate question: Why is there a special constraint requiring  $X_2$  to be exactly a trochee? Empirically speaking, the answer is clear: In long names, material exceeding the size of a trochee goes into  $X_1$ , not into  $X_2$ : *MacDonald*  $\rightarrow$ *makudo-naru-doo*, not *\*maku-donaru-doo*.  $X_3$  is in any case restricted to the last syllable of the input because of the ALIGN-LEFT constraints ( $\sigma$ ,  $\mu$ ): *MacDonald*  $\rightarrow$ *makudo-naru-doo*, *\*maku-dona-rudo*.

But what is the reason  $X_2$  plays this special role, not  $X_1$  or  $X_3$ ? Our hypothesis is that the reason lies in what  $X_2$  corresponds to in a Japanese word: It corresponds to the last, and most prominent, foot of the word, the foot which receives the default antepenultimate accent, as illustrated in (18).



If so, FOOTFORM( $X_2$ ) is actually FOOTFORM(HEADFOOT), a positional markedness constraint, as in (19).

(19) FOOTFORM(HDFT) The headfoot is a quantitative trochee (H, LL, or HL).

In conjunction with (20a), the general DEP- $\mu$  constraint militating against any kind of lengthening, there is also another headfoot-specific positional faithfulness constraint (20b) preventing epenthesis in X<sub>2</sub>.

| (20) | a. | Dep-µ           | Every mora in the output has a correspondent in the input—no epenthesis of a mora (i.e., no lengthening).             |
|------|----|-----------------|---|
|      | b. | Dep-µ<br>(HdFt) | Every mora in the output's head foot has a correspondent in the input—no epenthesis of a mora (i.e., no lengthening). |

The remaining constraints cover familiar territory: There are two crisp edge constraints (Ito and Mester 1999) militating against spreading consonants or vowels across X-boundaries (21ab), and the familiar onset constraint (21c).

| (21) | a. | CRISPEDGE-C | The edges of X are crisp: no spreading of consonants across. One violation |
|------|----|-------------|--|
|      |    |             | for every consonant linked to two different Xs.                            |
|      | b. | CRISPEDGE-V | The edges of X are crisp: no spreading of vowels across. One violation for |
|      |    |             | every vowel linked to two different Xs.                                    |
|      | c. | ONSET       | A syllable has an onset.   |

The overall ranking of the constraints is as in (22). We will gradually justify all dominance relations.



The simplest case is  $3\mu$  names (23) such as  $ka_1 - ke_2 - fu_3 \rightarrow ka_1a - ke_2e - fu_3u$ . Comparing the winning candidate (23a) with (23d)  $*ka_1a - ke_2fu_3 - uu$ , we see the constraint DEP- $\mu$ (HDFT), violated by the winner, must be dominated by either CRISPEDGE-V or ALIGN-L(X<sub>3</sub>, $\sigma$ ), which are both violated by the loser.<sup>4</sup>

(23)

| INPUT  | Οι   | JTPUT       | MAX | CRISPE-C | X≥FT | FtFrm<br>(HdFt) | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | ONSET | Dep-µ |
|--------|------|-------------|-----|----------|------|-----------------|----------|------------------|-----------------|-----------------|-------|-------|
| kakefu | a. 🕨 | kaa-kee-fuu |     |          |      |                 |          |                  | 1               |                 |       | 3     |
| 掛布     | b.   | kaa-ake-fuu |     |          |      |                 | 1        |                  | 1               |                 | 1     | 3     |
|        | с.   | kake-ee-fuu |     |          |      |                 | 1        |                  | 2               |                 | 1     | 3     |
|        | d.   | kaa-kefu-uu |     |          |      |                 | 1        | 1                |                 | 1               | 1     | 3     |
|        | e.   | kake-fuu-uu |     |          |      |                 | 1        | 1                | 1               | 1               | 1     | 3     |
|        | f.   | kaa-aa-kefu |     |          |      |                 | 1        | 1                | 2               | 1               | 1     | 3     |
|        | g.   | ka-ke-fu    |     |          | 3    | 1               |          |                  |                 |                 |       |       |

The winning candidate *kaa-kee-fuu* also shows three instances of mora epenthesis, and thus violates general DEP- $\mu$  three times. Since this constraint is bottom-ranked and does not contribute to the explanation in interesting ways, we will in general not include it in our tableaux.

Turning next to short names, we give tableaux for 1µ- and 2µ-names in (24) and (25).

<sup>&</sup>lt;sup>4</sup> Technically, ONSET or AL-L( $X_3,\mu$ ]) could also dominate DEP- $\mu$ (HDFT) with the same effect, but we will soon see that these must be ranked lower.



The fact that (24a) wins over (24def) shows that  $X \ge FT$  dominates all of CRISPE-V, AL-L(X<sub>3</sub>, $\sigma$ ]), DEP- $\mu$ (HDFT), AL-L(X<sub>3</sub>, $\mu$ ]), and ONSET. In (25), (25a) *ta*<sub>1</sub>*a*-*aa*-*ni*<sub>2</sub>*i*, with its two violations of DEP- $\mu$ (HDFT), wins over (25b) *ta*<sub>1</sub>*a*-*ni*<sub>2</sub>*i*-*ii* (with only one violation). This teaches us that AL-L(X<sub>3</sub>,  $\sigma$ ])>>DEP- $\mu$ (HDFT) (the loser does not align the last syllable with X<sub>3</sub>).<sup>5</sup>Another possibility would be AL-L(X<sub>3</sub>,  $\mu$ ])>>DEP- $\mu$ (HDFT), but we will see below in (32) that there is independent evidence for AL-L(X<sub>3</sub>,  $\sigma$ ])>>DEP- $\mu$ (HDFT).

| (25)  |                |     |          |      |                 |          |                  |                 |   |       |
|-------|----------------|-----|----------|------|-----------------|----------|------------------|-----------------|---|-------|
|       |                | MAX | CRISPE-C | X≥FT | FtFrm<br>(HdFt) | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | A <sub>L</sub> -L<br>(X <sub>3</sub> ,μ]) | Onset |
| INPUT | OUTPUT         |     |          |      |                 |          |                  |                 |   |       |
| tani  | a. ►taa-aa-nii |     |          |      |                 | 1        |                  | 2               |   | 1     |
| 谷     | b. taa-nii-ii  |     |          |      |                 | 1        | 1                | 1               | 1   | 1     |
|       | c. tani-ii-ii  |     |          |      |                 | 2        | 1                | 2               | 1   | 2     |
|       | d. nii-ii-ii   | 2   |          |      |                 | 2        | 1                | 2               | 1   | 1     |

(26a) *so<sub>10</sub>-oo-n<sub>2</sub>n* beats, and harmonically bounds, (26b) *so<sub>10</sub>-oo-on<sub>2</sub>* because it does better on CRISPE-V and AL-L(X<sub>3</sub>,  $\mu$ ).

(26)

| INPUT | 1  | 0 | UTPUT       | MAX | CRISPE-C | X≥FT | (HDFT) | FtFrm | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | Onset |
|-------|----|---|-------------|-----|----------|------|--------|-------|----------|------------------|-----------------|-----------------|-------|
| son   | a. |   | ► soo-oo-nn |     |          |      |        |       | 1        | 1                | 2               |                 | 2     |
| 宣     | b. |   | soo-oo-on   |     |          |      |        |       | 2        | 1                | 2               | 1               | 2     |
|       | c. |   | soo-nn-nn   |     | 1        |      |        |       |          | 1                | 1               | 1               | 2     |
|       | d. |   | son-nn-nn   |     | 2        |      |        |       |          | 1                | 2               | 1               | 2     |

A similar point holds for  $ba_1a_2su_3 \rightarrow ba_1a - a_2a - su_3u$  and  $ge_1n_2da_3 \rightarrow ge_1e - n_2n - da_3a$  in (27). Note that the winning candidate  $ba_1a - a_2a - su_3u$  assigns the two *a*-moras to different syllables—the candidate  $ba_1a_2 - aa - su_3u$  does worse both on CRISPE-V, AL-L(X3, $\sigma$ ) and DEP- $\mu$ (HDFT) and is harmonically bounded by the winner.

<sup>&</sup>lt;sup>5</sup> Another possibility would be AL-L(X<sub>3</sub>,  $\mu$ ])>>DEP- $\mu$ (HDFT), but we will see below in (32) that there is independent evidence for AL-L(X<sub>3</sub>,  $\sigma$ ])>>DEP- $\mu$ (HDFT).

| (27)          |    |                 | MAX | CRISPE- | X≥FT | FTFRM<br>(HDFT) | CRISPE- | $\frac{A_{L}-L}{(X_{3},\sigma])}$ | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | ONSET |
|---------------|----|-----------------|-----|---------|------|-----------------|---------|-----------------------------------|-----------------|-----------------|-------|
| INPUT         |    | OUTPUT          |     | С       |      |                 | V       |                                   |                 |                 |       |
| $ba_1a_2su_3$ | a. | ►ba1a-a2a-su3u  |     |         |      |                 |         |                                   | 1               |                 | 1     |
| Bass          | b. | ba1a2-su3u-uu   |     |         |      |                 | 1       | 1                                 | 1               | 1               | 1     |
|               | c. | ba1a2-aa-su3u   |     |         |      |                 | 1       |                                   | 2               | 1               | 1     |
|               | d. | ba1a-a2su3-uu   |     |         |      |                 | 1       | 1                                 |                 | 1               | 2     |
|               | e. | X-ba1a2-su3u    |     |         | 1    |                 |         |                                   |                 |                 |       |
| ge1n2da3      | f. | ▶ ge1e-n2n-da3a |     |         |      |                 |         |                                   | 1               |                 | 1     |
| 源田            | g. | ge1n2-daa-a3a   |     |         |      |                 | 1       | 1                                 | 1               | 1               | 1     |
|               | h. | ge1n2-nn-da3a   |     | 1       |      |                 |         |                                   | 1               |                 | 1     |

An interesting contrast to the HL-word  $ba_1a_2su_3 \rightarrow ba_1a_2a_3u_3u$  is the LH word  $e_1to_2o_3 \rightarrow e_1e_1o_2o_0o_3o$  in (28): Even though ALIGN-LEFT(X<sub>3</sub>,  $\sigma$ ]), which ranks higher than ALIGN-LEFT(X<sub>3</sub>,  $\mu$ ]), favors (28b), CRISPEDGE-V, which ranks even higher, selects (28a).

(28)

| Input          | (    | Output  | MAX | CrispE-C | X≥FT | FtFrm<br>(HdFt) | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | A <sub>L</sub> -L<br>(X <sub>3</sub> ,μ]) | ONSET |
|----------------|------|---|-----|----------|------|-----------------|----------|------------------|-----------------|---|-------|
| $e_1 to_2 o_3$ | a. I | $e_1e-to_2o-o_3o^6$                                 |     |          |      |                 |          | 1                | 1               |   | 2     |
| 江藤             | b.   | e1e-ee-to2o3  |     |          |      |                 | 1        |                  | 2               | 1   | 2     |
|                | c.   | e <sub>1</sub> to <sub>2</sub> -o <sub>3</sub> o-oo |     |          |      |                 | 1        | 1                | 1               |   | 2     |

To recapitulate the crucial constraint interactions, we compare the derivations for *tani, baasu*, and *etoo* in (29).

(29)

|   |  | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) |
|---|--|----------|------------------|-----------------|
| INPUT   | OUTPUT   |          |                  |                 |
| LL ta <sub>1</sub> ni <sub>2</sub>                | a. ►ta1a-aa-ni2i   | 1        |                  | 2               |
| 谷   | b. ta <sub>1</sub> a-ni <sub>2</sub> i-ii                | 1        | 1                | 1               |
| HL ba <sub>1</sub> a <sub>2</sub> su <sub>3</sub> | c. ►ba <sub>1</sub> a-a <sub>2</sub> a-su <sub>3</sub> u |          |                  | 1               |
| Bass  | d. ba1a-a2su3-uu   | 1        | 1                |                 |
| LH e <sub>2</sub> to <sub>2</sub> o <sub>3</sub>  | e. e <sub>1</sub> e-ee-to <sub>2</sub> o <sub>3</sub>    | 1        |                  | 2               |
| 江藤  | f. ▶e₁e-to₂o-o₃o   |          | 1                | 1               |

While in  $3\mu$ -words ending in H the last mora, not the last syllable, is assigned to X<sub>3</sub> (because of CrispE-V, see (29ef)), this is not the case in  $4\mu$ -words ending in H, as shown in (30). Here (30a) and (30e) do not violate CrispE-V, so AL-L(X<sub>3</sub>,  $\sigma$ ]) decided in favor of the candidates assigning the final syllable to X<sub>3</sub>.

<sup>&</sup>lt;sup>6</sup> Note that the two parts of the long vowel are evaluated separately by CRISPE-V, that is why the winner  $e_1e$ -to<sub>2</sub>o-o<sub>3</sub>o does not violate this constraint.

| (30)             |   | MAX | CRISPE-( | X≥FT | FtFrm<br>(HdFt) | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | A <sub>L</sub> -L<br>(X <sub>3</sub> ,μ]) | Onset |
|------------------|---|-----|----------|------|-----------------|----------|------------------|-----------------|---|-------|
| INPUT            | OUTPUT  |     | ()       |      |                 | V        |                  |                 |   |       |
| shi1n2jo304      | a. $\blacktriangleright$ shi_1i-n_2n-jo_3o_4                          |     |          |      |                 |          |                  | 1               | 1   | 1     |
| 新庄               | b. $shi_1n_2-jo_3o-o_4o$  |     |          |      |                 |          | 1                |                 |   | 1     |
|                  | c. $shi_1i-n_2jo_3-o_4o$  |     |          |      |                 |          | 1                |                 |   | 2     |
|                  | d. shi <sub>1</sub> i-in <sub>2</sub> -jo <sub>3</sub> o <sub>4</sub> |     |          |      |                 | 1        |                  | 1               | 1   | 1     |
| $ta_1i_2ho_3o_4$ | e. ►ta <sub>1</sub> a-i <sub>2</sub> i-ho <sub>3</sub> o <sub>4</sub> |     |          |      |                 |          |                  | 1               | 1   | 1     |
| 大豊               | f. $ta_1i_2-ho_3o-o_4o$   |     |          |      |                 |          | 1                |                 |   | 1     |
|                  | g. $ta_1a-i_2ho_3-o_4o$   |     |          |      |                 |          | 1                |                 |   | 2     |
|                  | h. $ta_1i_2$ -ii-ho <sub>3</sub> o <sub>4</sub>                       |     |          |      |                 | 1        |                  | 1               | 1   | 1     |

A LLLL-name like *kiyohara* assigns only the first mora to  $X_1$  and applies lengthening here, not in  $X_2$  because of DEP- $\mu$ (HDFT) (31a) vs. (31b).

(31)

| INPUT    |    | Output        | MAX | CRISPE-C | X≥FT | FtFrm<br>(HdFt) | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | ONSET | Dep-µ |
|----------|----|---------------|-----|----------|------|-----------------|----------|------------------|-----------------|-----------------|-------|-------|
| kiyohara | a. | ▶kii-yoha-raa |     |          |      |                 |          |                  |                 |                 |       | 2     |
| 清原       | b. | kiyo-haa-raa  |     |          |      |                 |          |                  | 1               |                 |       | 2     |
|          | c. | kii-yoo-hara  |     |          |      |                 |          | 1                | 1               | 1               |       | 2     |
|          | d. | kiyo-hara-aa  |     |          |      |                 | 1        | 1                |                 | 1               | 1     | 2     |
|          | e. | kiyoha-raa-aa |     |          |      |                 | 1        | 1                | 1               | 1               | 1     | 3     |

But lengthening in  $X_2$  is not absolutely ruled out and indeed found when a higher-ranking constraint is at stake. This is shown by a 4µ-name like *kurain*, whose syllabification we take to be *ku.ra.in* (see (9) above): (32a) *kuu-raa-in* beats (32b) *kuu-rai-nn* because of ALIGN-LEFT( $X_3,\sigma$ ]), which crucially dominates DEP-µ(HDFT) and AL-L( $X_3,\mu$ ]).<sup>7</sup>

(32)

| INPUT  | Output         | MAX | CRISPE-C | X≥FT | FtFrm<br>(HdFt) | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | Onset |
|--------|----------------|-----|----------|------|-----------------|----------|------------------|-----------------|-----------------|-------|
| kurain | a. ▶kuu-raa-in |     |          |      |                 |          |                  | 1               | 1               | 1     |
| Klein  | b. kuu-rai-nn  |     |          |      |                 |          | 1                |                 |                 | 1     |
|        | c. kura-ii-nn  |     |          |      |                 |          | 1                | 1               |                 | 2     |
|        | d. kura-in-nn  |     | 1        |      |                 |          | 1                |                 | 1               | 2     |
|        | e. kura-ii-in  |     |          |      |                 | 1        | 1                | 1               | 1               | 2     |
|        | f. kuu-uu-rain |     |          |      |                 | 1        |                  | 2               | 1               | 1     |

In (33) the winner (33a) *joo-oji-maa* beats (33b) *joo-jii-maa* because it avoids lengthening within the head foot  $X_2$ , at the cost of lengthening in  $X_1$  and an onset violation.<sup>8</sup>

<sup>&</sup>lt;sup>7</sup> But *kuu-rai-nn* is another possible (if less preferred) output, so there might be some variability in the ranking between AL-L(X<sub>3</sub>,  $\sigma$ ] and one or both of its dominated constraints.

<sup>&</sup>lt;sup>8</sup> The winner is (33a), which distributes the two *o*-moras over  $X_1$  and  $X_2$ , and not the homonymous (33c), which keeps both *o*-moras within  $X_1$  but has gratuitous violations of CRISPE-V and DEP- $\mu$ (HDFT).

| (33)<br>Input | (    | Dutput   | MAX | CRISPE-C | X≥FT | FtFrm<br>(HdFt) | CRISPE-V | $A_{L}-L$<br>(X <sub>3</sub> , $\sigma$ ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | Onset |
|---------------|------|--|-----|----------|------|-----------------|----------|--|-----------------|-----------------|-------|
| jo102ji3ma4   | a. 🖡 | jo₁o-o₂ji₃-ma₄a  |     |          |      |                 |          |  |                 |                 | 1     |
| 城島            | b.   | jo102-ji3i-ma4a  |     |          |      |                 |          |  | 1               |                 |       |
|               | с.   | jo102-oji3-ma4a  |     |          |      |                 | 1        |  | 1               |                 | 1     |
|               | d.   | jo <sub>1</sub> o <sub>2</sub> ji <sub>3</sub> -ii-ma <sub>4</sub> a |     |          |      |                 |          |  | 2               |                 | 1     |
|               | e.   | jo102-ji3ma4-aa  |     |          |      |                 | 1        | 1  |                 | 1               | 1     |
|               | f.   | jo102ji3-ma4a-aa   |     |          |      |                 | 1        | 1  | 1               | 1               | 1     |
|               | g.   | X-jo102ji3-ma4a  |     |          | 1    |                 |          |  |                 |                 |       |

Recapitulating the crucial interactions, we compare the derivations for *ichiroo* and *joojima* in (34).

(34)

| (54) |             |  | CRISPE-V | Dep-µ<br>(HdFt) | Onset |
|------|-------------|--|----------|-----------------|-------|
|      | INPUT       | OUTPUT   | ~        |                 |       |
| LLH  | i1chi2ro304 | a. ▶i <sub>1</sub> i-chi <sub>2</sub> i-ro <sub>3</sub> O <sub>4</sub> |          | 1               | 1     |
|      | イチロー        | b. i1i-ichi2-ro304   | 1        |                 | 2     |
| HLL  | jo102ji3ma4 | c. jo <sub>1</sub> o <sub>2</sub> -ji <sub>3</sub> i-ma <sub>4</sub> a |          | 1               |       |
|      | 城島          | d. ▶jo10-02ji3-ma4a  |          |                 | 1     |

The candidate *ii-chii-roo* bests *ii-ichi-roo* because CRISPE-V >>DEP- $\mu$ (HDFT). But, as we just saw in (33), *joo-oji-maa* bests *joo-jii-maa* because CRISPE-V is not involved, and DEP- $\mu$ (HDFT) >>ONSET. The same kind of same interaction is found in the derivation of the 5 $\mu$ -name *oosutin* $\rightarrow$ *oo-osu-tin* in (35).

| 1 | 2 | 5 | ١ |
|---|---|---|---|
| U | Э | J | ) |

| INPUT        | Output   | MAX | CRISPE-C | X≥FT | FTFRM<br>(HdFt) | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | Onset |
|--------------|--|-----|----------|------|-----------------|----------|------------------|-----------------|-----------------|-------|
| o102su3ti4n5 | a. ►o <sub>1</sub> o-o <sub>2</sub> su <sub>3</sub> -ti <sub>4</sub> n |     |          |      |                 |          |                  |                 | 1               | 2     |
| Austin       | b. $o_1o_2$ -su <sub>3</sub> u-ti <sub>4</sub> n                       | l   |          |      |                 |          |                  | 1               | 1               | 1     |
|              | c. $o_1o_2$ -su <sub>3</sub> ti-n <sub>4</sub> n                       |     |          |      |                 |          | 1                |                 |                 | 2     |

The 5µ-name *doddoson* in (36), whose *kattobase*-form is (36a) *doo-oddo-son* and not (36c) *dod-doo-son*, shows that spreading a consonant across X-boundaries is worse than spreading a vowel: CRISPEDGE-C>>CRISPEDGE-V.

(36)

| LUDUZ    |                  | MAX | CRISPE-C | X≥FT | FtFrm<br>(HdFt) | CRISPE-V | $A_L-L$<br>(X <sub>3</sub> , $\sigma$ ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | Onset |
|----------|------------------|-----|----------|------|-----------------|----------|--|-----------------|-----------------|-------|
| INPUT    | OUTPUT           |     |          |      |                 |          |  |                 |                 |       |
| doddoson | a. ►doo-oddo-son |     |          |      |                 | 1        |  | 1               | 1               | 1     |
| Dodson   | d. doo-ddo-son   |     |          |      | 1               |          |  |                 | 1               |       |
|          | b. dod-doo-son   |     | 1        |      |                 |          |  | 1               | 1               |       |
|          | c. dod-doso-nn   |     | 1        |      |                 | 1        | 1  |                 |                 | 1     |

 $5\mu$ -names (and longer names) clarify some issues that have so far not come up. First, there is the question of where "extra" material goes: moras that are not needed to fill each X with one foot. This issue is settled by (37): X<sub>1</sub> is the place for extra material (*makudo-naru-doo*), not X<sub>2</sub> (\**maku-donaru-doo*) or X<sub>3</sub> (\**maku-dona-rudo*). This is ensured by the dominance of AL-L(X3, $\sigma$ ]) and/or AL-L(X3, $\mu$ ]) over DEP- $\mu$ , as shown by (37a) vs. (37c).

(37)

| Input        | OUTPUT MAX           | $\begin{array}{c} \text{Dep-}\mu\\ \hline\\ \text{ONSET}\\ \text{AL-L}\\ \text{AL-L}\\ (X_3,\mu])\\ \hline\\ \text{Dep-}\mu\\ (H_DF_T)\\ \hline\\ \text{Dep-}\mu\\ (H_DF_T)\\ \hline\\ \text{AL-L}\\ (H_DF_T)\\ \hline\\ \text{CrispE-V}\\ \hline\\ \text{FTFRM}\\ (H_DF_T)\\ \hline\\ \text{(HDFT)}\\ \hline\end{array}$ |
|--------------|----------------------|---|
| makudonarudo | a. ▶ makudo-naru-doo | 1   |
| Macdonald    | b. makudona-ruu-doo  | 1 2   |
|              | c. maku-dona-rudo    | 1 1   |
|              | d. maku-donaru-doo   | 1 1   |
|              | e. mado-naru-doo 2   |   |

Next, there is the issue of assigning antepenult-penult sequences of different quantitative profiles (LH, HH, LL, HL) to  $X_1$  and  $X_2$  (see (10)-(13) above). (38) shows that a heavy penult fills  $X_2$  by itself.

| 0   | ٥١  |
|-----|-----|
| (3  | 8)  |
| · - | - / |

|             |      |                 | MAX | CRISPE-C | X≥FT | (HDFT) | CRISPE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | ONSET | Dep-µ |
|-------------|------|-----------------|-----|----------|------|--------|----------|------------------|-----------------|-----------------|-------|-------|
| INPUT       | (    | DUTPUT          |     |          |      |        |          |                  |                 |                 |       |       |
| desutoraade | a. 🕨 | desuto-raa-dee  |     |          |      |        |          |                  |                 |                 |       | 1     |
| LH          | b.   | desu-tora-ade   |     |          |      |        |          | 1                |                 | 1               | 1     |       |
| Destrade    | c.   | desutora-aa-dee |     |          |      |        | 1        |                  | 1               |                 | 1     | 2     |
|             | d.   | desu-toraa-dee  |     |          |      | 1      |          |                  |                 |                 |       | 1     |
|             | e.   | desu-tora-dee   | 1   |          |      |        |          |                  |                 |                 |       | 1     |
| buraianto   | f. 🕨 | ▶burai-an-too   |     |          |      |        |          |                  |                 |                 |       | 1     |
| HH          | g.   | buu-raian-too   |     |          |      | 1      |          |                  |                 |                 | 1     | 2     |
| Bryant      | h.   | burai-anto-oo   |     |          |      |        | 1        | 1                |                 | 1               | 1     | 2     |

In (39), we see that a light penult is assigned to  $X_2$  together with the antepenult, whether the antepenult is light or heavy.<sup>9</sup>

(39)

| Input        | Ou   | TPUT              | MAX | CrispE-C | X≥FT | FtFrm<br>(HdFt) | CrispE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | Onset | Dep-µ |
|--------------|------|-------------------|-----|----------|------|-----------------|----------|------------------|-----------------|-----------------|-------|-------|
| makudonarudo | a. I | ► makudo-naru-doo |     |          |      |                 |          |                  |                 |                 |       | 1     |
| Macdonald    | b.   | makudona-ruu-doo  |     |          |      |                 |          |                  | 1               |                 |       | 2     |
|              | c.   | maku-dona-rudo    |     |          |      |                 |          | 1                |                 | 1               |       |       |
|              | d.   | maku-donaru-doo   |     |          |      | 1               |          |                  |                 |                 |       | 2     |
|              | e.   | mado-naru-doo     | 2   |          |      |                 |          |                  |                 |                 |       | 1     |

<sup>&</sup>lt;sup>9</sup> The fact that the HL sequence *baato* is assigned to  $X_2$  is the motivation for admitting the uneven trochee HL as a quantitative trochee in Japanese. It remains to be seen whether it is possible to find an alternative analysis which conforms to the standard view going back to Poser (1984; 1990) that admits only the bimoraic trochee.

| Input      | Output            | MAX | CrispE-C | X≥FT | FtFrm<br>(HdFt) | CrispE-V | AL-L<br>(X3, σ]) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | ONSET | Dep-µ |
|------------|-------------------|-----|----------|------|-----------------|----------|------------------|-----------------|-----------------|-------|-------|
| robaatoson | f. ▶roo-baato-son |     |          |      |                 |          |                  |                 | 1               |       | 1     |
| Robertson  | g. roba-ato-son   |     |          |      |                 |          |                  |                 | 1               | 1     |       |
|            | h. robaa-toso-nn  |     |          |      |                 |          | 1                |                 |                 | 1     | 1     |
|            | i. roo-bato-son   | 1   |          |      |                 |          |                  |                 | 1               |       |       |
|            | j. robaa-too-son  |     |          |      |                 |          |                  | 1               |                 |       | 1     |

Recapitulating, we juxtapose the derivations for *makudonarudo*, *boochaado*, *robaatoson*, *and desutoraade* in (40), showing only the crucial constraint interactions.

(40)

| () |              |    | 0                 | FtFrm<br>(HdFt) | Dep-µ<br>(HdFt) | AL-L<br>(X3,μ]) | ONSET | Dep-µ |
|----|--------------|----|-------------------|-----------------|-----------------|-----------------|-------|-------|
|    | INPUT        |    | OUTPUT            |                 |                 |                 |       |       |
| LH | desutoraade  | a. | ► desuto-raa-dee  |                 |                 |                 |       | 1     |
|    | Destrade     | b. | desu-toraa-dee    | 1               |                 |                 |       | 1     |
| HH | buraianto    | c. | ▶burai-an-too     |                 |                 |                 |       | 1     |
|    | Bryant       | d. | buu-raian-too     | 1               |                 |                 |       | 2     |
| LL | makudonarudo | e. | ▶ makudo-naru-doo |                 |                 |                 |       | 1     |
|    | Macdonald    | f. | makudona-ruu-doo  |                 | 1               |                 |       | 2     |
| HL | robaatoson   | g. | ▶ roo-baato-son   |                 |                 | 1               |       | 1     |
|    | Robertson    | h. | robaa-too-son     |                 | 1               |                 |       | 1     |

## **3** Summary and conclusion

We summarize by first assembling the evidence for all constraint rankings. The overall system is repeated in (41).



In (42), we present the evidence for each of the labeled ranking relation (produced with the help of OTWorkplace (Prince et al. 2015)). Crucial W(inner)~L(oser) pairs justifying a particular ranking are given in bold. "W" in a constraint column means that the constraint prefers the winner; "L" means that the constraint prefers the loser. What is important here is the core of OT ranking logic: In order for the winner to defeat a given loser, it must do better on the highest-ranking constraint that distinguishes the two.

| () | Input      | WINNER        | Loser        | MAX | CRISPEDGE-C | X≥Foot | FTFRM(HDFT) | CRISPEDGE-V | ALIGN-L(X <sub>3</sub> , $\sigma$ ]) | Dep-µ(HdFt) | ALIGN-L(X <sub>3</sub> , $\mu$ ]) | ONSET | Dep-µ |
|----|------------|---------------|--------------|-----|-------------|--------|-------------|-------------|--------------------------------------|-------------|-----------------------------------|-------|-------|
| 0  | ogasawara  | oga-sawa-raa  | gaa-sawa-raa | W   |             |        |             |             |                                      |             |                                   | L     | W     |
| 0  | son        | soo-oo-nn     | soo-nn-nn    |     | W           |        |             | L           |                                      | L           | W                                 |       |       |
| Ø  | ri         | rii-ii-ii     | rii-X-ii     |     |             | W      |             | L           |                                      | L           |                                   | L     | L     |
| 4  | doddoson   | doo-oddo-son  | doo-ddo-son  |     |             |        | W           | L           |                                      | L           |                                   | L     | L     |
| 6  | etoo       | ee-too-oo     | ee-ee-too    |     |             |        |             | W           | L                                    | W           | W                                 |       |       |
| 60 | kurain     | kuu-raa-in    | kuu-rai-nn   |     |             |        |             |             | W                                    | L           | L                                 |       |       |
| 8  | joojima    | joo-oji-maa   | joo-jii-maa  |     |             |        |             |             |                                      | W           |                                   | L     |       |
| 0  | robaatoson | roo-baato-son | roba-ato-son |     |             |        |             |             |                                      |             |                                   | W     | L     |

In conclusion, the OT-analysis, with its ranked and violable constraints, has succeeded in folding what appeared to be a set of separate rules depending on the length of the input into a single unified constraint system with a single ranking, where the length of the input exerts its influence by resulting in different violation profiles in outputs, and does not require separate rules for inputs of different length. Besides the alignment constraints specific to the baseball chant, the other constraints are uncontroversial faithfulness (MAX/DEP) constraints and structural markedness constraints (on foot/syllable structure and their edges). Among the many remaining questions, however, the most important perhaps is why the desired foot form in  $X_2$  is the quantitative trochee that admits also the trimoraic HL-foot, and not the bimoraic trochee otherwise firmly grounded in the phonology of Japanese. It is clear that much work remains to be done—in particular in grounding the constraints better in the prosodic system of the language.

# 4 Appendix

| Romanized<br>transcription | Original Name    | Katakana<br>transcription | Former/Main Team   |
|----------------------------|------------------|---------------------------|--------------------|
| arekkusu                   | Alex Ochoa       | アレックス                     | Chunichi Dragons   |
| baanzu                     | Jacob Barnes     | バーンズ                      | Milwaukee Brewers  |
| baasu                      | Randy Bass       | バース                       | Hanshin Tigers     |
| bansuroo                   | Vance Law        | バンスロー                     | Chunichi Dragons   |
| boochaado                  | Joe Borchard     | ボーチャード                    | Chicago White Sox  |
| buraianto                  | Kris Bryant      | ブライアント                    | Chicago Cubs       |
| buranboo                   | Cliff Brumbaugh  | ブランボー                     | Orix Buffaloes     |
| chen                       | 陳                | チェン                       | Chunichi Dragons   |
| deshinsei                  | Doug DeCinces    | デシンセイ                     | Yakult Swallows    |
| desutefaano                | Benny Distefano  | デステファーノ                   | Chunichi Dragons   |
| desutoraade                | Orestes Destrade | デストラーデ                    | Seibu Lions        |
| doddoson                   | Pat Dodson       | ドッドソン                     | Kintetsu Buffaloes |
| etoo                       | 江藤               | エトー                       | Chunichi Dragons   |
| ferunandesu                | José Fernández   | フェルナンデス                   | Florida Marines    |
| furanko                    | Julio Franco     | フランコ                      | Lotte Marines      |
| furanshisuko               | Juan Francisco   | フランシスコ                    | Yomiuri Giants     |
| genda                      | 源田               | ゲンダ                       | Seibu Lions        |
| gengoroomaru               | 源五郎丸             | ゲンゴローマル                   | Hanshin Tigers     |
| gonzaresu                  | Dicky González   | ゴンザレス                     | Yakult Swallows    |

| hansen       | Bob Hansen         | ハンセン    | Seibu Lions        |
|--------------|--------------------|---------|--------------------|
| ichiroo      | イチロー               | イチロー    | Seattle Mariners   |
| infante      | Omar Infante       | インファンテ  | Detroit Tigers     |
| joojima      | 城島                 | ジョージマ   | Hanshin Tigers     |
| joonzu       | Garrett Jones      | ジョーンズ   | Yomiuiri Giants.   |
| kai          | 甲斐                 | カイ      | Softbank Hawks     |
| kakefu       | 掛布                 | カケフ     | Hanshin Tigers     |
| kitabeppu    | 北別府                | キタベップ   | Hiroshima Carp     |
| kiyohara     | 清原                 | キヨハラ    | Yomiuri Giants     |
| kobayakawa   | 小早川                | コバヤカワ   | Yakult Swallows    |
| kontorerasu  | José Contreras     | コントレラス  | Chicago Whitesox   |
| kurain       | Phil Klein         | クライン    | DeNA BayStars      |
| kuromati     | Warren Cromartie   | クロマティ   | Yomiuri Giants     |
| kuruun       | Marc Kroon         | クルーン    | Yomiuri Giants     |
| mahoomuzu    | Pat Mahomes        | マホームズ   | DeNA Baystars      |
| makanarutii  | Paul McAnulty      | マカナルティー | San Diego Padres   |
| makudonarudo | Bob Macdonald      | マクドナルド  | Hanshin Tigers     |
| ochiai       | 落合                 | オチアイ    | Chunichi Dragons   |
| ogasawara    | 小笠原                | オガサワラ   | Yomiuri Giants     |
| oguribii     | Ben Oglivie        | オグリビー   | Kintetsu Buffaloes |
| oosutin      | Tyler Austin       | オースティン  | New York Yankees   |
| ootani       | 大谷                 | オータニ    | LA Angels          |
| ootomo       | 大友                 | オートモ    | Yomiuri Giants     |
| ri           | 李                  | IJ      | Chunichi Dragons.  |
| rii          | Leon Lee           | リー      | Lotte Orions       |
| rinaresu     | Omar Linares       | リナレス    | Chunichi Dragons   |
| robaatoson   | David Robertson    | ロバートソン  | New York Yankees   |
| saiki        | 才木                 | サイキ     | Hanshin Tigers     |
| seginooru    | Fernando Seguignol | セギノール   | Nippon Ham         |
| shinjoo      | 新庄                 | シンジョー   | Hanshin Tigers     |
| shipin       | Sipin              | シピン     | Yomiuri Giants     |
| son          | 宣                  | ソン      | Chunichi Dragons   |
| taihoo       | 大豊                 | タイホー    | Chunichi Dragons   |
| tani         | 谷                  | タニ      | Yomiuri Giants     |
| tatsunami    | 立浪                 | タツナミ    | Chunichi Dragons   |
| wiruson      | George Wilson      | ウィルソン   | Seibu Lions        |
| yano         | <b>矢</b> 野         | ヤノ      | Hanshin Tigers     |

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