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# Lexical Stress Assignment to Base, Inflected and Derived Words in English by Japanese and Seoul Korean Learners of English

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supported by



# 1. Introduction

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- Knowledge of language-specific prosodic systems has been shown to affect the acquisition of English stress patterns:
  - Archibald (1992, 1993) on Polish and Hungarian learners of English;
  - Guion et al. (2004) on Spanish learners of English;
  - Guion (2005) on Korean learners of English;
  - Ou & Ota (2015) on Mandarin learners of English.



# 1. Introduction

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- They looked at how their native languages' prosodic systems affected those learners' production or perception of English stress, taking into consideration
  - the syllable structure,
  - the lexical classes,
  - the phonological similarity between nonce words used in their experiments and existing words.



# 1. Introduction

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- Few studies, however, have considered the factor of **morphological organization of words**:
- how differences in native languages' prosodic systems affect stress assignment to English words that have different morphological organizations such as **base** words and **suffixed** words.



# 1. Introduction

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The main interest of this study

- to investigate whether Japanese learners of English (JLE) and Seoul Korean learners of English (SKLE) show **different patterns** in assigning stress to **base** words (e.g., *educate, parent*) and to **suffixed** words (e.g., *educating, parental*),
- and see whether their **native prosodic systems** have any effect on their performance.



## 2. The Lexical Prosody Systems of English, Japanese and Seoul Korean



## 2.1. The lexical prosody system of English

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- English is a **lexical stress** language
- where the location of stress, which is phonetically realized with the combination of multiple acoustic cues such as vowel quality, duration and pitch, is **lexically specified for each word**.
- e.g., *Cá.na.da*, vs. *Ha.vá.na*; *dígest* as a noun vs. *digést* as a verb



## 2.1. The lexical prosody system of English

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- Most of the English nouns with three or more than three syllables have primary stress on the **antepenultimate** or **the penultimate** syllable.
- One of the interesting properties of English lexical stress system is that suffixes are either specified for **'stress-neutral'** or **'stress-shifting'**.





## 2.1. The lexical prosody system of English

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- **Stress-neutral suffixes** are those which do not shift stress from the primary stress syllable of the base words (e.g., *dóminate* vs. *dóminating*; *párent* vs. *párentless*).
- **Stress-shifting suffixes** shift stress near to morpheme boundaries (e.g., *dóminate* vs. *dominátion*; *párent* vs. *paréntal*).



## 2.1. The lexical prosody system of English

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- All **inflectional suffixes** (e.g., *-ing*, *-en*, *-er*, *-est*) and **derivational suffixes of Germanic origin** (e.g., *-less*, *-ness*, *-er*, *-ish*, etc) are the representatives of stress-neutral suffixes.
- In contrast, most of the **derivational suffixes of Latinate origin** (e.g., *-ion*, *-al*, *-ic*, *-ity*, *-ous*) are stress-shifting.



## 2.2. The lexical prosody system of Japanese

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- The **major dialects of Japanese**, i.e., Tokyo Japanese and Kansai Japanese, have lexical accent, and
- accented syllables/morae are marked with a pitch fall only, which is called ‘pitch accent’.
- The term ‘Japanese’ in this paper refers to those major dialects, henceforth.



## 2.2. The lexical prosody system of Japanese

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- Although there is a difference of pitch accent vs. stress,
- Japanese is similar to English in that the **lexical accent is specified for words in the lexicon.**



## 2.2. The lexical prosody system of Japanese

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- For example, *kokoro* ‘mind’ has the penultimate accent (*kokóro*) in Tokyo Japanese and the antepenultimate accent (*kókororo*) in Kansai Japanese;
- *atama* ‘head’ has the final accent (*atamá-ga*) in Tokyo and the penultimate accent (*atáma-ga*) in Kansai.



## 2.2. The lexical prosody system of Japanese

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- Like English, the accent in Japanese is most likely to fall on the **antepenultimate** or the **penultimate** syllable,
- which is especially evident in loanwords (Kubozono, 2006), not only in Tokyo Japanese but also in Kansai Japanese (Tanaka, 2009),
  - e.g., *ká.na.da* ‘Canada’ and *bu.ré.zaa* ‘blazer’.



## 2.2. The lexical prosody system of Japanese

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- Furthermore, the Japanese accent has a function to signal the **morphological organization of words**:
- it tends to fall **near morpheme boundaries** in complex words, which also tend to be the **antepenultimate** or the **penultimate** syllable (Kubozono, 1996),
  - *kyóoto* ‘Kyoto’ vs. *kyootó-si* ‘Kyoto city’ in both TJ and KJ,
  - *tábe* ‘eat (infinitive)’ vs. *tabé-reba* ‘eat (conditional)’ in TJ,
  - *áge* ‘raise (inf)’ vs. *agé-reba* ‘raise (cond)’ in KJ



## 2.3. The lexical prosody system of Seoul Korean

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- Seoul Korean, in contrast, has been claimed to **lack lexical stress/accent** (Jun, 1996).
- Although the language has tonal melodies, they are **the properties of phrase-level constituents**, i.e., the accentual phrase and the intonational phrase.





## 2.3. The lexical prosody system of Seoul Korean

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- According to Jun (1996), long accentual phrases, i.e., those with four or more than four syllables, are associated with a sequence of LHLH or HHLH tones unless they are intonational phrase-final,
- and whether or not they start with LH or HH depends on the nature of their initial segment.



## 2.3. The lexical prosody system of Seoul Korean

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- If the initial segment is a lenis obstruent or a sonorant, the accentual phrase begins with a LH tone. If it is an aspirated or fortis (tense) obstruent, however, a HH tone appears instead.
- In shorter accentual phrases, medial tones undergo undershoot.
- The morphological organization of lexical words, however, does not affect the tonal melodies in Seoul Korean.



# Question

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- Given the difference in the prosodic systems between Japanese and Seoul Korean,
- the question is whether or not JLE and SKLE behave differently when acquiring/assigning English lexical stress.



# Predictions

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- If the difference affects their acquisition/assignment of English stress, then it is predicted that
  - JLE are more alert and sensitive to lexical stress in English, and perform **better when assigning stress to base words** than SKLE, and
  - JLE prefer **more stress-shift in inflected/derived words** with suffixes than SKLE.



# 3. Experiment



## 3.1. The paper-based task

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- Participants were presented with English words **written on questionnaire sheets**, and
- asked **to write down a stress mark** above the vowel of the syllable they considered primarily stressed.
- They also reported **whether or not they knew the meaning of each word**.



## 3.2. Participants

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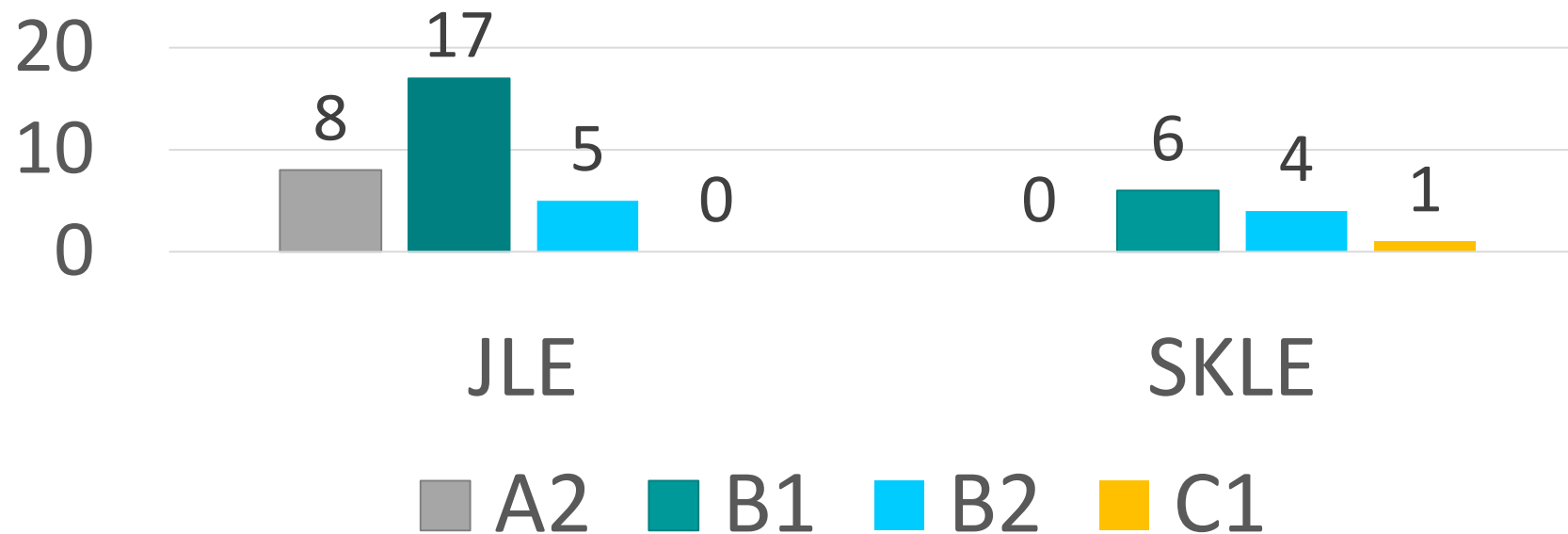
- 50 JLE (36 females and 14 males from the Kansai Japanese speaking areas, ranging from 18 to 22 years old) and
- 19 SKLE (15 females and 4 males from the Seoul Korean speaking areas, ranging from 18 to 31 years old)
- They were all university students and had already learned English at least for 6 years by the time the experiment took place.



## 3.2. Participants

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- 30 JLE and 11 SKLE disclosed their scores of English proficiency tests.
- Their scores were converted to the CEFR levels.





## 3.3. Words used in the task

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- Words used in this study were divided into three groups, Groups I to III.



## 3.3. Group I

<b>Base (initial stress)</b>	<b>Suffixed (Stress Neutral -ing)</b>	<b>Suffixed (Stress Shifting -ion)</b>
agitate, allocate, aviate, complicate, concentrate, conjugate, dedicate, delegate, dominate, educate, estimate, generate, hibernate, immigrate, indicate, medicate, navigate, propagate, terminate	e.g., educating	e.g., education
constitute, execute, prosecute, substitute	e.g., constituting	e.g., constitution

## 3.3. Group II

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<b>Base (initial stress)</b>	<b>Suffixed (Stress Shifting <i>-al</i>, <i>-ic</i>)</b>
accident, origin, parent, alcohol, atom, symphony	accidental, original, parental, alcoholic, atomic, symphonic



## 3.3. Group III

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**Morphologically simple words only (non-initial stress)**

agenda, camellia, veranda, convey, obey



## 3.4. Results

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- Only the data from the participants with the English proficiency of a **B1** or a **B2** level in **CEFR** were analyzed to keep the English proficiency levels of both of the language groups as equal as possible.
- **22 JLE** and **10 SKLE** matched the criteria (Sec 3.2).



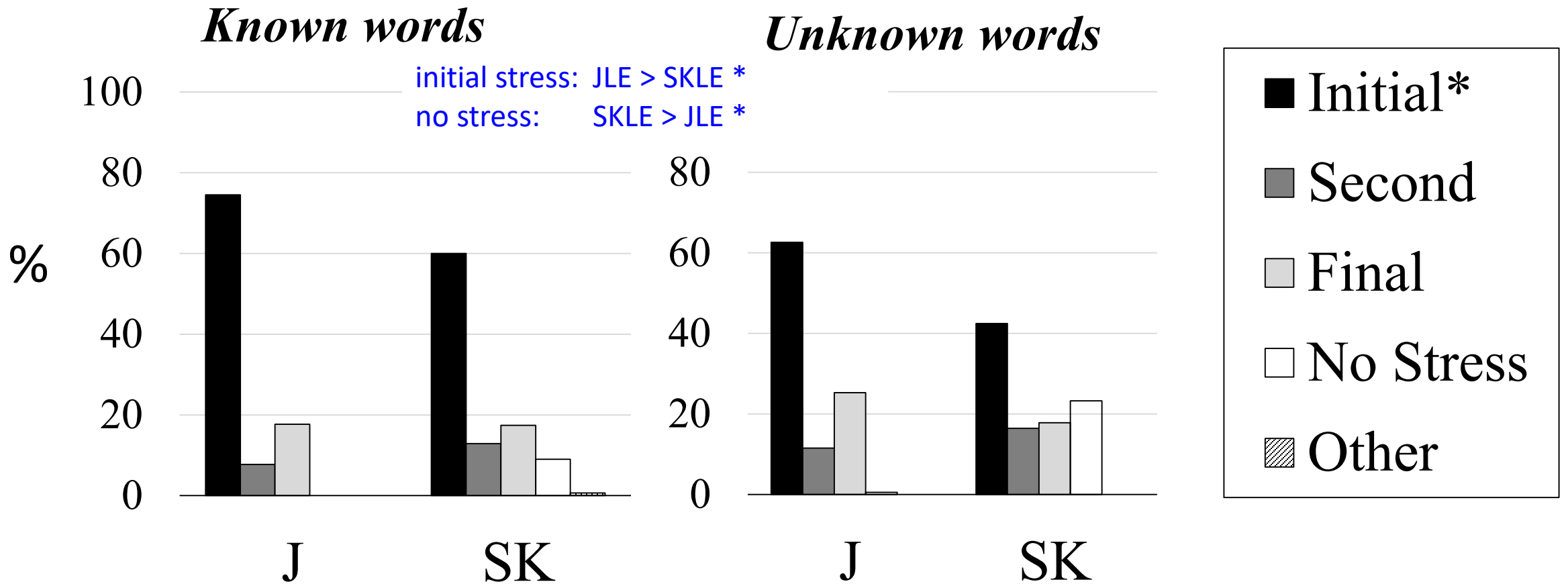
## 3.4. Results

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- Because there is a possibility that participants' previous knowledge about the words affects their outcome,
- the results are shown separately for the cases where the participants knew the words and for those where they did not know the words.



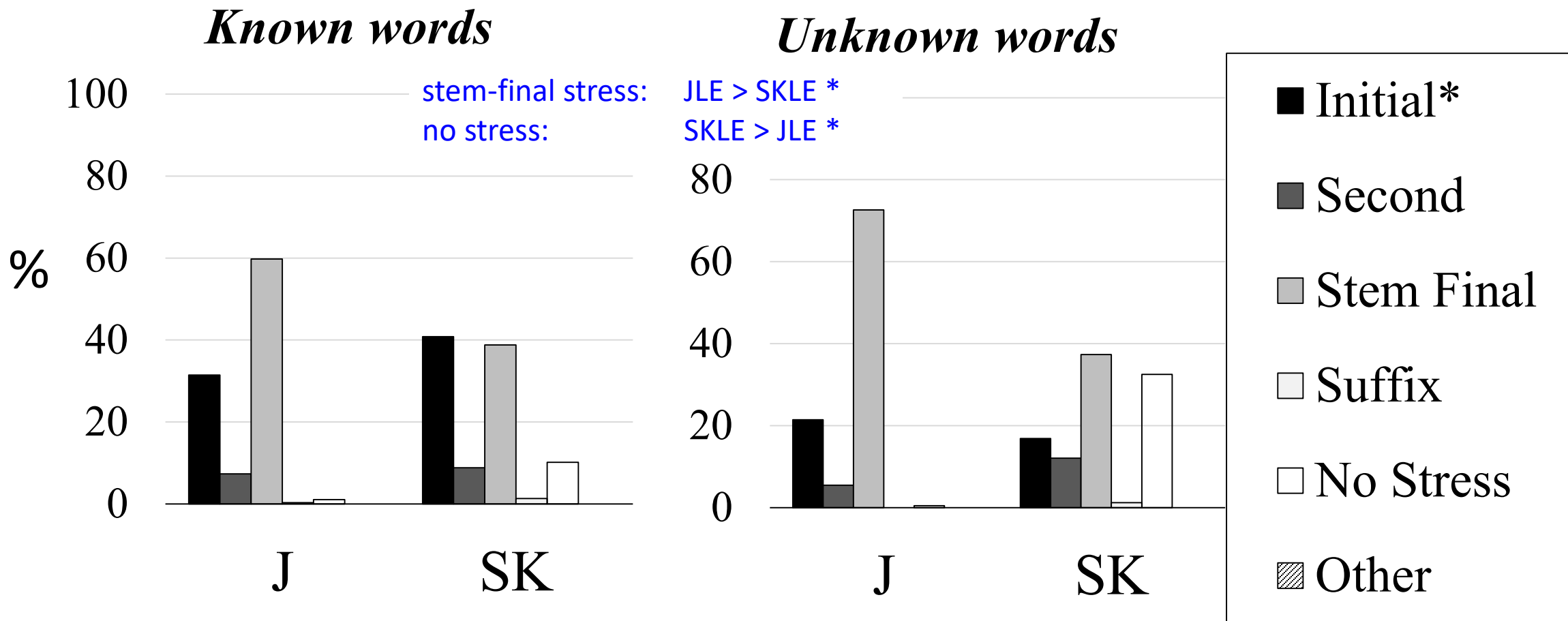
# 3.4.1. Assignment of stress to words in Group I



**Base** words (e.g., *educate*)



# 3.4.1. Assignment of stress to words in Group I

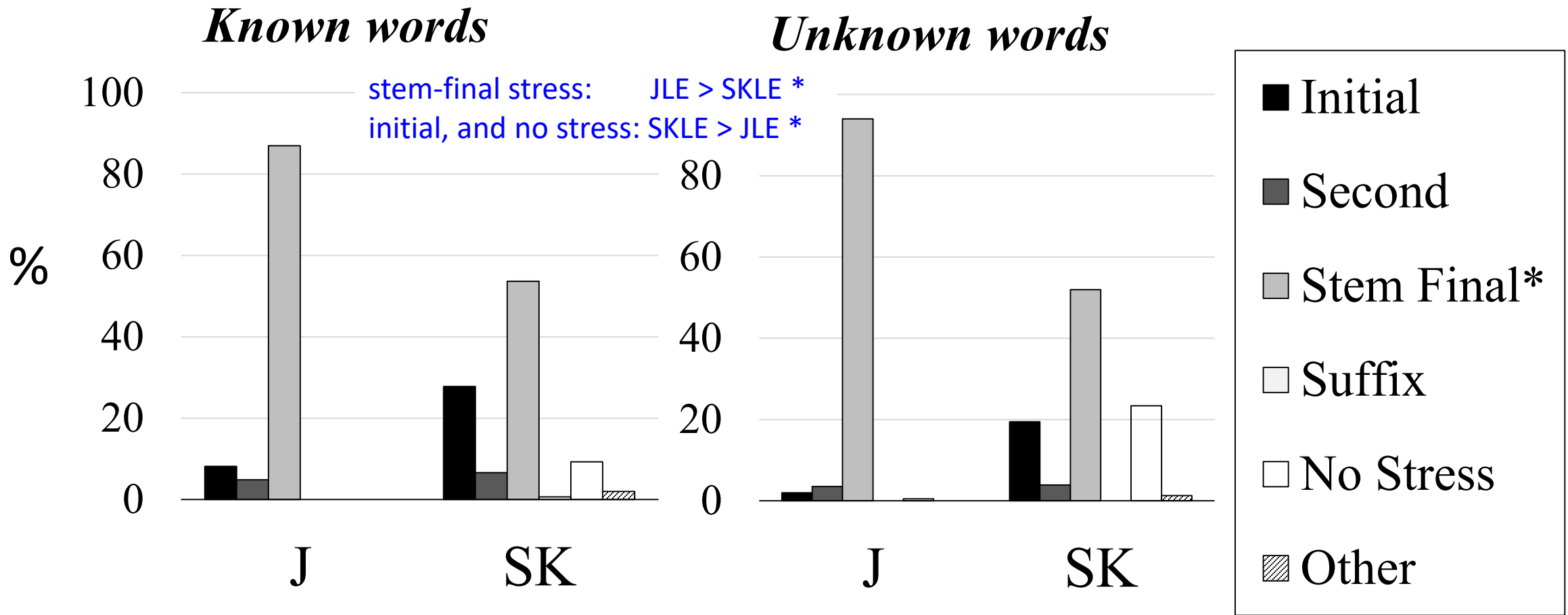


**-ing** (e.g., *educating*)





# 3.4.1. Assignment of stress to words in Group I



***-ion*** (e.g., ***education***)

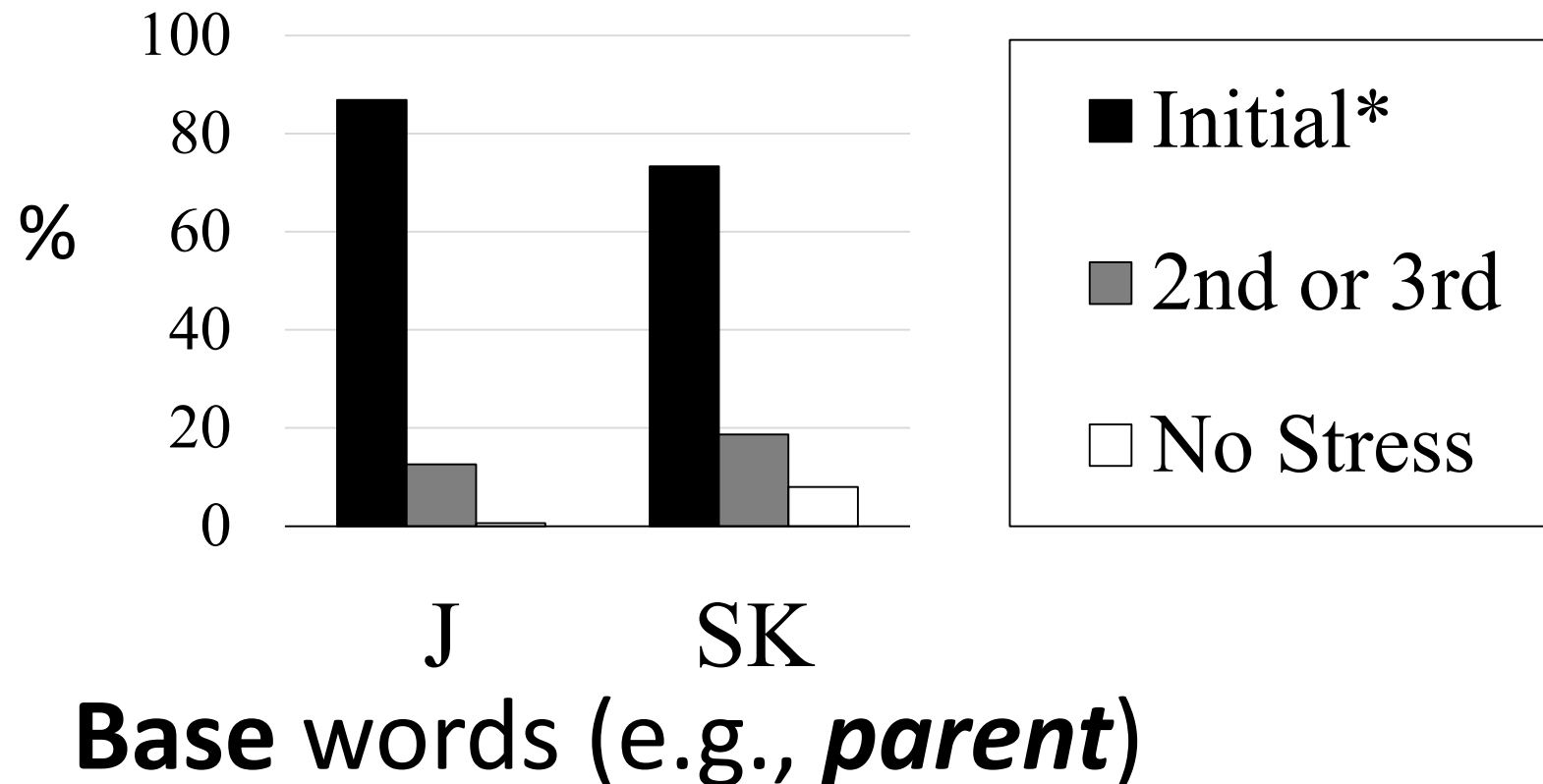


## 3.4.2. Assignment of stress to words in Group II

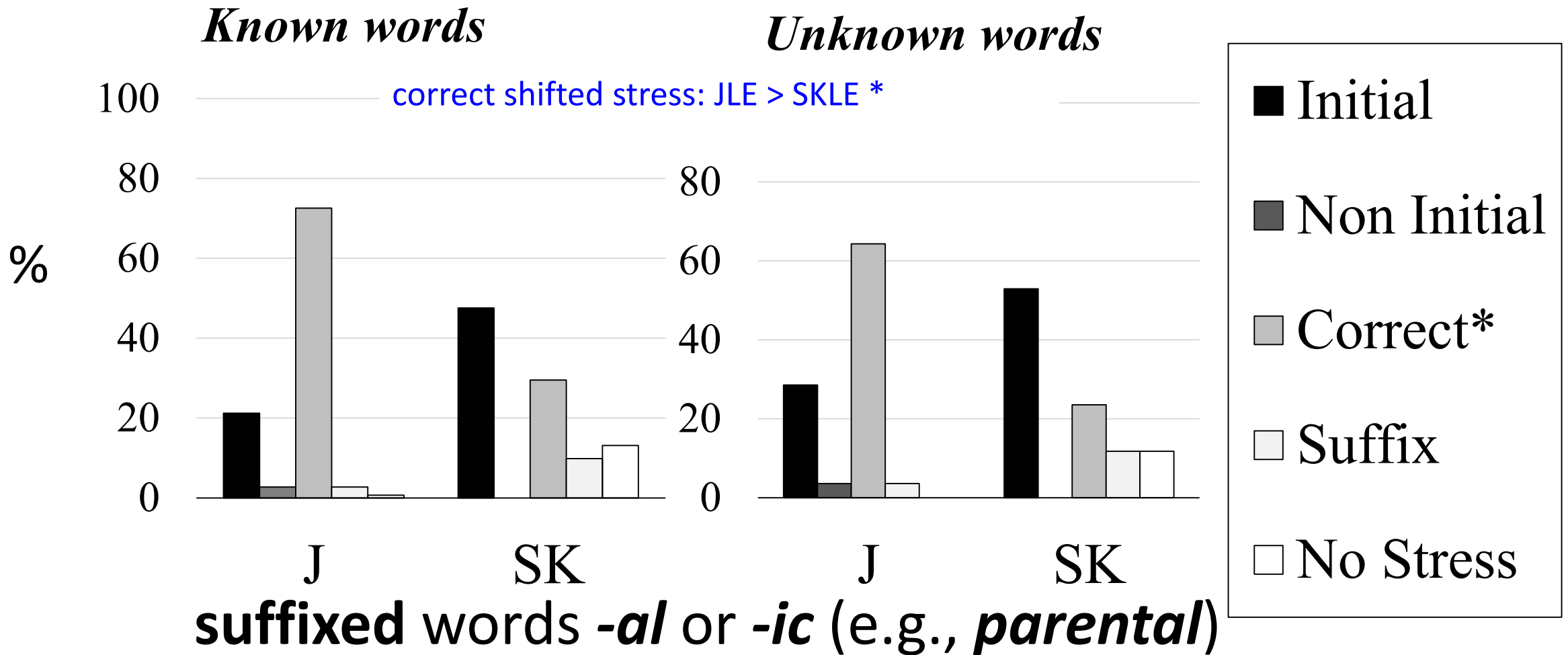
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### *Known words only*

not different between JLE and SKLE



## 3.4.2. Assignment of stress to words in Group II

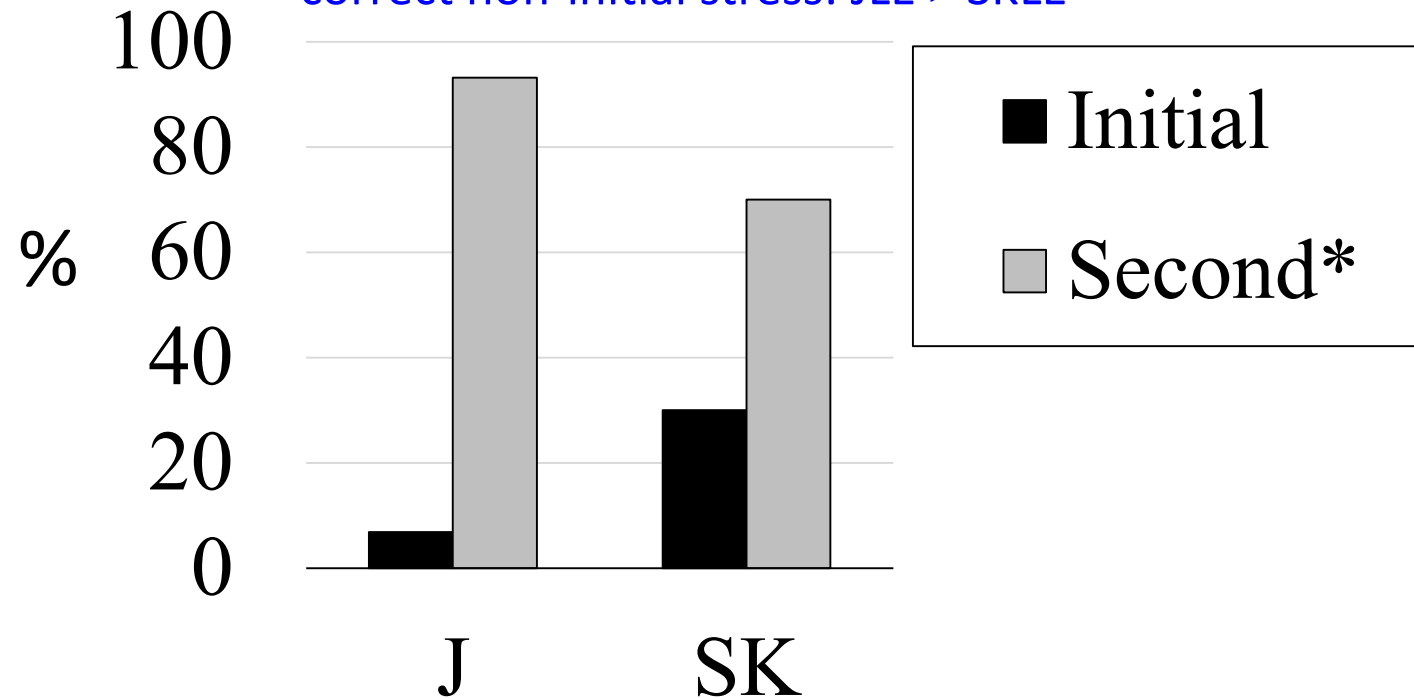


### 3.4.3. Assignment of stress to words in Group III

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#### *Known words only*

correct non-initial stress: JLE > SKLE \*



e.g., *agenda*



## 4. Discussion & Conclusions

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- As for the **base** words in Groups I to III
  - Both of the language groups preferred the correct stress patterns most frequently
  - regardless of whether or not the correct stress was word-initial.
  - Nonetheless, the **JLE were significantly better than the SKLE** in identifying the correct stress locations.



# 4. Discussion & Conclusions

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- This result indicates JLE are more alert and sensitive to lexical stress locations than SKLE when they learn the stress patterns of words in L2.
- We consider it due to the fact that Japanese is a **lexical accent** language.
- That the native speakers of languages with lexical stress/accent is more sensitive to lexical stress in L2 has been reported in Dupoux et al. (1997) and Peperkamp & Dupoux (2002), and our results are in line with their findings.



## 4. Discussion & Conclusions

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- As for the **suffixed** words
  - The **JLE** preferred **more stress-shift** than the **SKLE**
  - regardless of whether the suffix was stress-neutral or stress-shifting.
- In Japanese, lexical accent tends to move near to a **morpheme boundary**,
- which makes JLE prone to **overgeneralize** the rule even in English and apply it even to words with stress-neutral suffixes.



## 4. Discussion & Conclusions

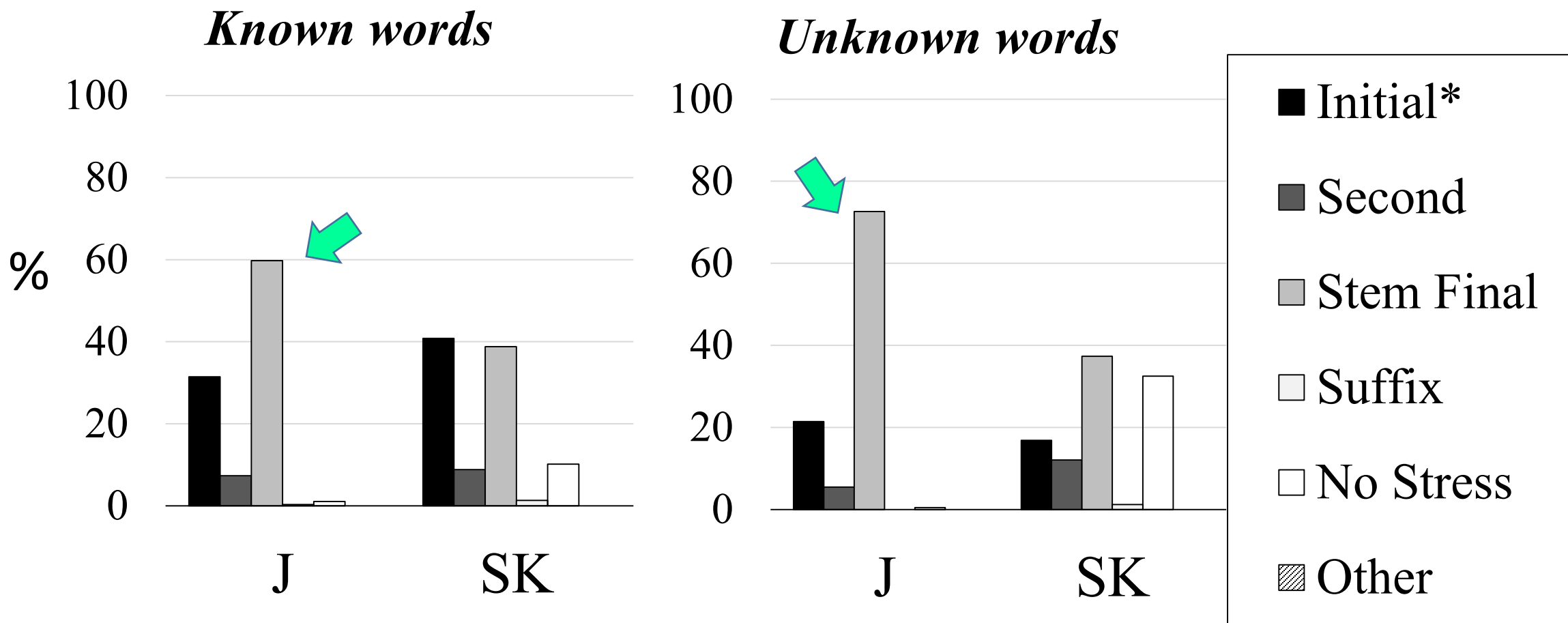
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- Although the JLE preferred more stress-shift than the SKLE in the suffixed words with *-ing* in Group I regardless of whether the words were known or unknown,
- their bias to stress-shift was **stronger** when the words were **unknown** than when known.





## 3.4.1. Assignment of stress to words in Group I



***-ing*** (e.g., ***educating***)

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# 4. Discussion & Conclusions

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- What this means is that JLE are more likely to assign stress to the *-ing* forms **based on their memory** when they know the words, which gives correct ‘non-shifted’ patterns more often,
- whereas they are more likely to assign ‘shifted’ stress to the *-ing* forms **by applying the overgeneralized stress-shifting rule** being affected by their native prosodic system when they do not know the words.



# 4. Discussion & Conclusions

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- In conclusion, although much remains to be done, the result of the current study indicates that JLE's stress assignment to English words is influenced by their native prosodic system in the lexicon.
- In our future study, we will compare the oral production of JLE and that of SKLE when they read aloud the words used in this study. We still do not know if their stress assignment in a production task and their performance in the current paper-based task are parallel.



# Acknowledgments

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