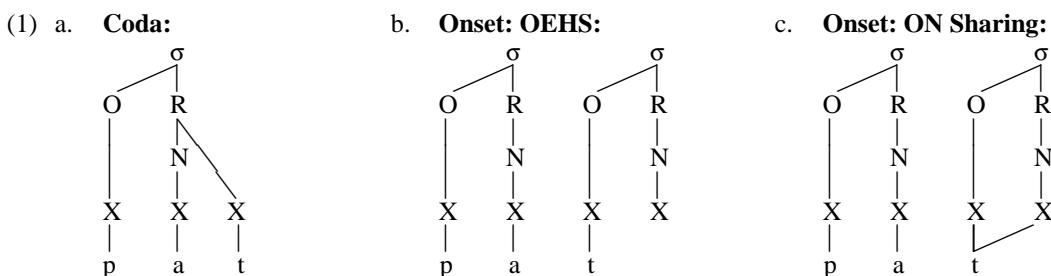


Word-final Syllabification in L2 Acquisition with Emphasis on Korean Learners of English

Heather Goad and Hyun-Sook Kang
 McGill University and University of Pennsylvania

1 Preliminaries

Phonological theory broadly requires two mechanisms to syllabify singleton word-final consonants. On the one hand, there are languages like Japanese that warrant a coda analysis (Itô 1986). On the other are languages like Diola-Fogny where final consonants require an onset analysis (Piggott 1999). Onset syllabification is further divided into those languages where final consonants are syllabified as onsets of empty-headed syllables (OEHS) and those where such consonants are syllabified through onset-nucleus (ON) sharing (Goad & Brannen in press). These three options are illustrated in (1). As can be seen, in ON Sharing in (1c), the melody of the final consonant has spread into the nucleus, in contrast to OEHS syllabification in (1b) where the final nucleus remains empty.



To determine which syllabification option(s) a language employs, several factors must be considered, including rhyme shape, the segmental profile of final consonants, the release properties that these consonants display, and word minimality. All of these will be discussed below (§2, §4.2.1).

The general question that we address in this paper is: how do second language (L2) learners behave when confronted with a language where the syllabification options for final consonants differ from their L1? We focus in particular on the acquisition of word-final consonant syllabification by Korean learners of English. As will be seen, while Korean always syllabifies right-edge consonants as codas, English opts for a coda analysis for final consonants in CVC words and for an OEHS analysis for final consonants in CVVC as well as CVCC words (§2.2, §4.2.1).

In brief, we find that intermediate learners of English prefer ON syllabification for both CVC and CVVC targets, while advanced learners maintain an ON analysis for CVVC targets but seem to 'return' to a coda analysis for CVC (§4.2.3). We pose the following questions in this context:

(2) Questions:

1. What leads intermediate learners to arrive at an ON analysis for English?
2. Why is the advanced learner grammar closer to the transferred (=coda) grammar for CVC than is the intermediate learner grammar?

Our answer to Question 1 is as follows. When we consider the evidence available from English combined with certain properties of Korean, we can determine that learners who are past the transfer stage should arrive at an OEHS grammar for English for both CVC and CVVC words (§4.2.2). As far as syllable shape is concerned, however, OEHS syllabification (as well as coda syllabification) comes at a cost. ON sharing is less costly in this respect. Indeed, given the representation in (1c), ON

syllabification reflects a minimal change from a grammar that permits only CV syllables: with the final nucleus filled through sharing the melody of the right-edge consonant, ON syllabification represents the best way to optimize syllable shape, while still being faithful to the input CVC string, in contrast to the alternatives of deletion (CVC → CV) and epenthesis (CVC → CVCV).

Using data from L1 acquisition, Goad & Brannen (in press) argue that right-edge consonants are syllabified through ON sharing in the unmarked case, that is, independent of the constraints of the target language (see also §3). The investigation here is extended to L2 (§4) (see also Steele 2002, Goad to appear). Specifically, in the case of Korean learners of English (§4.2), neither language opts for ON sharing. The observed preference for this type of syllabification must therefore reflect a case of emergence of the unmarked (McCarthy & Prince 1994; in L2, see Broselow, Chen & Wang 1998).

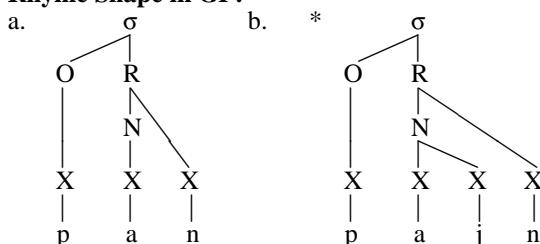
Turning to Question 2 in (2), while markedness can account for the ON syllabification observed among intermediate Korean learners of English, it does not shed any light on the final coda analysis for CVC targets which advanced learners seem to prefer. If the transferred grammar involves final codas and the intermediate grammar final onsets (ON sharing), what positive evidence is available for learners to ‘return’ to a coda grammar for CVC at advanced stages? At present, we do not have an answer to this question, but we detail the problem in §4.2.3.

2 Theoretical Assumptions

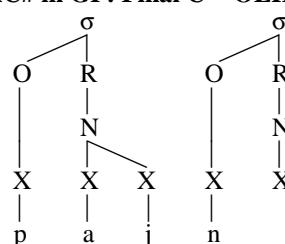
2.1 Constituency

We begin by outlining our assumptions about syllable structure constituency. We then turn in §2.2 to provide evidence for the various syllabification options for right-edge consonants in (1). We adopt a number of assumptions from Government Phonology (GP) (see esp. Kaye, Lowenstamm & Vergnaud 1990). Most important among these is that, with a handful of exceptions (e.g. Finnish), we consider that languages are constrained by an upper bound of two rhymal positions, whether VC (3a) or VV (henceforth VX). While in the vast majority of languages, three-position rhymes, whether VVC (3b) or VCC, are not permitted PWD-internally, strings of this shape are allowed at the right edge. How, then, do languages syllabify word-final VXC? In GP, the final consonant must be an OEHS, as can be seen in (4). We accept the view that final consonants must be syllabified as onsets, not as codas, in words of this shape; however, OEHS is not the only option that we adopt (see immediately below).

(3) Rhyme Shape in GP:



(4) VXC# in GP: Final C = OEHS:



What about word-final VC strings? Unlike with VXC, in the case of VC, languages could, in principle, permit both coda and onset analyses for the final consonant (cf. GP where final consonants are always OEHS). In fact, the need for two options – coda and onset – is argued for by Piggott (1999). Goad & Brannen (in press) expand on this view as follows: they propose that, in addition to codas, languages require two options for the syllabification of final onsets, OEHS and ON sharing. They thus arrive at the three-way typology back in (1) for VC#. We adopt this position. Indeed, we focus mostly on providing evidence for ON sharing from intermediate Korean learners of English.

2.2 Evidence for Coda, OEHS and ON Syllabification

Before turning to acquisition data, we must briefly consider the kind of evidence that sanctions the three representations in (1): segmental profile, rhyme shape, and release properties. The first two of these speak to coda versus onset analyses; the need for two types of onsets is left to release properties.

Concerning segmental profile (see esp. Piggott 1999), in coda languages, word-final consonants have a coda profile: the constraints on the types of contrasts they support mirror those that hold for word-internal codas in the same language. Selarayese and Korean fall into this category, (5a). In onset languages, word-final consonants have an onset profile: there are few if any constraints on the material that can appear in this position, in contrast to word-internal coda position in the same language. French falls into this category, (5b). For words larger than CVC, English does as well although, as we will see in §4.2.1, English is not very typical of a final onset language.

a. Coda Languages:			b. Onset Languages:		
	Wd-internal Coda	Wd-final Consonant		Wd-internal Coda	Wd-final Consonant
Selayarese (Mithun & Basri 1986)	Place-sharing nasal; Glottal stop; Geminate	Placeless nasal; Glottal stop	French (Dell 1995)	Liquid; Obstr (under limited conditions)	Any possible onset
Korean (Kim-Renaud 1986)	Nasal (any place); Unrel stop (any place); Lateral	Nasal (any place); Unrel stop (any place); Lateral	English (excluding CVC words)	Liquid; Nasal; Obstr (under limited conditions)	Almost any possible onset (but see §4.2.1)

Turning to rhyme shape, in coda languages, word-final strings are restricted to VC (or VX more generally), as are word-internal rhymes. In onset languages, on the other hand, VCC (or VXC) is permitted word-finally, in contrast to word-internal rhymes which are limited to VC (VX). See (6).

a. Coda Languages:			b. Onset Languages:		
	Wd-internal Rhyme	Wd-final Rhyme		Wd-internal Rhyme	Wd-final 'Rhyme'
Selayarese	VC	VC	French	VC	VCC
Korean	VC	VC	English	VX	VXC

Finally, the release properties of right-edge onsets determine their syllabification status, as OEHS or as ON (Goat & Brannen in press). In some languages that syllabify final consonants as onsets, these consonants are invariably overtly released, parallel to onsets which are followed by phonetically-filled nuclei. We refer to this as fortition; see (7a). Overt release signals that the featural content of the final consonant has spread into the empty nucleus, as was seen in (1c). Consonants syllabified as OEHS (1b) do not display fortition; see (7b) where optional unreleasing, for example, is observed.

a. ON Languages: Fortition:		
	Syllabification of Final C	Release Properties of Final C
Yapese	Final C = Onset (Piggott 1999)	Voiceless stops = 'Aspirated' (Jensen 1977)
European French	Final C = Onset (5b,6b)	All consonants = Overtly released (Tranel 1997)

b. OEHS Languages: No Fortition:		
	Syllabification of Final C	Release Properties of Final C
Diola-Fogny	Final C = Onset (Piggott 1999)	Voiceless stops = Optionally unreleased (Sapir 1965)
English	Final consonants (excl. CVC words) = Onset (5b,6b), §4.2.1	All stops = Optionally unreleased

Turning finally to codas, they do not display fortition. In fact, it would be highly unlikely for a release such as aspiration to be systematically present on a coda. Neutralization is instead typically observed in this context, and consonants which undergo laryngeal neutralization are often unreleased.

3 First Language Acquisition

In §1, we mentioned that intermediate Korean learners syllabify final consonants in English through ON sharing. As concerns end-state grammars, we have just seen in (7a) that Yapese and European French also require this analysis. If ON sharing truly reflects the unmarked option for final consonant syllabification, we would expect to see evidence for this in L1 as well, given that early grammars are often argued to reflect the unmarked state of affairs (following Jakobson 1941/68). In this section, we will briefly see that evidence for ON sharing is observed in this population as well.

At Stage 1 in L1, there is a preference for CV syllables, independent of the constraints of the target language (e.g. Ingram 1978, Fikkert 1994). When CVC emerges at Stage 2, the predominant analysis is that the final consonant is a coda (e.g. Fikkert 1994, Stemberger 1996). An alternative view for Stage 2 is proposed by Goad & Brannen (in press): the final consonant is syllabified as an onset, specifically through ON sharing. Evidence comes from overt release in early CVC outputs. To briefly illustrate, examples are provided in (8) of final aspiration in the outputs of three children. Importantly, aspirated release is observed in the data, even though none of the target languages displays fortition.

(8) a. **English: Hildegard** (Leopold 1939):

Target Language: Final consonants are optionally unreleased

[be-th]	'Bates'	(1;7)	Word-final stops were "strongly aspirated with the exaggeration typical of the first final consonants"; "the aspiration [in 'meat'] sometimes even took the form of a homorganic fricative, [ç]" (p. 108)
[mit ^h], [mitç]	'meat'	(1;10)	
[bok ^h]	'broke'	(1;10)	

b. **Québec French: Théo** (Rose 2000):

Target Language: Final consonants are not overtly released, unlike in European French

Output:	Target:		
[pic ^h]	[pɪk]	'(it) pricks'	(2;05.11)
[ə'fɛt ^h]	[fɔʁ'fɛt]	'fork'	(2;05.29)
[bɪ'sɪk ^h]	[bɪ'sɪk]	'bicycle'	(2;06.12)

c. **German: Annalena** (Elsen 1991):

Target Language: Final consonants are typically released, but no fortition is observed

Output:	Target:		
[ʔap ^h]	[ʔap]	'from'	(1;6.00)
[gʊt ^h]	[gʊ:t]	'good'	(1;05.19)
[dɛk ^h]	[dʌɛk]	'mud, dirt'	(1;05.08)

Goad & Brannen (in press) describe final aspiration as a "homorganic burst of noise". The burst signals that the features of the final consonant have spread into the empty nucleus, resulting in ON sharing. If final consonants were syllabified as codas in early grammars, the data would be anomalous; in adult languages, laryngeal neutralization – not fortition – is commonly observed in coda.

4 Second Language Acquisition

4.1 Previous Studies

We turn now to L2 acquisition. Before considering the Korean learners of English, we will start with the observation that final aspiration is often reported for beginner and intermediate learners using a range of methodologies, independent of the constraints of the L1 and of the language being acquired (see further Goad to appear). This provides additional support for ON syllabification as unmarked.

In Prator & Robinett's (1972:89) pronunciation manual for American English, they state: "Many students from abroad...try to pronounce final consonants...with a great deal of force. This may sound like aspiration: an Italian may pronounce *I don't think so* as /ay down^h θɪŋk^h sow/. The little puffs of air after /t/ and /k/ sound like extra syllables". Their remark on extra syllables is consistent with an ON analysis of these sounds. In Italian, final stops are illicit, so this pattern cannot be attributed to transfer.

Ross (1994) reports similar findings from the spontaneous speech of Japanese learners of English. Apocope was common among higher proficiency learners for vowel final English words and Japanese words embedded in English utterances; final stops in these contexts were often aspirated, e.g. [fant^h] '(Jane) Fonda'. As in Italian, final obstruents are illicit in Japanese, so this cannot be due to transfer.

In Heyer's (1986) investigation of 40 Mandarin Learners of English (with 3 years EFL study), she reports observing 45.6% 'hyperaspiration' among the errors for voiceless stop targets while subjects were reading of story. Again, final obstruents are illicit in the L1.

In short, we find that, independent of methodology and L1 constraints, final aspiration is observed in L2 outputs (see also Steele 2002 on aspiration among Mandarin learners of European French).

4.2 Korean Learners of English

4.2.1 Rhyme Shape in Korean versus English

We turn finally to report on a pilot study of four Korean learners of English (two intermediate, two advanced), in their 20s and 30s. (Details on methodology can be found in Kang 2001.) Participants read through a pseudo randomly-ordered word list twice. We focus on the 43 singleton stop-final stimuli (86 tokens). The variables of present concern are: short versus long vowel, and word-final voiced versus voiceless stop. These are important given the constraints on Korean rhyme shape in (9).

(9) Rhyme Constraints for Korean:

- a. Word-final coda stops are permitted; must be voiceless unreleased (Kim-Renaud 1986)
- b. No long vowels (among younger generations of speakers)
- c. Sonorant codas are moraic; obstruent codas are not (Broselow & Park 1995)
- d. FOOTBINARITY is violable: CV and CVC_{obstr} words are well-formed

With these constraints in mind, we turn to address the status of final consonants in English. In §2.2, we mentioned that English requires an OEHS analysis for CVVC words and a coda analysis for CVC. We motivate this difference here (see further Goad to appear).

For CVXC words, the final consonant must be analysed as an onset, as English does not permit PWD-internal rhymes of the shape VXC (with limited exceptions). If in VXC#, the final consonant were syllabified as a coda, there would be no way to prevent three-position rhymes from occurring word-medially (§2.1). If the final consonant is an onset, however, the observed asymmetry is exactly as expected (see (6b)). Regarding the type of onset that English exhibits, we must investigate the release properties of the final consonant in VXC. In (7b), we pointed out that final stops are optionally unreleased in English. They do not show fortition, leading to an OEHS analysis over ON.

In contrast to CVXC, CVC words demand a coda analysis, as word minimality requires PWDs to be minimally one bimoraic foot in English. As (word-final) onsets are by definition not moraic, right-edge consonants in CVC words must be moraic codas: ✓(CV_μC_μ)_{FT}, *(CV_μCØ)_{FT}.

In short, English requires different analyses for final consonants in CVXC and CVC words. Further support for this conclusion comes from observing that the segments allowed in final position in the two kinds of words are not the same, indicating that they are syllabified differently. With some exceptions, [ŋ, b, g, θ, ʃ, ð] are not permitted word-finally in CVXC, in contrast to CVC where any consonant (except [h]) can be present in final position (experimentally confirmed by Flegg 2001).

Although it is expected that word-final onsets and codas will display differences in segmental profile, what is odd about English is that it is backwards in this respect: it is codas in CVC that display a wider range of options than right-edge onsets in CVXC. Combined with the fact that word-final consonants in both types of words can be optionally unreleased, this will no doubt confound the L2 learner who is attempting to sort out the syllabification requirements for English. This will be elaborated on in the next section.

4.2.2 Hypotheses

Although we did not test beginners, we begin with the predictions of transfer, as they will become relevant in §4.2.3. Recall from (9a-b) that Korean permits final stops as codas, as long as they are voiceless unreleased, and that vowel length contrasts are not allowed. Assuming that speakers can perceive these differences (see below), then for the four types of stimuli under investigation – ‘bead’, ‘beat’, ‘bid’, ‘bit’ – there should be a single output, [pit̚], with a final coda. (Regarding [p], voicing is not contrastive in Korean; there is a three-way laryngeal contrast in onsets: aspirated, plain, and tense.)

Before proceeding to the predictions for intermediate learners, we must eliminate the following concern: if neutralization of the English vowel length and voicing contrasts is observed among learners at any proficiency level, as would be consistent with transfer, could this reflect a perceptual problem? While we did not test perception, we provide two types of evidence in support of the hypothesis that vowel length and voicing contrasts are accurately perceived by Korean learners. First, concerning vowel length, in Flege, Bohn & Jang’s (1997) study on the perception of American English high front vowels, they found that Korean speakers identified vowels in a synthetic *beat-bit* continuum primarily based on duration, not on spectral quality. Second, when loan words are borrowed into Korean from English, words with long vs. short vowels and final voiced vs. voiceless stops are adapted differently (e.g. Broselow & Park 1995); this suggests that borrowers are sensitive to these contrasts in English.

Turning to the hypotheses for intermediate learners, an important factor is that they are able to extract more information from the ambient input than beginners and formulate their hypotheses accordingly. However, as alluded to in §4.2.1, the ambient input for English can actually be quite misleading. This is detailed in (10a) and (10c-d). The L1 Korean grammar poses an additional complication in (10b), that FTBIN is violable in CVC_{obstr} words (see (9c,d)).

(10) (Misleading) Evidence and Consequent Hypotheses: Intermediate Learners:

a.	Final consonants in English CVC words are codas but they do not show a coda profile; they are a superset of what is permitted in Korean codas <i>Intermediate learner’s hypothesis: CVC ≠ coda</i>
b.	Korean does not have to satisfy FTBIN, so CVC = coda is not forced by the L1 grammar <i>Supports learner’s hypothesis of: CVC ≠ coda</i>
c.	Inventories of final C in Engl CVC and CVVC are similar; differences between them will likely go unnoticed by the learner, as both are a superset of what is permitted in Korean <i>Intermediate learner’s hypothesis: CVC = CVVC</i>
d.	Final consonant in English is optionally unreleased in both CVC and CVVC (no fortition) <i>Intermediate learner’s hypothesis: CVC = CVVC = OEHS</i>

In short, the evidence in (10) should lead Korean learners to analyse final consonants in English as OEHS across-the-board. While this is the correct analysis for CVXC words, it is incorrect for CVC.

4.2.3 Results and Interpretation

In this section, we examine the results for our study in light of the evidence available to learners. Concerning the intermediate learners, the table in (11A) reveals a high percentage of release across-the-board; this is indicative of ON syllabification, not OEHS as was expected from (10). Where does this preference come from, given that there is no evidence for ON sharing either in the target grammar or in the L1 grammar?

(11)	Stimuli:	A. Intermediate Learners:		B. Advanced Learners:	
		Final C Released:	V Length:	Final C Released:	V Length:
a.	CVC _{velss}	85%	96% short	48%	94% short
b.	CVC _{ved}	78%	84% short	58%	92% short
c.	CVVC _{velss}	91%	19% long	74%	48% long
d.	CVVC _{ved}	96%	69% long	100%	94% long

As mentioned in §1, we propose that, on the basis of the evidence available in (10), learners conclude that English requires final OEHS over codas, but OEHS syllabification comes at a cost. ON sharing represents the best way to optimize syllable shape, while still being faithful to the input CVC string.

(11A) also reveals that there is a relationship between vowel length (expressed in % target-like) and the presence or absence of final release, (11A.a-b) versus (11A.c-d). However, while target long vowels are often produced as short, the outputs still exhibit release on the final consonant. It seems that learners ‘know’ that these vowels are long in the target, but that they are still at a point where they cannot systematically produce the length. What is particularly interesting is that reduction in vowel length in (11A.c-d) does not lead to a coda analysis where the final consonant is unreleased, as would be expected if the entire transferred grammar were still having an impact (§4.2.2). Finally, regarding the difference between 19% long in the CVVC_{vcls} condition and 69% long in the CVVC_{ved} condition, this no doubt reflects the phonetically-motivated observation that, across languages, vowels tend to be longer before voiced stops than before voiceless stops. We do not consider this to be in the grammar because, as far as we know, there are no languages which grammaticize this phonetic observation; that is, there do not seem to be any languages that only permit long vowels before voiced consonants.

Turning to the advanced learners in (11B), what is striking is the difference between the presence/absence of release and vowel length in the stimulus: for CVC, the final consonant is released 53% of the time (11B.a+b), while for CVVC, it is released 87% of the time (11B.c+d). Indeed, comparing the percentages of final release for the intermediate versus advanced outputs for CVC reveals a notable reduction in release for the latter population of learners. Taken together, these two findings suggest that the advanced learners have arrived either at a coda or OEHS grammar for CVC but maintain an ON grammar for CVVC. We assess the OEHS and coda analyses for CVC in turn below.

Option 1: OEHS through learning: Could the advanced learners have noticed that English displays optional unreleasing, counter to what would be permitted under an ON grammar? Specifically, could the low percentage of release for CVC inputs indicate that advanced learners have arrived at an OEHS analysis for strings of this shape? While there is positive evidence available in the data (i.e. optional unreleasing) against ON syllabification, the problem is that, in English, the absence of obligatory release applies equally well to CVVC and to CVC. If advanced learners have arrived at an OEHS analysis for CVC on the basis of this evidence, they should have arrived at the same analysis for CVVC. This, however, is not what the numbers in (11B.c-d) reveal.

Option 2: Coda through transfer: Could the low percentage of release for CVC in advanced learner outputs reveal an effect of transfer? The problem with this analysis is that transfer would be playing a greater role in the advanced grammar than in the intermediate grammar (see Option 3).

Option 3: Coda through learning: Does the low percentage of release for CVC reveal that advanced learners have encountered positive evidence that the final consonant in such words is a coda? While we think that this is probably so, the problem is that once learners have moved toward an onset analysis at the intermediate stage, it is not clear what positive evidence is available to lead them back to a coda analysis at the advanced stage. While stress placement could indicate that post-vocalic consonants are moraic codas in English, this will not shed any light on the status of final consonants in one-syllable words, given that there is only one option for the location of stress in such words. (Recall as well that FTBIN is violable in Korean (9d); that is, monomoraic CVC_{obstr} words are well-formed.)

5 Conclusion

In conclusion, we have argued that intermediate Korean learners of English prefer an ON grammar, regardless of the shape of the stem, CVC or CVVC. This is counter to the expectations of transfer (coda) and counter to the target grammar (coda and OEHS respectively). The advanced learners maintain the ON grammar for CVVC inputs observed at the earlier intermediate stage. However, they seem to have arrived at the correct coda grammar for CVC inputs. At this point in the investigation, it is not clear what positive evidence has led them to this analysis.

More generally, we have shown that the preference for ON, revealed through final release (fortition), is observed across populations. In L1 and L2, final release occurs independent of the constraints of the target language, and in the case of L2, independent of the constraints of the L1.

Fortition is also attested in end-state grammars, e.g. Yapese and European French. Importantly, fortition in learner languages is not likely attributable to extralinguistic factors (undue attention being paid to the articulation of final consonants) because in L2, it occurs independent of the methodology used; and in L1, focus on accurate pronunciation is much less likely a factor.

Finally, we have proposed that the preference for ON sharing is due to markedness. Spreading the melody of the right-edge consonant from the onset into the following empty nucleus reflects the least marked syllabification option for final consonants, as it represents the best compromise between syllable structure well-formedness and faithfulness to the consonant-final input.

References

- Broselow, Ellen, Su-I Chen & Chilin Wang (1998) The emergence of the unmarked in second language phonology. *Studies in Second Language Acquisition* 20: 261-280.
- Broselow, Ellen & Hye-Bae Park (1995) Mora conservation in second language prosody. In John Archibald (ed) *Phonological acquisition and phonological theory*. Hillsdale, NJ: Lawrence Erlbaum, pp. 151-168.
- Dell, François (1995) Consonant clusters and phonological syllables in French. *Lingua* 95: 5-26.
- Elsen, Hilke (1991) *Erstspracherwerb: Der Erwerb des deutschen Lautsystems*. Wiesbaden: Deutscher Universitäts-Verlag.
- Fikkert, Paula (1994) *On the acquisition of prosodic structure*. The Hague: Holland Academic Graphics.
- Flege, James Emil, Ocke-Schwen Bohn & Sunyoung Jang (1997) The production and perception of English vowels. *Journal of Phonetics* 25: 437-470.
- Flegg, Jill Heather (2001) Word-final consonants in English: Onsets or codas? Ms., McGill University.
- Goad, Heather (to appear) Markedness in right-edge syllabification: Parallels across populations. *Canadian Journal of Linguistics*.
- Goad, Heather & Kathleen Brannen (in press) Phonetic evidence for phonological structure in syllabification. In Jeroen van de Weijer, Vincent van Heuven & Harry van der Hulst (eds) *Issues in the phonetics-phonology interface*. Amsterdam: Benjamins.
- Heyer, Sarah C. (1986) *English final consonants and the Chinese learner*. MA Thesis, Southern Illinois University.
- Ingram, David (1978) The role of the syllable in phonological development. In Alan Bell & Joan B. Hooper (eds) *Syllables and segments*. Amsterdam: North-Holland.
- Itô, Junko (1986) *Syllable theory in prosodic phonology*. PhD thesis, University of Massachusetts, Amherst.
- Jakobson, Roman (1941/68) *Child language, aphasia, and phonological universals*. The Hague: Mouton.
- Jensen, John T. (1977) *Yapese reference grammar*. Honolulu: University of Hawaii Press.
- Kang, Hyun-Sook (2001) *An optimal approach to syllabification in the phonology of Korean learners of English*. MA Thesis, McGill University.
- Kaye, Jonathan, Jean Lowenstamm & Jean-Roger Vergnaud (1990) Constituent structure and government in phonology. *Phonology* 7: 193-231.
- Kim-Renaud, Young-Key (1986) *Studies in Korean linguistics*. Seoul: Hanshin Publishing.
- Leopold, Werner F. (1939) *Speech development of a bilingual child; a linguist's record*. New York: AMS Press.
- McCarthy, John & Alan Prince (1994) The emergence of the unmarked: Optimality in prosodic morphology. *NELS* 24: 333-379.
- Mithun, Marianne & Hasan Basri (1986) The phonology of Selayarese. *Oceanic Linguistics* 25: 210-254.
- Piggott, Glyne L. (1999) At the right edge of words. *The Linguistic Review* 16: 143-185.
- Prator, Clifford H. & Betty Wallace Robinett (1972) *Manual of American English pronunciation* (3rd ed). New York: Holt, Rinehart & Winston.
- Rose, Yvan (2000) *Headedness and prosodic licensing in the L1 acquisition of phonology*. PhD thesis, McGill University.
- Ross, Steven (1994) The ins and outs of paragoge and apocope in Japanese-English interphonology. *Second Language Research* 10: 1-24.
- Sapir, J. David (1965) *A grammar of Diola-Fogny*. Cambridge: Cambridge University Press.
- Steele, Jeffrey (2002) L2 learners' modification of target language syllable structure: Prosodic licensing effects in interlanguage phonology. In Allan James & Jonathan Leather (eds) *New sounds 2000*. University of Klagenfurt, Austria, pp. 315-324.
- Stemberger, Joseph (1996) Syllable structure in English, with emphasis on codas. In Barbara Bernhardt, John Gilbert & David Ingram (eds) *Proceedings of the UBC International Conference on Phonological Acquisition*. Somerville MA: Cascadilla.
- Tranel, Bernard (1987) *The sounds of French: An introduction*. Cambridge: Cambridge University Press.

Proceedings of the 6th Generative Approaches to Second Language Acquisition Conference (GASLA 2002): L2 Links

edited by Juana M. Liceras,
Helmut Zobl, and Helen Goodluck

Cascadilla Proceedings Project Somerville, MA 2003

Copyright information

Proceedings of the 6th Generative Approaches to Second Language Acquisition Conference (GASLA 2002): L2 Links
© 2003 Cascadilla Proceedings Project, Somerville, MA. All rights reserved

ISBN 1-57473-401-6 library binding

A copyright notice for each paper is located at the bottom of the first page of the paper.
Reprints for course packs can be authorized by Cascadilla Proceedings Project.

Ordering information

Orders for the library binding edition are handled by Cascadilla Press.
To place an order, go to www.lingref.com or contact:

Cascadilla Press, P.O. Box 440355, Somerville, MA 02144, USA
phone: 1-617-776-2370, fax: 1-617-776-2271, e-mail: sales@cascadilla.com

Web access and citation information

This entire proceedings can also be viewed on the web at www.lingref.com. Each paper has a unique document # which can be added to citations to facilitate access. The document # should not replace the full citation.

This paper can be cited as:

Goad, Heather and Hyun-Sook Kang. 2003. Word-final Syllabification in L2 Acquisition with Emphasis on Korean Learners of English. In *Proceedings of the 6th Generative Approaches to Second Language Acquisition Conference (GASLA 2002)*, ed. Juana M. Liceras et al., 122-129. Somerville, MA: Cascadilla Proceedings Project.

or:

Goad, Heather and Hyun-Sook Kang. 2003. Word-final Syllabification in L2 Acquisition with Emphasis on Korean Learners of English. In *Proceedings of the 6th Generative Approaches to Second Language Acquisition Conference (GASLA 2002)*, ed. Juana M. Liceras et al., 122-129. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #1036.