In Ayşe Gürel (ed.), *Second Language Acquisition of Turkish*. Amsterdam: John Benjamins.

CHAPTER 1

Acquisition of L2 Turkish prosody

The effects of purely phonological and phonosyntactic issues*

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This paper investigates second language acquisition of lower-level (i.e. word-level) and higher-level prosody in Turkish to address the role of Universal Grammar (UG) via two different studies. The results of the first study demonstrate that lower-level prosody presents particular challenges for English-speaking learners, as the task for them involves expunging a prosodic constituent from the grammar, which is hypothesized to be impossible. Higher-level prosody, on the other hand, was found to be relatively easy to acquire, despite not being taught in Turkish language classes in a comprehensive and linguistically correct manner. Although learners were not native-like in their performance on lower-level prosody, their representations were UG-constrained. Thus, it is concluded that learners have access to UG for prosody at both levels.

Keywords: Turkish, L2 phonology, prosody, stress, Universal Grammar

1. Introduction

Prosody is one of the most challenging areas of second language (L2) phonological acquisition, as problems persist even for learners at advanced levels (e.g. Archibald 1998; Goad & White 2006, 2008; Trofimovich & Baker 2006). This

* The first half of this chapter (i.e. Section 2) is based partially on experiments originally reported in my unpublished McGill University dissertation, and I would like to express my deepest thanks to Heather Goad, Lydia White, Glyne Piggott and Michael Wagner for their helpful comments on an earlier version of the ideas presented therein. Section 2 has also benefited from the comments of the audience at GASLA 12 at the University of Florida, GALA 2013 at the University of Oldenburg and SLRF 32 at Brigham Young University. The second half of the paper (Section 3) has benefited from the comments of the audience at GALANA 4 at the University of Toronto and TCP 2010 in Tokyo.

DOI 10.1075/lald.59.02ozc

paper investigates the acquisition of two different levels of prosody in L2 Turkish with two different experiments: (i) lower-level (i.e. word-level) prosody, which involves phonological representations alone, and (ii) higher-level (e.g. phrase- and sentence-level) prosody, which requires knowledge of both phonology and syntax. It is concluded that the acquisition of Turkish word-level prosody is particularly challenging, especially for speakers of languages like English, which uses foot structure. For these learners, acquiring Turkish, a footless language (Özçelik 2013, 2014), requires ridding the grammar of a prosodic constituent (i.e. the Foot), a task that is hypothesized to be extremely difficult on the current proposal. It is also concluded, in the latter half of the paper, that Turkish sentence-level prosody, unlike word-level prosody, is easy to acquire for the same learner population, for this simply requires parameter resetting, and crucially, does not involve expunging any prosodic constituent from the grammar. This is despite the fact that this is a task that lies at the interface of phonology and syntax, and is, thus, expected to be difficult under certain approaches to L2 acquisition, such as the Interface Hypothesis (e.g. Tsimpli & Sorace 2006). Furthermore, as will be discussed later, the dichotomy observed in the results is despite the fact that the participants had been taught a pedagogically reasonable but linguistically incorrect (and impossible) rule for Turkish sentential stress, which should arguably have made higher-level prosody even more difficult to acquire.

The findings provide strong evidence for Universal Grammar (UG)-based theories of L2 acquisition (e.g. White 1989b, 2003), not only for the second study, where convergence occurred on target-like constructions, but also on the first study, where learners diverged from native speakers. More specifically, the interlanguage grammars of the English-speaking participants at each stage of the learning path are possible grammars constrained by UG, although they are neither like the L1 nor the L2. Furthermore, despite being pedagogically and cognitively reasonable, certain stages/interlanguage grammars did not emerge in the productions of the English-speaking learners as these are not permitted by the inventory of feet provided by UG. For example, no learners went through a stage where their interlanguage grammar permitted weight-insensitive iambs such as (HĹ) and (HH́), as weight-insensitive iambs are not allowed by UG (e.g. Hayes 1995; McCarthy & Prince 1986).

The remainder of this paper is organized in the following way: Section 2 is concerned with the acquisition of Turkish word-level prosody (Study 1), analyzing the productions of English- and French-speaking learners through a controlled production experiment. The section illustrates the paths these learners go through in acquiring L2 Turkish word stress. Section 3 details the study of higher-level prosody (Study 2), concentrating on English-speaking learners of Turkish through several elicited production tasks. Both studies provide significant insight

into the role of UG in L2 acquisition. Section 4 concludes the paper with a discussion on the pedagogical implications of the study for L2 teaching of Turkish prosody.

2. Acquisition of Turkish word-level prosody

Previous research on L2 acquisition of stress has focused almost entirely on the acquisition of English (e.g. Archibald 1992, 1993; Pater 1997; Tremblay 2007). L2 acquisition of word-level stress/prominence in languages such as Turkish (and French), which have fixed word-final (or phrase-final) prominence, has almost never been investigated. This was caused in part by the belief that acquiring these languages should be easy, involving few errors, if any. That is, on the face of it, it looks as if such a learning scenario would not provide much insight into the abstract linguistic generalizations made by L2 learners.

I demonstrate that the task of acquisition of such a language is by no means simple. Rather, I argue that the task of L2 acquisition of the prosodic system is much more difficult for learners with a footed first language (L1) (e.g. English) acquiring a L2 which lacks foot structure (as with Turkish, see e.g. Özçelik 2011, 2013, 2014) than for learners with a footless L1 acquiring a footed L2.

More specifically, I propose that once a prosodic constituent, such as the Foot, emerges in a L1, it is impossible to rid the grammar of this constituent in learning an L2 that lacks the relevant constituent. L2 learners with a footed L1 will thus not be able to expunge the Foot from their grammar while learning a footless L2. They will, instead, be restricted to resetting parameters that act on the Foot (e.g. trochaic/iambic, iterative/non-iterative, weight-sensitive/weight-insensitive).

The focus of the first study discussed in this section is the L2 acquisition of Turkish word-level stress by English- and French-speaking learners. As mentioned above, I assume that the prosodic grammar of Turkish does not assign foot structure, although, under some well-defined cases, certain syllables are footed since they come into the computation already footed in the lexicon (Özçelik 2013, 2014). These involve the so-called exceptional stress driving suffixes (e.g. Inkelas & Orgun 1998, 2003; Kabak & Vogel 2001; Özçelik 2014), which, I assume, are pre-specified with foot edges in the input/underlying representations (Özçelik 2014). In accordance with the previous literature, English, I assume, is different from Turkish in that it requires all words to be footed, except for functional words (e.g. Hayes 1995). French, on the other hand, is completely footless; that is, all French words are footless. Feet are assigned neither regularly by the grammar (as in Turkish), nor exceptionally in the input (e.g. Beckman 1986; Jun & Fougeron 2000; Ladd 1996). Given these differences between the three languages,

and assuming that the initial state of L2 acquisition is that of the L1 settings of all parameters, as suggested by the Full Transfer Full Access (FTFA) Hypothesis (e.g. Schwartz & Sprouse 1994, 1996; White 1989b), different predictions arise for English- vs. French-speaking learners of L2 Turkish. In particular, the initial state of L2 acquisition will be 'footless' for French-speaking learners, whereas it will be footed for English-speaking learners. This will have important effects on the degree to which these two learner populations will have difficulties acquiring a (variably) footless language like Turkish. The results of the experiments, particularly those of the L1-English-speaking learners, have significant implications for the status of UG in L2 acquisition.

Before delving more into these issues, the following section details how word-level stress or prominence is represented in the three languages under consideration here.

2.1 Word 'stress' in Turkish, French and English

Regular 'stress' in Turkish falls on the last syllable of prosodic words (PWds), and it is footless. As indicated in (1), each time a suffix is added to a word, stress, or rather prominence, falls on the last syllable of the word:

(1) a. eşék
donkey
"donkey"

b. eşek-lér
donkey-PL
"donkeys"

c. eşek-ler-ín
donkey-PL-your
"your donkeys"

d. eşek-ler-in-dé
donkey-PL-your-LOC
"on your donkeys"

Turkish also has some exceptional suffixes that are either pre-stressing or, if bisyllabic, stressed on their first syllable. The example (2b) illustrates a pre-stressing suffix, i.e. the question particle, *-mI* (underlined):

(2) a. eşék
donkey
"(it is) a donkey"

b. eşék-mi?
donkey-Question
"Is it a donkey?"

Özçelik (2013, 2014) assumes that regular word-final accent in Turkish is footless (as with words in (1) or (2a)). Since the grammar of the language does not have any means of parsing syllables into feet, intonational prominence (instead of foot-based 'stress') falls, by default, on the final syllable of PWds. As opposed to (1) and (2a), in (2b), there is a suffix with an underlying foot (i.e. /(mI)Ft/). Given this foot, and given the trochaic and binary nature of the grammar, when

-mi is attached to a word, it appears as pre-stressing (i.e. [(eşék-mi)Ft]), since it is located at the right edge of a binary foot (even though the grammar cannot assign feet). Thus, regular final prominence and the exceptional stress are accounted for in a unified manner. The grammar on this account is trochaic and the trochees are binary, but the same grammar is unable to parse syllables into feet, and in the absence of underlying feet, final syllables of words bear (footless) intonational prominence (instead of stress). As Özçelik (2013, 2014) indicates, this proposal receives additional evidence from the acoustic correlates of prominence/stress in Turkish. For example, both intensity and a sharp F0 rise are correlates of exceptional stress (which is a pattern typical of trochaic languages), whereas regular final prominence is only correlated by an optional slight rise in F0 (e.g. Konrot 1981, 1987). As such, given the lack of greater intensity or duration on the prominent syllable and the optionality of pitch rise (as well as its weakness), 'regular stress' in Turkish seems more like intonational (footless) prominence than (foot-based) stress (see Beckman 1986; Hualde, Elordieta, Gamind & Smiljanic 2002; Ladd 1996 for more on what correlates are needed for prominence to be categorized as 'stress'). Further evidence for the trochaic and binary nature of the grammar itself comes from the fact that monosyllabic exceptional suffixes in Turkish are always pre-stressing (never stressed or post-stressing), whereas 'stressed' exceptional suffixes are always bisyllabic, and it is always the first syllable that bears stress, with no instances where the second syllable is stressed (Inkelas & Orgun 1998; Özçelik 2013, 2014).

With respect to French, it is footless like Turkish, and there has been ample evidence provided in the literature for the footless status of French (see Özçelik to appear; see also Féry 2001; Jun & Fougeron 2000; Ladd 1996 for relevant work). For example, the domain of obligatory prominence in French is not PWd as in foot-based languages, but rather the Phonological Phrase (PPh). In a PPh consisting of several PWds, nonfinal PWds can, thus, surface without any stress or even prominence (Jun & Fougeron 2000; Post 2003). This suggests that, at least for non-final PWds, stress or foot structure cannot be postulated for French:

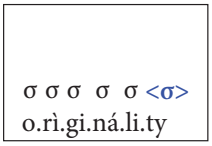
(3) [lə [mɔvɛ]PWd [gærsɔ́]PWd]PPh
le mauvais garçon 'the bad boy' (adapted from Goad & Prévost 2011)

Regarding English, the third language that is relevant in the current study, following previous research (e.g. Halle & Vergnaud 1987; Hayes 1981, 1995; Liberman & Prince 1977), I assume that every lexical word obligatorily contains at least one foot, and as such, English differs significantly from Turkish and French. It is commonly agreed that English constructs syllables into binary trochaic feet starting from the right edge of a PWd. One piece of evidence for this, among others,

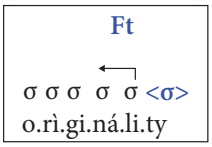
comes from the fact that every word in English has at least one stressed syllable (except for function words), and that there are no lexical words in the language that are smaller in size than a binary foot: syllables that are one-syllable long thus contain a long vowel in English (unlike, for example, the Turkish word *su* 'water'). Furthermore, correlates of stressed syllables in English do not only include higher F0 (pitch), but also greater intensity and duration (Beckman 1986; Fry 1955; Lieberman 1960).

Since the status of English as a foot-requiring language is clear, in the remaining parts of this section, I will focus on summarizing the way English constructs syllables into feet and the parameter settings it employs in doing so. This will also help us better understand the results of the study later, especially the individual results (Section 2.4.2), which indicate intricate relationships between different parameter settings. The example (4) illustrates, on a step-by-step basis, how English constructs syllables into feet, with the relevant parameter settings, which will later be crucial in demonstrating how English-speaking learners of Turkish restructure their grammar through parameter resetting. I take the word *originality* as an example here. As seen in (4a), Extrametricality, in English, is set to *Yes*, meaning that all final syllables are invisible as far as stress assignment is concerned. (4b) shows that foot construction starts at the right edge (skipping the final extrametrical syllable). As shown in (4c), feet are binary in English. That is, there must be two syllables (or moras) within a foot. (4d) illustrates that feet are left-headed (i.e. trochaic) in English, as the leftmost syllable within the foot is the more prominent one (i.e. the head). Finally, (4e) demonstrates that on condition that the word is long enough, multiple feet can be created. In other words, that footing in English is iterative:

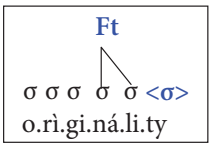
(4) a. Extrametricality: **Yes** vs. No



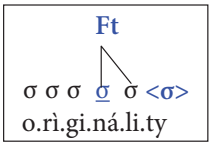
b. Directionality: Left-to-Right vs. **Right-to-Left**



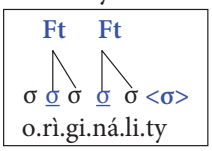
c. Foot Binarity: **Yes** vs. No



d. Headedness: **Left** vs. Right



e. Iterativity: **Yes** vs. No



Finally, note that when there are multiple syllables that bear stress in a given word, it is the rightmost stressed syllable that functions as primary stress. This means that End-Rule is set to *Right* in English, instead of *Left*, which is yet another parameter setting in English.

2.2 L2 acquisition of word stress/prominence

Assuming that UG allows for both footed and footless languages, and that one of these two language types involves projection of a prosodic constituent that the other does not have, the L1 learner is faced with a learnability problem in determining whether the target language is footed or not. If a child learning a footless language as an L1 erroneously assumes that the input he or she receives suggests a language with the Foot, a previously created structure (i.e. the Foot) will need to be undone by the child to retreat to the footless value. However, given a deterministic parser (Berwick 1985; Dresher & Kaye 1990; Marcus 1980), in other words, the type of parser that is commonly believed to be available to children in generative approaches to language acquisition, undoing structures is not possible. One way of avoiding this problem is based on the child's ordering his or her hypotheses. For example, if the assumption that the target language is footless was the child's first (default) hypothesis, and if the Foot constituent was projected only on the basis of positive evidence, it would emerge only in the grammars of children learning languages with foot structure. Previous research investigating the acquisition of English and Dutch, languages that require every word to be footed, seems to point to this direction. Children learning these languages initially hypothesize that these languages are footless, despite the fact that they are in fact footed (e.g. Fikkert 1994; Demuth 1995; Goad 1997; Goad to appear; cf. Goad & Prévost 2011). This provides evidence that the Foot constituent is projected later, after the child has encountered footed words in the input.

Turning to L2 acquisition, I hypothesize that, as with L1 acquisition, once the Foot has been projected in an L1, it is impossible to expunge it from the grammar in learning a footless L2. Furthermore, since, for L2 learners, the acquisition process starts with the L1 settings of all parameters, and, crucially, not with the 'default' values provided by UG (e.g. Schwartz & Sprouse 1996; White 1989a, 1989b), unlike children learning their L1s, L2 learners will not be able to order their hypotheses. Accordingly, I predict that if the Foot is part of the L1 grammar, it will also necessarily be a part of interlanguage grammars. In other words, the prediction here is that it is impossible for a learner to move from an L1 that requires feet to an L2 that is footless. The opposite direction (i.e. when the L1 has the default footless value, and the task is, thus, to add the Foot), should be possible, although the current study only tests the former scenario.

2.3 Study 1

In order to investigate these predictions, a semi-controlled production experiment was conducted with English-speaking (n = 13) and French-speaking (n = 6) learners of L2 Turkish, of various proficiency levels. Participants' proficiency was determined via two independent proficiency tests: a cloze test was employed to evaluate their syntactic, morphological, semantic, and discourse proficiency, and a read-aloud task was used to evaluate their global phonological proficiency. The reason for adding the read-aloud task was to know more about participants' phonological proficiency, as the former measure of proficiency would not tell us anything about this. Similar read-aloud tasks have been employed in previous research. The one used here was similar to the one by Akita (2006, 2007). Due to the limited number of potential participants available, the proficiency level was not a factor in recruiting participants; the experiment was open to any learner of Turkish. Given the results of the two proficiency tests, however, there were 2 beginner, 8 low intermediate, and 3 advanced L1-English-speaking learners of Turkish; and 1 beginner, 3 low intermediate, and 2 advanced L1-French-speaking learners. Different proficiency levels, especially in the case of the English-speaking learners, allowed testing predictions about a developmental path.

L2 participants in both groups ranged in age from 20 to 40 years old (with most participants around ages 25 to 30). They started learning Turkish mostly in college or afterwards, most commonly between the ages of 20 to 30. With the exception of 5 English-speaking and 1 French-speaking participant, all had spent some time in Turkey, and all had some kind of naturalistic Turkish input, most commonly through Turkish-speaking partners or friends. All of the participants had college education (or higher) or were, at the time of testing, attending college.

Table 1. Stimuli

Bisyllabic words:

LL	LH	HL	HH
kedi	çatal	elma	bardak
cat	fork	apple	glass/cup

Trisyllabic words:

LLL	LLH	LHL	LHH	HLL	HLH	HHL	HHH
araba	tebeşir	yumurta	örümcek	şemsiye	portakal	dondurma	defterler
car	chalk	egg	spider	umbrella	orange	ice-cream	notebooks

All of them were near-monolingual, and all were recruited in Canada; so they were speakers of Canadian English and French.

In the production task, the stimuli consisted of 70 words of various lengths and syllable structure profiles. All of these were nouns. Furthermore, all possible Heavy (H) and Light (L) syllable combinations were represented for all bisyllabic and trisyllabic stimuli, resulting in four bisyllabic and eight trisyllabic conditions.[1] There were 5 words within each condition, which resulted in 20 bisyllabic and 40 trisyllabic stimuli in total.[2] Examples of stimuli under each condition are given in Table 1.

In order to prevent syllabification strategies from affecting the results as confounds, in preparing the stimuli, it was ensured that all coda + onset sequences were either sonorant + obstruent, sonorant + sonorant, or obstruent + obstruent. Whereas sonorants were limited to liquids and nasals, obstruents were comprised of stops, fricatives, and affricates. Coda + onset sequences that are composed of an obstruent + sonorant were not included. Although these are permitted as coda + onset sequences in Turkish, a language that has no complex onsets, they are syllabified as complex onsets in English and French. For this reason, it was predicted that their inclusion would lead the learners to transfer L1 syllabification strategies to the L2, which may then confound the results.

1. "Heavy" vs. "Light" here is from the perspective of the English grammar. As no syllable is heavy in Turkish, neither vowel length nor the presence of a coda consonant has an effect on the location of stress or prominence in Turkish. Of course, the assumption made here that Turkish is footless also suggests that there are no heavy syllables as far as prominence is concerned.

2. There were also 5 four-syllable and 5 five-syllable words, but these were not controlled in terms of weight profiles, as it was not possible to find sufficient number of words of each type.

Learners were shown pictures of each stimulus. They had to first utter them in isolation, and then say them again in a carrier sentence (see (5)). Only the stimuli in carrier sentences were transcribed and analyzed for acoustic measures.

(5) Bu resim-de _X_ var.
This picture-LOC _X_ exist(ent)
"There is _X_ in this picture."

Words in isolation were not analyzed, as there would be potential confounding variables such as utterance-final lengthening, which tends to happen across languages when an utterance is pronounced in isolation. In addition, stress patterns of words produced in isolation are confounded by phrase-level accent (Gordon 2014; Hyman 2014).

The words produced by the participants (those in carrier sentences) were transcribed and annotated for stress placement using the acoustic analysis software Praat (Boersma & Weenink 2011). In determining the presence and location of stressed syllables in experimental words, the following acoustic correlates were measured: vowel and syllable duration (in ms), average and peak intensity (in dB), average fundamental frequency (F0, in Hz), and time of F0 peak. For segmentation, both spectrogram and waveform cues were employed, as suggested by Peterson and Lehiste (1960).

The participants were tested in a sound-attenuated booth, and testing was done individually. The participants were audio-recorded using Audacity (http://audacity.sourceforge.net) onto a MacBook Pro laptop, with the help of an external Logitech microphone. The microphone was placed approximately 20 cm from the speakers' lips. The tasks were administered in the following order: a background questionnaire, production experiment, and two proficiency tests (the cloze test and the read-aloud task). The whole procedure took about 1 hour per participant.

2.4 Results and discussion

2.4.1 *General results*

The results of the experiment largely confirm our predictions. None of the English-speaking participants were able to rid their grammar of the prosodic Foot constituent. In other words, greater duration and/or intensity – the correlates of foot-based stress – accompanied word-level prominence in their productions. As was predicted, however, they were able to make various UG-constrained changes to their grammar, such as resetting Extrametricality from *Yes* to *No*, and at later stages, Foot-Type from Trochaic to Iambic, thereby having increasingly more word types with word-final stress (more discussion on this under 'Individual Results'). Still, as the general results indicate, beginner-level learners were able to

place stress on the final syllable in Turkish words, only about 10% and 13.66% of the time for the bisyllabic and trisyllabic stimuli, respectively. For intermediate learners, these percentages rose up to 55.89% and 48.63% for bisyllabic and trisyllabic stimuli, respectively. For advanced learners, the rates were 65% and 51.82%. This suggests that L1-English-speaking learners, even at advanced levels, often failed to place stress on the final syllables in L2 Turkish words (even when final foot-based stress is considered). Furthermore, as indicated by a one-way ANOVA, the differences between the three groups were not statistically significant, $F = (2, 3) = 0.3488$, $p = 0.7308$ for bisyllabic words; and $F = (2, 3) = 0.2255$, $p = 0.8105$ for trisyllabic words.

French-speaking learners, however, produced target-like footless outputs, with word-final prominence irrespective of their L2 proficiency. Final prominence in their utterances was accompanied neither by greater duration (word-level) nor intensity, nor, surprisingly, by a pitch rise (slight or sharp). However, for this group, the shape of the pitch contour was different on final syllables than on non-final ones.[3] In particular, these learners were able to place greater prominence on the final syllables of Turkish PWds about 80% to 90% of the time (as evaluated by a native Turkish speaker and double-checked by another one), regardless of their level of proficiency. The French group was significantly different from the English group, as confirmed by the results of a one-way ANOVA, $F = (1, 17) = 5.4338$, $p < 0.05$ for bisyllabic; $F = (1, 17) = 6.8018$, $p < 0.05$ for trisyllabic words. Furthermore, as the results of our acoustic measurements indicate, unlike English-speaking learners, only about 9.09% of French-speaking learners' final syllables had greater duration than nonfinal syllables. This indicates that when they produced final prominence, this was footless intonational prominence, as with Turkish, rather than foot-based stress like the one employed by the English-speaking learners.

The general results are informative as they reveal significant differences between English-speaking and French-speaking learners of Turkish in being able to place more prominence (whether it is stress or footless prominence) on final syllables of Turkish words. However, these results cannot tell us anything about individual grammars or parameter settings.

In order to obtain a clear view of parameter setting (and resetting), one must investigate individual learner grammars, which is what the following section purports to do for the English-speaking participants, who, unlike the French-

3. The fact that not only intensity and duration, but also any statistically significant pitch rise was lacking in the prominent syllables produced by French-speaking learners can be linked to the possibility that sentence-medial nuclei do not exhibit F0 rise at all in Turkish (see İpek 2011; İpek & Zubizarreta 2014; Kamali 2011). On this assumption, they were doing what native Turkish speakers do.

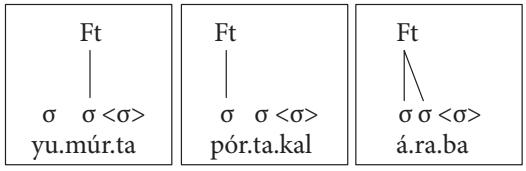
speaking participants, had to go through a number of stages in reconstructing their grammars.

2.4.2 *Individual results: The path*

This section presents individual results for the English-speaking participants, the group whose grammars differed most from the target language. These learners had differences in interlanguage grammars. These interlanguage grammars can all be represented on a path, a path which corresponds roughly to their proficiency levels. Examples (6) through (10) illustrate this path. Note that due to space limitations, the results are represented by 3 different words with 3 different weight profiles: *yu.mur.ta* 'egg' (LHL), *por.ta.kal* 'orange' (HLH) and *a.ra.ba* 'car' (LLL). Notice that the change in stress patterns of each word at each successive stage of acquisition is highly informative of the parameter settings learners employ at each stage of acquisition.

At the first stage (i.e. Stage 0), there were learners who used the L1 settings of *all* parameters. As demonstrated in (6), these learners stressed the target Turkish words the way L1 English would stress them if they were English words. In other words, they were uttering Turkish words with English grammar, i.e. building binary, weight-sensitive, iterative trochees starting from the right edge of PWds, with Extrametricality set to *Yes* and End-Rule set to *Right*. The two learners who appeared to be in this stage were indeed beginners in terms of their general proficiency:

(6) Stage 0: Use English grammar/parameter settings



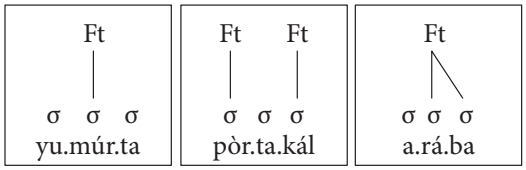
Extram: **Yes** Head: **Left** Weight-Sens: **Yes** End-R: **Right**
Direc: **R → L** Ft-Bin: **Yes** Iterativity: **Yes**

→ 2 learners (both beginners)

Notice that as final syllables are extrametrical, they are never stressed at this stage (although there were a couple of exceptions). A binary moraic trochee is constructed from the right edge (excluding the final syllable), meaning that stress is assigned to the penult if it is heavy (e.g. *yumúrta*), otherwise to the antepenult (e.g. *pórtakal* and *áraba*). Heavy syllables can form a foot by themselves, as they are binary at the moraic level, as with [(pór).ta.<kal>] and [yu.(múr).ta].

At the next stage, there were learners who reset Extrametricality from *Yes* to *No,* as demonstrated in (7).

(7) Stage 1: Reset Extrametricality from *Yes* to *No*



Extram: **No** Head: **Left** Weight-Sens: **Yes** End-R: **Right**
Direc: **R → L** Ft-Bin: **Yes** Iterativity: **Yes**

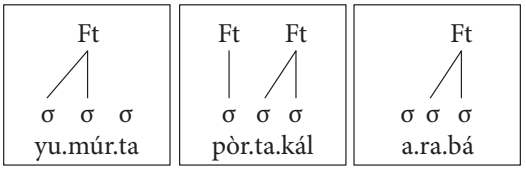
→ 5 learners (4 low intermediate, 1 advanced)

With this single change in their grammar, which came along by means of resetting a single parameter (i.e. Extrametricality), these learners were able to have final stress in words ending in closed syllables, such as *portakál*. This is because a final closed/heavy syllable can form its own foot, since the grammar is still Weight-Sensitive. As such, a final heavy syllable could be stressed even though the grammar is trochaic, as the only syllable available is the leftmost (as well as rightmost) within this foot. In sum, this single change in their grammar made their productions more similar, on the surface, to target productions, as evidenced by a higher number of words with final stress in this stage than in the previous stage.

Note also that, at this stage, some interlanguage productions, such as *arába*, which is stressed on its second syllable, present interesting insight into what goes on in the L2 acquisition process. These forms have a stress pattern that is neither like the L1 nor like the L2 (even on the surface), and as such, this could not have been initiated on the basis of the L1 grammar or L2 input alone. Furthermore, this presents evidence that grammar change was indeed brought along on a parameter-by-parameter basis, and not, for example, based on frequency as that would predict a greater number of word finally prominent words overall, irrespective of weight profiles.

At the next stage were learners who not only reset Extrametricality from *Yes* to *No*, but also reset Headedness from *Left* to *Right*, thereby producing iambic, instead of trochaic, utterances. The resulting grammar/parameter settings, as well as sample prosodic trees are exemplified in (8):

(8) Stage 3: Stage 1 + Reset Head from *Left* to *Right*



Extram: **No** Head: **Right** Weight-Sens: **Yes** End-R: **Right**
Direc: **R → L** Ft-Bin: **Yes** Iterativity: **Yes**

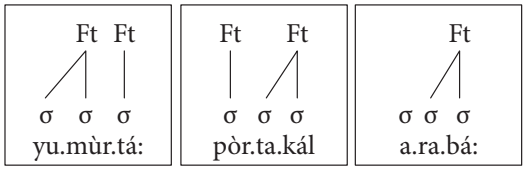
→ 1 learner (low intermediate)

Through this additional change in the setting of a single parameter, these learners managed to place final stress on a greater number of Turkish words. This was because not only words ending in a closed/heavy syllable, but also those ending in a light syllable immediately preceded by another light syllable could now be stressed on their final syllable, as the grammar is now iambic. Notice, however, that words that end in a light syllable immediately preceded by a heavy/closed syllable (e.g. *yumurta*) still do not bear final stress. This is because, as is also demonstrated in (8), Weight-Sensitivity is still set to *Yes* at this stage. Thus a heavy syllable, when available, must be stressed. Stressing *yumurta* on its final syllable would, in contrast, lead to a weight-*in*sensitive iamb. To put it another way, the fact that Weight-Sensitivity is set to *Yes*, which helped learners achieve *some* finally stressed words in the previous stage (where the grammar was trochaic), prevents learners at this stage from having finally stressed words all along.

The logical next step, therefore, would be to reset Weight-Sensitivity from its *Yes* to *No* value, thereby having word final stress for *all* types of words, irrespective of syllable structure profile. No such stage has, however, emerged. No learners had weight-insensitive iambic grammars. This, I believe, is because weight-insensitive iambs are not permitted by the options made available by UG, as has been widely argued in the formal phonological literature (e.g. Hayes 1995; McCarthy & Prince 1986).

Instead, some learners chose to lengthen final open syllables, thereby turning final light syllables into heavy, which they could then stress with a weight-sensitive grammar. This change is illustrated in (9), again with the same three example words:

(9) Stage 4: Stage 3 + Final Lengthening



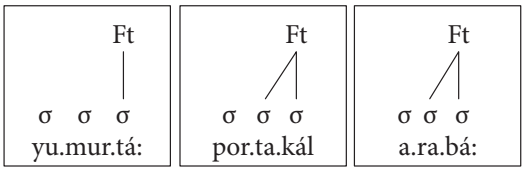
Extram: **No** Head: **Right** Weight-Sens: **Yes** End-R: **Right**
Direc: **R → L** Ft-Bin: **Yes** Iterativity: **Yes** **+ Final length.**

→ 3 learners (1 advanced, 2 low intermediate)

Finally, there was only one learner who, in addition to resetting all the parameters reset by the learners that belong to the previous stages, also reset Iterativity from *Yes* to *No*, and thus, had only one prominent syllable per word, without any secondary stress. This learner was at the same time the most advanced participant among those tested in our experiments. The grammar of this learner is illustrated in (10), again together with the stress pattern he employed for the three example

words. Only one learner was able to reset Iterativity; suggesting that this parameter was extremely difficult to reset. This difficulty could be explained by means of 'economy'. In other words, resetting Iterativity from *Yes* to *No* leads to a greater change in the grammar than resetting other parameters (such as Extrametricality, Head-Direction, etc.). This is because such a change also affects the destiny of other parameters, such as End-Rule, which is basically dependent on Iterativity, as it is relevant only in iterative grammars (see Özçelik 2011 for a similar argument).

(10) Stage 5: Stage 4 + Reset Iterativity from *Yes* to *No*



Extram: **No** Head: **Right** Weight-Sens: **Yes** End-R: **Right**
Direc: **R → L** Ft-Bin: **Yes** Iterativity: **Yes** **+ Final length.**

→ 1 learner (advanced)

Despite resetting Iterativity to *No*, this learner's final (and more prominent) syllables had in general greater duration than nonfinal syllables, indicating that his words still had foot structure, providing evidence once again for the proposal that, once projected, the Foot is impossible to expunge from the grammar.

In sum, the findings of the current study indicate that, as hypothesized, although French-speaking participants had no difficulty placing prominence on word-final syllables of Turkish words, English-speaking learners had significant problems in doing so. Also, even when they were able to stress Turkish words on the final syllable, they did this by means of having foot structure, unlike French-speaking learners. In other words, once the Foot was projected in the L1, it was impossible to rid the grammar of it, as proposed in this paper. Having failed to expunge the Foot from the grammar, parameter resetting occurred on the basis of the input, (i.e. word-finally prominent Turkish words). This, in turn, has led to several developmental paths for English-speaking learners of Turkish, as has been summarized in (6) through (10). However, it should be noted, that given the low number of participants, one cannot rule out the possibility that acquisition of lower-level prosody is still on-going for all learners, even for the most advanced ones. It is possible that a study with more (advanced) L2 learners may show that L2 learners are able to discard the Foot from their grammar. Such a result would, of course, suggest that expunging the Foot is not impossible, but extremely difficult.

3. Acquisition of Turkish phrase- and sentence-level prosody

Having examined the L2 acquisition of lower-level prosodic structures in Turkish, we now move on to the L2 acquisition of higher-level prosody (particularly sentential stress) in the same language.

What is meant by sentential stress in this paper is 'neutral prominence', which is observed in cases of broad focus. Cases of broad focus involve all new contexts, which are independent of information structural mediation but dependent only on the phonological and/or syntactic parameter settings employed by a given language. The paper does not investigate focal prominence (i.e. prominence that is observed in contexts of narrow/contrastive focus) (see Ladd 1996) for a number of reasons why the former is more interesting for phonologists to investigate).

Let us start with some background information on the way sentential stress is often taught in the Turkish language classroom. Turkish sentential stress is generally assumed, by grammarians and educators, to fall on the word immediately preceding the verb (see (11)) and L2 learners of Turkish are explicitly taught this:

(11) a. Taught rule: Stress the element immediately preceding the verb, as in the following sentence:
b. Ben **çocúk** gör-dü-m.
I child see-PAST-1st.SG
"I saw a child."

Although this rule can capture most cases of sentential stress in Turkish, and it is assumed to hold true by many Turkish linguists (see Demircan 1996; Erguvanlı 1984; Erkü 1983; Kılıçaslan 1994; Kornfilt 1997 among others) and followed in many language textbooks, it is wrong and – crucially – linguistically impossible (see below). The strength of this observation has been challenged in recent years because in Turkish even verbs themselves or sentence-initial subjects can receive neutral sentential prominence (e.g. İşsever 2003; Özçelik & Nagai 2011; Özge 2012).

Therefore, if L2 learners are guided by UG (e.g. White 1989b, 2003), we expect them to figure this out even if the input is not entirely sufficient to lead them to the correct analysis. This would lend phonological support to previous syntactic studies such as Belikova (2008, 2013), which similarly investigated the role of 'misleading instruction', rather than 'lack of instruction', in L2 acquisition in reference to UG. If, however, only domain-general problem-solving skills are operative in L2 acquisition (e.g. Bley-Vroman 1990), L2 learners could hypothesize unnatural grammars that make sense pedagogically. After all, the rule in (11) is pedagogically rational. In fact, it is much easier to learn or internalize (or teach) than the

correct rule(s) of higher level prosody in Turkish (see details below). Whether or not L2 learners can successfully eliminate rules such as (11), thus, has important implications for L2 theory, which will be the focus of the remainder of this paper.

3.1 Phrase- and sentence-level stress in Turkish: Investigating the prosody-syntax interface

The generalization in (11) captures most sentential stress cases in Turkish, because this position is also the focus position in this language (Inkelas & Orgun 2003; Kornfilt 1997). Therefore, stressing this position will never be incorrect (on a focused interpretation). That is, it a pedagogically reasonable generalization. Moreover, neutral prominence generally happens to fall on this position (see below), even when the pre-predicate constituent is not focused. However, this rule is, by no means, linguistically correct or even possible. There is no such language where sentential stress *consistently* falls on the penultimate word or constituent in the sentence (i.e. the preverbal position in the case of Turkish), as sentential stress/prominence is assigned structurally, not linearly. Furthermore, within the framework of Prosodic Phonology (see Nespor & Vogel 1986; Selkirk 1984, 1986), also adopted here, there should *not* be such a language because sentential stress is assigned through a complex interaction of the constituents of the Prosodic Hierarchy (such as the PWd, the PPh and the intonational phrase (I)) and syntax, resulting in a much more complex situation than what is described in (11). In other words, no single alignment of prosodic constituents (or combination of prosodic parameters targeting the head direction of those constituents) will result in such a language (where sentential prominence is determined based on the linear order of syntactic arguments or prosodic constituents). This is because prosodic heads are assumed to be universally either leftmost or rightmost at all levels of the Prosodic Hierarchy, and whether the leftmost or rightmost constituent is chosen as the head depends on the level of the hierarchy and the language-particular parameter settings. In sum, the rule in (11) is one that is linguistically impossible.

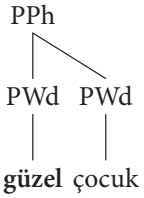
Turkish stress, in fact, falls on the leftmost PWd in a PPh (Kabak & Vogel 2001) (indicated in boldface in (11) and the rest of the paper), and on the rightmost PPh in an I (the head of which is underlined in (13) and the rest of this paper) (Özçelik & Nagai 2010, 2011). Note that PWd boundaries are not indicated in the following examples for the sake of simplicity, but they correspond, at least in these examples, to orthographic words. Notice also that (12b) and (13b) are identical strings with different prosodic constituency.

(12) a. [**güzél** çocúk]PPh
beautiful kid
"beautiful kid"
b. [**ó** adám]PPh[4]
that man
"that man"

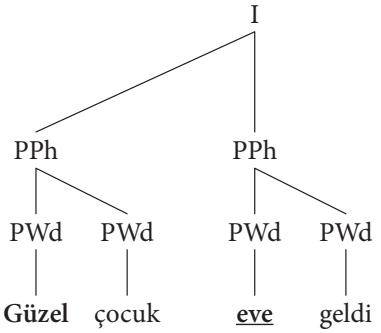
(13) a. [[**Güzél** çocúk]PPh [**ev-é** gel-dí]PPh]I
beautiful kid home-DAT come-PAST
"The beautiful kid came home."
b. [[**ó**]PPh [**adám**]PPh]I
that man
"That is a man."

As illustrated in these examples, in Turkish, the head of a PPh is the leftmost PWd, and the head of an I is the rightmost PPh, a case much more complex than what is depicted by the rule in (11). Examine (14), where this is illustrated via prosodic trees:

(14) a. [**güzél** çocúk]PPh



b. [[**Güzél** çocúk]PPh [**ev-é** gel-dí]PPh]I



With these prosodic representations in mind, let us now move on to a special case from Turkish that lies at the prosody-syntax interface and involves bare nouns.

4. A single (C)V syllable can be prosodified in Turkish, and there does not seem to be a Minimal Word requirement. This is probably because most words in Turkish do not have foot structure, irrespective of whether they are content words or function words, as proposed in Özçelik (2013, 2014, to appear).

This special case makes it possible to disentangle the predictions of rule (11) from those of the correct prosodic representations that stem from the prosodic parameters mentioned above.

Bare nouns in Turkish are ambiguous between a definite and an indefinite interpretation (e.g. Göksel & Kerslake 2005; Kornfilt 1997; Özçelik & Nagai 2010, 2011). A sentence like *Man arrived* could, therefore, have two different readings, given in (15a) and (15b):

(15) a. Adam gel-di.
man arrive-PAST
"A man arrived."

b. Adam gel-di.
man arrive-PAST
"The man arrived."

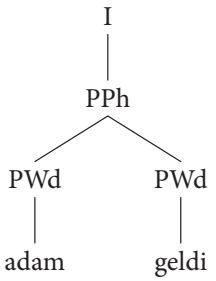
Although (15a) and (15b) look exactly the same as they are identical strings, they differ in terms of prosodic structure. Whereas (15a) is composed of only one PPh, (15b) is composed of two PPhs, as illustrated in (16a) vs. (16b) (see also (12b) vs. (13b)) (examples from Özçelik & Nagai 2010, 2011):

(16) a. [[**Adám** gel-dí]PPh]I
man arrive-PAST
"A man arrived."

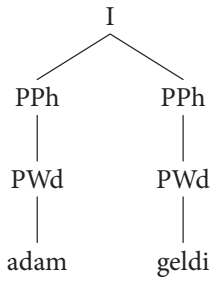
b. [[**Adám**]PPh [**gel-dí**]PPh]I
man arrive-PAST
"The man arrived."

Tree representations for these two sentences are presented in (17a) and (17b), respectively:

(17) a.



b.



Özçelik & Nagai (2010, 2011) argue, based on these facts, that the indefinite *adam* 'man' in (14a) or (15a) remains within the same syntactic projection as the verb (and thus sharing the same PPh with it). However, the definite *adam* 'man' in (15b) or (16b) is external to the root-VP in syntax (thus creating its own PPh domain).

Crucially, this means that sentential stress will fall on the first word in (15a) and (16a), and the last word in (15b) and (16b), meaning that the rule in (11) will fail for sentences like (16b). Since the prosody in (16b) is also used for topicalization constructions in Turkish, input data will also not be sufficient to lead learners to the correct prosodic representations.

This takes us back to the research question, posed above: Will learners still be able to reach target-like representations despite all the challenges mentioned here?

3.2 L2 acquisition of sentential stress

In accordance with the FTFA Hypothesis (Schwartz & Sprouse 1996), I hypothesize that L2 learners of Turkish with L1 English will not internalize (i.e. they will not be affected by) linguistically-misleading classroom generalizations such as (11) (see Belikova 2008, 2013 for more discussion on this line of reasoning), and thus be able to acquire the difference between (16a) and (16b).

Success is also predicted by the Prosodic Transfer Hypothesis (PTH) (Goad, White & Steele 2003; Goad & White 2004), which allows full access to UG in syntax but access through existing L1 prosodic representations in phonology (cf. Goad & White 2008). Accordingly, although English stresses the subject of unaccusative sentences with both definite and indefinite subjects (e.g. Ladd 1996; Selkirk 1984; Zubizarreta 1998), using a structure like (17a), L1 English-speaking learners of L2 Turkish should also be able to use (17b) correctly. More specifically, they should be able to do this either by combining two PPhs, a strategy that exists in the L1 or by using the prosody of unergative constructions available in the L1, which is similar to (17b), though for a different reason. In English unergatives, the rightmost PWd is the head of a PPh, as well as the rightmost PPh being the head of an I (i.e. in the default case, all heads at higher levels are rightmost unlike Turkish (Ladd 1996).

Being able to produce Turkish sentences with either prosody should not, then, be a problem for L1 English speakers, within the PTH. In addition, according to the FTFA, they should be able to use the correct prosody in the right context despite the following factors; (i) the L1-L2 differences in the usage of these prosodic structures; (i) the differences regarding the values of the parameters assigning head status to prosodic constituents, and (iii) a rule like (11).

3.3 Study 2

In order to test these hypotheses, several elicited production tasks in the form of interviews have been conducted with adult English-speaking learners of Turkish. Elicited production tasks were chosen, because highly specific contexts and scenarios were needed in order to elicit the relevant utterances that rarely occur in spontaneous speech.

As such, the number of participants was kept rather small: two advanced L1 English learners of L2 Turkish (whose proficiency was confirmed independently by a cloze test). They received instruction according to the pedagogically reasonable/linguistically incorrect rule (11). This has been confirmed as a result of a detailed examination of the textbooks learners used and an interview with the teacher.

Each participant produced approximately 2000 utterances during the interviews. There were three interviews with Participant 1 and two interviews with Participant 2. I focus, here, on one comparison (i.e. the one between sentences like (16a) and (16b), repeated as (18a) and (18b)):

(18) (= (16))

a.	[[**Adám**	gel-dí]PPh]I	vs.	b.	[[**Adám**]PPh	[**gel-dí**]PPh]I
	man	arrive-PAST			man	arrive-PAST
	"A man arrived."				"The man arrived."	

Sentences like (19) or (20), on the other hand, were not included in the analysis:

(19) [[**Adám**]PPh [**ev-é** gel-dí]PPh]I → *vague between the use of rule (11) and the correct rules given in 3.1*
man home-DAT arrive-PAST
"The man arrived home."

(20) [[**İyí** adám gel-dí]PPh]I → *solves the vagueness of sentences with indef. subjects like (18a), but few examples found in the data*
good man arrive-PAST
"A good man arrived"

Forms like (19) were not included, because they are ambiguous with respect to what is being tested. In other words, if learners produce such sentences with the correct stress pattern, it is not entirely clear whether this has been done because they have used the correct prosodic structures (i.e. based on the parameters PPh-head=leftmost and I-head=rightmost), or because they have simply employed the rule in (11). As for (20), even though this would have helped resolve a similar case of ambiguity caused by simple sentences with indefinite subjects such as (18a), this was not included in the analysis because there were very few examples of such sentences in learners' production. The rarity of such examples in the data could be due to the fact that when the noun is modified with an element like an adjective, there is a greater possibility for that noun to be definite than indefinite semantically.

3.4 Results and discussion

The results confirm our hypotheses. Both participants stressed the correct constituent more than 95% of the time in both (16a) and (16b)-type of sentences (i.e. simple sentences composed of a predicate and an indefinite or a definite subject). The results from both participants are summarized below in Table 2 and 3:

Table 2. Results for Participant 1

Participant 1	**Sentences with an indefinite subject**	**Sentences with a definite subject**
Correct	52	83
Incorrect	1	4
Percentage correct	98.11	95.40

Table 3. Results for Participant 2

Participant 2	**Sentences with an indefinite subject**	**Sentences with a definite subject**
Correct	45	68
Incorrect	2	2
Percentage correct	95.74	97.14

The purpose of the second study was to investigate whether or not L2 learners can acquire linguistic representations constricted by UG despite linguistically-misleading classroom generalizations such as (11), and despite the lack of sufficient input to lead them to the correct analysis. I have hypothesized that if UG is available to L2 Turkish learners, they should be able to unlearn a linguistically impossible rule like (11). In other words, if interlanguage grammars are restricted by the options provided by UG, there should be no reason, I have argued, for learners to assume that a UG-incompatible rule such as (11) would hold true, no matter how pedagogically reasonable it is.

The results of the current study have confirmed this hypothesis: The participants correctly placed sentential stress on the first PWd within the last PPh in the I, as per the correct PPh- and I-level stress/prominence rules of Turkish (see Özçelik & Nagai 2010, 2011). In addition, they did so more than 95% of the time, irrespective of this strategy stressing the word (or phrase) immediately preceding the predicate as in (16a) (a sentence with an indefinite subject), or, crucially, the predicate itself as in (16b) (a sentence with a definite subject). Note that, in the latter case – for sentences like (16b) – the correct stress pattern could not have been

reached by using rule (11), for this rule fails to account for the *non*-pre-predicate stress pattern observed in such sentences.

The sentence-final stress pattern achieved for constructions like (16b) could not, likewise, have been accomplished by using a simple strategy that says, "Stress the predicate/verb in sentences with a definite subject, but stress the subject in those with an indefinite subject," for it is not always the case that sentential stress/prominence falls on the predicate when a sentence has a definite subject, as illustrated by examples like (14b) or (19). In these sentences, sentential prominence happens to fall on the constituent immediately preceding the predicate – as would also be coincidentally predicted by rule (11) – for this constituent is the first PWd within the last PPh in the I. The participants' production of these sentences was also target-like (yet the analysis presented here did not focus on this issue). As such, such a strategy, which makes use of definiteness and overlooks the facts of the syntax-prosody interface or the prosodic parameters of Turkish, could not have been the factor behind participants' correct productions.

Likewise, this knowledge learners seem to have could not have come from instruction, either. In fact, instruction leads them to an incorrect analysis, as explained above. Similarly, input is not very helpful to eliminate the effects of misleading instruction: the prosodic structure in (16b), the one not captured by rule (11), is used also for topicalization constructions in Turkish. Thus, a learner faced with such a prosodic structure will not necessarily feel the need to revise his or her knowledge gained from (11), unless UG is at work. Instead the learner will assume that such constructions involve topicalization. Moreover, sentential stress happens to fall on the pre-predicate position in many cases (e.g. (14b) and (19)), thereby confirming the learner's initial incorrect assumption about the target language.

Finally, negative evidence is also probably not available in this domain. In other words, a learner always *producing* sentences consistent with (11) will not be wrong (though problems might arise in *interpreting*) because such sentences will be correct at least on a focused interpretation of the pre-predicate constituent. This is because, as mentioned above, this position is also the focus position in Turkish. Therefore, an L2 Turkish learner who consistently chooses the wrong stress pattern in line with (11) will not be corrected.

The knowledge could, therefore, have been made possible only by means of access to UG. The findings are, thus, in line with such approaches as the FTFA and the PTH. As expected by the FTFA, although L1 and L2 differ with respect to the relevant prosodic and syntactic parameters, L2 learners were able to reach target-like representations. This is only possible via UG access, for neither teaching nor input is helpful to learners in the process. Likewise, some of the other non-linguistic strategies like the ones mentioned above will not be helpful for them,

either. Nevertheless, the results are not in conflict with the Full Access without Transfer view (e.g. Flynn & Martohardjono 1994) (following White's 2003 usage of the term), since no lower-level learners of Turkish have been tested to reveal (initial) transfer effects. Similarly, as expected by the PTH, the learners were able to use both prosodic representations in (16) (= (17)), for both could be reached based on L1 prosodic structures.

In sum, learners were not only able to access all the relevant prosodic structures as would be predicted by the PTH, but they also used them correctly in the right context, as expected by UG-based approaches such as the FTFA.

Finally, note that Study 2 was conducted only with two advanced-level participants. Also, these two participants were not among the participants of Study 1. Therefore, the findings should be treated with caution, particularly while comparing the results of the two studies. Nevertheless, I believe that the level of successful representations achieved by the two advanced learners, despite all the challenges in the learning conditions, is still revealing for L2 acquisition of sentence-level prosody.

4. General discussion and conclusions

Acquisition of L2 Turkish phonology is a relatively under studied area. This is even more so when it comes to autosegmental phonology, of which prosody is a major component. This paper has investigated acquisition of both lower- and higher-level prosody in Turkish, examining the results of two different studies designed to explore the two different levels of prosody. The findings are revealing for our understanding of how acquisition of prosody works in the L2. In addition, the findings can contribute in significant ways to our knowledge of certain theoretical issues such as the role of UG in adult L2 acquisition. The two studies have demonstrated, for example, that L2 acquisition of prosody, both at lower and higher levels, is constrained by the options made available by UG, whether this means convergence to the target grammar as in the case of higher-level prosody or divergence from the target grammar as with lower-level prosody.

Regarding lower-level prosody, the findings of Study 1 (Section 2) provide evidence for theories of L2 acquisition that attribute a central role to UG (e.g. White 1989b, 2003). First of all, it has been found that the interlanguage grammars of the English-speaking participants at each stage of the path (see (6) through (10)) are all possible grammars constrained by UG, although they are neither like the L1 nor the L2. As such, this knowledge could not have been acquired on the basis of L1 transfer or L2 input. It could only have come from UG. Second, certain stages (i.e. interlanguage characteristics) such as a weight-insensitive iambic system that

permits feet like (HĹ) and (HH́) (i.e. with a heavy syllable in foot-dependent position), did not emerge in the productions of the English-speaking participants, although this would be a pedagogically reasonable stage ('cognitively most logical' stage after (8)). This was because such a grammar is not permitted by the inventory of feet provided by UG (e.g. Hayes 1995; McCarthy & Prince 1986). Instead, learners lengthened final open syllables/heads of iambs (see (9) and (10)), in accordance with universal tendencies (Hayes 1995). Third, the phonetic cues for stress, for the English-speaking participants with both trochaic and iambic grammars, were consistent with universal tendencies in that trochaic grammars used intensity, whereas iambic systems used duration in cueing stressed syllables (Hayes 1995). Crucially, when these learners changed from a trochaic grammar to iambic grammar, they also changed the dominant correlate of stress from intensity to duration, although duration is not a correlate of word-level prominence in footless languages like L2 Turkish, nor is it a correlate important to the same extent in trochaic languages like L1 English.

Similar to data pertaining to lower-level prosody, data from the acquisition of higher-level prosody in Turkish (Section 3) provide insight into the role of UG in L2 acquisition. Based on the results of an experimental study with two English-speaking advanced learners of L2 Turkish, it was concluded that higher-level interlanguage prosody is also constrained by UG. This conclusion is reached based on the finding that, unlike Study 1, the participants tested in Study 2 used target-like prosodic structures in representing Turkish sentential stress, and that they were able to do so *despite* the fact that L1 and L2 differ with respect to the relevant parameters, and that the participants were previously taught an incorrect sentential stress rule. The findings of Study 2 indicate that L2 learners can go beyond instruction, and, where relevant, they can eliminate its negative effects because their grammars prohibit mental representations that are not constrained by UG. L2 learners' success in this study cannot be explained based on input, for input data are conflicting in this domain. Negative evidence, likewise, seems unavailable. All in all, as with Study 1, Study 2 provides evidence for UG in L2 acquisition.

Furthermore, the findings of both studies are clearly at odds with the Fundamental Difference Hypothesis (e.g. Bley-Vroman 1990) and other approaches that attribute no place to UG in adult L2 acquisition (e.g. Beck 1998; Clahsen & Hong 1995). In these approaches, only domain-general problem-solving skills are operative in L2 acquisition, and adult L2 learners do not have access to UG. However, as the results of both studies demonstrated, English-speaking learners of L2 Turkish were able to converge on the grammars of native Turkish speakers. When convergence was not possible, they were able to make various changes in their grammar through parameter resetting. In other words, parameter resetting

was also possible, contra 'no parameter resetting' approaches such as Hawkins and Chan (1997). This was possible despite misleading instruction.

Finally, it should be noted that the two studies also have some crucial implications for Turkish language pedagogy. It is the lower-level prosody in Turkish that needs extra attention in the language classroom. This is because this area is particularly prone to problems, particularly for learners whose L1 requires words to be footed as in English. As presenting learners with positive evidence is not sufficient in these cases, Turkish language teachers would also need to provide negative evidence by explicitly working on learners' pronunciation. For higher-level prosody, on the other hand, positive evidence seems to be sufficient to lead students to the correct analysis of Turkish sentential stress (although they had been taught an incorrect rule). This implies that the pedagogical emphasis in the Turkish language classroom should particularly be on lower-level prosody such as word stress, but not on higher-level prosody such as sentential prominence.

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