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THE BABY IN THE RHYTHMIC BATHWATER

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TESL/TEFL professionals are generally aware that the version of stress-timed rhythm commonly taught has been thoroughly discredited by linguistic research: Native English speakers do not accent every content word nor do they deliver accents at regular intervals. To do so is to speak an unknown variety of English that challenges listeners' ability to understand. Less well known is that another model of English rhythm has existed for as long as the term *stress-timed rhythm* has. This model comes from phoneticians' fieldwork on spontaneous speech and describes a variety of English in actual use.

This paper addresses instructors interested in teaching a more authentic English. Recognizing that stress-timed rhythm and pedagogical practices promoting it have some merit, it seeks to (a) separate the valuable parts of the stress-timed model from the worthless parts—the proverbial "baby" from the "bathwater;" (b) expand on the valuable parts to describe the alternative model more fully; and (c) identify ways to integrate the alternative model into pronunciation teaching even when teachers are using textbooks built around stress-timed rhythm.

INTRODUCTION

Most British, American, and Australian ESL/EFL pronunciation textbooks claim to teach a certain regional, social, or functional variety of English (Hewings, 2007; Grant, 2016; Zawadzki, 1994). Their target is nonetheless implicitly, if not explicitly, spontaneous speech. While attention to prosody and connected speech has moved textbooks closer to ordinary talk, they are unlikely to reach this target by continuing to teach the traditional model of rhythm—stress timing, for which phoneticians have found no empirical support (Arvaniti, 2012, pp. 351-53). Phrases spoken with this non-English rhythm undermine intelligibility by making it harder for listeners to understand and remember meaning (Hahn, 1999; Dickerson, 2016). To prepare learners to use everyday English, we need to teach them a more accurate variety of its foundational rhythm.

In Dickerson (2015), I describe the dominant rhythm of unrehearsed speech, namely, the *two-peak profile,* and trace the 70-year history of British and American research supporting it.[1] I also show how to make this model accessible to linguistically unsophisticated learners of English. This paper addresses a major impediment to progress in English rhythm pedagogy: If stress timing does not accurately represent English, and the two-peak profile does, how can ESL/EFL instructors teach the rhythm of English using a textbook that promotes stress timing, as most do?

[1] Kenneth Pike is the earliest phonetician I have found who identified the two-peak profile (Fries 1945, p. 64). (References in Fries are to Pike's work.). Other researchers who have described the two-peak profile as characteristic of spontaneous speech are Bolinger (1961), Brazil, et al. (1980), Cauldwell (2002), and Wells (2006).

AGAINST THE GRAIN

Whenever an improvement in ESL/EFL pedagogy comes along—a model or approach—the history of our field identifies our inclination. At some point we adopt the new and reject the old (Murphy & Baker, 2015). The two-peak profile is one such improvement. While not actually new, its implementation for ESL/EFL instruction is. Given our tendency to discard the old—in this case stress-timed rhythm, this paper cautions against tossing out the BABY (enduring concepts) with the bathwater (unsupported concepts)—lest we reject things of value to the two-peak profile when rejecting the repudiated model. Finding the real worth in stress timing is the place to start.

Over a period of three academic years, I transitioned my pronunciation course from an emphasis on stress-timed rhythm to the more faithful two-peak model. In the process, Laura Hahn and I rewrote *Speechcraft*, our pronunciation text (Dickerson & Hahn, forthcoming). What follows summarizes the issues we addressed during this transition.

TWO MODELS

The constructed examples in Figure 1 illustrate how the two models of English rhythm would mark accents. The filled-in bullet (●) we call the **primary peak**. Bolinger (1961) calls it an *accent,* Halliday (1967), the *tonic,* and Wells (2006), the *nucleus*. In pedagogical texts it goes by *prominence* (Celce-Murcia, et al., 2010), *focus word* (Gilbert, 2012; Grant, 2017), and *primary stress* (Hahn & Dickerson, 1999). The hollow bullets (○) to its left, if any, are accents of a lesser degree. In the two-peak profile, the single hollow bullet is the **anchor peak,** also known as the *onset* (Wells, 2006). These accents combine rhythm and intonation and return to an approach to rhythm advocated by Pike (1945), where accented syllables begin intonation contours in speech. All other words and syllables in a phrase compose what we call **valleys.**

Stress-Timed Rhythm		**Two-Peak Profile**
○ ○ ○ ● I live seven blocks from campus.	1	○ ● I live seven blocks from campus.
○ ○ ○ ● His popular seminar is rarely canceled.	2	○ ● His popular seminar is rarely canceled.
○ ○ ○ ○ ● Which library has the best facilities?	3	○ ● Which library has the best facilities?
○ ○ ● She's an engaging public speaker.	4	○ ● She's an engaging public speaker.
● You could have told me about him.	5	● You could have told me about him.

Figure 1. Accents according to TESL's stress-timed rhythm and the two-peak profile.

In the examples above, the same rule places the primary peak in both models. Different rules assign lesser accents. According to the model of stress timing commonly found in ESL/EFL materials (left column above), a lesser accent goes on every lexical word—noun, adjective, verb, and adverb—and certain categories of grammatical words, namely, information-question words, demonstrative subject pronouns, and indefinite subject pronouns, collectively called *content*

words. All remaining grammatical words are *function words* (Pike, 1945).[2]

We (Dickerson, 2004; Hahn & Dickerson, 1999) find it helpful to relabel these groupings. We use the term *content word* for the four categories of lexical words. The grammatical categories that Pike includes with content words, we call *loud function words.* To this group we add negative words. The words that Pike calls *function words,* we label as *soft function words.* See Table 1.

Table 1

Divisions of the English lexicon in Dickerson, (2004); Hahn & Dickerson, (1999)

Content Words	Loud Function Words	Soft Function Words
Nouns	Negative words and contractions	Articles, pronouns, prepositions, auxiliaries, modals, conjunctions, etc.
Adjectives	Information question words	
Verbs	Demonstrative subject pronouns	
Adverbs	Indefinite subject pronouns	

The two-peak profile has at most only one lesser accent per phrase—the anchor. It is assigned from the beginning of the phrase after the primary peak is in place. The anchor prefers words with the highest semantic salience among content words and loud function words, specifically, number words (**#**) (example 1 in Figure 1 above), **n**ouns (example 2), **a**dverbs, **i**mperative verbs. All **l**oud function words are also anchor preferences (example 3). A memory aid for these preferences is the acronym **#NAIL** (Dickerson, 2015)**.** The anchor settles on whichever preference comes first in a phrase. At times you must pass over a word or two to find a preference. If no #NAIL word occurs left of the primary peak, the anchor will default to the first adjective or verb (**1st Aj/V**), if available (example 4). If not available, then there is no anchor (**Ø**) (example 5). The anchor-placement decision procedure is abbreviated as #NAIL, 1st Aj/V, Ø (null).[3] These are the ordered steps of the rule:

1. Numbers, nouns, adverbs, imperative verbs, loud function words (in any order)
2. 1st Adjective or Verb
3. Otherwise, no anchor

[2] Pike does not list negatives. Prator & Robinett make negatives explicitly part of content words in 1985, p. 31.

[3] Pike also found that native speakers regularly hop over non-imperative verbs and non-number adjectives: "In a short subject-verb-complement phrase, the verb is often left unstressed" (1945, p. 118): *They gave us fruit for our dessert* (Fries, 1943, p. 293). He also deaccents phrase-initial adjectives: *There's a small grocery store on State Street* (Fries, 1943, p. 202). Lacking a #NAIL word, the anchor defaults to the first adjective or verb, if available, e.g., *He's writing a large book* (Fries, 1943, p. 292). If unavailable, there is no anchor, e.g., *Does he want it?* (Fries, 1943, p. 222).

THE BABY IN THE BATHWATER: WHAT ENDURES

With both models and their rules for assigning lesser accents (○) before us, we can now identify the features and classroom activities that stress-timed rhythm got *right* because they apply equally to the two-peak profile. This reveals a partial picture of the BABY; the rest will appear when we discuss alternatives to the discarded bathwater.

First, both models claim that the neutral position of peaks and valleys is predictable. This reassuring claim says to learners: "There's a pattern to follow; you don't have to guess."

Second, as noted, both models select words for peaks and valleys based on their semantic salience, using Pike's *content word* / *function word* dichotomy as defined by parts of speech.

Third, in both models only one syllable is most-prominent (the primary peak) in a non-contrastive (neutral) phrase. It occurs on the same syllable of the same word in both models. This default placement is the final content word in the phrase.

Stress-Timed Rhythm	**Two-Peak Profile**
○ ○ ○ ●	○ ●
I live seven blocks from campus.	I live seven blocks from campus.
↑	↑

Fourth, both models are capable of signaling emphasis with the primary peak because it can override any other degree of stress. Here the primary peak moves to the word *best.*

●	○ ●
Which library has the best facilities?[4]	Which library has the best facilities?

Fifth, in both models some neutral phrases have only one primary peak and no other accents. Such phrases have neither stress timing nor two peaks, despite the names of their models.

●	●
You could have told me about him.	You could have told me about him.

Sixth, instructors of both models help learners create their respective rhythms by contrasting peaks and valleys to make peaks stand out, and compressing valleys to reduce their size.

These six comparisons show that when we taught stress timing, some features also applied to the two-peak profile. These commonalities might suggest that stress timing *almost* got English rhythm right. That is not the case. There is much more to the BABY than these six points.

THE REST OF THE BABY: WHAT REPLACES THE BATHWATER

To talk about the differences between the two models, and what must be tossed out, we also need to identify what replaces each rejected notion and adds to the picture of the BABY.

Seventh, the two models use the word *rhythm* differently. For stress timing, rhythm is regular. Predictable beats make valleys the same size. We now know that the impression of regular timing is a perceptual illusion (Cauldwell, 2002). In the two-peak profile, rhythm is unrelated to time; its

[4] To emphasize a particular word, Pike says "stress that word and eliminate the normal stress in the sentence" (Fries, 1943, pp. 175-76).

valleys are different sizes. Rhythm is in the repeated alternation between peaks and valleys. This *non-temporal sense of rhythm* is part of the BABY; equally paced accents are bathwater.

Eighth, we do not put an accent on every content word in a phrase. Prator (1951, pp. 25-26) introduced this accent rule 65 years ago to help his ESL students predict accents, despite Pike's repeated insistence to the contrary.[5] The infrequent use of *peaks in a phrase—at most only two—* is a feature of the BABY. Accenting every content word is bathwater.

Ninth, the rationale for compressing valley words is different. Stress-timed rhythm claims that we compress to keep peaks coming at an even tempo (Fries, 1943, p. 200). Given that peaks do not occur at regular intervals, there must be another reason to compress valleys.

Wells (2006, p. 234) says that the words from the anchor peak through the primary peak form a semantic unit he call the *focus domain* or *foreground* of the speaker's message.[6]

She's an [engaging public speaker].

Solely producing peaks in a phrase does not ensure that listeners will hear the accented words as a unit. Olle Kjellin says that the two peaks bounding the unit must also be close enough together (1999, p. 12). To draw peaks together, speakers must use (a) a rapid delivery having the expected rhythm and (b) valley compression. *Squeezing valley syllables to improve the comprehensibility of a message* is a meaning-based reason to compress valleys and part of the BABY. Compression to maintain a regular tempo is bathwater.

Tenth, the consequence of not accenting every content word is that lexical words fill valleys generally making them longer (on the right below.) *Suppressing lexical stress* is a dominant feature of spontaneous spoken English and part of the BABY (Wells, 2006, p. 229).

I live seven blocks from campus.	1	I live seven blocks from campus.
His popular seminar is rarely canceled.	2	His popular seminar is rarely canceled.
Which library has the best facilities?	3	Which library has the best facilities?
She's an engaging public speaker.	4	She's an engaging public speaker.
You could have told me about him.	5	You could have told me about him.

Figure 2. Comparison of valleys in stress-timed and two-peak profile phrases.

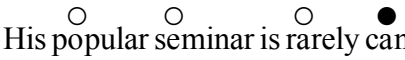
Eleventh, while both models of rhythm can signal emphasis with the primary peak, only the two-peak profile can signal emphasis with the anchor peak. A lesser accent on every content word in

[5] In Fries (1943), Pike demonstrates that *no* class of words always carries a peak or is always in a valley. The prominence of a word depends on the meaning highlighted or backgrounded by the rhythm of a phrase.
[6] Brazil, et al. (1980, pp. 39-42) call this unit the *tonic segment.* It carries all the intonational meaning of the phrase.

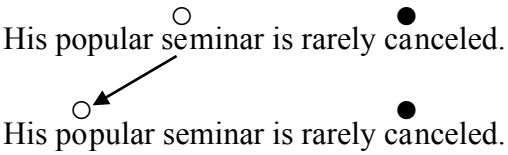
stress-timed phrases precludes moving or adding an accent (left-hand example below). In the two-peak profile, moving or adding anchors for emphasis is not only possible; it is also common. On the right, the neutral anchor is given first.

Now imagine talking about a professor's popular and not-so-popular seminars. When you want to comment on his popular seminar, you move the anchor to *popular* to contrast it with the *unpopular* seminar, as in the second phrase on the right. The *flexibility to emphasize with the anchor* is another part of the BABY.

Stress-Timed Rhythm



Two-Peak Profile



The **twelfth** contrast concerns the length of spoken phrases. Phrase length is irrelevant to stress-timed rhythm; speakers accent each new content word, however long the phrase. By contrast, the two-peak profile is a feature of only one style of speech, namely, spontaneous speech. In this style, the limits of on-the-fly speech processing constrain phrases to about seven words.[7] *This word limit is integral to the two-peak profile,* and another critical part of the BABY.

This comparison of the BABY and the bathwater fills out the picture of the BABY and suggests how to teach the two-peak profile even when our textbook encourages stress timing. It also makes clear the underlying motivation for such instruction.

The prosodic features of spontaneous English speech—those we call the BABY—help listeners understand the speaker's meaning. Our pronunciation teaching should therefore *help learners help listeners*. We can help learners, first, by selecting appropriate rhythm content for their level of English. Second, we can provide appropriate practice materials and activities that promote their rhythm skills. We consider the second point first.

APPROPRIATE PRACTICE MATERIALS AND ACTIVITIES

A. Use short phrases and help learners create them. Short, simple phrases in the range of 1 to 7 words are a courteous length for listeners who are accustomed to hearing and processing language packaged this way. When learners speak spontaneously they naturally respect these limits. When they deliver memorized text or read from a script, they generally ignore them, challenging listeners' processing capabilities.

We can help learners become comfortable with the sound and feel of the two-peak profile if *all* practice phrases stay within the 1-7-word range. We should go farther than this. Many learners, especially burgeoning academics who often give presentations from a text, need explicit instructions on how to recast written phrases and add boundaries to simulate spontaneous speech. They also need periodic practice using these instructions.

B. Practice identifying parts of speech. Recognizing parts of speech is an essential skill, whether predicting the primary or the anchor peak. Most students can do this because of past instruction. Some, however, need extra help identifying the four types of lexical words and the

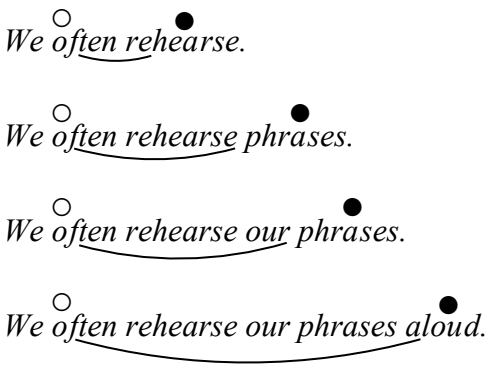
[7] Our study of 607 spontaneous phrases in two transcripts in Brazil, et al. (1980) shows that 95% and 94%, respectively, are within the 1-7-word range.

four types of loud function words. Teachers who offer such help can turn a highly-frustrated student into one who experiences a satisfying level of success using oral English.

C. Give prediction homework. In our experience, learners position peaks more accurately if they do out-of-class, pencil-and-paper exercises placing peaks by rule and then pronounce their predictions aloud. Such practice enables them to monitor and correct themselves better in class and out of class. In class, instead of correcting students' rhythm, we ask leading questions (queries) that guide them to self-correct. Out of class, these same queries and prediction rules are valuable internal resources for ongoing self-improvement. The positive long-term effects of using formal rules are confirmed in Sardegna's (2009) research.

D. Target rhythm basics in oral practice. Most learners do not intuitively use their voices to highlight and background vowels or to compress valley syllables. Therefore, in-class oral work should include regular practice contrasting the suprasegmentals of peak and valley vowels, and using assimilation, trimming, reduction, and linking to compress valley syllables.

Among rhythm basics, teachers should also be prepared to help learners sustain quick, quiet syllables across every word in a valley, whether lexical or grammatical. A tool often associated with stress timing can help. Instead of emphasizing valleys of uniform size, we can repurpose build-ups to increase learners' control of longer and longer valley strings. The following build-up focuses on the valley between peaks, allowing learners to extend its duration as syllables increase.



We find no value, however, in exercises that promote stress timing—rhymes, limericks, chants, and poems.

We are not suggesting that other exercises in stress-timed textbooks are also worthless. While students need work on the fundamentals in points A-D to become familiar with the new rhythm, their practice materials must incorporate these basics into spontaneous speech. Here is where many current pronunciation textbooks can help, despite their stress-timed orientation, by offering interactive exercises to engage learners in authentic, purpose-driven talk that will call on the rhythm practice they have done.

APPROPRIATE CONTENT FOR ANCHOR PLACEMENT

Ideally our pronunciation instruction should match learners' English proficiency. This ideal raises the ever-present tension between accuracy and simplicity. Teaching experience and data inform

our advice on anchor placement.

For beginning adult learners, I recommend Wells' anchor-placement rule: "Only the *first* content word receives an accent" (2006, p. 207 Wells' emphasis). By content word he means noun, adjective, verb, and adverb. To these he adds information-question words, negative words, and demonstrative subject pronouns (pp. 237-40). The first of these in a phrase is the anchor. Otherwise, there is no anchor.

I make this recommendation advisedly. Instructors should understand the consequences of this choice. Wells' simplification misplaces the anchor in certain phrases beginning with adjectives, verbs, adverbs, and indefinite subject pronouns.

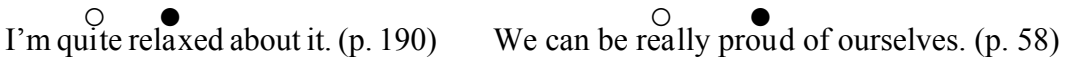
Initial Adjectives and Verbs

In the first case, Wells' rule puts an anchor on *popular* instead of *seminar,* unexpectedly emphasizing the very adjective that native speakers skip over when a later #NAIL choice is available.[8] In the second, his rule predicts the anchor on *live* instead of *seven,* the same verb that native speakers bypass when a #NAIL word occurs later in the phrase.[9]

Initial Adverbs

Pike (Fries 1945:64) found that adverbs of degree modifying adjectives and adverbs are deaccented so regularly that he categorized them with function words. Our data leads to a similar conclusion, with this refinement: Deaccenting is uniform only with the most common adverbs, e.g., *fairly, kind of, pretty, quite, rather, really, so, somewhat, sort of, too, very,* but does not extend to adverbs of degrees that are inherently emphatic such as *awfully, utterly, thoroughly, absolutely, completely, terribly, extremely.*

By contrast, Wells treats all adverbs alike, consistent with his general rule. *Pretty, quite, rather, really, so, very* in anchor position are accented in his materials; common adverbs of degree therefore sound emphatic when they would not be so in everyday speech.



Initial Indefinite Subject Pronouns

In his most detailed discussion of function words that can carry an anchor, Wells (pp. 237-40) omits indefinite subject pronouns, although he uses *all, anyone, both, everyone, nothing, others, some, someone, something* as subjects elsewhere in his text. Pike lists these as a category of content words; we also include them as one of the four groups of loud function words. By omitting indefinite subject pronouns as accentable, learners will misplace the anchor in phrases similar to these constructed examples:

[8] Our analysis of more than 6800 phrases in his text (and available audio) shows that Wells (2006) does not have a single instance of this structure: Adjective + #NAIL + primary peak. It is problematic for his first-content-word rule.
[9] In the same sample referred to in note 8, Wells (2006) has only one marked instance of the form Verb + #NAIL + primary peak, *I'd like a pound of apples, please* (p. 146). He puts an anchor on *pound*, breaking his own rule.

Given these errors, should Wells' simplification be recommended at all? The reality is that language systems are complex; we teach beginners inaccuracies whenever we simplify language descriptions. The challenge is to assess the impact: Does the simplification capture the essence of a behavior most of the time despite the errors? How do mispredictions affect communication? Our field's traditional version of stress timing, for example, yields a non-English rhythm nearly *all* the time. The costs to communication are detailed in Hahn (1999) and Dickerson (2016). In stark contrast, Wells' simplification captures the neutral rhythm of native speakers at least 90% of the time, in our estimation, with minor communication damage. Adding value to his rule is that it avoids complexities in the native-speaker rule that can lead some beginners to reject anchor placement altogether. An important byproduct of analyzing mispredictions is that we know exactly what to teach when learners are ready for the next step. This is why we say that, for beginners, Wells' simplification trumps absolute accuracy.

For advanced learners, I recommend teaching the anchor-placement rule that native speakers use (including indefinite subject pronouns as part of loud function words and excluding common adverbs of degree from #NAIL). The anchor-placement protocol correctly predicts a neutral anchor in all four cases above. The benefits are clear: When listeners have high expectations for accuracy, it is important not to surprise them with unexpected emphases nor confuse them with less-than-helpful peaks. Wells (2006, p. 2) tells us why: "[N]ative speakers of English . . . do not make allowances for errors in intonation [including accent placement]. [T]hey assume that—when it comes to intonation—you mean what you say." This is why, for advanced learners, accuracy trumps simplicity.

CONCLUSION

In their move from stress-timed rhythm to the two-peak profile, we advise instructors to resist the urge to toss out the BABY—important truths and pedagogical practices—with the bathwater of stress timing. We also encourage them to keep their favorite stress-timed pronunciation text. To make the transition, however, they do need to be strategic in using the text—insisting on short phrases to simulate spontaneous speech, and ignoring exercises that accent every content word and loud function word and that urge regular timing. These small changes to instruction can make a dramatic difference in their students' spontaneous speech.

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