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## A PRACTITIONER'S GUIDE TO ENGLISH RHYTHM: A RETURN TO CONFIDENCE

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The TESOL version of English rhythm, often called stress-timed rhythm, comes to us in a coherent and persuasive narrative, honed by decades of unquestioned acceptance and use. Appearing in the 1950s, this version enjoyed 30 years of near-universal popularity within the profession. However, during the latter half of this period, linguistic researchers found a uniform lack of empirical support for the core tenets of this model. By the early 1980s, evidence against the model became too great to ignore, launching a period of growing doubt among TESOL professionals about how to describe English rhythm. After more than three decades in this unsettled state, we can now see beyond stress timing to an alternative model of rhythm and to a return to confidence about how English rhythm works. This guide traces the history of our growth and assembles the critical evidence underlying it. The intent is to make it easier for ESL/EFL teachers and teacher educators to describe and to teach English rhythm. It also cautions practitioners about continuing to promote TESOL's now-discredited model.

### INTRODUCTION

English rhythm has always been described in hedging language. For example, note the words *tend to*, *relatively*, *approximately*, and *in general* in the following.

In sentence rhythm the stressed syllables tend to occur at relatively regular intervals.... This uniformity is preserved when the number of syllables in each rhythm group varies; but each group occupies approximately the same amount of time (Fries, 1943, p. 200).<sup>1</sup> In general *content words* are *stressed*, but *function words* are left *unstressed* (Prator, 1951, pp. 25-26 [italics in the original]).

This mild equivocation was acceptable because stress-timed rhythm was assumed to be a dominant, if not categorical, speech behavior in English. Now, more than 60 years later, and after this assumption has been found to be false, the tone is different. Having described stress timing essentially as above, Celce-Murcia, Brinton, Goodwin, and Griner (2010) continue:

We should note here that the distinction between stress-timed and syllable-timed languages is not universally accepted.... However, most pronunciation researchers

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<sup>1</sup> In Charles Fries' 1943 ESL materials, Kenneth Pike prepared all the pronunciation lessons (Fries, 1943, p. iv). When citing Fries (1943), we are referring to Pike's contribution in all cases.

and practitioners agree that stress-timing represents at least a strong tendency in English and is thus critical to include in the pronunciation curriculum. (p. 208)

What happened between the sweeping *in general* of the 1950s and the more hesitant *at least a strong tendency* in 2010 to shake our confidence about a fundamental part of English phonology? How should we describe English rhythm? What should practitioners be teaching now? This guide has been written to answer these questions and clarify the direction forward.

## A TIME OF CONFIDENCE

Two key figures, both ESL teachers, had a profound impact on TESOL's model of rhythm in the middle of the last century. Kenneth Pike was a professor and gifted linguist at the University of Michigan, doing seminal work on English intonation and rhythm. Clifford Prator, Jr. was a well-respected professor and ESL professional at UCLA, and an effective popularizer.

The model of rhythm that arose from their work was so simple and teachable, and was stated with such authority, that it settled the matter of how to describe English rhythm for most ESL textbook writers and teachers. Its three supporting pillars can be labeled succinctly.

The first, **stress alternation**, states that “the alternate stressed and unstressed syllables and the alternate high and low pitches form a *sentence rhythm*” (Fries, 1943, p. 200 [original italics]).

The second pillar concerns the timing of heavy stresses, or accents. As noted above, accents tend to recur at regular intervals so that the time between the heavy stresses—called the **interstress interval**—is about the same from phrase to phrase. This is Pike's contribution to the model. Although not the first to assert the regularity of heavy stresses (see Jones, 1918, p. 106), Pike is remembered best for this pillar because of naming it **stress-timed rhythm** (Pike, 1945b, p. 35).

The third pillar identifies where these heavy stresses occur in phrases: Every content word carries an accent.<sup>2</sup> This rule first appears in TESOL literature in Prator's 1951 pronunciation textbook entitled *Manual of American English Pronunciation for Adult Foreign Students*.

To trace the source of Prator's claim, we checked to see if it might be Pike. Prator and Pike were not only contemporaries, but Prator also drew on Pike's work extensively as he developed his pronunciation textbook.<sup>3</sup> On investigating, we learn that the accent-every-content-word rule is contrary to Pike's research. Our conclusion is that Prator himself is the source. It seems likely

<sup>2</sup> Pike defined **content words** as nouns, adjectives, adverbs of time, place, and manner, verbs, interrogative words, demonstrative and indefinite pronouns, and interjections. The rest are **function words** (Pike, 1945a, p. 118). An **accent** is a heavy stress with a pitch change.

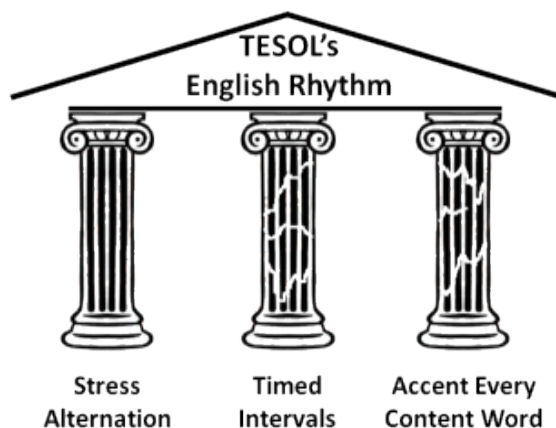
<sup>3</sup> Prator does not cite Pike as the source of his description of rhythm's timing feature. Even so, it is obvious. Prator (a) uses Pike's terms **content word** and **function word**, defined as Pike does (Prator, 1951, p. 26); (b) borrows Pike's reference to Tennyson's poem; compare Pike (1945, p. 34) and Prator (1951, pp. 24-25); (c) explains stress timing (without using the term) with the same phraseology as Pike; compare Pike (1945, p. 34) with Prator (1951, p. 24); (d) rewords two of Pike's examples to make the same point; compare Pike (1945, p. 34) with Prator (1951, p. 25).

that when Prator read Pike's rules, Prator felt they were too complex for his ESL students to use and taught instead that *every* content word should carry a heavy stress.

Prator's textbook was so easily accessible that it quickly became the most popular American pronunciation text in our profession, going through four editions (1951-1985). Along the way, it taught generations of TESOL practitioners about English rhythm, this author included. With a measure of overconfidence, authors repeated the three pillars of the model in virtually every pronunciation text since.<sup>4</sup> Lacking serious competitors, Prator's description of rhythm became TESOL's model and is now known worldwide.

## A TIME OF UNCERTAINTY

The seductive elegance of Prator's model and the profession's enthusiasm for it could not hide the fact that its foundations were untested hypotheses. When linguistic researchers examined the model, they exposed how serious the cracks were in some of the pillars assumed to support this conceptual edifice.



**Stress alternation.** The first pillar—the presence of large swings in the prominence of syllables across a phrase—is incontrovertible.

**Pike's timing pillar.** The second pillar, dealing with timing of accents, has catastrophic cracks. Arvaniti (2012, pp. 351-353) summarizes the many studies that definitively demonstrate that interstress intervals in English are not uniform in length but are proportional to the number of interstress syllables. The timing of heavy stresses is so variable that it contradicts the claim “that stress-timing represents at least a strong tendency in English” (Celce-Murcia, et al., 2010, p. 208). The regular timing of accents is therefore not a pillar of English rhythm.

<sup>4</sup> Some of those who include Prator's description of English rhythm are Beisbier, 1994, pp. 35-52; Chan, 1987, p. 113; Dale & Poms, 1994, p. 224; Dauer, 1993, pp. 84-87; Gilbert, 1984, pp. 34, 37; Grant, 2001, pp. 85-86; Hahn & Dickerson, 1999, pp. 43-46; Kozyrev & Stein, 2001, p. 27; Lane, 2005, p. 156; Miller, 2006, pp. 76-82; Zawadzki, 1994, pp. 141-144.

**Prator's accent pillar.** The third pillar embodies the claim that we “accent every content word.” It is not only foreign to Pike's research but also to his pronunciation teaching.<sup>5</sup> Throughout his teaching materials, Pike insists that learners speak in a spontaneous conversational style of speech which he describes this way: “A conversational style is characterized by *few centers of special attention* [accents] and by *many repressed lexical stresses*” (Pike, 1945a, p. 72 [Pike's emphasis]). To emphasize the second point, he says, “With extreme frequency word stress is completely suppressed in context” (Pike, 1942, p. 31). He then lists nine contexts in which the lexical stress of content words is demoted, for example, “Lower the stress marks between any two syllables with special attention [accents], within a rhythm unit” (Pike, 1945a, p. 65). Bullets in these sentences mark Pike's accents:



The new doctor's not a very good student. (Fries, 1943, p. 203)

Here the stress of *not*, *very*, and *good* is downgraded. Next, the stress of *going away* is downgraded.



She told me that Emily was going away to boarding school. (Pike, 1945a, p. 65)

Pike's other suppression rules account for the lowering of stress of content words before and after the principal accents, such as *new*, *told*, and *school* above.

Putting his observation about stress suppression into practice, Pike instructs teachers and students on how to use his pronunciation exercises as follows:

Pronounce the following sentences rapidly and evenly.... Observe the suppression of normal stress on some of the nouns, verbs, adjectives, and adverbs in this rapid pronunciation. (Fries, 1943, p. 292)

From these examples, Pike's position is clear: English speakers do not accent every content word. In fact, Pike's research effectively destroys the accent-every-content-word pillar.

To his credit, Prator knew his rule was not entirely adequate and struggled to improve it in the early editions of his textbook. Echoing Pike's observation that native speakers regularly downgrade the normal stress of content words, Prator warned his students that native speakers will violate the accent-every-content-word rule: “A native speaker of English might feel this to be an unnatural rhythm and instinctively suppress some of the stresses” (Prator, 1957, p. 27). If the rule yields an unnatural rhythm, why does Prator persist in using it in all subsequent editions of his textbook? One reason may have been that the rule makes it “a simple matter to determine

<sup>5</sup> It is important to be clear: What linguists called stress-timed rhythm and what TESOL professionals called stress-timed rhythm were not the same thing. TESOL's version included Prator's accent-every-content-word rule. This rule was absent from the linguistic version.

where the stresses are placed in a sentence” (Prator, 1972, p. 33). Also, “The basic principles—content words stressed, function words unstressed—are easy to follow” (Prator, 1972, p. 34).

For many TESOL professionals responsible for preparing the next generation of teachers and researchers in the field, the revelation that English rhythm is not stress timed was unsettling. When they asked: *What kind of rhythm does English have then?* their fundamental question was, *If not stress timed, what kind of timing, if any, does English have?* Celce-Murcia et al. (2010) above address the timing issue: (a) Keep teaching stress-timed rhythm because it is surely a strong tendency in English, and (b) note that some scholars doubt the validity of stress timing.

At the same time, Prator's accent rule was also under attack. Linguists did not challenge the accent-every-content-word rule directly because it had no place in their rhythm model. Their indirect challenge, however, surfaces in the examples they use and the comments they make in their research, as shown in the citations from Pike above (and below).<sup>6</sup> TESOL professionals were largely unaware that linguists accepted stress suppression as normal in English.

The fact is that linguistic research swept away *both* key tenets of TESOL's rhythm model, not just one. By focusing on the timing pillar and ignoring the accent pillar, TESOL professionals gave their tacit approval to continue teaching that every content word should be accented, even though the distortion it creates is more serious than the distortion of the timing pillar.<sup>7</sup>

## A RETURN TO CONFIDENCE

In order for TESOL practitioners to return to a comfortable level of confidence about English rhythm, two needs must be met: (a) an acceptance that accents are not regular in English, and (b) a proven alternative to the stress-every-content-word rule. For the latter, we return to Pike. Although his emphasis on regular timing was not justified, he offers something different for the accent pillar and deserves credit for an insight that points the way beyond accenting every content word.

Throughout his writing on English rhythm, Pike provides many examples of a rhythm that he describes this way: “Usually only one or two syllables within a rhythm unit (that is, between two pauses) will receive special attention [an accent]” (Pike, 1945a, p. 64). The following are phrases having one or two accents and from 0 to 4 content words with suppressed stresses.<sup>8</sup>

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<sup>6</sup> Wells (2006) is one of many researchers whose comments and examples also illustrate the acceptance by phoneticians of stress suppression: “The option to downgrade potential accents is a pervasive characteristic of English rhythm” (229).

<sup>7</sup> It can be demonstrated that speakers can compress multiple interstress syllables to keep accents regular (timing pillar), even when they do not do so in everyday speech. As the last section below shows, multiple accents (accent pillar) can cause serious communication damage.

<sup>8</sup> The following eight examples from Pike also illustrate the neutral anchor-placement protocol in full (Dickerson, 2015).



One man is here.

Pike, 1945b, p. 75



He seldom comes early.

Fries, 1943, p. 151



None of them believed it.

Fries, 1943, p. 340



Could you tell me the time?

Fries, 1943, p. 664



Mrs. White's little boy went to the house.

Fries, 1943, p. 359



Buy me some big brown potatoes.

Pike, 1942, p. 62



How does he get along with the students?

Fries, 1943, p. 731



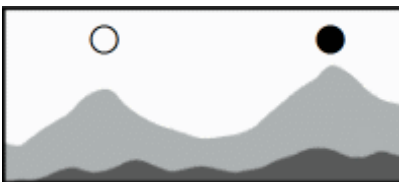
Do you remember him?

Fries, 1943, p. 221

Pike is not alone in noticing that the dominant rhythm patterns of spoken English have only one or two accents.<sup>9</sup> The names phoneticians commonly associate with these accents are the **onset** (the hollow bullets above) and the required **nucleus** (the filled bullet above). Given the results of later research, linguists now make no claim that these accents occur at regular intervals.

Pike's accent rule for English is so well documented in linguistics that we (Laura Hahn and this author) built the new edition of our pronunciation text, *Speechcraft*, around it (Dickerson & Hahn, forthcoming). We use the metaphor of a mountain range in silhouette and call this model of English rhythm the **two-peak profile**. We refer to the first peak as the **anchor peak** or just the **anchor** and to the second (or only) peak as the **primary peak**. The valleys—before, between, and after these peaks—consist of unstressed or weakly stressed syllables, including the suppressed stresses of content words. See Dickerson (2015) for the neutral anchor-placement rule.

<sup>9</sup> In Pike's study of read-aloud conversations, 86.1% of all accented phrases had only one or two accents (Pike, 1945b, p. 151). This finding is similar to that of Cauldwell who found that 91% of phrases in spontaneous speech had only one or two accents (Cauldwell, 2002, p. 15). Bolinger (1961), Brazil (1980), and Wells (2006) make similar claims about unrehearsed speech. While it is encouraging to find the same patterns in British and American English, we look forward to the results of phonetic analyses of large corpora that show us the relative prevalence of these rhythm patterns in other varieties of English of interest to sociolinguists.



Although the two-peak profile has been known for at least 70 years, starting with Pike, and has been repeatedly confirmed as characteristic of spontaneous speech, its viability for pedagogical purposes has been limited. Until recently, the position of the anchor had not been well defined nor cast in learner-friendly language. Our work to address these problems has made the two-peak profile available as a replacement for Prator's accent rule in TESOL's rhythm model and as a means to restore a sense of confidence to TESOL professionals about their understanding of English rhythm.

### THE COST OF INDECISION

With an alternative to accent-every-content-word in hand, there are now some compelling reasons to bring the two-peak profile explicitly into certain TESOL classrooms and some non-trivial costs to students if instructors do not. To illustrate, we cite Pike himself. These reasons and costs are relevant primarily to learners who want to interact easily with speakers of native varieties of English such as North American English, British English, Australian English, New Zealand English. This is because the expectations of such listeners shape speakers' requirements.

The **first cost** to learners of accenting every content word is that their speech does not sound natural to native users of English, as Prator admits (1957, p. 27). No native speakers of English (of the varieties noted above) speak acceptably if they stress every content word in every phrase.



*Unnatural:* The manager doesn't often pay his bills. (Fries, 1943, p. 292)

Saying phrases this way, speakers will certainly be accused of speaking with an odd accent or affecting an imitation of a non-native variety of English.

Pike does not equivocate: He calls stress on every content word "slow speech" and "bad accent" (Fries, 1943, p. 102). When his students spoke this way, he gave them rhythm exercises emphasizing suppressed stresses and a faster pace. One of his exercise items is this same sentence which he marks with accents indicated by the bullets.



*Natural:* The manager doesn't often pay his bills. (Fries, 1943, p. 292)

Commenting on the effect of these stress-suppression and speed exercises, Pike says, "It was then observed that when the rhythm, speed, and grouping of syllables were correct, that objectionable unnaturalness disappeared" (1945b, p. 109).

Since the two-peak profile matches what native speakers do naturally when they speak, native English teachers can readily model it for their students. The better they follow this model, the more comprehensible their speech is to native-English listeners.

A **second cost** to learners of stressing every content word is that their speech is not as polite as they may want it to be when speaking with native English listeners. A native speaker of English may occasionally accent every content word in a phrase for emphasis. It is unnatural for a native speaker to say *every* phrase this way because of the way it will be interpreted. What is the emotional impact on a native English listener of a conversation filled with what Pike calls “emphatic” phrases like these (Fries, 1943, p. 174)?



He never had a chance to apologize.

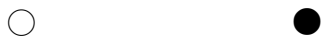


Or maybe he was just too proud.

The impression is that of insistence. Conscientious students who are trying to implement Prator's rule may sound pushy and rude, even irritated or aggressive. They cannot sound calmly polite to a native listener. By contrast, the two-peak profile registers as neutral with respect to such overtones:



He never had a chance to apologize.



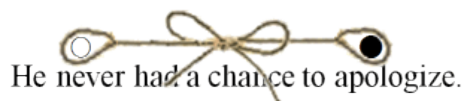
Or maybe he was just too proud.

A **third cost** to learners of stressing every content word is that their speech can delay native listeners' sentence processing and slow their comprehension. Why do extra peaks have this effect? Gorsuch, Meyers, Pickering, and Griffee (2010, p. 7), following Brazil (1997), correctly observe that native speakers typically highlight one or two salient words in each thought group. If a speaker highlights additional peaks, they compete for attention, creating a problem for native listeners who will naturally try to pick out the main concepts for themselves—something they may find difficult to do (Gorsuch, et al., 2010, p. 26).

Something else may also be at work: slowed speech. Peak vowels have greater duration than vowels in valleys. More peaks take more time, slowing delivery and hurting understanding. Pike noticed this: “Slow speech hinders the comprehension of normal English” (Fries, 1943, p. 102). Munro and Derwing (1998) and others have found the same effect of slowed speech.



The underlying mechanism may have to do with the function of the two accents in the two-peak profile. These two peaks are not on just any two words, but on the two words that *together* give native English listeners a semantic snapshot of a phrase, which other words in the phrase fill out. What is the essence of *He nêver had a chance to apólogize*? It is in the combination *never... apologize*—anchor and primary peaks. What about the essence of *Mâybe he was just too próud*? It is in the word pair *maybe... proud*.<sup>10</sup>



Olle Kjellin (1999, pp. 23-24) says that listeners grasp this essence only if two conditions hold. The first condition: The peaks must be close enough together to register as a single thought. Extra peaks between the anchor peak and primary peak, each with a vowel of longer than average duration, push the anchor and primary peaks apart. If the speaker does not suppress the extra peaks and compress all other valley syllables to shorten the time between the anchor and primary peaks, the native English listener may not hear the main peaks as a unit nor understand the speaker's message so readily.<sup>11</sup>

The second condition: It is not just a matter of intervening time, Kjellin says, but efficient processing “seems to require that the *speech rhythm* be the expected one” [original emphasis]. He continues, “If it's not, perception will work slowly and inefficiently, sometimes not at all” (Kjellin, 1999, p. 24). So the unexpected rhythm caused by extra peaks can also undermine the native English listener's immediate grasp of the message.

By contrast, the two-peak profile exactly accommodates native listeners' processing needs: It allows no intervening peaks and compresses valley syllables to draw the anchor and primary peaks together—condition 1. It does both things with a rhythm that listeners are used to and expect—condition 2. The speaker thereby helps native listeners minimize processing delays and semantic loss.

The **fourth cost** is that TESOL's version of English rhythm cannot easily camouflage other errors in speech; instead, it highlights them (Kjellin, 1999, p. 24). Pike notes this too: “If pitch and stress are correct, slight errors in sound will not be so prominent” (Fries, 1943, vol. 1, p. vii). This is another bonus of the two-peak profile. But when the rhythm itself is unexpected—as

<sup>10</sup> In descriptions of English phonology, **prominence**, i.e., tonic or focal stress, is understood to be an important part of prosody (e.g., Celce-Murcia, et al., 2010, pp. 223-225). We expand the term to include the other accent, the anchor peak, because it and the primary peak work together as a unit. Brazil, et al. (1980, 42, 45), from the perspective of discourse intonation, also consider the two as a single unit, the **tonic element**, which carries all the intonational meaning of a tone unit (message unit).

<sup>11</sup> The **contrast** dimension of rhythm has a *meaning*-based motivation, namely, to highlight the most important words (Pike, 1945a, p. 73). The **compression** dimension had a *timing*-based motivation, that is, to keep interstress intervals the same size (Fries, 1943, p. 291; Pike, 1945b, p. 34). Since regular timing does not exist, why squeeze valley syllables? We do so for a *meaning*-based reason, namely, to draw the anchor and primary peaks together so the listener hears them as a unit, as the gist of the message. Meaning is the rationale for both dimensions of rhythm.

when accenting every content word—native English listeners attend to every clue in the phrase to make sense of what is said. In this heightened state of noticing, other errors—segmental errors—stand out along with the prosodic ones.

## CONCLUSION

The journey our field has taken to grow in its understanding of English rhythm has at times been difficult. It began with the impact of two practitioners of the last century, each with his own pronunciation teaching materials and model of rhythm. While both were alike in the area of timing, each was unique in the area of accenting.



At a critical fork in the road, Clifford Prator's accent lessons oversimplified English rhythm. His rule to accent every content word in a phrase went viral and became part of TESOL's model of rhythm. At the same fork, Kenneth Pike's accent lessons introduced a model of rhythm with at most only one or two accents per phrase. By contrast, his lessons aroused little interest. Today we are back at the same fork in the road because years ago our field preferred the simple, easy-to-use rhythm rule that unfortunately misrepresents English and can compromise the acceptability and intelligibility of students' speech to native English listeners. With the clarity of hindsight and the guidance of researchers like Pike, Bolinger, Brazil, Cauldwell, and Wells, we should be able to choose the road not taken before and be confident that it represents an authentic version of English rhythm that will benefit speakers and native listeners alike.

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