

The Pronsci English Rectangle charts

How to point words and phrases on the British and American English charts

Part 2: Using the advanced features

This document is best read with a separate key to the charts to hand. Keys are downloadable, free of charge, from the PronSci website.

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0 Introduction

The PronSci Rectangle charts can be used in two ways:

1. as conventional phonemic charts (simple inventories of the sounds of British and American English), or
2. as charts which allow the teacher to work more precisely on the stress and reduction systems of English, using advanced features.

In this **second** document, we describe how to use these advanced features, firstly to work on the interaction between stress and full & reduced vowels, and secondly how to treat schwa in two ways: as the minimal sound that creates a syllable and as an open transition.

In a **third** document, *Why to use a chart and a pointer for teaching pronunciation*, we discuss why these tools are so effective.

In a **fourth**, *How to use a chart and a pointer for teaching pronunciation*, we discuss techniques for pointing, how to introduce a chart, getting students to point, and so on.

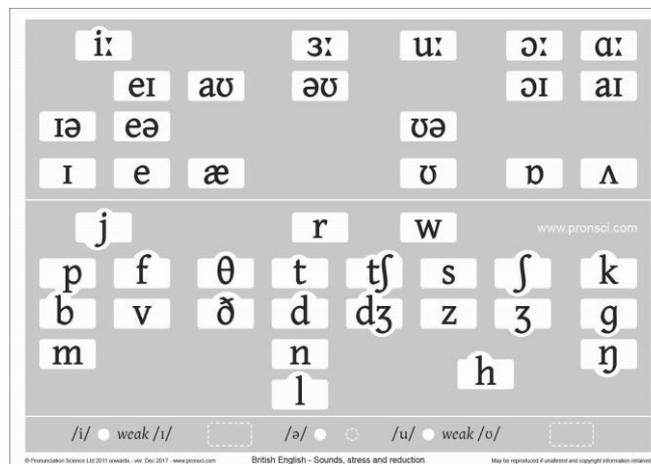
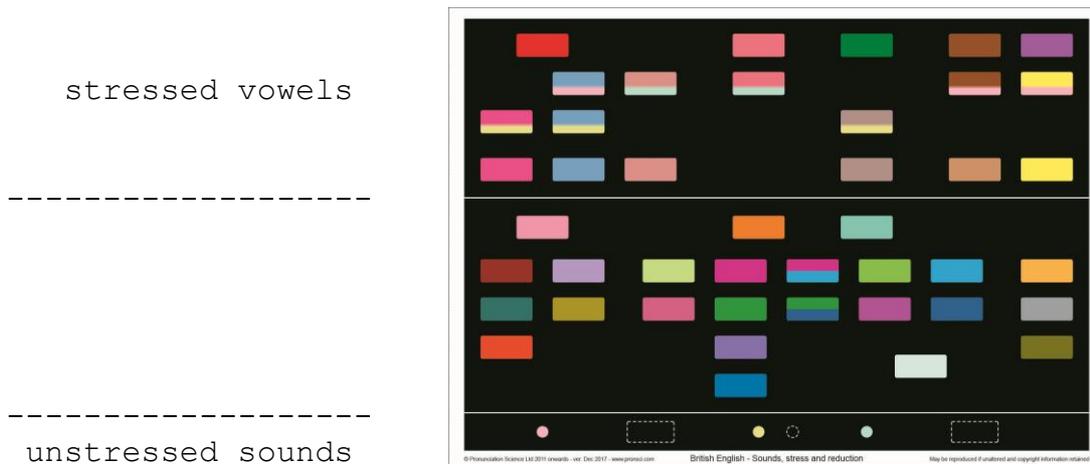
In a **fifth**, *Other aspects of using a chart and a pointer for teaching pronunciation*, we give further advice on technique, on pointing longer sequences, on more reasons for introducing sounds gradually and on pointing on other types of charts.

We use slanted brackets, e.g. /p/, for phonemic transcription, square brackets, [p^h], for phonetic transcription, and angle brackets, <gh>, for spelling (as in the /p/ of *hiccough*.)

1 Showing the patterns of stress in words and phrases

In English, a stressed syllable is always pronounced with a full vowel. However, an unstressed syllable can contain either a full or a reduced vowel.

This distinction cannot be properly drawn during pointing when using a chart that only shows an inventory of sounds. However, on the PronSci charts, the distinction can be drawn by using the dashed rectangles in the bottom section of the chart. These serve as placeholders for full vowels but are located in the unstressed section. So full but unstressed vowels are pointed here.



British English Rectangle charts. By exploiting the dashed rectangles, the layout now presents both the inventory of sounds and the stressed or unstressed nature of the syllable being pointed. The level of stress is indicated by pointing the vowel in either the stressed (top) or unstressed (bottom) vowel areas. The unstressed vowel area contains dots for the reduced sounds, and dashed rectangles as placeholders for full but unstressed vowels.

	The vowel is stressed	The vowel is clearly pronounced
Stressed syllables	✓	✓
Unstressed syllables: full vowels	✗	✓
Unstressed syllables: the schwa family	✗	✗

Stressed vowels are pointed in the top section of the chart. These vowels are well articulated and their stress is created by greater effort on the part of the speaker. This leads to syllables which are (some combination of) louder, longer, clearer and (usually) higher in pitch.

Unstressed full vowels (e.g. the <ow> of *window*) are pointed in the bottom section of the chart in either of the two dashed rectangles. (The dashed rectangles can be used interchangeably; use whichever is easiest to reach.) If necessary, the vowel can first be identified by indicating it in the top section of the chart; it is then either pointed again using a dashed rectangle in the bottom section which shows that it is unstressed, or, more explicitly, the teacher can ‘drag’ it down to one of these dashed rectangles using her thumb and index finger to ‘grasp’ it, and then point it there. Once the vowel in question is known to the students, the person pointing—teacher or student—should then just use the dashed rectangle when pointing the word again. See the examples later in this document.

Reduced sounds: members of the schwa family are always unstressed, and are therefore pointed in the bottom section of the chart, using the dots for schwi, schwa and schwu.

It is difficult to determine the exact status of weak /ɪ/sounds in some words, for example in the first syllable of *intend* or *event*. In principle, they could be treated as unstressed full vowels and pointed using the dashed rectangle in the bottom section of the chart. However, unless you are working with very high level students for whom fine analytic distinctions are important, it is simplest to use schwi for all unstressed [i]-type sounds.

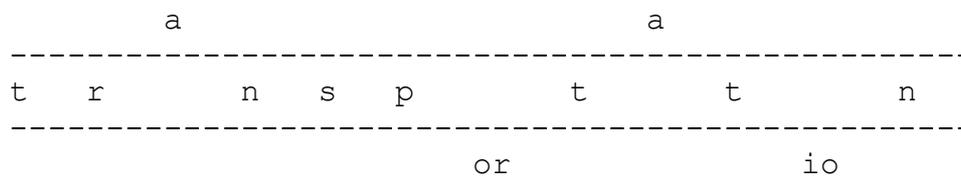
(On the other hand, syllables with [i]-type sounds which are potentially stressed but are unstressed in a particular context, for example because of stress shift, should be pointed as unstressed full vowels. For example, *key in the car key is in the bag*, or *~teen in thirteen fifty*. Contrast *car key* with *khaki*, whose unstressed syllable is pointed as a schwi.)

Similarly, for a word like *vacuum*, point the second syllable using the pale green dot for schwu.

The verb *project* is stressed on the second syllable, the vowel of which is therefore pointed in the upper section of the chart.

The noun *project* is stressed on the first syllable. The full vowel in the unstressed second syllable is pointed in a dashed rectangle.

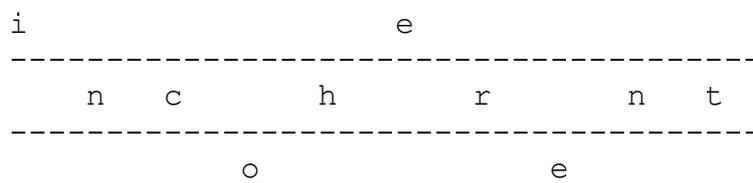
transportation



The word *transportation* has four kinds of syllables. The primary stress falls on the third syllable. There is a secondary stress on the first syllable. The second syllable is unstressed but contains a full vowel (in careful speech), while the final syllable contains a schwa.

The distinction between the primary and secondary stress can be indicated by pointing the primary stress more vigorously.

incoherent



The second syllable of *incoherent* is pronounced with a full but unstressed vowel in careful speech but often with a schwa in fast or familiar speech. Such a change is common with full but unstressed vowels.

When you only want to focus on stress

It is not always necessary to point all the sounds in a word. Often, the only issue with a student's pronunciation of a word is the stress pattern; the sounds are correct. In this case, you might choose to point the vowels of the word on the wall beside the chart rather than on the rectangles, so that the particular vowels, consonants and reduced sounds themselves are not unnecessarily identified. In this case, the student only sees the up and down movements of the pointer indicating the stress pattern.

Showing full but unstressed vowels on the Spelling chart

There is no equivalent to the dashed rectangles on the Spelling chart (Fidel). If you need to indicate that a full vowel is unstressed when pointing a word on the Spelling chart, you can point the vowel on the wall just below the bottom, unstressed section of the chart. Before you start doing this on the Spelling chart, you should have worked with your students on the concept of full vowels being either stressed or unstressed using the Rectangle chart.

2 Using the charts to show the two ways of producing schwa

Schwa is the most common sound of English, but one that is difficult to teach conventionally using any 'listen first' approach. Firstly, when students are unable to hear it, the teacher will be tempted to exaggerate it in response, making schwa detectable but misrepresenting it. Secondly, students bring with them from their L1 a strong concept of what a vowel is, and this does not encompass the key characteristics of reduced sounds in English. 'Listen first' approaches do not help them to develop the new articulatory movements that these characteristics require of them.

Schwa is conventionally analysed and presented as a single sound; however, from an articulatory point of view, schwa can be considered as two different phenomena.

The **first type of schwa** can be found in the citation form of words where they end in an open syllable: at the end of *tuna*, for example. Here, there is a weak vocalic sound, but it is shorter than a vowel and it is produced with a minimum amount of energy. It can be thought of as the minimum sound which will create a syllable in a final position. On the charts, it is always pointed using the pale yellow dot.

Further examples would be the final sounds in *cheetah*, *comma*, *Monica* and, in British English, *father*, *tailor* and *sugar*. In American English, these last three words would be said with a schwa.

The phonetician JC Catford identified a **second type of schwa** which is, in fact, much more common than the first type in running speech. He noted that consonants can follow each other in different ways:

- In a pair like *train/terrain*, the word *train* is pronounced using what he called a 'close transition' between the first two consonants. This means that the articulations of the /t/ and the /r/ overlap, so the speaker moves seamlessly from the first to the second.
- In the word *terrain* on the other hand, the articulation of the /t/ is completed—we hear the burst of aspiration after it is released—and then the /r/ is begun. Catford called this an 'open transition' between the two consonants. The incidental sound which occurs between them is not articulated at all. While a schwa is heard between the two consonants, no attempt has been made to actually say a vowel. Nevertheless, because of the incidental sound, the first consonant is heard as being part of a different syllable from the second.
- Catford considered that the transition into a consonant as found in the first syllable of a word like *about* is also a type of open transition.¹

¹ Catford discusses open and close transitions in his *Practical Introduction to Phonetics* (1988, OUP) and, in greater detail, in an article written in 1985, available at: <https://tinyurl.com/jl9eupy>. Catford had a particular interest in how to learn and teach the movements that create the sounds of the world's languages as described in the discipline of articulatory phonetics.

Other words with open transitions include *compete*, *nation* and *corpus*. A short phrase like *fricatives and resonants* illustrates how common open transitions are. We have marked them with a dot instead of a schwa symbol in this transcription:

/frik.tɪvz .n rez.n.nts/

This ‘open transition’-type of schwa is pointed using the black dot (the black space enclosed by a dashed circle). As soon as students understand that this object is meant to be seen as a black dot rather than a dashed grey circle, the teacher can establish the convention that she can use any part of the black background anywhere on the chart to point an open transition. For example, the open transition between /f/ and /l/ in *for lunch* can be indicated simply by touching the black background with the pointer as it moves between the two consonant rectangles. This speeds up the pointing of open transitions and therefore gives students a good feel for their rapidity.

It will usually be obvious whether one should point to the pale yellow dot or the black dot to indicate what is heard as a schwa. However, it is important to realise that the pronunciation of a word-final schwa, as in *tuna*, will depend on the context of the word. When pointing *tuna* in the following exchange:

— *What are we having for lunch?*
— *Tuna.*

the word *tuna* would be pointed using the pale yellow dot. The schwa is utterance final.

If on the other hand, the sentence being pointed was *The tuna’s in the fridge*, then the last syllable of *tuna* would be pointed with a black dot because the schwa is an open transition between the /n/ of *tuna* and the /z/ of the verb.

In other words, if there is a pause after the word, then a word-final schwa will be pointed as a pale yellow dot. This is always the case at the end of a sentence or before a comma. There is, after all, no consonant into which to make a ‘transition’.

However, we must look more closely at the notion of what constitutes a ‘pause’. Within a phrase or sentence, words group together. Between such groups, there is something akin to a ‘pause’ created by the meaning of the words being spoken:

We went | to Italy | for the summer.

At the end of any such group, a word-final schwa will be said and pointed as a pale yellow dot rather than a black one.

I prefer | tuna | to salmon.

Here are some examples where the final syllable of *Monica* would be pointed differently. In the first two sentences, it would be pointed using the pale yellow dot:

I gave it | to Monica.
Monica | said | she was feeling | ill.

In these two, it would be pointed with a black dot:

Monica can | do it.
I like | Monica's | new car.

What we see above are words organised into the units of meaning that exist just above the level of the individual word. The function words of English can attach to either the start or end of lexical words and the grouping of words that this creates is called a clitic group. ('Clitic' is the name given to function words when they attach to lexical words in this way.) When a schwa is the final sound of a clitic group it is pronounced as the pale yellow dot, and this reflects our inner micro-pause before we start saying a new unit of meaning.

Two, or even more, function words can attach to a lexical word: *for a swim, that you could ask*. In these cases, the same principle applies (with dots used for open transitions in the transcriptions):

Good weather | for a swim /gʊd weðə f. r. swim/
A favour | that you could ask /. feɪvə ð.t ju k.d ə:sk/

In other cases, the syllable containing a schwa is produced with an open transition between consonants, or leading into a consonant if the schwa starts the clitic group. The second clitic group in these two sentences is pronounced identically, demonstrating that from a pronunciation point of view, a clitic group is just like a single word:

The sardines | are fresh.
Do it | afresh.

The example of *He bought her chocolates* also illustrates the significance of the distinction being discussed. As Hirst (2012) explained, if he bought the chocolates she was selling, then *her* groups with *chocolates* and is pointed with a black dot. If he bought chocolates for her, then *her* attaches to *bought* and is pointed with a pale yellow dot showing that it is the end of the clitic group.²

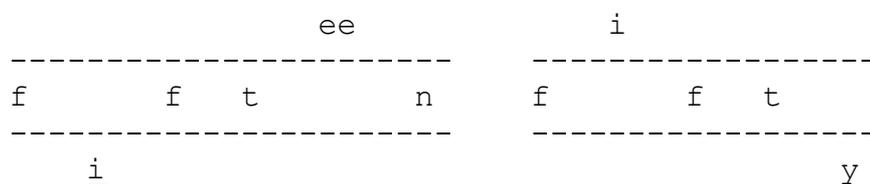
Finally, don't worry if you are in doubt about which schwa to point! Use the black dot (or black background) when you're confident that you're right to do so. If in doubt, use the pale yellow dot. You are not wrong if you use it for all the sounds that are conventionally analysed as a schwa.³

² In the classic example discussed for many years within phonetics, the two sentences, *Take Grey to London* and *Take Greater London* can be similarly distinguished by using a black dot for 'to' in the first phrase, showing that *to London* is a clitic group, and using a pale yellow dot for the '-er' of *Greater* in the second phrase, showing that this is the last syllable of the unit of meaning.

³ Note that there is no equivalent of the black dot on the Spelling chart (Fidel) because the chart is designed to show the spelling of words. If you need to indicate that a 'schwa' sound is an open transition when pointing a word on the Spelling chart, you can establish a convention that you will point this by touching the black background to the right of

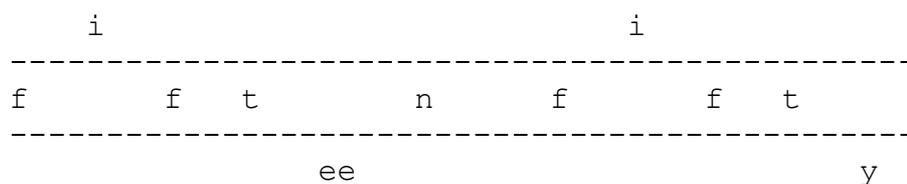
produce stressed and reduced syllables appropriately, the word *indiscriminate*, for example, could be pointed as a stressed /ɪ/ in the first syllable, then schwi, primary stressed /ɪ/, black dot, black dot: three unstressed syllables and only two stressed ones.

15 vs. 50 vs. 1550

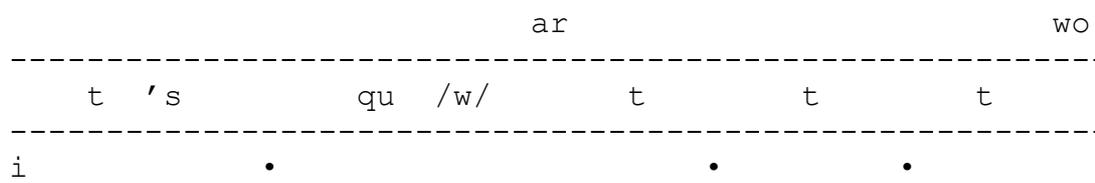


The difference between numbers like *fifteen* and *fifty* depends much more on stress than on the presence or absence of the sound /n/, which can be difficult to hear. Pointing numbers in a way that makes the stress pattern apparent helps students to understand and produce the difference between the words.

When the two words are put together in the date *1550*, there is a potential clash of stressed syllables which is resolved by the pattern on *fifteen* being reversed.⁴



It's a quarter to two



There are two stressed syllables in this sentence, the vowels of which, /ɔ:/ and /u:/, are pointed at the top of the chart.

Depending on how quickly the sentence is pronounced and the proficiency of the students, the

⁴ This phenomenon is called 'stress shift', but note that Wells (2014:126) proposes a different analysis under the name 'the rule of three', whereby "when there are three successive potential accents (= syllables that could be realized with pitch prominence plus a rhythmic beat), the middle one can be, and often is, downgraded ... Thus a 'nice 'old 'dog becomes a 'nice old 'dog, and ... The 'B'B'C becomes the 'BB'C ..."

first syllable can be pointed as either an unstressed, full vowel /ɪ/ in one of the dashed rectangles or as a schwi. The other three syllables are pointed as open transitions using the black dot. This illustrates how word final schwa sounds become open transitions in running speech. Some speakers say *quarter* with a /w/ sound, others don't.

Here is the same sentence in American English:

It's a quarter to two

		ar			wo		

t	's	qu	/w/	t	t	t	

I		•		er		•	

The letters <ar> and <er> are each pointed using one touch; <ar> is pointed as a brown-and-pale-orange diphthong in the vowel section of the chart, <er> is pointed as a schwr.

day – Thursday – Thursday evening

ay		ur		

d	Th	s	d	

ay				

The word *day* in isolation is clearly spoken with a full vowel, the diphthong /eɪ/. When included in the names of the days of the week, e.g. in *Thursday*, it can be pointed as either a full but unstressed vowel (especially in exposed positions, before a pause) or as a schwi; people say it in different ways.

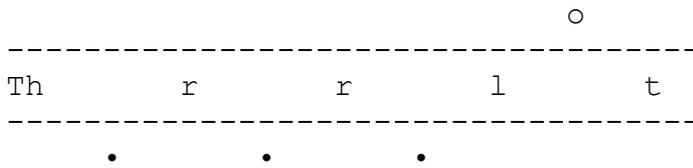
When the word is followed by another, such as *morning* or *evening*, the element ~*day* is usually reduced to schwi, as shown below.

ur		e			

Th	s	d	ve	n	ng

ay			i		

There are a lot



In British English, a normally silent written final <r> reappears as a sound when it precedes a vowel, creating a liaison. In isolation, the first three words would be /ðə/, /ə/ and /ə/, but together, the string becomes /ðə rə rə/.

References

Hirst, D. (2012). A tribute to Wiktor Jassem on the occasion of his 90th birthday. *Journal of the International Phonetic Association*, 42(2), 246–250.

Wells, J. C. (2014). *Sounds interesting: observations on English and general phonetics*. New York: Cambridge University Press.