Koninklijk
Conservatorium
Den Haag

Making a simple International Phonetic Alphabet (IPA)

For singers, conductors and composers

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Contents

1 Introduction

When first I considered my diction
I knew my Italian was fiction.
But this year I know
How to round a closed [o]
And open [ɛ] causes no friction.

— SPHS[1]

Pronunciation is vital to the art of classical singing. Still, it has been a contentious topic in singing education. This quickly becomes clear when looking at literature about teaching singers from the past century. In her book on English diction, Madeleine Marshall writes about her frustration with professional singers and their poor pronunciation.[2] Thomas Grubb similarly rues the level of the average diction lesson for singers in the foreword to his *Singing in French*, criticising a misplaced emphasis on grammar and vocabulary and, often, a "flimsy set of general rules for pronunciation."[3]

The International Phonetic Alphabet or **IPA** is a much-used way to teach the pronunciation of languages, and, moreover, a useful system to use to take notes during rehearsals or singing lessons.

I first learned the IPA as part of my German and French diction classes at the conservatoire of Utrecht. I have always been interested in the different ways musicians write notes in their sheet music, and I was immediately charmed by the unambiguous nature of the IPA for notating pronunciation and the relative ease with which it can be learned.

Section 2 first explains some of the terms readers will need to be familiar with to read this research. Then, in section 3, the advantage for singers, conductors and composers to use the IPA will be illustrated. My personal motivation for writing this research will also be briefly discussed as well as the current situation of the use of the IPA.

Sections 4 and 5 will describe my research question and the methodology used in the research. In section 6 the different diction methods reviewed will be described one by one, as well as the method by which they teach the different symbols of the IPA. The different symbols used and not used in these methods are presented in section 7, and this is then discussed in section 8. The methodology of teaching the IPA symbols is briefly discussed in section 9 and finally the first prototype version of a Simple IPA chart is presented and discussed in section 10, as well as a description of future research that could be done to further improve upon it.

1.1 Earlier research

Before starting this research, I once wrote a paper on the topic of the IPA and singing during my bachelor study.[4] In this paper I explored if the technical terms of the IPA could have a function in singing lessons and/or choir rehearsals. The IPA chart lists in detail where in the mouth the different vowels and consonants are produced. I asked the question if these terms would be useful for singers to know.

For instance, when singing an [i], I thought it might be good to be aware that this is a front, closed and unrounded vowel as opposed to an [ɔ], which is a back, open-mid and rounded vowel.

My conclusion was that, no, these technical terms would probably be too cumbersome and "intel-

1. John Moriarty, *Diction: Italian, Latin, French, German ...the sounds and 81 exercises for singing them* [in English], 2nd ed. (Boston: E.C. Schirmer Music Company, 1975), 1, https://archive.org/details/dictionitalianla00mori/
2. Madeleine Marshall, *The singer's manual of english diction* (New York: Schirmer, 1953), 1–5.
3. Thomas Grubb and Pierre Bernac, *Singing in french: a manual of french diction and french vocal repertoire* (Belmont, CA: Schirmer, 2008), 1, ISBN: 0028707907 9780028707907.
4. Sebastiaan Ammerlaan, "Terminologie uit het IPA bij het klassieke zangonderwijs," *Unpublished*, 2018,

lectual" to be of real practical use in singing. Singing is about doing, and tends to be hindered when the singer has to think too much about the exact way they form their vowels and consonants.

However, I did conclude that the symbols themselves offer a quick and unambiguous notation of language sounds that have much potential for a more coherent sound in (ensemble) singing with little effort. The way in which it is usually presented tends to still be too "cumbersome and intellectual" for most newcomers, however. This led to my current research.

2 Glossary

International Phonetic Alphabet The International Phonetic Alphabet (IPA) has been developed by the International Phonetic Association since 1886.[5] With it, you can learn to pronounce a language that you are yourself unfamiliar with.[6][7] It consists of a number of linguistic symbols where each symbol represents a single sound.[8] It is based mostly on Latin and is presented in the IPA chart (appendix A).

Diction methods A diction method is a teaching method that aims to teach (singing) students how to pronounce the different words in languages. These are often employed in conservatoires.

Transcribing Using IPA symbols to write down the pronunciation of a word is called transcribing a word. An important distinction (and difficulty for beginners) is that the IPA transcription does not take into account the orthographic spelling of the word. (E.g. *know* is /noʊ/, withough the k; *bell* is /bɛl/ with only one *l*, and *Pete's* is /pits/.)[9]

Phonemes and allophones A phoneme is an individual language sound that is represented by a single symbol. It is the smallest speech unit in the IPA. Within each phoneme, there may be slight variations of pronunciation. These variations are called allophones. Many of those allophones become irrelevant while singing but occasionally it can be useful to slightly alter a sound.

Brackets IPA symbols are placed [between brackets] to distinguish them from regular text.[10] The International Phonetic Association encourages users to write a so-called broad transcription /between slashes/ instead of [between square brackets], which indicate a narrow transcription. A narrow transcription provides many more details: the English word *pretzel* in a broad transcription would be /ˈpɹɛtsl/, while a narrow transcription would read [ˈpɹ̥ʷɛʔts. ɫ̩].[11]
Given that the Simple IPA in this paper is definitely a broad transcription, it should be written between slashes. As an added bonus, this is also faster to write. Single phonemes can still be written in square brackets if desired.

Orthographic letters: The letters of the alphabet for a language are referred to as orthographic letters, to distinguish them from IPA symbols. The letter ***p*** is an orthographic letter, ***pit*** is orthographic spelling, **[p]** is an IPA symbol (in narrow transcription) and **/pɪt/** is an IPA spelling or transcription (in broad transcription).

5. International Phonetic Association, *Handbook of the International Phonetic Association: a guide of the use of the International Phonetic Alphabet* (New York: Cambridge University Press, 2007), 3.
6. Debra Shearer-Dirié, *The Use of the International Phonetic Alphabet in the Choral Rehearsal (Review)*, 2013, accessed October 29, 2018, http://icb.ifcm.net/en%7B%5C_%7DUS/use-international-phonetic-alphabet-choral-rehearsal-edited-duane-richard-karna/.
7. Wikipedia Contributors, *International Phonetic Alphabet*, 2018, accessed November 9, 2018, https://en.wikipedia.org/wiki/International%7B%5C_%7DPhonetic%7B%5C_%7DAlphabet.
8. Yvonne R. Dechance, *Yvonne Dechance's Frequently Asked Questions about Studying Voice Diction*, 2008, accessed October 30, 2018, http://www.dictiondomain.com/cgi-bin/dd/dd%7B%5C_%7Ddisplay.pl?action=show%7B%5C&%7Dsp=dictionfaq.
9. Joan Wall, *International phonetic alphabet for singers: a manual for English and foreign language diction* [in English] (Greenbank, Wash.: Pacific Isle Publishing, 2005), 9, ISBN: 1934477060 9781934477069.
10. Wall, 8.
11. International Phonetic Association, *Handbook of the International Phonetic Association: a guide of the use of the International Phonetic Alphabet*, 28–29.

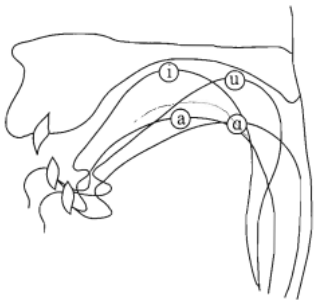


Figure 1: Mid-sagittal section of the vocal tract with the tongue position of the four most extreme vowels.[13]

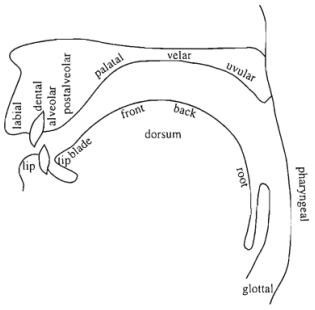


Figure 2: Mid-sagittal section of the vocal tract with labels for place of articulation.[14]

Open/closed, front/back and rounded/unrounded vowels On the IPA chart, vowels are described in these terms. To quickly summarise: **open/closed** refers to the volume of the space between the tongue and the roof of the mouth, manipulated by the tongue and the jaw; **front/back** refers to whether the high point of the arch of the tongue is in the front of or in the back of the mouth; and **rounded/unrounded** is about whether the lips are rounded or not. See figures 1 and 4.

(Pulmonic) Consonants on the IPA chart These are consonants using the lungs (i.e. pulmonic). They are presented in a table with the rows showing the **manner of articulation** and the columns showing the **place of articulation**.[12] **Manner of articulation** regards the method of interrupting air flow when forming a consonant, **place of articulation** regards the place in the vocal tract where this interruption occurs. See figures 2 and 3.

Affricatives Affricatives are a combination of two consonants and are shown as two consecutive symbols (e.g. [tʃ] in the word *pitch*: /pɪtʃ/).

Diphthongs Diphthongs are a combination of two vowels. (E.g. [eɪ] in the word *bay* /beɪ/).

Symbol names While it is completely possible to use the IPA without knowing the symbol names, it can be useful to know what to call them when discussing pronunciation with peers. See appendix B for the names of the symbols used in the Simple IPA.

2.1 Audio examples

Despite appearances, this research is mostly about the graphic notation of sounds in scores—less so about the sounds themselves. Rather than inexpertly repeating efforts by others, I refer to three exceedingly useful resources if the reader desires audio examples of the words and phonemes discussed here:

https://forvo.com/ Pronunciations by native speakers of almost all words in almost all languages—certainly the languages discussed here and the words used as examples. (The IPA is not used on this website, however.)

https://www.ipachart.com/ An interactive IPA chart with pronunciations per phoneme.

Wikipedia Wikipedia is an excellent resource for everything related to the IPA, with audio examples per

12. International Phonetic Association, *Handbook of the International Phonetic Association: a guide of the use of the International Phonetic Alphabet*, 7–9.
13. International Phonetic Association, *Handbook of the International Phonetic Association: a guide of the use of the International Phonetic Alphabet*, 10
14. International Phonetic Association, 7
15. Gretchen McCulloch, *How to remember the IPA consonant chart*, 2016, accessed November 17, 2018, https://allthingslinguistic.com/post/143133795554/how-to-remember-the-ipa-consonant-chart
16. Joan Wall and Robert Caldwell, *Diction for singers: a concise reference for English, Italian, Latin, German, French, and Spanish pronunciation* [in English], 2nd ed. (Redmond, WA: Celumbra, 2009), 4, ISBN: 9781934477700 1934477702

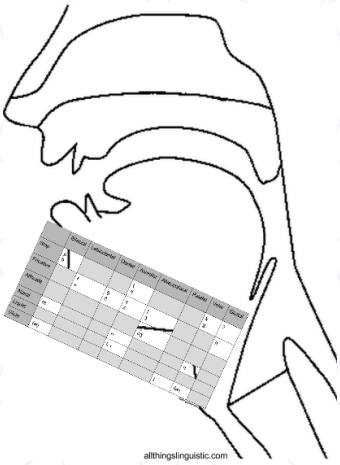


Figure 3: The consonant table is ordered in such a way to reflect the actual articulation position of consonants in the vocal tract.[15]

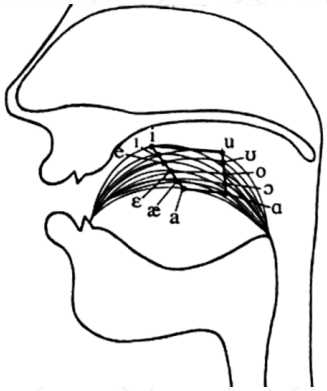


Figure 4: The vowel trapezium is similarily ordered to reflect their articulation position in the vocal tract.[16]

phoneme as well as detailed information on their matter of articulation and place of articulation. There are also detailed descriptions of the IPA symbols used in practically every language in the world.

3 The advantage of using the IPA

3.1 Examples of use

Les cloches [lɛ klɔʃ] (The bells)

Text by *Paul Bourget* (1852-1935), *Romance*
Set by *Claude Debussy* (1862-1918), from *Deux Romances, #1*

Les	**feuilles**	**s'ouvraient**	**sur**	**le**	**bord**	**des**	**branches**
[lɛ	fœ.jə	su.vrɛ	syr	lə	bɔr	dɛ	brɑ̃.ʃə]
The	leaves	opened	along	the	length	of-the	branches

Délicatement.
[de.li.ka.tə.mɑ̃]
delicately.

Figure 5: An example of a hand-out that could be provided to singers.[17]

Figure 5 shows an example of the ideal use of the IPA. A transcription of the pronunciation is right below the text, with a literal translation below that. This way provides singers with the direct meaning of what they sing (it is my experience that most singers do not take the trouble to figure this out for each new project), as well as a starting point for pronunciation, which they could then work on in more detail with a language coach. There are resources available where many lyrics from classical music have been transcribed into the IPA in this way. Still: while ideal, it can be imagined that this method would be too expensive and time-consuming to provide for each project.

17. Bard Suverkrop, "Les cloches," *IPA Source*
18. Henriëtte Bosmans, *4 liederen op Franse tekst: middenstem en piano* (Amsterdam: Donemus Publishing B.V., 1954)

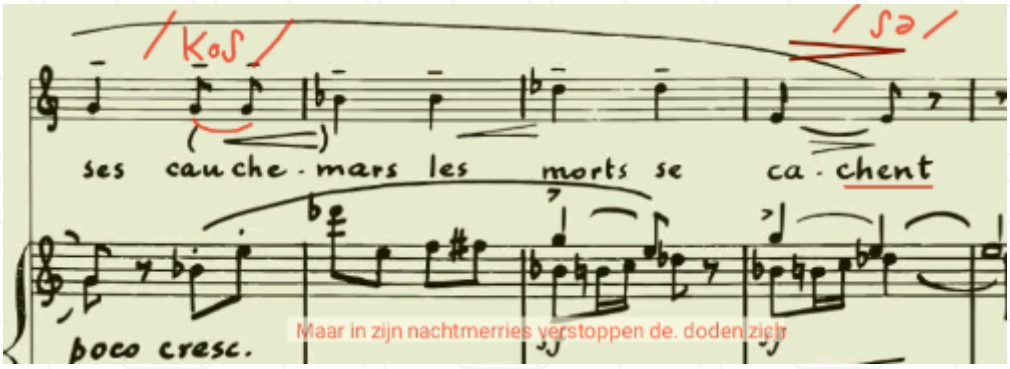


Figure 6: Example of using the IPA only for certain ambiguous parts in a familiar language.[18]

A solution as comprehensive as figure 5 is not always necessary. Figure 6 shows an example of how a score could simply be prepared and then distributed to singers in a way that does not consume too much time: when singing in a familiar language, only the ambiguous parts of a text need notes, while for most of the text it can be assumed that singers know how to pronounce it.[19] (This is especially relevant for professional singers who, it can be assumed, received some language training already.)

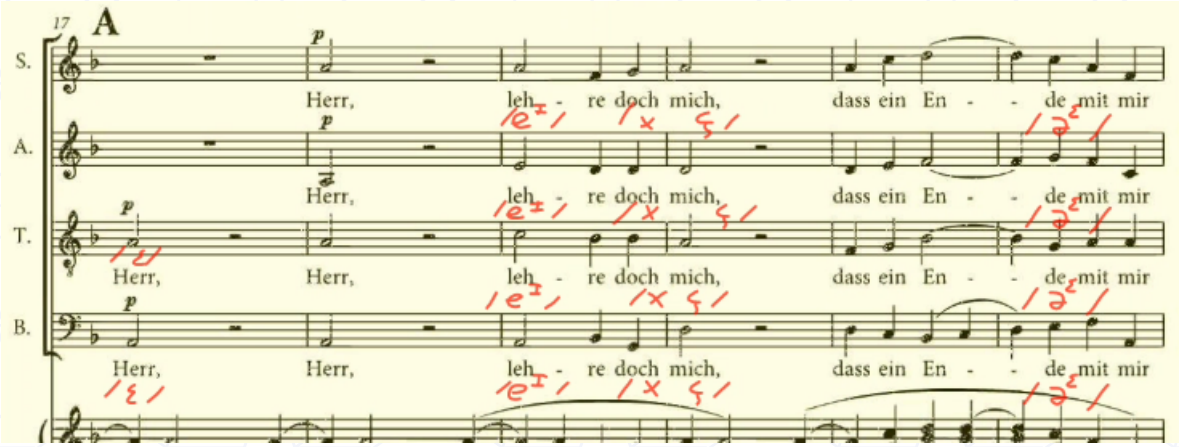


Figure 7: Another example of the IPA for certain details.[20]

Another example, without a translation, is given in figure 7. For most choirs this would be more information than needed, in fact. Notating only specific trouble spots is useful for amateurs but also for professionals to serve as a reminder with recurring mistakes or when modifying a phoneme for musical purposes.

Figure 8 shows the way in which a score can be prepared when the language is completely foreign to the singer—in this case Polish. In this case, it is helpful to provide a full transcription of the text right with the music, which the IPA can quite easily provide. If a language coach is then called in to help with the pronunciation, the singer will have a much higher base level to start from.

Something to keep in mind, however, from David Adams in his Handbook of Diction:[22]

19. This idea comes from Emmons and Chase, *Prescriptions for Choral Excellence*, 97–100
20. Johannes Brahms, *Ein deutsches Requiem*, ed. Michael Struck and Michael Musgrave (München: Breitkopf \& Härtel, 2019)
21. Henryk Mikołaj Górecki, *Two sacred songs for baritone and piano*, 1st ed. (London: Chester Music Limited, 1993)
22. David Adams, *A handbook of diction for singers: Italian, German, French*, Third edit (New York: Oxford University Press, 2022), 2.

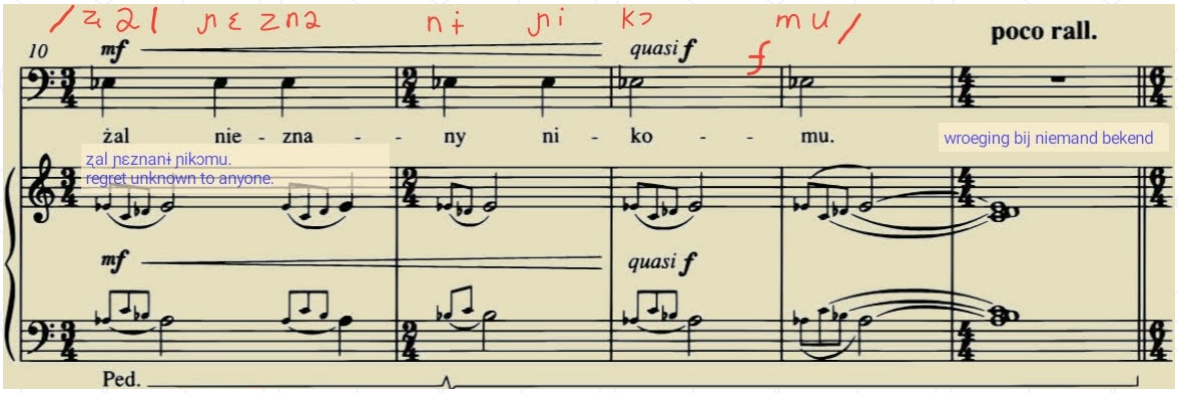


Figure 8: Example of using the IPA for a completely foreign text.[21]

> "It must be emphasized that the IPA is just a tool—a very useful one, but still just a tool. It is a means to an end and not an end in itself. It is possible to sing with "correct" diction, observing the sounds indicated by the IPA, but still not sound idiomatic. One does not sing in the IPA but in a language. Students must listen to artists who sing the languages well and expressively and attune their ears to help them develop the skills to do the same." ■

3.2 Personal motivation

Being an aspiring professional ensemble singer, I noticed during choir rehearsals (first amateur choirs, then professional ones) that the IPA is not regularly seen there. (At least, not in the Netherlands. I still have little experience with foreign professional choirs.) Instead, working on pronunciation is usually done by having the conductor speak the text and then having the singers repeat after them (this is sometimes called "parroting"). Or, if the ensemble has a bigger budget, they bring in a language coach, who then proceeds to use the same method.

In my opinion, this could be done much more effectively. In my view, it would be much more efficient if singers are provided with either:

- A handout for the pieces performed with a phonetic transcription and a translation, or
- Sheet music that has been marked with phonetic symbols at only the necessary places

If necessary, this could be complemented by a language coach to work on the details.

Singing modern music, one occasionally comes across another reason to use the IPA. When composers want the singer to sing on certain vowels or other abstract language sounds instead of text, they often communicate this by means of a phonetic key preceding or following the score. And very often, this phonetic key does not use the IPA, but rather some arcane self-made phonetic system that overly relies on the native speech of the composer (see figure 9 for an example).

This results in the performer having to learn a new phonetic system for every new piece. Given that most composers are not linguists, this usually leads to more ambiguity. Or, even worse, no phonetic key is provided whatsoever, leaving the desired phonemes a matter of guessing.

The consistent and unambiguous nature of the IPA is much more suitable for communicating pronunciation than any improvised phonetic system. Moreover, many singers today are already familiar with the IPA, which over the course of more than a century has been optimised to remove as much ambiguity as possible.

23. Stan Verberkt and Dianne Verdonk, *Schureschraai*, Utrecht, 2013

Figure 9: An example of a self-made phonetic key in a modern composition.[23]

3.3 Popularity of the IPA in classical singing, globally and in the Netherlands

In their book *Prescriptions for Choral Excellence* from 2006, Shirlee Emmons and Constance Chase write the following:[24]

> "A testament to the usefulness of the IPA is the fact that it would be difficult to find any major musical institution whose vocal department does not insist on the use of the IPA. Language awareness and accuracy of standard pronunciation are the usual reasons given for the adoption of the IPA symbols in the study of singing." ■

Globally, the IPA is regularly employed in diction lessons.[27] Especially in non-European countries, as most of the canon of vocal classical music is sung in European languages, which are harder to hear 'live' outside of Europe. In American conservatoires there is often a "Vocal Diction Instructor" present who uses the IPA for diction lessons of various European languages.[28] It is no coincidence that most of the diction methods for classical singing were published in the United States.[29]

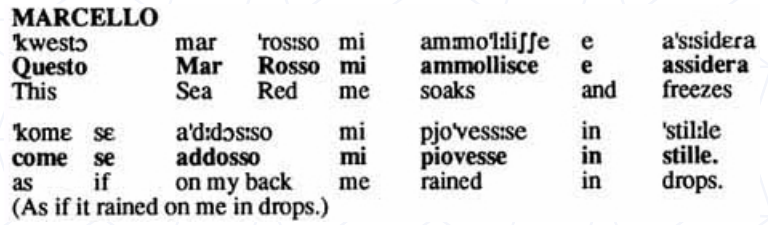


Figure 10: The "*Leyerle Three and four-line Phonetic-Translation System*".[26]

Sporadically, the more luxurious editions of sheet music also include an IPA-key for diction. The publisher Leyerle Publications, specialised in vocal sheet music, even boasts the so-called *Leyerle Three and four-line Phonetic-Translation System* (figure 10). *IPA source*, the largest online collection of phonetic transcriptions for vocal music, uses a similar method for their transcriptions (also see figure

24. Emmons and Chase, *Prescriptions for Choral Excellence*, 97.
26. *About Leyerle*, 2001, accessed November 8, 2018, http://www.leyerlepublications.com/?v=about
27. Elisa Dekaney, *The status of the International Phonetic Alphabet transcriptions in archived choral octavos with foreign language texts distributed in the United States from 1970-2013: An exploratory study*, 1, 2014, 79.
28. Cynthia Lynn Mahaney, *Diction for Singers: A Comprehensive Assessment of Books and Sources* (Ohio State University, 2006), 4, https://books.google.nl/books?id=ot36jwEACAAJ.
29. Mahaney.

5).[30]

Famous singers like Elizabeth Parcells and Renée Fleming also talk about their preference for the IPA in interviews.[31] In fact, so popular is the IPA in The United States that the audio fragments for the "*Visual Thesaurus*" primarily employed opera singers to record its audio fragments because of their "vocal stamina, attention to the details of enunciation, and most of all, knowledge of IPA. As it happens, just about every opera singer and coach needs to be familiarized with IPA in order to sing in non-native languages, using phonetically rendered libretti".[32]

Yet, many vocal departments of the major conservatoires in The Netherlands do not insist on the use of the IPA. In 2019, Dutch conservatoires used the IPA as follows:

	Languages			
Conservatoire	German	English	French	Italian
Amsterdam (AHK)	**IPA**	-	**IPA**	No IPA
Den Haag	**IPA**	-	**IPA**	**IPA**
Groningen	No IPA	-	No IPA	No IPA
Maastricht	-	-	-	No IPA
Rotterdam (Codarts)	**IPA**	-	**IPA**	**IPA**
Tilburg (Fontys)	No IPA	-	**IPA**[33]	No IPA
Utrecht (HKU)	No IPA	-	**IPA**	No IPA
Zwolle (ArtEZ)	**IPA**	**IPA**	No IPA	No IPA

Table 1: Use of the IPA in Dutch conservatoires with a classical vocal department in 2019, based on personal conversations with students there.[34] A dash indicates a language that is not offered.[35]

The IPA seems especially popular for French, while Italian diction teachers seem to employ it less. The Royal Conservatoire and Codarts Rotterdam employ the IPA for all their diction classes.

Why, then, does the IPA seem less popular here? In his introduction to *Diction*, John Moriarty writes the following:[36]

30. Bard Suverkrop and Suzanne Draayer, *About IPA Source*, 2018, accessed November 8, 2018, https://www.ipasource.com/about-ipa?%7B%5C_%7D%7B%5C_%7D%7B%5C_%7DSID=U.

31. Charles Parcells, *Singing With Good Diction and Phonetics*, 2005, accessed December 1, 2018, http://www.elizabethparcells.com/interviews/Diction%20and%20Phonetics.htm; Ben Liberman, *Operatic IPA*, 2004, accessed December 1, 2018, http://itre.cis.upenn.edu/%7B~%7Dmyl/languagelog/archives/001230.html.

32. Ben Zimmer, *Operatic IPA and the Visual Thesaurus*, 2008, accessed November 8, 2018, http://languagelog.ldc.upenn.edu/nll/?p=155.

33. The teacher for French in Tilburg also teaches a general course on IPA for German, French and Italian.

34. I.e. this table is not the result of true research and not meant as a scientific truth, purely to give an impression of the popularity of the IPA for diction lessons in The Netherlands.

35. Thanks to Sterre Kooi (Amsterdam), Hidde Kleikamp (Den Haag), Femke van Essen (Groningen), Chiara Ducomble (Maastricht), Wies de Greef (Rotterdam), Theo Decloedt (Tilburg) and Harmen Severiens (Zwolle).

36. Moriarty, *Diction*, xi–xii.

> "All singers must study diction. But American singers, because their speech tends to be quite imprecise, in particular need to make a thorough study of phonetics and diction. Our vowels are vague and often back-produced. We tend to make diphthongs out of monophthongs, triphthongs of diphthongs. Our consonants are carelessly produced, often imploded, almost never clearly articulated, and the strong tonic stress of our language encourages us to slur over unstressed syllables. We practice bad diction in nearly every utterance." ■

Are the Dutch then less inclined to these indiscretions? While we may have different problems than American singers, the Dutch have plenty of difficulties of their own (the presence of diction classes themselves being evidence enough). Of course, it is possible to study diction without using the IPA, but why abstain from using such a useful tool?

While not substantiated by any research, asking colleagues and employees of professional choirs suggested that the IPA is considered to be too cumbersome and difficult to learn. Looking at the IPA chart (appendix A), this is understandable. At first sight it does look intimidating and it is hard to determine what is of practical use to singers and what is there for serious linguistic research. There are many technical terms on it and many symbols, often with a caption that is still completely opaque to laypeople.

With this research I hope to be able to reduce the complexity of the regular IPA—its initial presentation should be less intimidating and the amount of symbols shown should be only those of use to a classical singer.

4 Research question

The research question I aim to answer with this research is the following:

> *How can the International Phonetic Alphabet be most effectively simplified and codified to be most accessible and useful for (Dutch) classical singers?*

While the research question mentions Dutch singers, the only relevance of the nationality of users is the overlap of IPA symbols with the orthographic letters of their language. A Dutch person pronounces the letters of their alphabet in a certain way, which happens to coincide with the pronunciation of some IPA symbols. This means that the initial difficulty of learning the IPA will be different depending on the native language of the student. This is not particularly difficult to show, see figure 15 on page 29 or appendix C on page 34 for a way in which to show this per language, in this case for Dutch.[37]

The aim of this research question is to have all the data necessary to actually develop the prototype of a Simple IPA sheet that can be found in Appendix C (page 34): a tool to use in diction methods based on the regular IPA sheet but with only those parts that are relevant for a classical singer.

5 Research methodology

Put simply, the aim of this research is to prepare for making a cropped version of the IPA where only those symbols of use to classical singers are included for the four languages most used in classical singing: English, French, German and Italian. The selection of these four languages is based on a survey by Cynthia Lynn Mahaney from 2006 where language coaches at American and English conservatoires

37. As it happens, Dutch is a good language to start from when learning the IPA, given how many IPA symbols are pronounced the same as their matching orthographic letter.

were asked in which languages they offered vocal diction classes.[38] Latin can also be included in this row, as this language does not include any symbols not used in the first four (it basically overlaps with Italian.)

To justify the choice of which symbols to use and which not to use, different diction methods will be compared to do the following:

1. Create a clear overview of the different symbols used
2. Analysing and discussing the symbols used
3. Analysing and discussing the symbols **not** used

The diction methods to be analysed are similarly decided on by looking Mahany's survey: she also asked the question which diction methods were used for the different languages taught.[39] I picked those methods that teach diction for multiple languages. While there are also a number of books that teach diction for one specific language, this research aims to provide a method that works for multiple languages.

A secondary aim of this research is looking at the method in which the symbols are presented to the reader. In what order do they appear, and do they also include guidelines for learning or teaching them? A discussion on this is presented in section 9.

At the end of this process, I should have a clear foundation on which I can build a simplified IPA.

38. Mahaney, *Diction for Singers: A Comprehensive Assessment of Books and Sources*, 255.
39. Mahaney, 79–85.

6 Diction methods

In order to base the Simple IPA on the wisdom of existing methods rather than only on my own view, the following sections will create an overview of the phoneme symbols used in the different diction methods studied.

All the various diction methods studied here already use a reduced amount of IPA symbols, but none really communicate this. Additionally, not every method selected the same symbols to use or leave out. In the following sections, I have looked at the three main parts of the IPA chart's symbols that are useful for musicians: **consonants**, **vowels** and **supplementary symbols** (i.e. diacritics and suprasegmentals).

The parts of the IPA chart already filtered out at this point are:

Non-pulmonic consonants These are consonants that are made without using the lungs (non-pulmonic). None of the five European languages discussed use these.

Tones and word accents In some languages, the same word can have a different meaning if it is said with a rising intonation than if it is said with a falling intonation. There are IPA symbols to show this, which are also not used in the five languages discussed. Even if singing in a language that does, the composition will usually take care of this.

The following diction methods are part of this analysis:

1. Wall and Caldwell, *Diction for singers*.
2. Moriarty, *Diction*.
3. Emmons and Chase, *Prescriptions for Choral Excellence*.
4. Adams, *A handbook of diction for singers*.
5. Wall, *International phonetic alphabet for singers*.

6.1 Wall and Caldwell, *Diction for singers*

This is by far the most popular diction method from Mahaney's survey: 70% of all respondents use it.[40] It gives pointers for IPA in general and specific instructions for six languages: English, Italian, Latin, German, French and Spanish. It is meant specifically for anglophone readers.[41]

6.1.1 Teaching method

The first chapter offers an explanation of the consonant table and the vowel trapezium as well as some general pronunciation pointers for singing. The book is then divided into sections, one for each language. Within those sections, pronunciation is explained per orthographic letter or letter pair. These sections can be used separately, making it possible to only learn the pronunciation of English without having to learn that of Spanish as well.

Each language section starts with a chart of all IPA symbols used for that language, then a general description of details of that language and singing in it, how to syllabify words in the language, where to place word stress and how to make elisions. Then the orthographic letters of the language are described one by one: first vowels and diphthongs, then consonants.

By working from orthographic letters, it is ensured that only the IPA symbols needed for that language are discussed.

The order in which IPA symbols are presented in each chapter does not follow any didactic order—rather, they are ordered alphabetically as they occur with the orthographic letters of the language's alphabet.

40. Mahaney, *Diction for Singers: A Comprehensive Assessment of Books and Sources*, 301–304, 307–308.
41. Wall and Caldwell, *Diction for singers*, 1.

6.2 Moriarty, *Diction*

The most popular diction method after *Diction for singers*, around 15% of respondents use it. It teaches the pronunciation for four languages: Italian, Latin, French and German. It very specifically caters to the American classical singer: "It proceeds from American English, compares the vowel and consonant sounds of Italian, French, German and Ecclessiastical Latin with each other and relates them to sounds spoken in the United States."[42]

6.2.1 Teaching method

The order in which the IPA symbols are presented in this method is as follows:

1. Vowels—Front, central and back.
    a) Tongue vowels
    b) Lip vowels
    c) Mixed vowels
    d) Neutral vowels
    e) Nasal vowels
    f) Diphthongs
    g) Glides/semivowels/semiconsonants
2. Consonants
    a) Plosives
    b) Fricatives
    c) Nasals
    d) Lateral / trilled
    e) Affricatives

Following this general chapter on IPA symbols, Moriarty has a separate chapter to further explain the pronunciation of each IPA symbol in each language. In other words, pronunciation is not explained from the orthographic letters of the language, but from the phonemes: he organises sections of the chapter by language sound and then gives examples of the orthographic words that contain these.

Moriarty renames front, central and back vowels to "tongue vowels, lip vowels, mixed vowels, neutral vowels and nasalized vowels", to avoid the word back, as thinking in those terms is seen as anathema to many singers and singing teachers.[43]

6.3 Emmons and Chase, *Prescriptions for Choral Excellence*

This book is not a diction method per se, but more of a general guide for singing and singing in amateur choirs specifically. The target audience seems to mostly be American choir conductors and possible vocal teachers. It has been included in this overview because it does seem to hint at what this paper also tries to achieve: one set of IPA symbols that works for all common singing languages. "All common vowels, with some few exceptions, appear in every language, but are sometimes spelled differently. The IPA denotes specific sounds across linguistic barriers."[44]

The book uses a (somewhat clunky) method of "Complaint", "Diagnosis" and "Treatment plan" throughout the book, to frame case-by-case scenarios around some of singing's main topics. The IPA vowels and then consonants are not presented in such a scenario, however, but rather as separate sections in between of semi-related complaints and diagnoses in the chapter on "Diction and

42. Moriarty, *Diction*, xi–xiii.
43. Moriarty, 7.
44. Emmons and Chase, *Prescriptions for Choral Excellence*, 69.

Intelligibility".[45]

6.3.1 Teaching method

The order in which IPA symbols are presented is as follows:

1. Vowels
    a) Diphthongs
    b) Back vowels
    c) "Neutral vowels" (i.e. unrounded central and back vowels)
    d) Front vowels
2. Consonants

When discussing vowels, first a chart of all IPA vowels is presented (without mentioning that a number were left out).[46] Then diphthongs are discussed as they occur in German, French, English and Italian.

The IPA consonants follow later in the chapter, without any introductory text. Most of the technical terms of the IPA chart are removed, instead presenting the place of articulation columns as "groupings of consonants useful for memory".[47] A selection of the IPA chart's consonants are then presented in a long table (again without mentioning this omission).[48] There seems to be no didactic ordering of the consonants, instead they are presented semi-alphabetically.

In the chapter *Advantages of the IPA and How to Mark the Score*, some pointers are given on how to teach the IPA.[49] It is suggested to teach the symbols as part of the vocal warm-up during rehearsals, writing down a number of symbols on something like a blackboard in every warm-up and basing the vocal warm-up around those.

This echoes the teaching method presented in another book on using the IPA in choir rehearsals, Duane Richard Karna's *The Use of the International Phonetic Alphabet in the Choral Rehearsal*, 16–21 from 2010.

It is further recommended to encourage singers to write down only those symbols that are particularly difficult to remember, or require special attention.[50] This to avoid a visually busy score (which would also be off-puttingly complex to young choristers).

6.4 Adams, *A handbook of diction for singers*

The third most popular diction method, around 10% of respondents use it. Its third version was released in 2022. It provides a diction method for only three languages: Italian, German and French.

6.4.1 Teaching method

The first chapter, *An Introduction to Individual Sounds*, is used to explain all of the symbols of the IPA. The book is then split into one chapter per language, but no new symbols are introduced there.

The order in which the symbols are explained is as follows:

1. Suprasegmentals like [ˈ] and [ː]
2. The [g], [ə] and [ɐ] are then described separately while they are also discussed in the following sections

45. Emmons and Chase, *Prescriptions for Choral Excellence*, 59–100.
46. Emmons and Chase, 69.
47. Emmons and Chase, 92.
48. Emmons and Chase, 92–95.
49. Emmons and Chase, 96–100.
50. Emmons and Chase, 98.

3. Vowels. First the Italian ones, then the additional ones for German, then the aditional ones for French.
4. Semivowels/glides/semiconsonants (synonymous terms)
5. Diphthongs
6. Consonants

With each symbol, examples from all three languages are provided.

In the following chapters, the book takes the same approach as in Wall and Caldwell's *Diction for singers*: pronunciation is explained per orthographic letter or letter pair. In other words, the IPA symbols for all three languages are taught simultaneously first, to only then be further described per language.

6.5 Wall, *International phonetic alphabet for singers*

The predecessor of Wall and Caldwell, *Diction for singers*—attributed only to Joan Wall, Robert Caldwell is credited as the editor. It is an interesting source for this paper, as it is very similar in its goal: it describes the IPA symbols for only English, Italian, French and German, but does not teach as many details as most of the other methods mentioned above do. It is written primarily from an (American) English perspective.

6.5.1 Teaching method

Similar to Adams' *A handbook of diction for singers* (but instead working from English instead of Italian), the book first introduces all IPA symbols for one language. The order is as follows:

1. Vowels
    a) Front vowels
    b) Back vowels
    c) Central vowels
    d) Diphthongs
2. Consonants
    a) Plosives
    b) Nasals
    c) Fricatives
    d) Laterals
    e) Glides
    f) Affricatives

Only then does Wall describe the remaining IPA symbols from the other three languages. This is done in only one chapter, again first with the vowels, then the consonants.

7 IPA symbols used in the diction methods

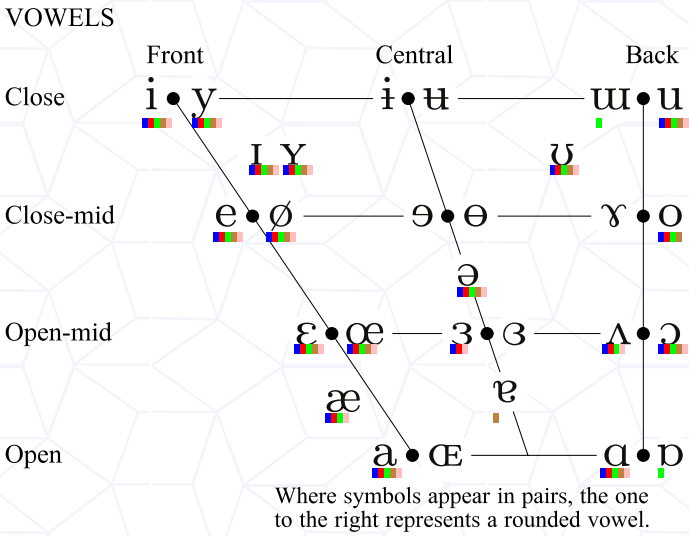


Figure 11: Vowel use in the different diction methods studied.
- Wall and Caldwell, *Diction for singers*
- Moriarty, *Diction*
- Emmons and Chase, *Prescriptions for Choral Excellence*
- Adams, *A handbook of diction for singers*
- Wall, *International phonetic alphabet for singers*

7.1 Vowel symbols

The IPA symbols for English, French, German, (Latin) and Italian vowels that appear in the above diction methods are listed in figure 11.

7.1.1 Front vowels

All diction methods use all of the front vowels, with the exception of the [œ] and the [æ]. The [œ] is only used in Danish, Limburgish and Swedish.[51] The [æ] does not occur in French, German or Italian, so Adams does not use it. It does occur in English, e.g. in *bad*—/bæd/.

Adams adds /(ɛ)/ and /(œ)/ to represent respectively the *e moyen* and the *œ moyen*.[52] These occur in French when two adjoining syllables have vocalic harmonization: a preceding vowel takes on some of the quality of a vowel that follows. /ɛ/ followed by /e/ has this, as well as /œ/ or /ə/ followed by /ø/.

Moriarty also introduces a new vowel that does not appear on the IPA chart: the [e^2], which is between the [I] and the [ɛ].[53]

7.1.2 Central vowels

Most central vowels are not used in the diction methods discussed. Only the *schwa* ([ə]) and the reversed epsilon ([ɜ]) occur. The [ə] is used only in unstressed syllables, like in *above*: /əˈbʌv/. The [ɜ] is its stressed variant, like *girl*: /gɜːl/, and only occurs in English. Adams also includes the [ɐ] for the ending of some German words ending in -er.[54] E.g. *lieber*, /ˈliːbɐ/

51. Wikipedia Contributors, *Open front rounded vowel - Wikipedia*, accessed December 1, 2022, https://en.wikipedia.org/wiki/Open%7B%5C_%7Dfront%7B%5C_%7Drounded%7B%5C_%7Dvowel.
52. Adams, *A handbook of diction for singers*, 220–221, 245–248.
53. Moriarty, *Diction*, 11.
54. Adams, *A handbook of diction for singers*, 3.

Not pictured are the [ɚ] and [ɝ], which Wall and Caldwell added to the vowel diagram.[55] These are *rhotic*, meaning they add the typical American English closing -r sound to these vowels. E.g. *giver* pronounced in an American way: /ˈgɪ vəˠ/; and *curb* /kɝˠb/. On the IPA chart, the rhotic symbol [ˠ] is part of the diacritics to be added to any other sound.

7.1.3 Back vowels

The [u], [ʊ], [o], [ɔ] and [ɑ] are used in all diction methods. Adams does not use the [ʌ] (e.g. *luck*, /lʌk/), as it does not occur in French, German or Italian.

Emmons is the only method to use the [ɯ] and [ɒ]. The [ɯ] is only mentioned in the vowel chart, but is not further explained in her discussion.[56] None of the languages discussed here use this vowel.[57]

The [ɒ] is mentioned as distinct from [a], which most methods use for this particular phoneme. As an example, she writes the french *maman* as /maˈmã/ and *âme* as /ɒm/.

7.2 Consonant symbols

The IPA symbols for English, French, German and Italian consonants that occur in the above diction methods are listed in figure 12.

CONSONANTS (PULMONIC) ©①◎ 2020 IPA

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k g	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			r					ʀ		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

Figure 12: Consonant use in the different diction methods studied.
- Wall and Caldwell, *Diction for singers*
- Moriarty, *Diction*
- Emmons and Chase, *Prescriptions for Choral Excellence*
- Adams, *A handbook of diction for singers*
- Wall, *International phonetic alphabet for singers*

The diction methods analysed agree on most of the consonants used in the five classical singing languages discussed. The exceptions are the following:

7.2.1 [ɾ]

This is the "tap" version of the voiced, rolled [r]: e.g. the Italian *caro*, /kaɾo/, versus *amor*, /amɔr/. Adams and Wall in her *International phonetic alphabet for singers* distinguish it from the regular rolled [r].

55. Wall and Caldwell, *Diction for singers*, 4.
56. Emmons and Chase, *Prescriptions for Choral Excellence*, 69.
57. Wikipedia Contributors, *Close back unrounded vowel - Wikipedia*, accessed December 4, 2022, https://en.wikipedia.org/wiki/Close%7B%5C_%7Dback%7B%5C_%7Dunrounded%7B%5C_%7Dvowel.

7.2.2 [ɬ]

The [ɬ] is only mentioned by Moriarty as a consonant that should not be used in Italian, French or German.[58] Americans often use it when the orthographic *l* is final or before a consonant, as in *feel*, /fiːɬ/.

7.2.3 [ʝ]

Only Adams mentions the [ʝ], which often occurs in German instead of the [j].[59] It is a voiced version of the *ich-laut* [ç]—a fricative [j]. E.g. *ja*, /ʝa/.

7.2.4 [ʔ]

Both Adams and Wall mention the [ʔ]—the glottal stop. Wall replaces the [ʔ] with [|], however.[60] All languages have this phoneme, but not all diction methods for singers use it. A good example of it is with the expression *uh-oh*: /ʔʌ ʔoʊ/.

7.2.5 Additional consonant symbols

Wall and Caldwell add two symbols from the "other symbols" category of the IPA chart to the consonant table: [w] and [ɥ]. They also add [hw]. Strictly speaking, the [w] is a semivowel (also known as a semiconsonant or a glide), meaning that it although it shares properties with a vowel (the [u] in this case), it cannot be the 'nucleus' of a syllable. Similarly, the [ɥ] is also a semivowel, sharing properties with the [y]. It is used only in French of the languages discussed here, like in *puis*: /pɥi/. In both cases, they start with the mouth shape of their similar vowel, but quickly move into a succeeding vowel.

Emmons also includes the [ʍ], an unvoiced version of the [w] only used in English, e.g. for the w in which: /ʍɪtʃ/.[61]

Emmons and Wall in the *International phonetic alphabet for singers* use [ř] to indicate a voiced rolled r.[62][63] It can be argued that this is also a simplification of the IPA—while they use the [r] in this new symbol, they appear to actually mean the [ɹ], the unrolled r-sound that is often used in English: *pretzel* /ˈpɹɛtsl/. While these can be (and often are) rolled while singing, this is not considered the default for English speakers.

[ˬ] means a consonant is voiced, but the (true) phoneme [r] is already voiced. (The unvoiced [r] is written as [r̥] and only occurs in a handful of mostly Eastern European languages.[64]).

7.3 Supplementary symbols

The IPA chart also includes some miscellaneous symbols:

Diacritics Glyphs that can be added on top of, below or to the side of a symbol to alter it.[65]

Suprasegmentals Elements of speech that concern not individual language sounds but properties of syllables and larger units of speech, like intonation, stress, and rhythm.[66]

Other symbols Mostly consists of semivowels and otherwise symbols for phonemes that don't quite fit either the vowel or consonant categories.

58. Moriarty, *Diction*, 97.
59. Adams, *A handbook of diction for singers*, 149–150.
60. Wall, *International phonetic alphabet for singers*, 221.
61. Emmons and Chase, *Prescriptions for Choral Excellence*, 91, 95.
62. Emmons and Chase, 94.
63. Wall, *International phonetic alphabet for singers*, 189.
64. Wikipedia Contributors, *Voiceless alveolar trill - Wikipedia*, accessed December 2, 2022, https://en.wikipedia.org/wiki/Voiceless%7B%5C_%7Dalveolar%7B%5C_%7Dtrill.
65. Wikipedia Contributors, *Diacritic*, accessed December 2, 2022, https://en.wikipedia.org/wiki/Diacritic.
66. Wikipedia Contributors, *Prosody (linguistics)*, accessed December 2, 2022, https://en.wikipedia.org/wiki/Prosody%7B%5C_%7D(linguistics).

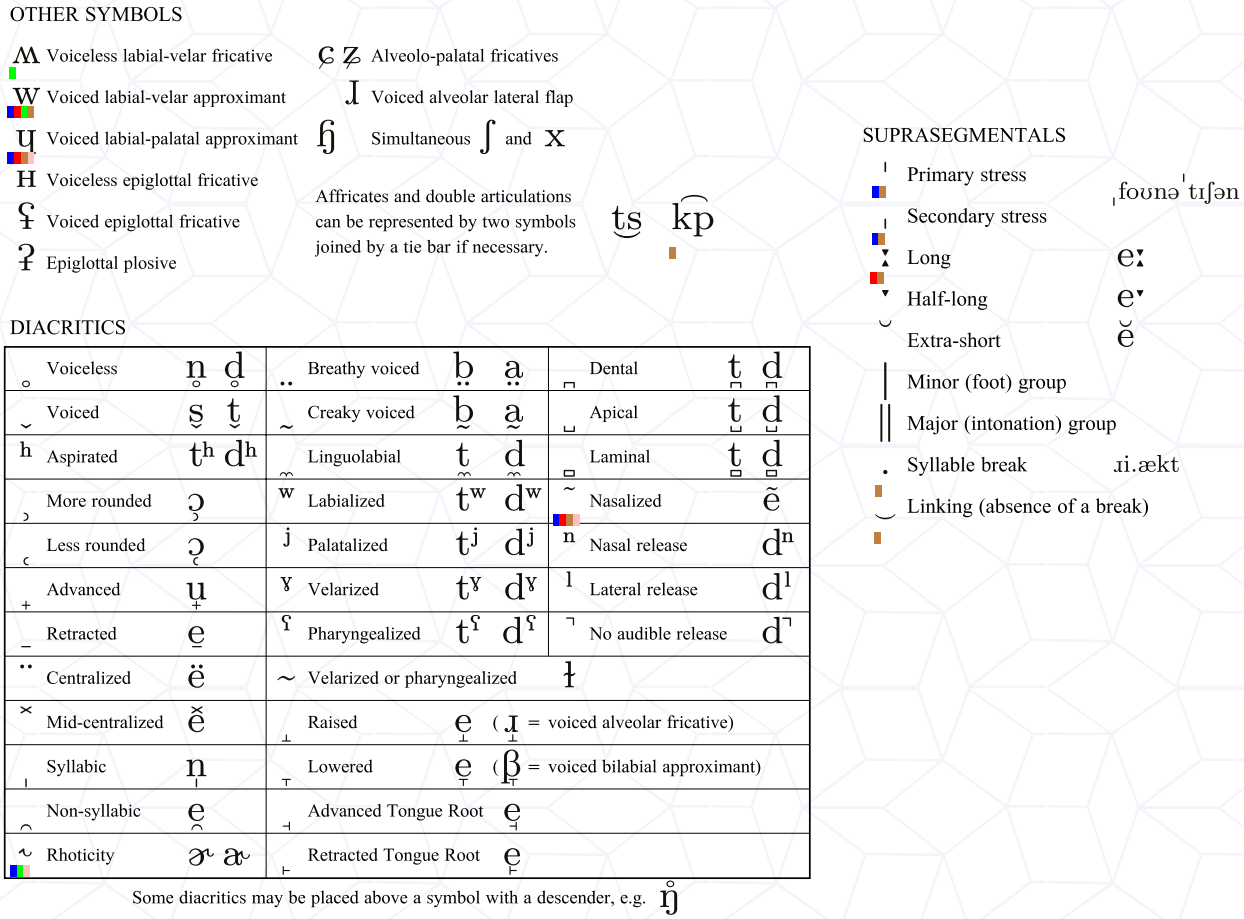


Figure 13: Use of supplementary symbols in the different diction methods studied.
Wall and Caldwell, *Diction for singers*
Moriarty, *Diction*
Emmons and Chase, *Prescriptions for Choral Excellence*
Adams, *A handbook of diction for singers*
Wall, *International phonetic alphabet for singers*

The ones that have been used in the above diction methods are listed in figure 13.

7.3.1 [ʍ], [w], [ɥ]

As mentioned in section 7.2.5, some methods move these to the consonant chart.

7.3.2 [◌͡◌], [◌͜◌]

Some older diction methods use ligatures (e.g. [ʤ]) to indicate affricates, but the modern method is to join two consonants using a tie bar (e.g. [d͡ʒ]). The newest method, Adams' *A handbook of diction for singers*, uses this way.

7.3.3 [◌˞]

While not presented as a rhotic version of a vowel but a separate vowel completely (i.e. [ɚ]), three diction methods do use this notation. (See also section 7.1.2.) It might be good to realise that other vowels can also be rhoticised, although this is not generally used in classical singing. Placing this symbol at the diacritics is therefore more a matter of correctness than practicality.

7.3.4 [˜]

French seemingly adds four new vowels: [ɛ̃], [ɑ̃], [ɔ̃] and [œ̃]. These are actually modified base vowels—the diacritic [˜] makes them nasal. This is what you hear in e.g. *bon* versus *beau*: /bɔ̃/ and /bo/.

Adams and Wall replace the [ɔ̃] with [õ].[67][68][69] According to Wall, the [ɔ̃] is too open to accurately reflect the actual pronunciation.[70] Additionally, it could cause confusion with the [ɑ̃], which is also slightly rounded.

7.3.5 Primary and secondary stress [ˈ], [ˌ]

Most diction methods do not use these symbols, but they are used to indicate word stress, as in *phonetician*: /ˌfoʊnəˈtɪʃən/.

7.3.6 Lengthened vowels [ː]

This symbol is used to "lengthen" a vowel. Compare *to be* with *bee*: /tu bi/ and /biː/.

7.3.7 Syllable breaks [.]

Syllable breaks are usually not indicated in IPA transcriptions, as they are usually not needed. In case they need to be indicated, this can be done with a period [.], as Adams does.

7.3.8 Linking / liaisons [‿]

In some cases it can be desirable to indicate that there is no break between two language sounds. This is comparable to an affricate, and notated similarly.

8 Discussion

To aid in this discussion, I have placed all of the symbols that are used in at least one of the five diction methods discussed in a venn diagram (figure 14). This will aid in determining which symbols are unique to a language and which are used in multiple languages.

The comparison with the description of the symbols in section 7 helps with making informed decisions on what to include in a simplified IPA. Still, simplifying something will inevitably lead to losing some details in pronunciation.

One of the main innovations for the Simple IPA that I am proposing is that different vowels and consonants can be combined, by having one vowel as the **base vowel / consonant** and **modifying** it. For example, if you want to make an [i] more like an [ɪ] in the german word *Himmel*, you can write this modified vowel like this: /iᴵ/—/*hiᴵməl*. In other words, this is a way to notate allophones (see glossary on page 5).

This way of notation is already a part of the IPA: if you look at the table of diacritics on the IPA chart, an aspirated *t* is written as [tʰ] and a nasal *d* as [dⁿ]. Applying it to vowels and other consonants in this way may be less precise, but a lot quicker to read and intuitive. It is distinct from affricatives and diphthongs: there are no two distinct sounds succeeding each other but rather one sound that is modified to have some features of another.

67. Adams, *A handbook of diction for singers*, 221.
68. Wall and Caldwell, *Diction for singers*, 245.
69. Wall, *International phonetic alphabet for singers*, 212.
70. Wall, 213.
72. Henry Heberle et al., "InteractiVenn: a web-based tool for the analysis of sets through Venn diagrams," *BMC Bioinformatics* 16, no. 1 (2015): 169, ISSN: 1471-2105, https://doi.org/10.1186/s12859-015-0611-3

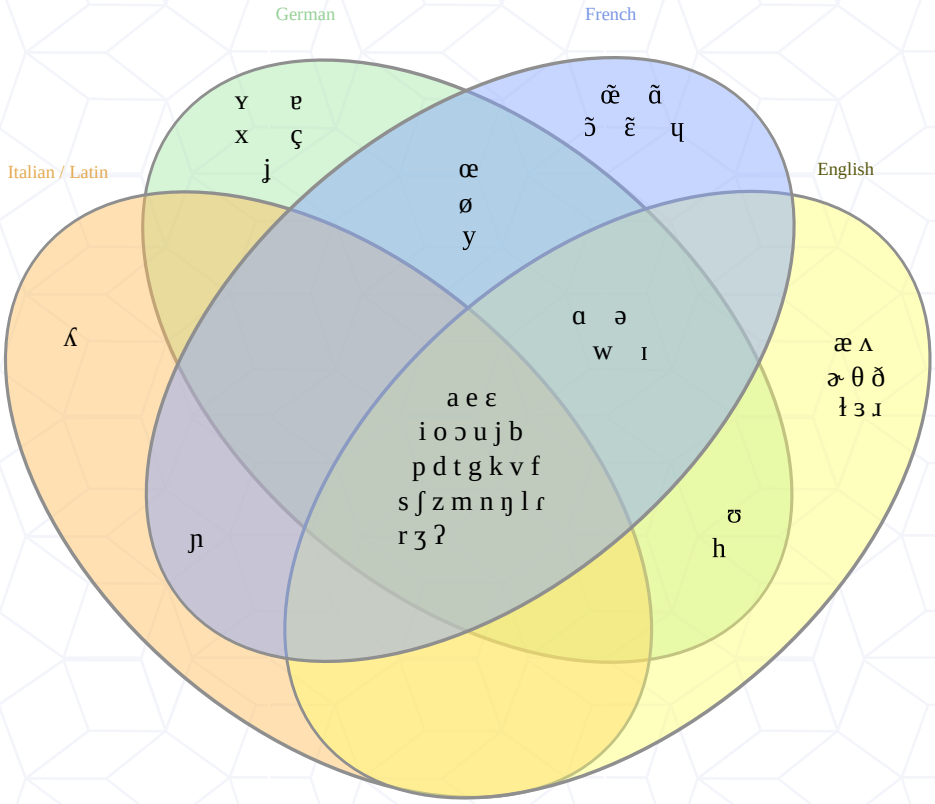


Figure 14: Venn diagram showing the overlap of all symbols used in the five discussed diction methods.[72]

8.1 Vowels

When considering which vowels from the IPA to crop or to combine, it is helpful to consider that these would be sung syllable by syllable, sometimes on longer notes. That is the environment in which I imagine a Simple IPA would be used. Less so in recits, which are more like actual spoken language and would lend themselves to a narrower transcription.

8.1.1 Front vowels

It appears safe to say that all front vowels except [œ] should be included in an IPA for singers, given that all diction methods use them for the four main languages this paper discusses. There are however some considerations:

- [y] and [ʏ] are very similar sounds. Their difference mostly lies in their length. Furthermore, only German differentiates between them. Compare *für* and *Glück*: /fyːr/ and /glʏk/. There is a slight difference in pronunciation, but not generally while singing. Given that vowel length is mostly determined by note length while singing, I opt to combine these into one: [y]. If necessary, a sound close to [ʏ] can then be written by using the method I describe in section 8.1: /yᴵ/.
- [œ] and [ɵ] are also similar, compare *plötzlich* and *gemacht*: /plœtslɪç/ and /gɵmaxt/. The difference is bigger than [y] and [ʏ], however.
- [ɛ] and [æ] are somewhat similar, compare *bat* and *bet*. Singing an [ɛ] instead of an [æ] however is a clear giveaway of a poor grasp of the English language. While the [æ] could conceivably also

be written as /ɛ^{a}/, the symbol [æ] seems intuitive enough to be retained in its current form.

The /(ɛ)/ and /(œ)/ introduced by Adams to describe the *e moyen* and the *œ moyen* can also be described in the Simple IPA in the same way that other modified vowels can be written: /ɛ^{e}/ and /œ^{ø}/ or /ə^{ø}/. In this way, no new symbol needs to be introduced.

Regarding the [e^{2}] that Moriarty introduces: given that the regular IPA does not include it, I see no reason to add it to a simplified IPA. If users want to notate a sound between /ɪ/ and /ɛ/ they can again do so by modifying one of them with the other's sound, depending on what sound they want to be the base vowel.

8.1.2 Central vowels

Most of the central vowels on the IPA chart are unused in the diction methods mentioned above. In general, these unused symbols occur in other languages than the four I am discussing.

Adams is the only method to use the [ɐ], for the ending of some German words ending in -er.[73] E.g. *lieber*, /ˈliːbɐ/. This phoneme is distinct from a *schwa* ([ə]) or other similar phonemes while singing, and it occurs quite a bit when singing German. However, it is not a frequently used symbol in the different diction methods (not to mention difficult to write). In the Simple IPA, it would be encouraged to write this as /ə^{a}/.

The [ɔ] and [ɜ] however, seem too similar, especially when considering the [œ] as well. Compare the German *gegeben*, English *girl* and German *Götter*: /gɔgeːbɔn/, /gɜl/ and /gœtɐ/. If these are sung per syllable on a long note, the [ɔ] has some difference, but the [ɜ] and [œ] seem very similar. Especially given that the [ɜ] is used less in the different diction methods, I opt to combine it with [œ].

Regarding the [ɚ] and [ɝ], these are not usually used in classical singing—it is more generally accepted to replace a final -r with a *schwa*, [ɔ].[74] This way it becomes a more British English, which is usually preferred when singing classically anyway. Interestingly, Americans also tend to sing with a more British English pronunciation.

Still, for the times when a rhoticised schwa is desired, it could be useful to add the [ɚ] to the Simple IPA, given that its pronunciation is basically the same as that of [ɝ], the [ɝ] will be left out.

8.1.3 Back vowels

Given that none of the languages discussed here use the [ɯ], that symbol will be left out of the Simple IPA. The [ɒ] (used by Emmons for a particular French a-sound) is not part of most methods discussing French diction (and also left out of the chapter on French in the IPA handbook), so it will similarly not be included.[75]

A phoneme that needs to be considered, however, is the [ʊ]. It is similar in pronunciation to the [u], but only occurs in English and German. Compare *boot* and *book*, /buːt/ and /bʊk/; or *Juwel* and *Mutter* in German, /juː veːl/ and /mʊtɐ/. The [ʊ] is slightly less rounded (with the lips) and the jaw is slightly lower. If you sing a long note on a syllable with either of them, however, it will sound largely the same. In the Simple IPA, I tend towards combining these two phonemes into [u]. If desired, it can be coloured towards the [ʊ] by modifying it with the [ə]: /uᵊ/.

73. Adams, *A handbook of diction for singers*, 3.
74. Wall and Caldwell, *Diction for singers*, 19–20.
75. International Phonetic Association, *Handbook of the International Phonetic Association: a guide of the use of the International Phonetic Alphabet*, 78–79.

8.1.4 Unused vowel symbols

None of the vowel phonemes that are left undiscussed in the used diction methods occur in one of the main singing languages. None of them therefore need to be considered for addition to the Simple IPA.

8.2 Consonants

8.2.1 Rhotic consonants

Rhotic consonants include all variations of the orthographic symbol **r**. There are a wide variety of them. As seen in section 7.2.5, this can even lead to some confusion occasionally.

Adams discusses five different kinds of r: [r], [ɾ], [ʀ], [ʁ] and [ɹ].[76] He chooses not to use [ɹ], as that is only used in the English language and that is not a language discussed in his method; and not to use [ʀ] and [ʁ], as those are not traditionally used in classical singing.

[ʀ] is also mentioned by Moriarty, describing it as suitable at best for cabaret and music-hall singers and considered quite vulgar in classical singing.[77] [ʀ] and [ʁ] are the uvular trill and uvular fricative, using the uvula, the fleshy extension of the soft palate. They are often considered "guttural".

The [ɜˑ] and [əˑ] are, in fact, also rhotic sounds, increasing the amount of them mentioned in the different diction methods to seven.

In the Simple IPA, these will be reduced to four: [r], [ɾ], [ɹ] and [əˑ]. It would be preferable to be able to reduce these further, but all of these occur in classical singing frequently (albeit the [ɹ] and [əˑ] less so) and have distinct sounds. [ɹ] and [əˑ] both occur only in English, which simply has more unique sounds compared to, e.g. Italian.

In Wall's Diction for Singers, both [ɜˑ] and [əˑ] occur, the first for stressed syllables and the second for unstressed syllables.[78] I would opt to use [əˑ] for both of these, as a difference in stress during singing is hardly audible.

8.2.2 [l] and [ɬ]

This consonant is only mentioned as one that should not be used in Italian, French or German.[79] Americans often use it when l is final or before a consonant. Also called dark l, it occurs in Dutch and English when the regular l is velarised (back of the tongue raised towards velum or soft palette).[80] Given how rare this consonant is, and that the American accent is usually toned down in classical singing, it seems safe to combine it with the [l].

8.2.3 [j̟]

Adams mentioned that two of his main sources for German diction simply use regular [j].[81] While the [j̟] may be more correct, singers would be expected to use the proper fricative *j*-sound if they are properly trained in German, anyway. For simplicity's sake it would make sense to follow suit and use the [j], which can always be modified with the *ichlaut*: /jᶜ/.

76. Adams, *A handbook of diction for singers*, 21–22.
77. Moriarty, *Diction*, 91.
78. Wall and Caldwell, *Diction for singers*, 19–20.
79. Moriarty, *Diction*, 97.
80. Wikipedia Contributors, *Voiced dental, alveolar and postalveolar lateral approximants*, 2021, accessed May 14, 2021, https://en.wikipedia.org/wiki/Voiced%7B%5C_%7Ddental,%7B%5C_%7Dalveolar%7B%5C_%7Dand%7B%5C_%7Dpostalveolar%7B%5C_%7Dlateral%7B%5C_%7Dapproximants%7B%5C#%7DVelarized%7B%5C_%7Dalveolar%7B%5C_%7Dlateral%7B%5C_%7Dapproximant.
81. Adams, *A handbook of diction for singers*, 149.

8.2.4 [ʔ]

Wall replaces the [ʔ] with the [|].[82] While this is understandable in a visual sense, the [|] already has a different meaning in the IPA.[83]

In order to maintain compatibility with the regular IPA, maintaining existing symbol meanings would be best. Interestingly, in her other (later) book, Wall simply leaves out any symbol for a glottal stop when discussing them in the chapter on German.[84]

In singing, having a symbol for a glottal stop is very useful—with any kind of advanced singing, it is a phoneme that is often desired from singers. It should therefore be included in the Simple IPA.

8.2.5 Unused consonant symbols

Apart from the [ɹ] and the [ʔ] which have already been discussed above, there are no consonants on the chart that should be included that have not been included yet.

8.3 Supplementary symbols

8.3.1 [ʍ], [w], [ɥ]

All three of these will be combined to [w]. As this is mostly used for (orthographic) consonants, it should be acceptable to it in the consonant portion of the Simple IPA. The [ʍ] and [w] will be combined, as [ʍ] rarely occurs in classical singing, and when it does it could be written as /^{h}w/. While the [ɥ] does occur often in French, it is easier to write it as /w^{j}/. This is already often done in broad transcriptions.[85]

8.3.2 [‿], [⁀]

Given how natural it already is for musicians to use these symbols (as they are used for ties and slurs), it only makes sense to use them in an IPA meant for them. These can easily also be used for liaisons, as that is usually how it is indicated in lyrics in the first place.

8.3.3 [̃]

This is absolutely essential for singing in French, so it needs to be included. Whether to use [ɔ̃] or [õ] is in fact up to the singer—a Simple IPA chart would only list the [̃] and leave it up to the user what vowel to use it with.

8.3.4 Primary and secondary stress [ˈ], [ˌ]

Accents are generally determined by the composer. Consequently, this seems unnecessary to add to a Simple IPA. If still desired, it is trivial to ”import” these symbols from the regular IPA.

8.3.5 Lengthened vowels [ː]

Personal experience has taught that using this symbol in scores leads to confusion—we are too used to using regular colons for other purposes (and also the colon : is practically indistinguishable from the lengthening mark ː, especially when handwritten).

A convention that you already often see in scores is simply to double the vowel you want lengthened: /aa/. This is easier to quickly read and quite intuitive. Doubling the symbol can also be used for consonants, which also sometimes need to be extra-articulated in singing.

82. Wall, *International phonetic alphabet for singers*, 221.
83. Specifically to indicate prosodic units, which have to do with the different intonations at the end of linguistic units, usually sentences. See Wikipedia Contributors, *Prosodic unit*, 2022, accessed November 27, 2022, https://en.wikipedia.org/wiki/Prosodic%7B%5C_%7Dunit
84. Wall and Caldwell, *Diction for singers*, 189–190.
85. **WikipediaContributors2023**.

8.3.6 Syllable breaks [.]

As syllables can (usually) already be gleaned from the way lyrics are divided over the sung notes, this is unnecessary in a Simple IPA. To reduce the amount of superfluous symbols as much as possible, this will also be left out. If absolutely necessary, these can be written down the same way they already usually occur in vocal scores: by separating syllables by hyphens. E.g. *information*, /ɪn-fər-meɪ-ʃən/.

8.3.7 Unused supplementary symbols

Some of the IPA diacritics sound like they *could* be useful to singers but are unused in any of the diction methods described above:

- The [ʰ], used to indicated an aspirated consonant like [tʰ].
- The [̹] (more rounded, [ɔ̹]) and [̜] (less rounded, [ɔ̜]).
- The [̟] (advanced, [u̟]) and [̠] (retraced, [u̠]).
- The [̴] (raised, [e̴]) and [̝] (lowered, [e̝]).

The [ʰ] was the inspiration for the technique of modifying a base vowel or consonant mentioned in section 8. In the case of the aspirated consonant, it would also be useful to be able to indicate the opposite, i.e. that a consonant is *not* aspirated. Singers often aspirate consonants that should be aspirated. The extended IPA, a set of advanced symbols introduced to the IPA in 2015, adds the symbol [˭] for this.[86] Compare the pronunciation of *two* with *apt*: /tʰu/ and /æpt˭/. These two symbols are useful enough to add to the Simple IPA.

The other six symbols, [̹], [̜], [̟], [̠], [̴] and [̝], could be useful for singers in what they are used for, but seem too unintuitive and abstract to be quickly remembered for most.[87] A similar effect, though less precise, would be to again use the Simple IPA's proposed technique of modifying base phonemes with other, more familiar phonemes. For example, to make the [ɔ] more closed, one could notate it as /ɔᵒ/. Singers often get the instruction to colour a vowel to another, but not often to make a vowel more "advanced", so also in that aspect this method of notating is probably more useful.

9 Methodologies of the Diction Methods

While the Simple IPA itself is not intended as a teaching method but rather as a tool to use in a teaching method, it can still be useful to evaluate how the different diction methods discussed teach the symbols of the IPA. From this it could also be gleaned what is the best order to present the different symbols on the Simple IPA chart.

There is no one method of teaching the IPA. Singers appear to be taught it most often by one of three methods:

1. As part of diction lessons for a language (usually at a conservatoire).
2. From a class specifically teaching the IPA with examples from every language.
3. As part of choir rehearsals (this is unusual in the Netherlands).

The order in which the different symbols are taught in the various diction methods I discussed in the earlier sections is usually similar: First some general pointers on the IPA are provided (sometimes including a rudimentary consonant chart and vowel trapezium), then usually vowels and then consonants. When a specific language is discussed the vowels and consonants are usually preceded by specific pronunciation pointers for that language.

86. **WikipediaContributors2023a**.
87. See the glossary (section 2) for an explanation of these terms.

In Wall's *International phonetic alphabet for singers*, which is a method for teaching the IPA in general, the first IPA symbols taught are those that occur in the students' own language (in this case, American English). In this way, sounds that should already be quite familiar to students are linked to a symbol first, making the link between a symbol and a (single) sound clear.

Starting from students' native language is a useful idea to keep in mind when developing a class for the IPA. For the Simple IPA in specific, it would be useful to start with those symbols that occur in every "singing language" as well as the students' own native language. Starting with those basics is also a good way to convince the student that most of the symbols are not as exotic as they might appear at first glance.

The way in which starting from users' native language is incorporated in the prototype of the Simple IPA chart in appendix C is by underlining the sounds that sound the way a speaker of a certain language (in this case, Dutch) would expect them to. This provides a link to the familiar, which should aid users in understanding the function of the symbols.

10 Simple IPA for singers, conductors and composers

The literature review and discussion in the previous sections have helped to see what to include and what to leave out of the Simple IPA. There are some other aspects of the Simple IPA to consider:

- It is the intention for the Simple IPA to be as compatible with the "regular" IPA as possible. Users should be able to look up pronunciations of words with other sources, and to simply look up what symbols they do not know (and ideally replace them with modified symbols that they are familiar with).
- To aid with this, it should be made clear what alterations the Simple IPA has made to the regular IPA.
- It should always possible to complement the Simple IPA with the more detailed symbols of the regular IPA.
- The IPA chart itself is a good, compact way to present information. Ideally, the Simple IPA can be presented on a compact Simple IPA chart as well.

In the above description of the diction methods analysed, it can be seen that many of them invent new terms, or even change the meaning of certain symbols compared to their meaning on the IPA chart. The Simple IPA should try to avoid this, given that the official IPA chart is bound to have a much longer 'shelf life' than any alterations made by another source.

While some of the notation methods in the Simple IPA are different from the regular IPA (like using superscript to modify base vowels / consonants or using double vowels for lengthening), these intend to stay as close to the notation on the IPA chart as possible.

Ultimately, the goal of the Simple IPA is not to teach students how to sing with perfect diction in all five discussed languages. Like the regular IPA, it is a tool to assist them with this—it is not meant to replace the diction methods discussed but rather as a supplement to them. Chiefly, it is an aid for quickly identifying the most relevant parts of the IPA for singers, to then (ideally) be supplemented by pronunciation classes and/or one of the diction methods discussed. Its goal is to quickly be able to see which IPA symbols are useful for singers and only those, and to present them in a way that is as intuitive and unintimidating as possible.

A first prototype of a Simple IPA chart is presented in appendix C.

10.1 Included symbols

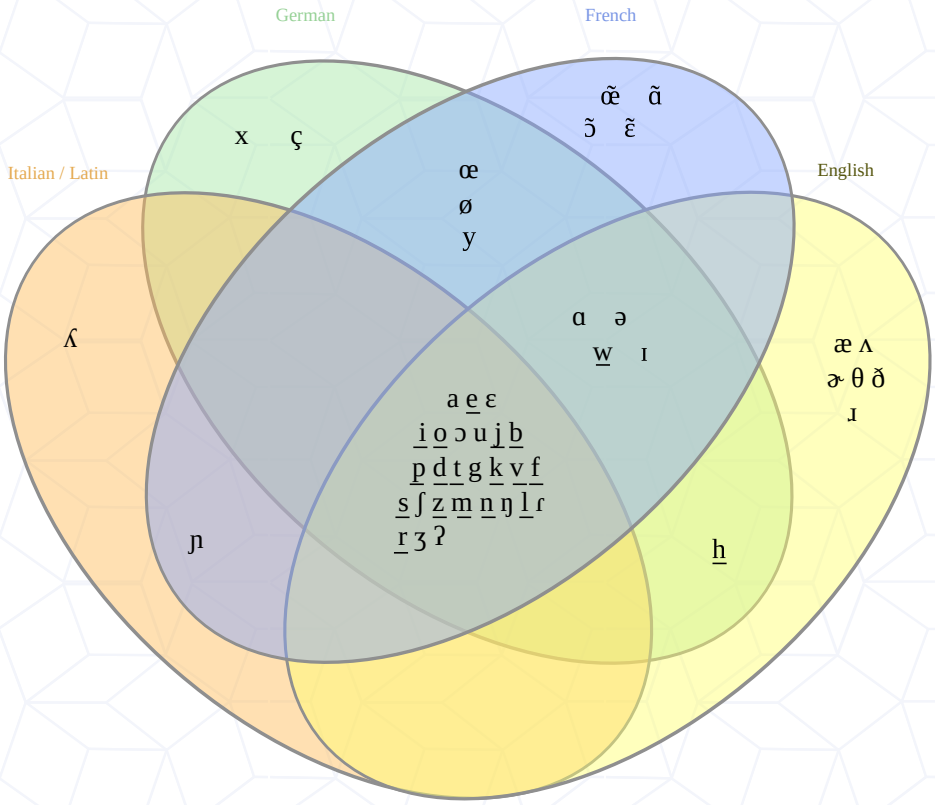


Figure 15: Venn diagram showing all phoneme symbols in the Simple IPA and their overlap. Underlined symbols are those that sound like a Dutch person would expect them to.[89]

Figure 15 shows the remaining phoneme symbols in the Simple IPA and their overlap in the different languages. The symbols that sound like a Dutch person would expect them to sound are underlined. This is based on how a Dutch person would pronounce the matching orthographic letters. Underlining those symbols was also done on the prototype of the Simple IPA chart.

Underlining known symbols can help with quickly seeing which symbols a new student of the IPA would have to learn and which they already know. Doing this does mean that a different Simple IPA chart needs to be made for native speakers of each different language.

Including a Venn diagram like this on a Simple IPA chart is unnecessary, however, and mostly useful for meta-discussions like the current one. Using it we can conclude that English has the most unique symbols and Italian has the least. French appears to have many unique symbols as well, but these are actually mostly nasalised versions of more “universal” vowels.

Summarising from the last section, these changes are proposed compared to the regular IPA:

- [ʏ] → /yᴵ/
- [ɐ] → /əᵃ/

89. Heberle et al., “InteractiVenn: a web-based tool for the analysis of sets through Venn diagrams”

- [ʊ] → /uᵊ/
- [ɜ] → /œ/
- [ɬ] → /l/
- [ʍ] → /ʰw/
- [ɥ] → /wʲ/

This list is included on the Simple IPA chart, to aid with compatibility with the regular IPA.

The Venn diagram does not include supplementary symbols, as these occur in all languages. Included in the Simple IPA are the following:

- ([w] has been moved to the regular consonants)
- [‿], [⁀] for liaisons and affricatives
- [̃] for nasalised vowels
- [ʰ] for aspirated consonants
- [ˉ] for specifically *not* aspirated consonants
- (Any IPA symbol in superscript as a modifier)
- [ː] → double vowel (or consonant). To indicate lengthening

10.2 Considerations for the Simple IPA Chart

To aid with the compatibility of the Simple IPA with the regular IPA chart, it seemed useful to copy the general layout of the original. Also included is a mid-sagittal section with the consonant table and vowel trapezium, to aid in making the position of the phonemes in the mouth intuitive (as in figures 3 and 4 on page 7).

Another addition are example words with each phonetic symbol presented. This could possibly be with different examples depending on the user's native language, but assuming users already have a basic understanding of these languages this should not be a requirement. Providing examples does take up space, but it still seems like it would be the most efficient way of showing how the symbols are used in one glance.

An addition that could be considered is showing which symbols occur in which languages, perhaps by means of a colour code. As this also leads to more clutter, however, it has been left out of the prototype version of the Simple IPA sheet. An alternative method to consider would be making a different Simple IPA Chart per singing language, where the symbols not used in a particular language are printed in grey.

11 Conclusion

11.1 Answering the research question

> *How can the International Phonetic Alphabet be most effectively simplified and codified to be most accessible and useful for (Dutch) classical singers?*

The main way in which I went about making the Simple IPA Chart in its current form was by analysing the way in which various diction coaches over the last decades have used the IPA in their books on diction for classical singers. By standing on the shoulders of these giants, as it were, it was possible to build on their vast combined experience. Although their aim was never to simplify the IPA in their books, they did make a selection from it. Analysing these choices and visualising them allowed me to make a first prototype of a Simple IPA Chart.

Whether this Simple IPA Chart is accessible still remains to be seen, but the symbols themselves are at least only those that are strictly necessary for the most-taught and used languages in classical singing.

11.2 Further Research: Testing the Simple IPA Chart

The goal of this research was to evaluate with the help of existing diction methods which parts of the IPA are useful for singers and which are not. The main consideration was always that the Simple IPA should convince people that the IPA is not too complex or difficult to be useful for all types of singers. The first prototype presented in Appendix C is a good start, but can still use some improvement in its design. Further testing with different user groups is needed to improve on it and to see what could be presented better.

These groups should include (amateur) singers, conductors and composers, but also language coaches and diction teachers from different conservatoires, ideally internationally. They should be encouraged to work with the sheet and then asked the following questions:

- Is this sheet easy to work with? Why or why not?
- Compared to the regular IPA sheet, has too much been left out?
- Are there things included that need not be?

Their feedback would then need to be evaluated in order to create a better version of the Simple IPA chart. This is sadly outside of the scope of the current research.

Appendix A The IPA chart

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2015)

CONSONANTS (PULMONIC)

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k g	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	N		
Trill	ʙ			r					ʀ		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

CONSONANTS (NON-PULMONIC)

Clicks	Voiced implosives	Ejectives
ʘ Bilabial	ɓ Bilabial	’ Examples:
ǀ Dental	ɗ Dental/alveolar	pʼ Bilabial
ǃ (Post)alveolar	ʄ Palatal	tʼ Dental/alveolar
ǂ Palatoalveolar	ɠ Velar	kʼ Velar
ǁ Alveolar lateral	ʛ Uvular	sʼ Alveolar fricative

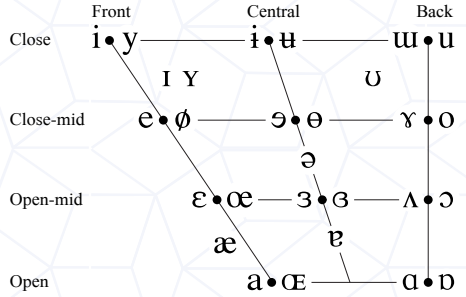
OTHER SYMBOLS

ʍ Voiceless labial-velar fricative
ɕ ʑ Alveolo-palatal fricatives
w Voiced labial-velar approximant
ɺ Voiced alveolar lateral flap
ɥ Voiced labial-palatal approximant
ʢ Simultaneous ʃ and x
ʜ Voiceless epiglottal fricative
ʡ Voiced epiglottal fricative
ʔ Epiglottal plosive

Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.

t͡s k͡p

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

SUPRASEGMENTALS

ˈ Primary stress ˌfoʊnəˈtɪʃən
ˌ Secondary stress
ː Long eː
ˑ Half-long eˑ
˘ Extra-short ĕ
| Minor (foot) group
‖ Major (intonation) group
. Syllable break ɹi.ækt
‿ Linking (absence of a break)

TONES AND WORD ACCENTS

LEVEL		CONTOUR	
e̋ or ˥	Extra high	ě or ˧˥	Rising
é ˦	High	ê ˥˩	Falling
ē ˧	Mid	e᷄ ˩˥	High rising
è ˨	Low	e᷅ ˨˧	Low rising
ȅ ˩	Extra low	e᷈ ˥˩˧	Rising-falling
↓	Downstep	↗	Global rise
↑	Upstep	↘	Global fall

DIACRITICS Some diacritics may be placed above a symbol with a descender, e.g. ŋ̊

◌̥	Voiceless	n̥ d̥	◌̤	Breathy voiced	b̤ a̤	◌̪	Dental	t̪ d̪
◌̬	Voiced	s̬ t̬	◌̰	Creaky voiced	b̰ a̰	◌̺	Apical	t̺ d̺
◌ʰ	Aspirated	tʰ dʰ	◌̼	Linguolabial	t̼ d̼	◌̻	Laminal	t̻ d̻
◌̹	More rounded	ɔ̹	◌ʷ	Labialized	tʷ dʷ	◌̃	Nasalized	ẽ
◌̜	Less rounded	ɔ̜	◌ʲ	Palatalized	tʲ dʲ	◌ⁿ	Nasal release	dⁿ
◌̟	Advanced	u̟	◌ˠ	Velarized	tˠ dˠ	◌ˡ	Lateral release	dˡ
◌̠	Retracted	e̠	◌ˤ	Pharyngealized	tˤ dˤ	◌̚	No audible release	d̚
◌̈	Centralized	ë	~	Velarized or pharyngealized	ɫ			
◌̽	Mid-centralized	e̽	◌̝	Raised	e̝ (ɹ̝ = voiced alveolar fricative)			
◌̩	Syllabic	n̩	◌̞	Lowered	e̞ (β̞ = voiced bilabial approximant)			
◌̯	Non-syllabic	e̯	◌̘	Advanced Tongue Root	e̘			
◌˞	Rhoticity	ɚ a˞	◌̙	Retracted Tongue Root	e̙			

Typefaces: Doulos SIL (metatext); Doulos SIL, IPA Kiel, IPA LS Uni (symbols)

90. *The International Phonetic Alphabet and the IPA Chart*, 2021, accessed January 17, 2021, https://www.internationalphoneticassociation.org/content/ipa-chart

Appendix B Simple IPA symbol names

These names come from the *Handbook of the International Phonetic Association: a guide of the use of the International Phonetic Alphabet,* where they are named based on conventions among linguists.[91]

[a] Lower-case A
[ɑ] Script A
[b] Lower-case B
[d] Lower-case D
[ð] Eth
[e] Lower-case E
[ə] Schwa (this is one of the more well-known symbol names)
[ɚ] Right-hook schwa
[ɛ] Epsilon
[f] Lower-case F
[g] Lower-case G
[h] Lower-case H
[ɥ] Turned H
[i] Lower-case I
[ɪ] Small capital I
[j] Lower-case J
[k] Lower-case K
[l] Lower-case L
[m] Lower-case M
[n] Lower-case N
[ɲ] Left-tail N
[ŋ] Eng
[o] Lower-case O
[ø] Slashed O
[œ] Lower-case O-E ligature
[ɔ] Open O
[p] Lower-case P
[r] Lower-case R
[ɾ] Fish-hook R
[s] Lower-case S
[ʃ] Esh
[t] Lower-case T
[θ] Theta
[u] Lower-case U
[v] Lower-case V
[ʌ] Turned V
[w] Lower-case W
[x] Lower-case X
[y] Lower-case Y
[ʎ] Turned Y
[z] Lower-case Z
[ʒ] Ezh
[ʔ] Glottal stop
[˜] Tilde

91. International Phonetic Association, *Handbook of the International Phonetic Association: a guide of the use of the International Phonetic Alphabet*, 166–184.

Appendix C The Simple IPA chart

THE SIMPLE INTERNATIONAL PHONETIC ALPHABET (revised to 2023)
For singers, conductors and composers

Version 0.3 for Dutch native speakers.
Symbols sounding like a Dutch speaker would expect are underlined.

For English, French, German, Italian and Latin

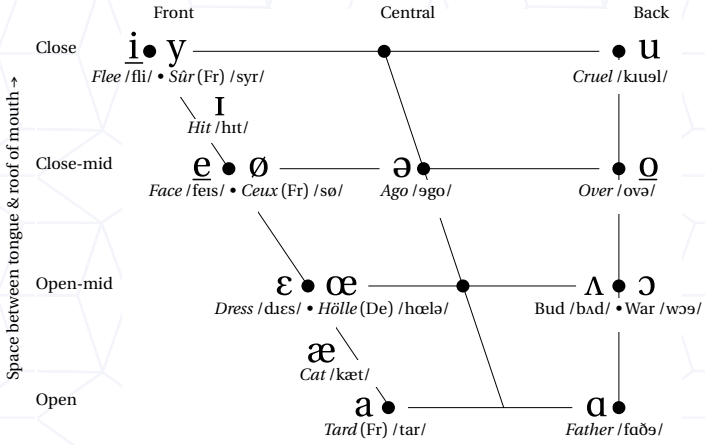
CONSONANTS

→ Place of articulation ↓ Manner of articulation	Both lips (Bilabial)	Teeth touching lips (Labio-dental)	Teeth (Dental)	Ridge behind upper front teeth (Alveolar)	Cavity behind alveolar ridge (Postalveolar)	Hard palate (Palatal)	Soft palate (Velar)	Glottis (Glottal)
Plosive	p b *Bleep* /blip/			t d *Dot* /dɔt/			k g *geek* /gik/	ʔ *uh-oh* /ʔʌ ʔoʊ/
Nasal	m *Make* /meɪk/			n *snide* /snaɪd/		ɲ *ogni* (It) /ɔɲi/	ŋ *sing* /sɪŋ/	
Trill				r *rosa* (It) /rɔ za/				
Tap or Flap				ɾ *terra* (It) /tɛ ɾa/				
Fricative		f v *Favourite* /feɪ vrɪt/	θ ð *Think* *This* /θɪŋk/ /ðɪs/	s z *seize* /siz/	ʃ ʒ *shy* *vision* /ʃɑɪ/ /vɪ ʒɘn	ç *ich* (De) /iç/	x *Bach* (De) /bɑx/	h *high* /hɑɪ/
Approximant				ɹ *red* /ɹɛd/		j *yes* /jɛs/		
Lateral approximant				l *Lie* /lɑɪ/		ʎ *figli* (It) /fiʎi/		

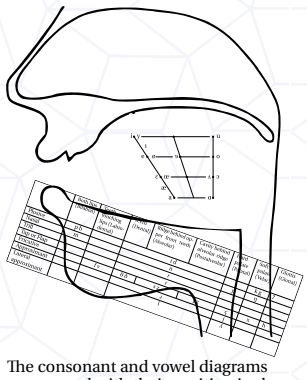
Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas are articulations judged impossible.

Examples are in English unless otherwise indicated.

VOWELS



Where symbols appear in pairs, the one on the right represents a rounded vowels (i.e. with round lips).



The consonant and vowel diagrams correspond with their position in the mouth.

SUPPLEMENTARY SYMBOLS

‿ ⁀ No break between sounds *Les amis* /leɀami/	⁼ Not-aspirated consonants *apt* /æpt⁼/
̃ Nasalised vowels *Un bon vin blanc* /œ̃ bɔ̃ vɛ̃ blɑ̃/	ʰ Aspirated consonants *two* /tʰu/
ɚ R-coloured schwa *Fir* (American English) /fɚ/	

Any IPA symbol can be added to a base vowel or consonant as a modifier. This can be used to substitute symbols common in other sources:

- [ʏ] → /yᶦ /
- [ɐ] → /əᵃ /
- [ʊ] → /uᵃ /
- [ɜ] → /œ/
- [ɬ] → /l/
- [ʍ] → /ʰw/
- [ɥ] → /wʲ/
- [ː] → double vowel (or consonant) (e.g. oo / ll)

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