



JOURNAL

OF

SINGING

THE OFFICIAL JOURNAL
OF THE NATIONAL ASSOCIATION
OF TEACHERS OF SINGING, INC.



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IPA Braille for Lyric Diction: A Mutually Accessible Phonetic System for Teachers and Students

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ALTHOUGH RESOURCES FOR THOSE WHO read braille are widely available, lyric diction resources with IPA braille are nonexistent. Mutually recognizable symbols with easily accessible keystrokes would facilitate exchange of phonetic material between the sighted and the blind. An intuitive system of IPA braille, education in that system, and resources transcribed according to the system would enable students with blindness or visual impairments to be included in the lyric diction classroom. This article introduces a new phonetic system that is mutually accessible by both the sighted and the blind. It is well supported with a database of more than 2,000 English, Italian, Latin, German, and French lyrics transcribed according to the system; three Kindle books; and an IPA chart with tactile and visual symbols. The discussion introduces IPA Braille for Lyric Diction and directs instructors to resources that use the system.

INTRODUCTION TO BRAILLE

Braille is a tactile writing system created in 1824 by Frenchman Louis Braille. The braille code is not universal; character designations vary from language to language. For this article, English braille will be adopted to represent the IPA symbols needed for lyric diction.

There are three levels of encoding for English braille. Grade 1 provides a letter by letter representation of any given spelling, grade 2 includes abbreviations and contractions, and grade 3 contains various symbols that can be customized to suit the individual needs of the user.

Each braille character consists of a cell with raised or lowered dots. Characters are distinguished by the number and arrangement of raised dots within each cell. The braille font applied in this article indicates raised dots with black circles and lowered dots with smaller gray circles. Each braille cell is assigned a number name according to the dot configuration within the cell. The dots are numbered counting from top to bottom starting with the left column (Figure 1). The braille symbol for *c* is named dots 14 (dots 1 and 4 are raised for the braille representation of *c*). Uppercase letters are indicated by placing a braille dots 6 before the letter. The braille representation for uppercase *C* is a dots 6 cell followed by a dots 14 cell.

Journal of Singing, November/December 2020
Volume 77, No. 2, pp. 219–232
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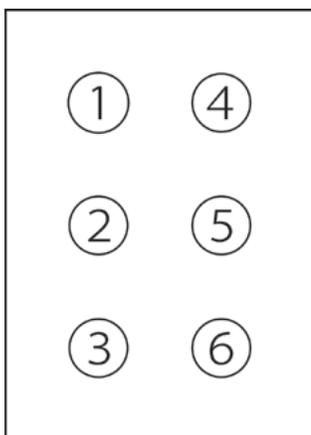


Figure 1. A numbered Braille cell.

Braille consumes a lot of space. Certain characters require more than one cell. The 6-dot cell system is used for reading, math, and music. The 8-dot cell system provides an extension. An added row of dots reduces the line by including additional information, like capitalization, beneath the cell.

THE OFFICIAL IPA BRAILLE SYSTEM

In 2008, the International Council on English Braille (ICEB) released *IPA Braille: An Updated Tactile Representation of the International Phonetic Alphabet*.¹ The ICEB IPA Braille system is designed for the phonetic transcription of multiple languages. It utilizes 6-dot Braille cells to represent 195 phonetic symbols. Punctuation marks and the contractions and abbreviations of grade 2 Braille are reassigned to represent standard IPA symbols (Table 1).

The ICEB IPA Braille system is realized in the transcribed art song shown in Figure 2. A translation of the Braille code is included on the fourth line of each verse. This translation provides an example of what singers who read Braille must memorize in order to read phonetically prepared texts. They must memorize additional symbols for the IPA Braille of Italian, Latin, German, and French.

The ICEB IPA Braille system is thorough. Each speech sound identified by the International Phonetic Association has a corresponding Braille character. However, many of the symbols do not resemble the orthographic spellings of words. This is due to the large

Table 1. ICEB IPA Braille chart.

Vowels			
IPA	Braille	Contraction/Abbreviation	
ɪ	⠠	st	
ɛ	⠢	ar	
ʊ	⠤	of	
ɔ	⠥	gh	
ɒ	⠦	!	ch
ɑ	⠧	ch	
æ	⠨	sh	
ʌ	⠩	ing	
ɛ̃	⠠⠢	en	
ɪ̃	⠠⠠	in	y
ø	⠤⠤	ou	
œ	⠤⠥	ow	
ɜ	⠦⠦	!	ar
ɛ̃	⠠⠢⠢	ar	accent er
ɔ̃	⠠⠥⠥	o	accent er
ɑ̃	⠠⠧⠧	ch	accent er
œ̃	⠠⠨⠨	ow	accent er
ɥ	⠦⠦	.	h

Consonants				
IPA	Braille	Contraction/Abbreviation/Punctuation		
ʌ	⠠⠠	!	w	
θ	⠠⠢	decimal point	th	
ð	⠤⠤	er		
ɾ	⠦⠦	!	r	
ɹ	⠠⠢	#		
ʃ	⠠⠥	wh		
ʒ	⠠⠧	the		
ʃ̥	⠠⠦⠦	t	abbreviation sign	wh
ʒ̥	⠠⠧⠧	t	abbreviation sign	the
ɹ̥	⠤⠤	for		
ʎ	⠤⠤	?	y	
ç	⠦⠦	!	c	
ŋ	⠤⠤	ed		
χ	⠠⠢	decimal point	and	
ʔ	⠠	;		
ˈ	⠠⠦	initial letter abbreviation mark	b	
[]	⠠⠠⠠	abr. sign	of	with
/	⠦⠦	abr. sign	/	

“Proud Songstress” from *Winter Words*, by Thomas Hardy

The thrushes sing as the sun is going,

[ðə 'θrʌʃəz sɪŋ æz ðə sʌn ɪz 'ɡoʊɪŋ]
 abr. of er en ' b . th ! r ing wh en z s st ed sh z er en s ing n st z ' b g o of st ed abr. with

And the finches whistle in ones and pairs,

[ænd ðə 'fɪnʃəz 'wɪsəl ɪn wʌnz ænd pɛəz]
 abr. of sh n d er en ' b f st n t abr. wh en z ' b ! w st s en l st n w ing n z sh n d p ar en z abr. with

And as it gets dark loud nightingales

[ænd æz ɪt ɡets dɑk laʊd 'naɪtɪŋɡeɪlz]
 abr. of sh n d sh z st t ɡ ar t s d ch k l ch of d ' b n ch st t st n ɡ ar st l z abr. with

In bushes Pipe, as they can when April wears,

[ɪn 'bʊʃəz paɪp æz ðeɪ kæn wɛn 'ʔeɪprəl wɛəz]
 abr. of st n ' b b of wh en z p ch st p sh z er ar st k sh n ! w ar n ' b ; ar st p # en l w ar en z abr. with

As if all Time were theirs.

[æz ɪf ɔl taɪm wɜ ðeəz]
 abr. of sh z st f ɡ h l t ch st m w ! ar er ar en z abr. with

These are brand-new birds of twelve-months' growing,

[ðɪz ə brænd nju bɜdz ʌv twelv mʌnθs ɡroʊɪŋ]
 abr. of er ɪ z ch b # sh n d n j u b ! ar d z ing v t w ar l v m ing n . th s ɡ # o of st ed abr. with

Which a year ago, or less than twain,

[wɪʃ ə jɪər ə lɛs ðæn twɛɪn]
 abr. of ! w st t abr. wh ing j st ing ! r ing ' b go of ɡ h l ar s er sh n t w ar st n abr. with

No finches were, nor nightingales,

[noʊ 'fɪnʃəz wɜ nɔ 'naɪtɪŋɡeɪlz]
 abr. of n o of ' b f st n t abr. wh en z w ! ar n ɡ h ' b n ch st t st n ɡ ar st l z abr. with

Nor thrushes, But only particles of grain,

[nɔ 'θrʌʃəz bʌt 'oʊnlɪ 'pɑtɪkəlz ʌv ɡreɪn]
 abr. of n ɡ h ' b . th ! r ing wh en z b ing t ' b o of n l st ' b p ch t st k en l z ing v ɡ # ar st n abr. with

And earth, and air, and rain.

[ænd ɜəθ ænd ɜər ænd ɹeɪn]
 abr. of sh n d ; ! ar . th sh n d ; ar en ! r sh n d # ar st n abr. with

Figure 2. Sample of the ICEB IPA braille system.



Figure 3. A refreshable braille display converts text to Braille.

number of unique braille characters needed to represent the speech sounds of multiple languages.

Advances in technology facilitate a new approach to phonetic transcription for those who read braille. A refreshable braille display converts text to braille. This device gives teachers and students the ability to communicate using the same phonetic alphabet (Figure 3).

IPA BRAILLE FOR LYRIC DICTION

The International Phonetic Alphabet was created by linguists and intended for speech. Singers adopted the IPA for lyric diction. The standard IPA system was designed to accommodate the speech sounds of multiple languages; it was *not* designed with ease of access in mind. The keystrokes needed to create documents with IPA are awkward for both the sighted and the blind.

The sighted have several access options. They can cut and paste symbols from a Unicode chart, apply keyboard shortcuts linked to Unicode symbols that are located in a separate file, or find another resource that gives them quick access to Unicode symbols to be inserted into a document. Students who read braille have only

one option: to memorize the symbols and keystrokes associated with pre-assigned braille characters. All these options prohibit the exchange of phonetic material between the sighted and the blind. Why? IPA symbols do not automatically convert to braille. Each IPA symbol must be assigned a unique braille character; those unique braille characters do not automatically convert back into standard IPA. Consequently, the sighted would have to learn to read braille in order to send and receive material with phonetic content. The only way to simplify the delivery of phonetic symbols is to create an entirely new system that is also shared. A mutually accessible phonetic system is possible through the use of a refreshable braille display.

IPA Braille for Lyric Diction comprises shared characters that are visually similar to standard IPA symbols. The system is intuitive for the blind in that it uses uppercase and lowercase letters along with a few punctuation marks. The symbols are enclosed in brackets to distinguish them from other content within the text.

THE SYMBOLS

Singers need only those symbols that pertain to the sung pronunciation of languages set by classical composers. A refined set of symbols has been selected. Shared symbols facilitate the exchange of phonetic material between the sighted and the blind.

With this new system, IPA symbols that require special characters are replaced with capital letters. For instance, a lowercase *s* keystroke indicates [s] (as in *sing*), while an uppercase *S* keystroke indicates [ʃ] (as in *sheep*). Companion vowels share the same alphabet letter. A distinction for open vowels is made with uppercase letters. For example, a lowercase *i* keystroke indicates [i] (as in *tea*) while an uppercase *I* keystroke indicates [ɪ] (as in *bit*). The symbol selection is visually intuitive for the sighted (standard phonetic symbols for open vowels look like uppercase letters: [ɪ ɛ ʊ ɔ]). The transcription of the word *dish* would be keyed as [dIS] by both the sighted and the blind. Commonly applied punctuation marks are used to replace other unique IPA symbols. A question mark provides a sensible symbol for the glottal stop (the standard phonetic symbol looks like a question mark: [ʔ]). Selection of other symbols follows the same rationale. A comma is used to indicate the stressed syl-

Table 2. IPA Braille for Lyric Diction: Vowel Chart.

IPA Symbols	Braille	Keystroke	English	Italian	German	French
FRONT VOWELS						
Closed [i]	⠠⠠	i	<i>key</i> [ki]	<i>ivi</i> [,ivi]	<i>Lied</i> [li;t]	<i>ici</i> [isi]
Open [ɪ]	⠠⠠⠠	I	<i>sit</i> [sɪt]		<i>Bitte</i> [,blɪt.]	
Closed [e]	⠠⠠⠠	e	<i>chaos</i> [,keAs]	<i>perché</i> [per,ke]	<i>Erde</i> [,?e;rd.]	<i>été</i> [ete]
Open [ɛ]	⠠⠠⠠⠠	E	<i>bell</i> [bEl]	<i>bene</i> [,bEne]	<i>Feld</i> [fɛlt]	<i>rêve</i> [rɛv.]
BACK VOWELS						
Closed [u]	⠠⠠⠠	u	<i>moon</i> [mun]	<i>luna</i> [,luna]	<i>Ruh</i> [ru;]	<i>jour</i> [Zur]
Open [ʊ]	⠠⠠⠠⠠	U	<i>book</i> [bʊk]		<i>jung</i> [jʊN]	
Closed [o]	⠠⠠⠠⠠	o	<i>obey</i> [?o,bEl]	<i>solo</i> [,solo]	<i>Mond</i> [mo;nt]	<i>pauvre</i> [povr.]
Open [ɔ]	⠠⠠⠠⠠⠠	O	<i>ought</i> [?Ot]	<i>core</i> [,kOre]	<i>Sonne</i> [,zOnn.]	<i>aurore</i> [OrOr.]
CENTRAL VOWELS						
Dark [ɑ]	⠠⠠⠠⠠	A	<i>father</i> [,fATH.]		<i>Abend</i> [,A;b.nt]	<i>âme</i> [Am.]
Bright [a]	⠠⠠⠠	a		<i>cara</i> [,kara]	<i>allein</i> [?al,laen]	<i>voilà</i> [vwala]
Central [ʌ]	⠠⠠⠠⠠	V	<i>up</i> [?Vp]			
Central [æ]	⠠⠠⠠⠠	ae	<i>glad</i> [glaed]			
English [ɜ]	⠠⠠⠠⠠	R	<i>bird</i> [bRd]			
German [ɛ]	⠠⠠⠠⠠	R			<i>der</i> [de;R]	
MIXED VOWELS						
Closed [y]	⠠⠠⠠⠠	y			<i>Blüte</i> [,bly;t.]	<i>sûr</i> [syr]
Open [ʏ]	⠠⠠⠠⠠⠠	Y			<i>Küsse</i> [,kYss.]	
Closed [ø]	⠠⠠⠠⠠	oe			<i>schön</i> [Soe;n]	<i>feu</i> [foe]
Open [œ]	⠠⠠⠠⠠⠠	OE			<i>können</i> [kOEnn.n]	<i>seul</i> [sOEI]
FRENCH NASAL VOWELS						
Central dark [ã]	⠠⠠⠠⠠⠠	-A				<i>enfant</i> [-Af-A]
Open front [ɛ̃]	⠠⠠⠠⠠⠠	-E				<i>bien</i> [bj-E]
Closed back [ɔ̃]	⠠⠠⠠⠠⠠	-o				<i>ombre</i> [-obr.]
Open mixed [œ̃]	⠠⠠⠠⠠⠠⠠	-OE				<i>humble</i> [-OEBI.]
STRESS MARK, LONG MARK AND SCHWA						
*Stress mark [ˈ]	⠠⠠	,	<i>believe</i> [bI,liv]	<i>così</i> [ko,zi]	<i>Gesicht</i> [g.,zɪxt]	
Long mark [:]	⠠⠠⠠	;		<i>mio</i> [mi;o]	<i>Boot</i> [bo;t]	
Schwa [ə]	⠠⠠⠠	.	<i>sofa</i> [,soUf.]		<i>Geliebte</i> [g.,li;pt.]	<i>petite</i> [p.tit.]
Brackets []	⠠⠠⠠⠠	[]				

* Use of the apostrophe as a stress mark is prohibitive due to the left and right facing apostrophe mark options.

lable and a dash indicates the nasalization of a following vowel. (Tables 2 and 3 are guides to the English, Italian, Latin, German, and French symbols of IPA Braille for Lyric Diction; see the Appendix for sample transcriptions.) The new system has value only if supporting resources can be provided (see “Resources”).

STUDENT’S GUIDE

Students can send and receive phonetic transcriptions by studying the guide shown in Table 4 (a digital version is available on the “Braille resources” page at www.stmpublishers.com). Singers study the International

Phonetic Alphabet (IPA) to discover accurate pronunciation of foreign language repertoire. Defining the sounds represented by phonetic symbols also helps singers explore the function of the voice.

The keystrokes needed to create documents with IPA are awkward for both the sighted and the blind. This new system provides a mutually accessible set of characters. Uppercase and lowercase letters along with a few punctuation marks are used to indicate the sung pronunciation of English, Italian, Latin, German, and French. The symbols are visually similar to standard IPA helping the sighted transition to a new system.

Table 3. IPA Braille for Lyric Diction: Consonant Chart.

IPA Symbols	Braille	Keystroke	English	Italian	German	French
BILABIAL CONSONANTS						
Voiceless stop [p]	⠏	p	<i>pure</i> [pjU.]	<i>pace</i> [,patSe]	<i>Perle</i> [,pErl.]	<i>porte</i> [pOrt.]
Voiced stop [b]	⠃	b	<i>baby</i> [,bEibI]	<i>bella</i> [,bElla]	<i>Bild</i> [bIlT]	<i>beauté</i> [bote]
Voiceless glide [ɱ]	⠏⠏	W	<i>wheat</i> [Wit]			
Voiced glide [w]	⠃	w	<i>wish</i> [wIS]	<i>uomo</i> [,wOmo]		<i>oui</i> [wi]
Voiced nasal [m]	⠇	m	<i>mist</i> [mlst]	<i>mondo</i> [,mondo]	<i>Meer</i> [me;r]	<i>même</i> [mEm.]
LABIODENTAL CONSONANTS						
Voiceless fricative [f]	⠋	f	<i>faith</i> [fEItH]	<i>fiore</i> [,fjore]	<i>Fest</i> [fEst]	<i>fois</i> [fwa]
Voiced fricative [v]	⠋	v	<i>voice</i> [vOIs]	<i>vita</i> [,vita]	<i>Welt</i> [vElT]	<i>voix</i> [vwA]
DENTAL AND ALVEOLAR CONSONANTS						
Voiceless fricative [θ]	⠋⠏	th	<i>thin</i> [tHIn]			
Voiced fricative [ð]	⠋⠏⠏	Th	<i>them</i> [tHEm]			
Voiceless stop [t]	⠏	t	<i>tone</i> [toUn]	<i>tempo</i> [,tEmpo]	<i>Tag</i> [tA;k]	<i>tête</i> [tEt.]
Voiced stop [d]	⠃	d	<i>deed</i> [did]	<i>donna</i> [,dOnna]	<i>Dank</i> [daNk]	<i>désir</i> [dezir]
Voiceless fricative [s]	⠎	s	<i>sing</i> [sIN]	<i>spesso</i> [,spEsso]	<i>Wasser</i> [,vass.R]	<i>soir</i> [swar]
Voiced fricative [z]	⠎	z	<i>zeal</i> [zil]	<i>sdegno</i> [,zde-j-jo]	<i>Seele</i> [,ze;l.]	<i>zéphyr</i> [zefir]
Voiceless affricate [ts]	⠎⠏	ts		<i>senza</i> [,sEntsa]	<i>Zeit</i> [tsaet]	
Voiced affricate [dz]	⠎⠏	dz		<i>mezzo</i> [,mEddzo]		
Voiced nasal [n]	⠇	n	<i>nine</i> [nAIn]	<i>nome</i> [,nome]	<i>Nebel</i> [,ne;b.l]	<i>noir</i> [nwar]
Voiced lateral [l]	⠇	l	<i>little</i> [,lIt.l]	<i>luce</i> [,lutSe]	<i>Liebe</i> [,li;b.]	<i>lune</i> [lyn.]
Voiced flipped [ɾ]	⠇	r	<i>thread</i> [thrEd]	<i>parola</i> [pa,rola]	<i>rot</i> [ro;t]	<i>riche</i> [riS.]
Voiced rolled [r]	⠇⠏	rr		<i>rosa</i> [,rroza]	<i>Herr</i> [hErr]	
Voiced retroflex [ɻ]	⠇⠏	R	<i>rose</i> [RoUz]			
PREPALATAL CONSONANTS						
Voiceless fricative [ʃ]	⠎⠏	S	<i>sheep</i> [Sip]	<i>lascia</i> [,laSSa]	<i>Sterne</i> [,StErn.]	<i>chant</i> [S-A]
Voiced fricative [ʒ]	⠎⠏	Z	<i>measure</i> [,mEZ.]			<i>jamais</i> [ZAmE]
Voiceless affricate [tʃ]	⠎⠏⠏	tS	<i>child</i> [tSAIlld]	<i>cielo</i> [,tSElo]		
Voiced affricate [dʒ]	⠎⠏⠏	dZ	<i>judge</i> [dZVdZ]	<i>gioia</i> [,dZOja]		
Voiced nasal [ɲ]	⠎⠏	-j		<i>sogno</i> [,so-j-jo]		<i>vigne</i> [vi-j.]
Voiced lateral [ɭ]	⠎⠏	L		<i>figlio</i> [,fiLLo]		
Voiceless fricative [ç]	⠎	x	<i>hue</i> [xju]		<i>Licht</i> [lIxt]	
Voiced glide [j]	⠇	j	<i>yet</i> [jEt]	<i>miei</i> [mjE;i]	<i>Jahr</i> [jA;r]	<i>yeux</i> [joe]
Voiced glide [ɥ]	⠇	y				<i>nuît</i> [nyi]
VELAR CONSONANTS						
Voiceless stop [k]	⠏	k	<i>kiss</i> [kIs]	<i>casa</i> [,kaza]	<i>Kind</i> [kInt]	<i>cœur</i> [kœr]
Voiced stop [g]	⠃	g	<i>good</i> [gUd]	<i>guida</i> [,gwida]	<i>gern</i> [gErn]	<i>guerre</i> [gEr.]
Voiced nasal [ŋ]	⠎⠏	N	<i>wing</i> [wIN]	<i>lungo</i> [,luNgo]	<i>Engel</i> [,?EN.l]	
Voiceless fricative [χ]	⠎⠏	X			<i>Nacht</i> [naXt]	
GLOTTAL CONSONANTS						
Voiceless stop [ʔ]	⠎	?	<i>ever</i> [.?Ev.]		<i>Augen</i> [.?Aog.n]	
Voiceless stop [h]	⠎	h	<i>heart</i> [hAt]		<i>Herz</i> [hErtz]	

The schwa is indicated with a period [.]. The schwa represents an undefined sound in an unstressed syllable. Pronunciation must be assigned. For example, the word *remarkable* contains two pronunciations of the schwa. If the schwas were defined with specific IPA symbols, the third syllable would be transcribed with an uppercase [V], while the fourth syllable would be transcribed with an uppercase [U].

The glottal stop is indicated with a question mark [ʔ]. The glottal stop is a speech sound in English and German. It is a manner of articulating a word or element that begins with a vowel. Notice the attack in the throat that occurs while enunciating the words *I*, *ever*, and *it*. These words could be transcribed with a glottal stop at the beginning of the word. Articulation of the glottal stop should be executed with care. It is reserved

Table 4. Chart: IPA Braille for Lyric Diction.

The IPA symbols on the following chart are listed in alphabetical order. Symbols are enclosed in brackets to distinguish them from other content within the text.		
uppercase [A]: <i>father</i> lowercase [a]: <i>voilà</i> lowercase [ae]: <i>glad</i> lowercase [b]: <i>baby</i> lowercase [c]: There is no c in IPA. lowercase [d]: <i>deed</i> lowercase d /uppercase Z [dZ]: <i>judge</i> lowercase [e]: <i>chaos</i> uppercase [E]: <i>bell</i> lowercase [f]: <i>faith</i> lowercase [g]: <i>good</i> lowercase [h]: <i>heart</i> lowercase [i]: <i>key</i> uppercase [I]: <i>sit</i> lowercase [j]: <i>yet</i> lowercase [k]: <i>kiss</i> lowercase [l]: <i>little</i>	uppercase [L]: Italian <i>figlio</i> lowercase [m]: <i>mist</i> lowercase [n]: <i>nine</i> uppercase [N]: <i>wing</i> dash [-] + lowercase [j]: Italian <i>signore</i> lowercase [o]: <i>obey</i> uppercase [O]: <i>ought</i> lowercase [oe]: German <i>schön</i> uppercase [OE]: German <i>können</i> lowercase [p]: <i>pure</i> lowercase [q]: <i>song</i> uppercase [R]: <i>rose</i> lowercase [r]: <i>thread</i> lowercase double [rr] is a rolled r: Italian <i>rosa</i> lowercase [s]: <i>sing</i> uppercase [S]: <i>sheep</i>	lowercase [t]: <i>tone</i> lowercase t /uppercase S [tS]: <i>child</i> lowercase [th]: <i>thin</i> uppercase [Th]: <i>them</i> lowercase [u]: <i>moon</i> uppercase [U]: <i>book</i> lowercase [v]: <i>voice</i> uppercase [V]: the <i>uh</i> sound of <i>up</i> lowercase [w]: <i>wish</i> uppercase [W]: <i>wheat</i> lowercase [x]: <i>hue</i> uppercase [X]: <i>Nacht</i> lowercase [y]: German <i>Blüte</i> uppercase [Y]: German <i>Küsse</i> lowercase [z]: <i>zeal</i> uppercase [Z]: <i>measure</i>

for initial vowel words or elements that are stressed within the phrase.

A stressed syllable is indicated with a comma [,]. The comma is placed before the stressed syllable. For example, *believe* is transcribed with a comma preceding the second syllable. Stress indications are not necessary for French. The final syllable of a French word or phrase is stressed, except when that syllable contains a schwa. The penultimate syllable is stressed for final schwa words. Stress is executed in French by lengthening the vowel sound (not with a weighted accentuation).

A long mark is indicated with a semicolon [;]. A semicolon is placed after the vowel that is lengthened. In English, the first vowel of a diphthong or triphthong is lengthened while singing. Vowel length is not typically indicated. However, the long mark is necessary for the transcription of other languages. For example, the *i* of the Italian word *mio* is long in both the spoken and sung forms of the word.

A dash [-] is used to indicate nasality. The French language has four nasal vowels. A nasal mark precedes the nasalized vowel. For instance, the word *l'ombre*

is transcribed with a dash preceding a lowercase [o] symbol: [-o].

Nasal consonants. There is one consonant in this system that has a nasal mark. The *gn* spelling of *signore* has a lowercase [j] formation with nasal air flow. The dash plus lowercase [j] symbol describes formation as well as air flow: [-j]. Words with *ng* spelling, as in *sing* and *finger*, are transcribed with an uppercase [N].

Teachers do not need to learn braille in order to send and receive phonetic symbols. The keystrokes provided in Tables 2 and 3 provide a phonetic system that is readable from the student's refreshable braille display. Phonetic symbols sent from the student's device will appear to the sighted as standard letters of the alphabet (this alphabet is defined in Tables 2 and 3). The digitized format of this system is ideal for those who work online.

RESOURCES

Resources transcribed according to the new system are organized into three categories: transcription database, textbooks, and phonetic charts.



Figure 5. Template for a chart with tactile and visual symbols.



Figure 6. The scented vowel chart template for special education.

braille phonetic symbol is no different from a number or letter of the alphabet. Instructors may create a scented vowel chart by assigning a fragrance to each symbol ([æ] *apple*, [o] *cocoa* . . .). Instructions for the scented vowel chart and additional memory aids for special education are available on the “Braille resources” page at stmpublishers.com. Figure 6 provides a direct link.

SUMMARY

A phonetic system that is accessible by both the sighted and the blind has the potential to prosper beyond its original purpose. It originates from the singer’s realm, yet could easily intersect with areas of special education, speech therapy, and music therapy. It could attract outside professionals to the field of singing and incentivize singers to prepare for more than one profession. A mutually accessible phonetic system would:

- Assist educators who work with blind children learning to read.
- Increase interest in braille literacy.
- Assist speech therapists who work with the blind.
- Provide tools for melodic intonation therapy (MIT) for those who have lost their vision. Studies show that patients who have trouble speaking after a stroke are better at singing lyrics rather than speaking the same words.²
- Enable students who are blind or visually impaired to pursue classical voice training with the same speed and proficiency as their sighted colleagues.
- Enable students with blindness or visual impairments to participate in the lyric diction classroom.

Providing equal access to lyric diction resources and promoting inclusion in the classroom were the reasons for creating the new phonetic system. The best way to study lyric diction is in a group setting. Students learn from each other, they sing for each other, and they enjoy identifying each others errors. Observing the sung application of phonetic transcriptions helps students explore the sounds of languages, discover vocal potential, and achieve accurate pronunciation.

The voice is a phonetic instrument. The sounds of languages help students explore the function of the voice. Imagine the many singers with blindness or visual impairments who can now improve their vocal technique while discovering accurate pronunciation of classical English, Italian, Latin, German, and French repertoire! IPA Braille for Lyric Diction provides equal access to valuable information and allows the sighted and the blind to work together toward a shared goal.

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2. Goddfried Schlaug, Andrea Norton, Sarah Marchina, Lauryn Zipse, and Catherine Y. Wan, *From Singing to speaking: facilitating recovery from nonfluent aphasia* (Boston, MA Department of Neurology, Music, Neuroimaging & Stroke Recovery Laboratories, Beth Israel Deaconess Medical Center & Harvard Medical School). An abstract of the project is provided by the U.S. Library of Medicine National Institutes of Health; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2982746/> (accessed June 15, 2020).

APPENDIX

IPA Braille for Lyric Diction in Standard Languages

“Heart, we will forget him,” by Emily Dickinson

Heart, we will forget him

[	hat	wi	wil	fɔ'get	him	]	Standard IPA						
⠠	h	at	w	w	f	o	'	g	e	t	h	i	m]	Braille display output
[	hAt	wi	wIl	fO,gEt	hIm	]	New system input						

You and I, tonight.

[	ju	ænd	aɪ	tu'nait]								
⠠	j	a	n	d	a	i	t	u	'	n	a	i	t]
[	ju	aend	AI	tu,nAI]								

You may forget the warmth he gave,

[	ju	mɛɪ	fɔ'get	ðə	wɔmθ	hi	gɛɪv]													
⠠	j	m	e	i	f	o	'	g	e	t	ð	w	o	m	θ	h	i	g	e	i	v]
[	ju	mEI	fO,gEt	Th.	wOmth	hi	gElv]													

I will forget the light.

[	aɪ	wɪl	fɔ'get	ðə	laɪt]									
⠠	a	i	w	i	f	o	'	g	e	t	ð	l	a	i	t]
[	AI	wIl	fO,gEt	Th.	lAI]									

When you have done, pray tell me,

[	wɛn	ju	hæv	dʌn	pɹeɪ	tɛl	mi]											
⠠	w	e	n	j	h	a	v	d	ʌ	n	p	r	e	i	t	e	l	m	i]
[	WEn	ju	haev	dVn	pREI	tEl	mi]											

That I my thoughts may dim;

[	ðæt	aɪ	maɪ	θɔts	mɛɪ	dɪm]											
⠠	ð	a	t	a	i	m	a	i	θ	o	t	s	m	e	i	d	i	m]
[	Thaet	AI	mAI	thOts	mEI	dIm]											

Haste! lest while you're lagging,

[	heɪst	lest	wɪl	ju	læɡɪŋ]															
⠠	h	e	i	s	t	l	e	s	t	w	i	l	j	u	l	a	e	g	i	n	g]
[	hEIst	IEst	WAI	jO.	,laegIN]															

I may remember him!

[	aɪ	mɛɪ	rɪ'membə	hɪm]											
⠠	a	i	m	e	i	r	i	'	m	e	m	b	ə	h	i	m]
[	AI	mEI	rI,mEmb.	hIm]											

APPENDIX

IPA Braille for Lyric Diction in Standard Languages (*continued*)

“Star vicino,” Anonymous (17th Century)

Star vicino al bell' idol che s'ama,

[star	vi'tfino:al	bell	'idol	ke	'sama	] Standard IPA
						Braille display output
[starr	vi,tSino;al	bEll	,idol	ke	,sama	] New system input

è il più vago diletto d'amor.

[e:il	pju	'vago	di'letto	da'mor]
					
[E;il	pju	,vago	di,lEtto	da,morr]

Star lontano dal ben che si brama,

[star	lon'tano	dal	ben	ke	si	'brama]
							
[starr	lon,tano	dal	bEn	ke	si	,brama]

è d'amore il più vivo dolor.

[ε	da'more:il	pju	'vivo	do'lor]
					
[E	da,more;il	pju	,vivo	do,lorr]

“Pueri hebraeorum,” from the Holy Bible

Pueri Hebraeorum,

['pueri	εbrε'orum	] Standard IPA
	Braille display output	
[,puEri	EbrE,Orum	] New system input

portantes ramos olivarum,

[pOr'tantes	'ramos	oli'varum]
			
[pOr,tAntEs	,rrAmOs	Oli,vArum]

obviaverunt Domino,

[obvia'verunt	'domino]
		
[ObviA,vErunt	,dOminO]

clamantes et dicentes:

[kla'mantes	et	di'fentes]
			
[kLA,mAntEs	Et	di,tSEntEs]

Hosanna in excelsis.

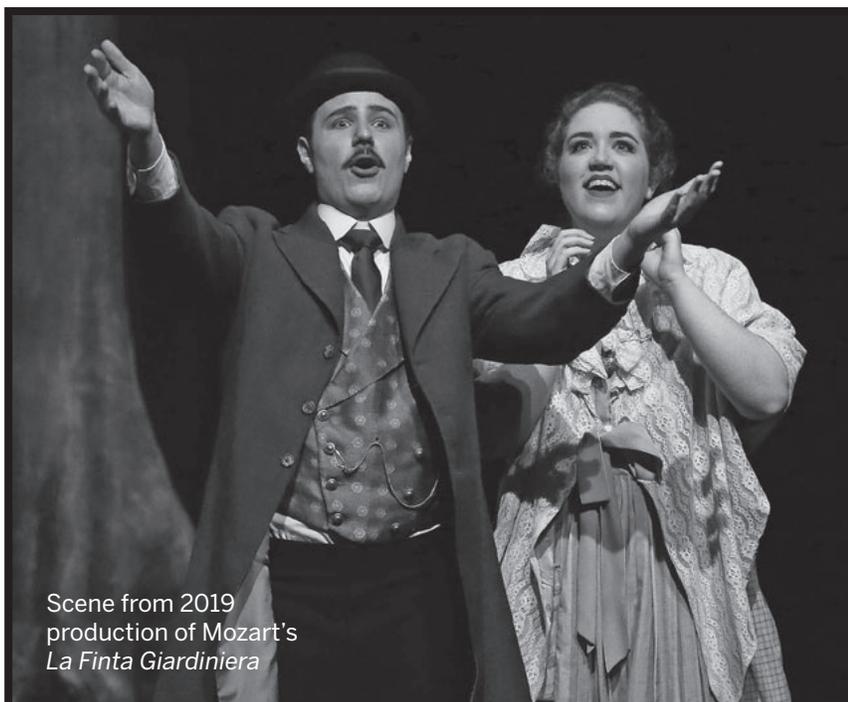
[o'zanna	in	εk'fɛlsis]
			
[O,zAnnA	in	Ek,Selsis]

Cheri Montgomery is a member of the voice faculty at the Blair School of Music at Vanderbilt University. She provides postgraduate instruction to voice teachers, diction instructors, and vocal coaches in her Lyric Diction Workshop, cohosted by the Jean and Alexander Heard Libraries at Vanderbilt University. She was a featured presenter and mentor voice teacher at the National Association of Teachers of Singing 2019 Summer Workshop at St. Olaf College. She also presented on the topics of voice and diction at the 2020 National Opera Association Southeast Conference.

Her published works include 12 texts on the topics of voice, English, Italian, Latin, German, and French diction. She is coauthor of *Exploring Art Song Lyrics*, published by Oxford University Press. In her work with Oxford she provided pronunciation and IPA for more than 750 Italian,

German, and French art songs. Her method of transcription is published in the appendix. Recent publications include *Singer's Diction* and three volumes of *The Singer's Daily Practice Journal*. An abbreviated version of the pedagogy within is published in her *Journal of Singing* article "The Voice and Diction Connection, A Diction Instructor's Approach to Voice Pedagogy" (January/February 2018). Book reviews of her texts are available at stmpublishers.com.

Performance credits include solo engagements with the Nashville and Knoxville Symphonies and operatic roles with the Nashville Opera. She was awarded full scholarships for graduate study at the University of Tennessee–Knoxville through the Grace Moore Graduate Scholarship and the Phi Mu Alpha Scholarship; and was a first-place winner of regional NATS auditions.



Scene from 2019 production of Mozart's *La Finta Giardiniera*

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