Technical Terms for Comparative Trademark Analysis

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Trademarks are important in franchising. The trademark has been said to be franchising's cornerstone.[1] Franchise systems want to protect their trademarks, particularly against infringements by others.[2] Conversely, those accused of infringement, have an interest in disproving this allegation.

The test for infringement between trademarks is likelihood of confusion.[3] Likelihood of confusion can be summarized, or "recast as the determination of whether the similarity of the marks is likely to confuse customers about the source of the products."[4] Analysis of likelihood of confusion involves an assessment of several factors.[5] Key among them are comparisons of similarities and differences in appearance and sound and

1. Susser v. Carvel Corp., 206 F. Supp. 636, 640 (S.D.N.Y. 1962), *aff'd*, 332 F.2d 505 (2d Cir.), *cert. dismissed*, 381 U.S. 125 (1965); *see also* Instructional Sys., Inc. v. Computer Curriculum Corp., 614 A.2d 124, 139 (N.J. 1992) (quoting Susser v. Carvel Corp., 206 F. Supp. at 640 and noting that "a hallmark of the franchise relationship is the use of another's trade name"); Atl. Richfield Co. v. Razumic, 390 A.2d 736, 740 (Pa. 1978) (quoting *Carvel*, 206 F. Supp. at 640).

2. Cases are legion in which franchisors seek to protect their trademarks against infringement by others, not only against continued use by former franchisees, but also against use by unaffiliated third parties of confusingly similar words, phrases, and other marks. *See*, *e.g.*, La Quinta Worldwide LLC v. Q.R.T.M., S.A. de C.V. 762 F.3d 867 (9th Cir. 2014) (trademark infringement action by franchisor/owner of "La Quinta" as a trademark for hotels against Mexican hotel chain seeking to establish "Quinta Real" hotels in the United States).

3. 15 U.S.C. §§ 1114(1) and 1125(a) (2012)

4. Goto.com v. Walt Disney Co., 202 F.3d 1199, 1205 (9th Cir. 2000) (internal quotation marks omitted).

5. The Second and Ninth Circuits use similar eight factor tests. The Ninth Circuit assesses (1) similarity of the marks, (2) relatedness of the two companies' goods or services, (3) marketing channels used, (4) strength of senior user's mark, (5) intent of junior user in selecting its mark, (6) evidence of actual confusion, (7) likelihood of expansion into other markets, and (8) degree of care likely to be exercised by purchasers. AMF Inc. v. Sleekcraft Boats, 599 F.2d 341, 348–49 (9th Cir. 1979). The Second Circuit assesses: (1) strength of the senior mark, (2) degree of similarity between the marks, (3) competitive proximity of the products, (4) likelihood that the prior owner will bridge the gap between the products, (5) actual confusion, (6) defendant's good faith in adopting its mark, (7) quality of defendant's product, and (8) sophistication of buyers. Polaroid Corp. v. Polarad Elecs. Corp., 287 F.2d 492, 495 (2d Cir.), *cert. denied*, 368 U.S. 820 (1961). The Fourth Circuit uses

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meaning of the respective marks.[6] This article discusses some tools that are readily available, but surprisingly underutilized, that can help lawyers and courts compare, understand, and articulate similarities and differences in the appearances and sounds of trademarks.

An important task in comparing and contrasting two trademarks is to explain their similarities and differences. Sometimes, this task can be easy. For example, if trademarks are displayed in different colors, say one trademark is red and the other is blue, or two trademarks have different shapes, say one is a triangle and the other is a circle, it is easy to describe the difference by identifying the respective colors or shapes. Based on these descriptions, it is simple for a judge or jury to understand the differences.

But in other respects, similarities and differences between trademarks may be harder to articulate. For example, it may be difficult to describe in words the differences between two trademarks that consist of almost the same words, with just one or two different letters among the words. Say one trademark is the acronym "FIU" and another trademark is the acronym "FNU." Stating the difference as "one mark uses the letter "I" but the other uses the letter "N" is true, but not particularly descriptive or useful. The similarities and differences in these marks could be described in much more detail.

Various tools are available to lawyers and courts to compare the appearance, sounds, and meanings of trademarks. When it comes to the meanings of word marks, parties and courts may look at dictionary definitions[7] as well as other information sources, such as public perception,[8] expert testimony,[9] and the context of presentation of a mark, including advertising.[10]

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a similar nine factor test. George & Co., LLC. v. Imagination Entm't Ltd., 575 F.3d 383, 393 (4th Cir. 2009).

6. *See*, *e.g.*, Brookfield Comm'ncs v. W. Coast Entm't Corp., 174 F.3d 1036, 1054 (9th Cir. 1999) ("The similarity of the marks will always be an important factor. . . ." [T]he more similar the marks in terms of appearance, sound, and meaning, the greater the likelihood of confusion."); George & Co., LLC. v. Imagination Entm't Ltd., 575 F.3d 383, 393 (4th Cir. 2009) (in assessing similarity of marks "we focus on whether there exists a similarity in sight, sound, and meaning which would result in confusion").

7. *See*, *e.g.*, *In Re* Boulevard Entm't , Inc., 334 F.3d 1336, 1340–41 (Fed. Cir. 2004) (dictionary evidence alone can satisfy PTO's burden of proof as to scandalous meaning of a mark, justifying denial of registration); Harley–Davidson, Inc. v. Grottanelli, 164 F.3d 806, 810 (2d Cir. 1999) ("[D]ictionary definitions of a word to denote a category of products are significant evidence of genericness."); Mil–Mar Shoe Co. v. Shonac Corp., 75 F.3d 1153, 1158 (7th Cir.1996) ("Because generic use implies use consistent with common understanding, we have often looked to dictionaries as a source of evidence on genericness.").

8. *See*, *e.g.*, Boston Duck Tours, LP v. Super Duck Tours, LLC, 531 F.3d 1, 18 (2006) (presence or absence of a word in the dictionary and its corresponding meanings are evidence of how public perceives a term but only one of many factors to consider; touchstone is the phrase's primary significance to the relevant public).

9. *See*, *e.g.*, Best Buy Warehouse v. Best Buy Co., 751 F. Supp. 824, 826 (W.D. Mo. 1989), *aff'd*, 920 F.2d 536 (8th Cir.1990), *cert. denied*, 501 U.S. 1252 (1991) (in granting summary judgment, court relied partly on expert affidavit that term "best buy" is generic, noting "while such opinions are not determinative, they do bolster defendant's contention that the general buying public understands 'best buy' to merely describe a general retail practice of touting particular products").

10. Elvis Presley Enters., Inc. v. Capece, 141 F.3d 188, 197 (5th Cir. 1998) ("the context of the presentation of a mark, including advertising, is relevant to the meaning that the mark conveys").

With regard to word marks, lawyers and courts can *see* and *hear* similarities and differences between the appearances and sounds of words and phrases. But it is harder to *describe* the similarities and differences. For example, it can be difficult to articulate the difference in sound between an "m" and an "n" or between a "b" and a "d"—other than to say, "one mark has an 'm' and the other uses an 'n.'" A few cases illustrate the problems that lawyers and courts face in addressing these issues.

Recently, the U.S. District Court for the Southern District of Florida compared shorthand names of two universities, "FIU" (abbreviation for Florida International University) and "FNU" (abbreviation for Florida National University).[11] The court lacked a lexicon to articulate the differences in sound and appearance, instead reverting to the obvious, stating: "only one letter separates "FIU" and "FNU."[12] In another case, the U.S. District Court for the Central District of California compared the sound and appearance of the words "Echo Drain" and "Echobrain." The depth of the court's analysis or articulation of the differences was to state: "[b]ecause "-brain" and "Drain" are different words and are phonetically different, the two marks also sound different."[13] Similarly, the Trademark Trial and Appeal Board, and the U.S. District Court for the Eastern District of Virginia compared the sound and appearance of "Swatch" and "Swap."[14] The court stated:

> With regard to sound, the TTAB held the identical first three letters, SWA—"results in some similarity in sound, especially if the marks are not articulated clearly so that the differences in the final consonants are not noted." . . . "However, the marks are dissimilar in appearance in that [SWAP] also contains the fourth letter—P while [SWATCH] contains the additional three letters—TCH."[15]

The TTAB and court lacked a vocabulary to articulate anything more than the obvious: that where letters were similar the sound was similar, and one word had a "P" while the other had a "TCH."

But in each of these cases, the decision makers did not articulate differences in any greater depth. It may seem to lawyers and courts that there is not a readily accessible legal lexicon to describe the sounds and appearances of words and phrases. However, this is a misconception.

Counsel, if seeking to emphasize differences in appearances, might have noted that in FIU, the "capital I" appears as a single vertical *mainstroke* or *stem*, extending from the *baseline* to the *capline*, while in FNU the capital "N" has a *stressed* angular *arm* that connects the vertical *stems* to form two *acute crotches*.[16] Similarly, if emphasizing the differences in sound, counsel

11. Fla. Int'l Univ. Bd. of Trs. v. Fla. Nat'l Univ., Inc., 91 F. Supp. 3d 1265, 1277 (S.D. Fla. 2015), *appeal docketed*, No. 15-11509 (11th Cir. Apr. 8, 2015).
12. *Id.* at 1277.
13. Echo Drain v. Newsted, 307 F. Supp. 2d 1116, 1126 (C.D. Cal. 2003).
14. Swatch, S.A. v. Behive Wholesale, L.L.C., 888 F. Supp. 2d 738, 750 (E.D. Va. 2012), *aff'd sub nom.*, Swatch, AG v. Behive Wholesale, L.L.C., 739 F.3d 1150 (4th Cir. 2014).
15. *Id.* at 750.
16. *See* Appendices I & II.

could have explained that in FIU the middle vowel is a *voiced* (the vocal chords vibrate) *glottal* (that is, articulated in the throat) *dipthong* (involving a change in tongue position to create the sound) expressed *orally* (articulated in the mouth without involvement of the nasal cavity), whereas the "n" in FNU is a *voiceless* (the vocal chords do not vibrate) *alveolar* sound (formed with the tip of the tongue touching the bone behind the upper teeth).

Counsel in the *Swatch* case might have pointed out that in the word "swap" the last letter's *stem* is a *descender* that extends below the *baseline* and includes an *ear* (its projection) in the form of a *closed bowl*, whereas the word *swatch* ends with a combination of three letters, none with any *descender* but rather all three remaining within the *baseline* and *capline*, no *closed bowl*, but with one letter (the "t") including a *cross stroke* and *counters* (partially enclosed spaces) in two of the letters (the "c" and "h"). Similarly, counsel might have noted that a speaker ends the word "swap" by uttering a *labial* (formed at the lips) *plosive* (a sound made with a blockage followed by a burst of air), while "swatch" concludes with a *dental* (sound made by holding the tip of the tongue against the back of the upper teeth) *affricate* (a sound made by stopping air, followed by air flow through a narrow gap with friction).

As the above examples illustrate, two well-established disciplines provide vocabularies that lawyers and courts can apply in comparing and contrasting the appearance and sounds of trademarks. One is the field of printing or typesetting, which has a vocabulary for the visual elements of letters. The other is the field of linguistics, and particularly, the subfield of articulatory phonetics (which concerns production of sounds) and auditory phonetics (which concerns perception of sounds). These fields have extensive vocabularies describing the sounds of letters and words.

By applying the vocabularies of typesetting and linguistics, lawyers, parties, judges, and juries can better evaluate and understand whether and how two words being compared appear similar or different and sound similar or different.

Given this, it is somewhat surprising that only occasionally does terminology from these disciplines appear in trademark infringement decisions. For example, the Seventh Circuit in 1959 used some of this vocabulary in concluding that the word "Bonamine" was confusingly similar to "Dramamine" as a trademark for a pill to ease motion sickness.[17] In reversing the lower court, the Seventh Circuit noted:

> That part of the finding which states Dramamine and Bonamine are unlike is clearly erroneous. Dramamine and Bonamine contain the same number of syllables; they have the same stress pattern, with primary accent on the first syllable and secondary accent on the third; the last two syllables of Dramamine and Bonamine are identical. The initial sounds of Dramamine and Boanamine ("d" and "b")

17. G. D. Searle & Co. v. Charles Pfizer & Co., 265 F.2d 385 (7th Cir.), *cert. denied sub nom.*, Chas. Pfizer & Co. v. G.D. Searle & Co., 361 U.S. 819 (1965).

> are both what are known as "voiced plosives" and are acoustically similar; the consonants "m" and "n" are nasal sounds and are acoustically similar. The only dissimilar sound in the two trademarks is the "r" in Dramamine. Slight differences in the sound of similar trademarks will not protect the infringer.[18]

In this and a relatively few other decisions,[19] the typesetting and linguistic vocabulary was beneficial in that it provided an analytic framework for comparing the appearance and sound of marks, words for articulating similarities and differences, and economy of argument and opinion writing.

Use of these vocabularies can thus, in appropriate cases, help advocates persuade fact finders, and help fact finders understand, through explanation of *how* and *why* two marks that are ostensibly different, are actually quite similar, or *how* and *why* two marks comprised of ostensibly similar words, are actually quite different in appearance and sound.

As an example, imagine two trademarks at issue in an infringement action: one is comprised of the initials "mcl" and the other of the initials "rnd."[20] One advocate argues the claim is meritless because the sounds and how these words are produced are different. The "m" in "mcl" is *bilabial*, produced by using both lips, contrasted with the *retroflex* "r" in "rnd," produced by curling the tip of the tongue toward the hard palate area at the roof of the mouth. And although the "c" and "l" in "mcl" and "n" and "d" in "rnd" are all *alveolars* (all formed by placing the tip of the tongue at the bone plate behind the upper teeth), the "c" is a *sibilant*, *fricative* sound (generated by air passing through the gap between the tip of the tongue and teeth) and the "l" is a *liquid*, *lateral* sound (the front of the tongue has contact with the alveolar ridge just behind the upper teeth, but the sides of the tongue are down, letting air escape through the sides of the tongue.). In "rnd," the "n" is *nasal* (produced with air escaping through the nose as well as the mouth) and the "d" is an *affricate* (produced by a stop in the flow of air, followed by a release of air). The advocate asserts that there is no similarity.

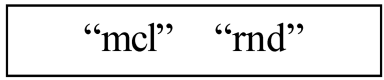
But the advocate claiming infringement might use typesetting terms to describe how, in appearance, the marks are so similar as to be almost

18. *Id.* at 387.

19. *See*, *e.g.*, Original Appalachian Artworks, Inc. v. Topps Chewing Gum, Inc., 642 F. Supp. 1031, 1037 (N.D. Ga. 1986) ("The "C" of Cabbage and the "G" of Garbage are phonetically similar in that they are both velar plosives."); Pro-Phy-Lac-Tic Brush Co. v. Hudson Prods., 86 F. Supp. 859, 861 (D.N.J. 1949) ("It does not seem likely that . . . a purchaser, using the ordinary attention displayed by even the casual buyer of merchandise, would become so confused as not to be able to distinguish between the bisyllabics 'Poli' and 'Perma.' Auricularly they are sharply distinct, despite the fact that they begin the same lene consonant, the voiceless labial mute, P."); Alexander Young Distilling Co. v. Nat'l Distillers Prods. Corp., 40 F. Supp. 748, 757 (E.D. Pa. 1941), *aff'd*, 127 F.2d 727 (3d Cir. 1942) ("I can conceive of an element of confusion in names such as P. & G. and B. & G. because both names consist of two letters, and the first letters in each, both being labials, may easily be mistaken for each other; as might, for instance, the names Rinex and Pinex.").

20. Currently at the U.S. Patent & Trademark Office, eleven federally registered trademarks consist of or include the initials "mcl" (*see*, *e.g.*, MCL, Registration No. 77406363 (reg. Feb. 24, 2009, for jewelry)), and eleven federally registered trademarks consist of or include the initials "rmd " (*see*, *e.g.*, RMD, Registration No. 4000777 (reg. July 26, 2011, for clothing)).

duplicates. The *descender* lines of the "m" in "mcl" and the "r" and "n" in "rnd" duplicate each other. The *arc of the stem* in the "r," being adjacent to the "n" forms an appearance duplicating the *arches* of the "m." So, rather than just stating that "the "rn" resembles the "m," this use of terminology explains *how* and *why* to aid the fact finder's understanding and analysis. Similarly, the *open bowl* of the "c" in "mcl" situated next to the *main stroke* or *stem* of the "l" forms an appearance that duplicates the *closed bowl* and *main stem* of the "d" in "rnd." This is *why* the "cl" and "d" look almost alike. This explanation tells in detail why "rnd" in appearance is almost an exact duplication of "mcl."



Linguistic terms help to explain how and why these two hypothetical trademarks sound different, whereas typesetting terms explain how and why they are similar in appearance.

Use of these vocabularies in pursuing or defending claims of trademark infringement may present additional tactical benefits. An obvious benefit is that explanation through proper vocabulary promotes better understanding of that which is being described. Use of terms from the typesetting and linguistic disciplines can also help establish the need and justification for testimony from experts from these fields. That is, when possibly technical terminology appears in cease and desist demands (and responses), pleadings (complaints and answers), and discovery responses, the court may be more inclined to admit testimony of experts versed in the fields that generated these vocabularies. These experts may be able to further explain similarities and differences to fact-finding judges and juries.

Appendix I is a glossary of selected printing/typesetting terms. Appendix II is a glossary of selected linguistic terms. The practitioner can apply these and other terms from these fields as aids to describe appearance and sounds in comparing and contrasting trademarks. These glossaries are not exhaustive or definitive. Academic literature and a variety of online sources provide additional resources for terms in these fields.[21] Glossaries of typesetting terms can be obtained by entering the phrase "typesetting terms" into an online search engine. Likewise, the phrase "linguistic terms" can be entered into a search engine to generate glossaries of linguistic terms.

21. *See, e.g.*, AMERICAN DICTIONARY OF PRINTING AND BOOKMAKING (Howard Lockwood & Co. 1894), *available at* www.archive.org; RICHARD ECKERSLEY, RICHARD ANGSTAD & CHARLES ELLERSTON, GLOSSARY OF TYPESETTING TERMS (Univ. of Chicago Press 2008); DAVID CRYSTAL, A DICTIONARY OF LINGUISTICS AND PHONETICS (Blackwell Publ'g, 6th ed. 2008), *available at* www.mohamedrabeea.com/books/book1_3891.pdf; VICTORIA FROMKIN, ROBERT RODMAN & NINA HAYMS, AN INTRODUCTION TO LANGUAGE (Wadsworth, Cengage Learning 10th ed. 2014).

APPENDIX I

Selected Typesetters/Printer Terms[22]

Apex: Where strokes come together at the uppermost point of a character, such as the tip of the letter "A." An apex can be rounded, pointed, hallow, flat, or extended.

Arc of the Stem: A curved stroke that is continuous with a straight stem, not a bowl. Examples: the bottom of a "j, t, f, a, and u." Also called a *shoulder*.

Arm: The short, upward sloping stroke or horizontal projection of characters such as "X" and "L."

Ascender: The part of a lowercase letter that rises above the main body of the letter (as in "b," "d," and "h").

Ascender Line: An imaginary horizontal line that represents the uppermost point of an ascender. A line marking the topmost point of the *cap line*.

Ascent: A font's maximum distance above the *baseline*.

Baseline: An imaginary line on which text rests. The line along which the bases of all capital letters and most lowercase letters are positioned. *Descenders* extend below the baseline.

Bowl: The enclosed oval or round curve of letters such as "D," "g," "b," and "o." In an open bowl, the stroke does not meet with *the* stem completely (e.g., the lower bowl in the letter "g" in some fonts of type, in which the lower bowl is not closed); a closed-bowl stroke meets the stem.

Cap Height or Cap Line: A line marking the height of uppercase letters within a font. An imaginary line which represents the uppermost part of capital letters and some character's *ascenders*.

Counter: The enclosed or partially enclosed space within letters such as "c," "e," "S," "H," and "g." Not to be confused with *bowl*.

Cross Bar: The *horizontal* bar connecting two strokes of a letter, as in "H" and "A," where the ends are not free.

Cross Stroke: The part of a letter that cuts horizontally across the stem, as in "t" and "f."

Crotch: The pointed space where an *arm* or arc meets a *stem*; an acute crotch is less than 90 degrees, and an obtuse crotch is more than 90 degrees.

22. Except where indicated otherwise, these definitions appear in or are adapted from a glossary of typography terms posted on the ProximaSoftware website, www.proximasoftware.com/fontexpert/terms (last visited Feb. 6, 2016).

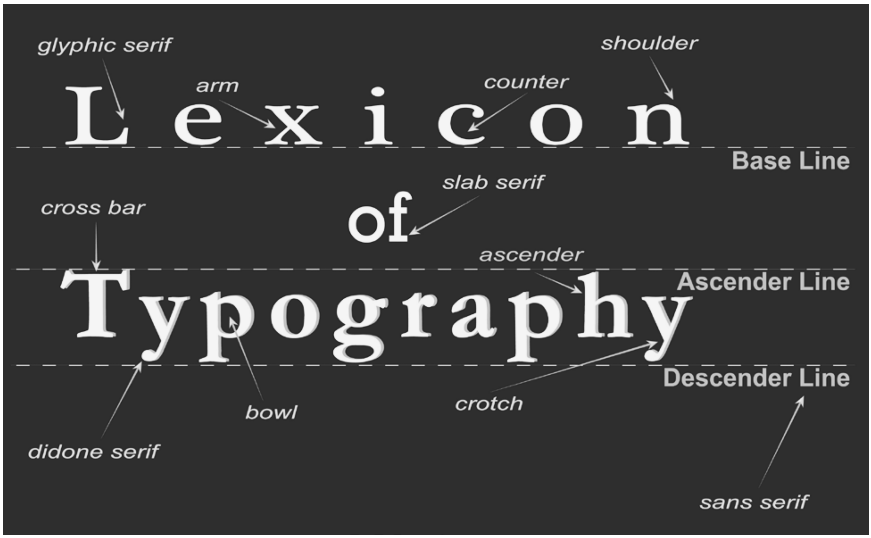


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Illustration of Selected Typesetting Terms

Cursive: Typefaces that resemble informal handwriting, often, although not always, with joining strokes; often with an angle from the vertical.[23]

Descender: The lowest portion of letters such as "g," "j," "p," "q," and "y" that extends below the *baseline* or reading line of type. The portion of a lowercase letter that extends below the baseline of the letter.

Descender Line: The lowest line that a character's *descender* extends to, such as in the bottom *stem* of the lowercase "j" and "y." A line marking the lowest point of the descenders within a font.

Descent: A font's maximum distance below the *baseline*.

Ear: The projection on letters, such as the lowercase "g" and "p."

Loop: A rounded form in a letter that is not closed and is less circular than the *bowl* of a letter. An example is the lower section of a lowercase "g."[24]

Main Stroke: *See Stem*.

Resonance: Overtone of a typeface design based on connotative experience with it. For example, historic, romantic, businesslike, exotic, etc.

Sans Serif: A typeface without serifs.

23. Definition adapted from fonts.com, www.fonts.com/content/learning/fontology/glossary/c.

24. Partially adapted from definition at fonts.com, *id.*

Script: Script letters are joined. This contrasts with *cursive*, which are not connected.

Serif: Small, finishing strokes on the *arms*, *stems*, and *tails* of characters.

Shoulder: *See Arc of the Stem*.

Slant: The angle of a font's characters, which can be italic or roman (no slant).

Spur: A finishing stroke, such as the ones on the uppercase "G" in some fonts.

Stem: The upright element of a letter or character. Also called the *Main Stroke*.

Stress: The vertical, horizontal, or diagonal emphasis on the stroke of a letter.

Stretched Text: Widening text characters, not the spacing between the characters.

Swash Capitals: Uppercase letters that have flourishes added to them.

Tail: A character's downward projection, such as on the letter "Q."

Terminal: Not *serifs*, but ends of certain letter shapes such as the letters "f," "j," "y," "r," and "a."

APPENDIX II

Selected Linguistic Terms[25]

Affricate: A phonetic *segment* consisting of a stop in the flow of air, followed immediately by a fricative, for example, the first "ch" in church or the first "j" in judge.

Alveolar: Sounds *formed* at the bone plate behind the upper teeth, called the alveolar ridge. These sounds form with the tip or blade of the tongue. Examples are "t," "d," "s," "z," "l," and "n."

Ambi-dental: The manner of articulation of the fricatives such as "*th*ink" or "*th*at." The tongue is not between the teeth for these sounds.[26]

Bilabial: A sound produced using both lips. For example, "p" or "m."

Dental: Articulation characterized by the tip of the tongue held against the back of the upper teeth. For example, the initial sounds in "this" or "think" are dental fricatives, although ambi-dental also applies as the tip of the tongue is then in the region of the teeth.

Diphthong: A vowel sound made by combining two vowels, with a change in tongue position between the beginning and end. For example, the "oy" sound in "boy" or "toy" or the "ou" sound in "out" or "loud" where the sound and tongue positioning starts with the positioning for "o" and moves to the positioning for "y" (toy and boy) or the positioning akin to a "w" sound (out or loud).

Discrete: A characteristic where no continuous transition occurs from one unit to another. For example, the sounds "p" and "b" are each separate, discrete sounds. A speaker pronounces one sound or the other but not something intermediary between the two.

Fricative: A sound characterized by air passing a constriction somewhere between the glottis and lips, for example, "x," "s" or "f." Turbulence arises when air flows through a narrow gap and this causes the noise typical of fricatives. Fricatives can be voiced or voiceless. Also sometimes referred to as *spirant*.

Glide: A sound that lies between a vowel and a consonant, for example, "j" and "w." It is formed with little friction and has a high degree of sonority, which is why glides are found near the nucleus of syllables. Also sometimes called a semi-vowel.

25. Many of these definitions are adapted from the *Glossary of Linguistic Terms* at the website of the University of Duisburg–Essen, www.uni-due.de/ELE/LinguisticGlossary.html (last visited Feb. 6, 2016).

26. *See* www.uni-due.de/SVE/SNDS_ENG_Fricatives.htm.

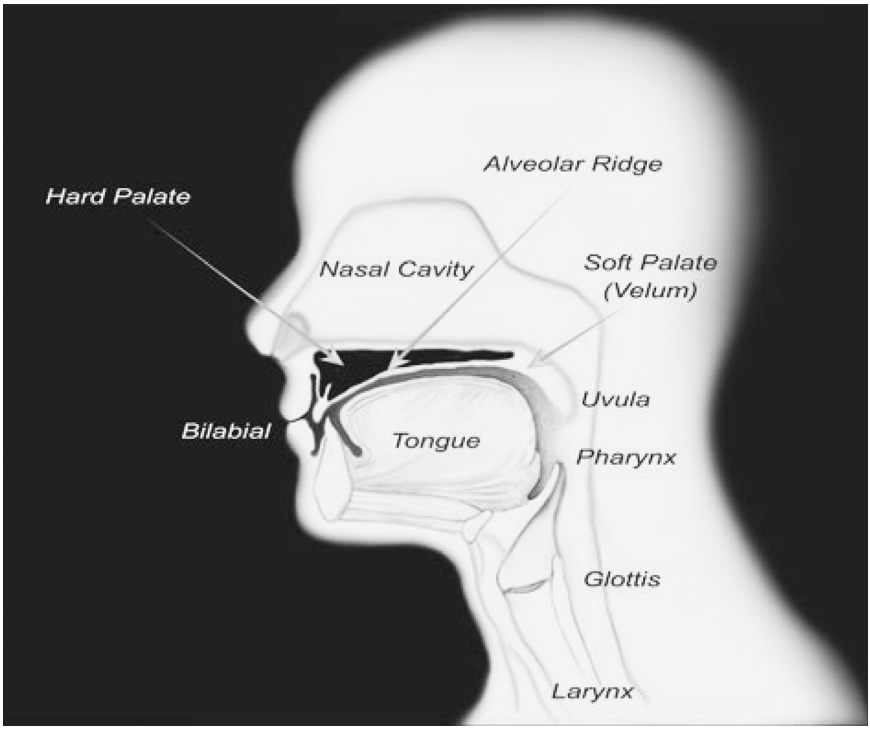

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Illustration of Selected Linguistic Terms and Areas Where Sounds Are Formed

Glottal: A sound produced at the gap in the vocal folds. These sounds can be *stops* or *fricatives* and can be *voiceless* or *voiced*. For example, the "a" sound in "ant" (which is a voiced glottal fricative) or the "h" sound in "hat" (which is a voiceless glottal fricative) or in the word "Hawai'i," the stop at the apostrophe (which is a voiced glottal stop).

Homophone: A set of words pronounced the same way but having different meanings. For example, poor, pore, and pour; pray and prey; and two, too, and to.

Homorganic: A set of sounds articulated at the same point in the vocal tract. For example, "m," "p," and "b," which are each pronounced using both lips, or "t," "d," "s," and "z," "n" and "l," which are each pronounced by touching the tip of the tongue to the upper gum. Sounds not articulated from the same place are called *heterorganic*.

Intonation: The part of the sound system of a language that involves the use of pitch to convey information, including accent in an individual word and sentence melody in word groups.

Labial: Reference to a sound formed at the lips. This includes *bilabials* such as "p" and "m" and *labio-dentals* such "f" and "v."

Labio-dental: A consonant formed by the lower lip making contact with the upper teeth as in "f" and "v."

Labio-velar: A consonant made at two places of articulation, or articulated by constriction at the velum with rounding of the lips at the same time, for example, the sound of a "w."

Liquid: A flow of air with some obstruction in the mouth, but not enough to cause friction.

Lateral: The flow of air when the tongue has contact with the alveolar ridge just behind the upper teeth, but the sides of the tongue are down, letting air flow through the sides of the tongue.

Manner of Articulation: One of the three conventional parameters (along with place of articulation and voice) used to specify how a sound is produced. Common types are *plosives*, *fricatives*, and *affricates*.

Minimal Pair: Any two words which are distinguished only by different sounds in a single position. These word pairs are used in traditional phonology to determine the status of sounds as phonemes, for example, railing and sailing.

Monophthong: Vowel articulated with the tongue in a constant position; that is, its articulation at both start and end is relatively fixed and does not glide up or down toward a new position of articulation. Examples include the short vowel sounds in "pap," "pep," "pip," "pop," and "pup," or "bed."

Nasal: A sound, vowel or consonant produced by opening the nasal cavity so that some air flows through the nose.

Oral: Articulated in the mouth. This term usually implies that the nasal cavity is not involved.

Organs of Speech: Parts of the human anatomy used in speech production. For example, the glottis, velum, palate, alveolar ridge, lips, and tongue.

Palatal: A place of articulation at the hard palate in the center of the roof of the mouth.

Phone: Any human sound not otherwise classified in the phonology of a language.

Phoneme: The smallest unit in language that distinguishes meaning, for example, the "k" sound in coat or "g" sound as goat.

Place of Articulation: The point in the vocal tract where a sound is produced. This can be anywhere from the lips at the front to the glottis (gap be-

tween the vocal folds) in the glottal area of the throat. The most common place of articulation is the alveolar ridge just behind the upper teeth.

Plosive: A sound produced with a complete blockage of the pulmonic airstream followed by a burst of air. This is also called a stop, for example, "p," "t," and "k."

Postalveolar: Sounds formed with the hard palate as passive articulator and the blade of the tongue as active articulator. Examples are "*sh*ill," "*ch*ill," "vi*s*ion," and "*J*ill."[27]

Prosody: A term referring to all the *suprasegmental* properties of language such as pitch, loudness, tempo, and rhythm.

Retroflex: Sound pronounced with the tip of the tongue curled up toward the hard palate at the roof of the mouth, for example, the sound of the letter "r" in "rigid."

Rhythm: The patterns of strong and weak syllables in a language. The rhythm of English is characterized by the foot, which consists of a stressed syllable and all unstressed syllables up to the next stressed one.

Segment: A unit of speech that is identifiable and separate from others. It contrasts with the term *suprasegmental*, which refers to aspects of phonetic structure above the level of individual sounds.

Sibilant: A sound pronounced with clear, hissing friction such as the initial consonant sound in "sip," "zip," "ship," or "chip" or the "s" sound in "vision."

Stop: A consonant formed by blocking the airstream completely, for example, the sound of "p," "t," or "k." It contrasts with a *fricative* which does not involve interruption of the airstream. Also sometimes called *plosive*.

Stress: The acoustic prominence of a syllable in a word. Physical correlates of stress can vary. Typically it involves raising the frequency and/or volume matched by prolonging the syllable involved.

Structure: A network of connections between elements of a system. For example, syllable structure is the set of relations between parts of a syllable.

Suprasegmental: A reference to phenomena that do not belong to the sound segments of language but typically are spread over several segments. For example, *intonation*, *stress*, and tempo.

Syllable: A unit of sound or sounds grouped together in a nucleus of acoustic prominence.

27. *See* https://en.wikipedia.org/wiki/Postalveolar_consonant.

Tongue: The most frequently used active articulator. The tongue can be divided into several areas: tip or apex, blade or lamina, and back or dorsum. The distinction between tip and blade is important for producing dental and alveolar sounds. The tongue may also show a groove, for instance with palato-alveolar fricatives. The tip can be made to roll in the escaping airstream as is the case with the apical rolled "r" of Romance languages. The root of the tongue can be retracted to constrict the larynx as with the emphatic sounds of Arabic.

Uvular: Sound articulated with the back of the tongue and the uvula, such as the hard "k" in "king" or the sound of the "q" in "queen."

Voiced: Spoken with simultaneous vibration of the vocal folds.

Voiceless: Spoken without the vocal folds vibrating. The folds can be open or closed with the compression of air between them and the supra-glottal stop position producing sounds which are called ejectives.