

Phonetic Symbolism in First Names

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Abstract Interest in the phenomenon of sound symbolism, in which certain phonemes might be inherently associated with certain things, dates back to 400 B.C. While it has been assumed in most modern theories of linguistics that the relation between sound and meanings is arbitrary, an increasing number of studies have shown that there can be systematic sound-meaning associations. Among such systematic patterns is phonetic symbolism due to the iconicity between sound and meaning. Building upon earlier findings concerning the correlation between male and female names and certain sound classes found in English language, this study examines phonetic patterns, voiceless obstruents and sonorant consonants of the top 100 first names in four languages. The purpose of this study is to show that these tendencies may generally hold among existing first names in other languages as well. The results show that voiceless obstruents tend to be used more frequently in male names than in female names, and sonorant consonants tend to be used more frequently in female names than in male names. Indeed, this study offers further indications concerning this phenomenon, in which phonetic symbolism is not restricted to nonwords and can be found in real first names across languages. It sheds light on the phonetic factors, namely acoustics and other phonological characteristics that might trigger this systematic association.

Keywords Phonetic, Symbolism, Obstruent, Sonorant, Consonant

1. Introduction

Phonetic symbolism is the nonarbitrary linkage between sound and meaning [1]. Focusing merely on the sound

(derived from phonemes) that can directly express a meaning and go beyond its linguistic role as a non-meaning-bearing unit, results in a systematic association between sound and meaning [2]. This debate concerning sound's systematic or arbitrary relation to certain meanings dates back to Plato's *Cratylus*. There, Socrates suggests that although the relation between sound and meaning might be arbitrary, and good words are those where sound and meaning are congruent; for instance, he suggests that ρ (alveolar trill in Classic Greek) is better used with words that represent movement, hence the repeated tongue movement in order to produce this sound [3]. Indeed, this idea assumes that sound-meaning associations might have a phonetic basis, whether articulatory or acoustic properties. Thus, it is necessary to consider phonetic considerations for any theory of sound symbolism.

While recent research has demonstrated the link between phonemes and several aspects, the implications of sound symbolism in first name choice have remained unexplored across languages. In this regard, this study examines the most popular 100 first names for males and females as retrieved from the public databases of Japan, France, the UK and Arab between 2020 and 2021. Building upon earlier findings, it assumes that male names will be more likely to contain voiceless obstruents, while female names should contain voiced sonorant consonants. Thus, two questions are addressed:

- (1) What are the implications of sound symbolism in first name choice?
- (2) What is the relation of these implications to the articulatory and acoustic aspects of the sound?

The remainder of the study is as follows: a theoretical background, focusing on the phenomenon of sound

symbolism and relevant phonetic (articulatory and acoustic) considerations, is given in the next section, and then the study's dataset is explained in the following section. The study's results, analysis and discussion follow. Finally, there is a conclusion, with a summary of the study and its findings.

2. Theoretical Background

The phonology of any language includes various sounds that can make an infinite number of words that can be changed over time and normally replaced by other words for different reasons. Thus, it is universally held is the notion of arbitrariness, in which the association between a word's meaning and its pronunciation is arbitrary [4]. Nevertheless, interest in the appropriateness between sound and meaning has increased. It is generally known as iconicity and sound symbolism, both of which play a crucial role in our ability to understand human language. In this regard, people seem to associate certain sounds – or more precisely, phonemes, which are the smallest units of sound in the language – intuitively with certain things. To clarify, consider the two shapes in Figure 1, and try to identify which one is the maluma and which is the takete. You might say that maluma is the rounded shape, whereas takete is the angular shape. This judgment is, in fact, consistent with the responses of almost 90% of people [5].

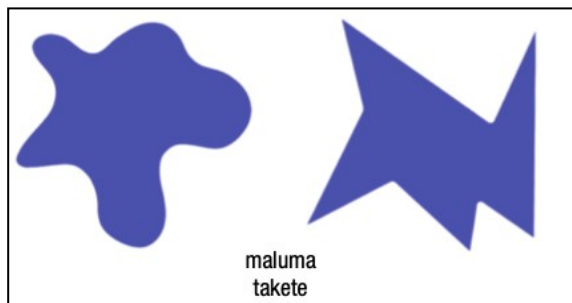


Figure 1. An example of the shapes used in the maluma-takete effect in which people's judgments were studied for the two nonwords [5]

In this maluma-takete effect, the two phonemes [t] and [k] are linked with a sharp object, whereas [m] and [l] are linked with a round object [6]. Indeed, the maluma-takete effect is not limited to these nonwords. Research has shown that English speakers generally tend to link voiceless obstruents to angular shapes, and voiced sonorant consonants to round shapes [7], [8]. Besides the maluma-takete effect, there are other effects considered sound-symbolic [9].

The sound symbolism phenomenon has been shown across ages, languages and cultures [10], [11]. For instance, research has shown that sound symbolism might play a role in the frequency of phoneme occurrence in male versus female names. Several studies have identified numerous systematic tendencies. Recently, research has shown that voiceless obstruents tend to be used more frequently in male names than in female names, and

voiced sonorant consonants tend to be used more frequently in female names than in male names [12]. Also, the two classes of sounds have been linked to other meanings that seem to be generally compatible with the notion of angularity (aggressive and unfriendly) and roundness (peaceful and friendly) [13].

Besides consonants, other research on systematic-sound association found that vowels connected with small things tend to appear in female names, whereas vowels associated with large things were more likely found in male names, as parents might be 'drawn to names with associations that are seen as desirable within a society for individuals of a given gender' [14; 230]. Furthermore, not only parents are affected by sound symbolism in deciding names for their new babies; even authors may be influenced by sound-meaning associations when naming their fictional characters, which is perhaps reflected in the way they create characters with congruent names. Most of the Pokémon names have voiced stops which are positively related to the several properties of the character, such as weight, size and strength [15]. Furthermore, an examination of the naming of characters in 'The Lord of the Rings' shows how perfectly the sound of the name Tom Bombadil fits its 'jolly, rumbustious owner,' based on an assumed relationship between round-sounding names and qualities such as friendly and easygoing, as can be deduced from the voiced stops and sonorants in the name [16: 5], [17].

The focus of this study is the correspondence between the frequency of voiceless obstruent and sonorant consonants in male and female names. While most of the research on sound symbolism has examined this frequency in nonwords, it is important to explore whether the sound symbolism associations of voiceless obstruent and sonorant consonants can also have an effect on male and female real first names. Male names are more associated with angular phonemes, whereas female names are related to round ones. Articulatorily speaking, in the articulation of voiceless obstruents there is nothing that is angular; similarly, neither can the articulation of voiced consonants be associated with round things [18], though there might be an acoustic explanation for this association between angular shapes and voiceless obstruents, arising from 'abrupt amplitude modulations during the burst and friction of these sounds', which is a typical acoustic feature of voiceless obstruents. 'Aperiodic noise resulting from the rise of intraoral air pressure—defining features of obstruent'—even in the waveforms it literally looks spiky and angular [19: 570]. Conversely, 'periodic energies of sonorants, reflecting regular vocal fold vibrations, look round on waveforms'. These acoustic characteristics can be perceptually anticipated in different types of shapes [19: 571]. Voiced stops, as long as they are accompanied by vocal fold vibration, also exhibit round-looking periodic energy [19]. This view strongly indicates some sound symbolic patterns can be triggered by acoustic characteristics alone.

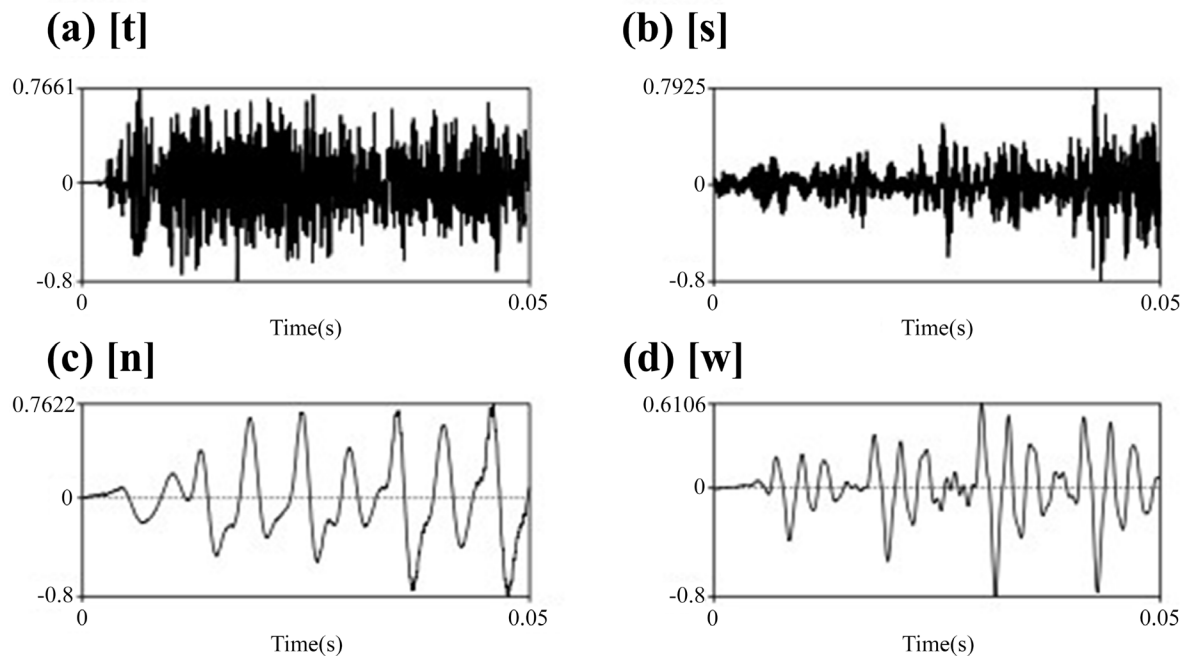


Figure 2. The waveforms of [t], [s], [n] and [w]. These graphs track air pressure changes that are generated by these sounds [19]

In sum, the phonetic symbolism effects in these studies have been shown in controlled laboratory experiments using artificial words and nonwords. Thus, this study aims to discuss the implications for current male and female first names in different languages.

3. The Study

The data complication is obtained from various published government databases, namely from the UK, France, Arab and Japan, showing first names for males and females. The top 10 first male and female names in the years 2020 and 2021 were collated in each language [20], [21], [22], [23], and [24]. The International Phonetic Alphabet (IPA) transcription for each first name was used in order to represent their constituent phonemes. Due to the study limitations, the consonants in the two categories were examined for any potential systematic patterns.

4. Result

Focusing on the consonant of each first name, the study analysed the top 100 first names in four different

languages. Two systematic sound-gender congruent were identified and the preferences associated with each gender category were revealed. The two classes are the voiceless obstruent and sonorant consonants. Consider Table 1, representing the frequency of voiceless obstruent and sonorant consonants across languages for the two gender categories.

Table 1. Frequencies of voiced obstruent and sonorant consonants in male and female first names in different regions

Language	Male		Female	
	Voiceless Obstruent	Sonorant	Voiceless Obstruent	Sonorant
Japanese	57	38	26	68
French	22	48	11	61
English	37	42	12	53
Arabic	31	41	24	76

The mean numbers of voiceless obstruent and sonorant consonants that were calculated by dividing the sum of frequencies of each sound class by the number of phonemes for each category are represented in Figure 3. Comparisons between these means were made using SPSS.

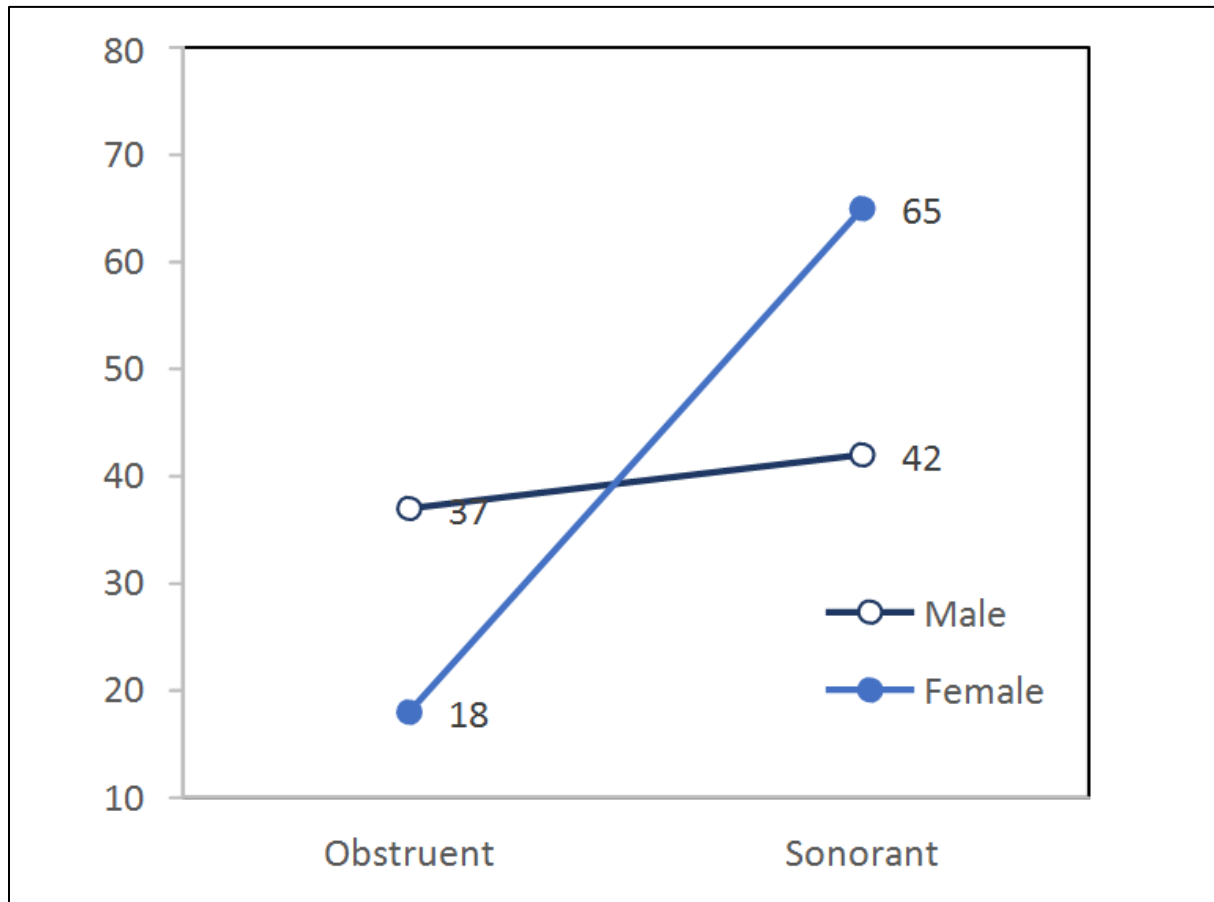


Figure 3. The mean number of names per phoneme for each phoneme category

The first significant association is the sonorant consonants related to the female first names. As shown in the table, sonorant consonants more significantly occurred in female first names than in male (P-value equals 0.0059). The second significant association is the correlation between the voiceless obstruent phonemes and male first names, since this sound class more significantly occurred in male first names than in female names across the languages (P-value equals 0.0427). As a gender category, first names significantly tend to contain a sonorant consonant rather than a voiceless obstruent phoneme in the female category (P-value equals 0.0002). In the male category, first names contain a voiceless obstruent phoneme rather than a sonorant consonant, which is only found in the Japanese language, whereas in the other languages the sonorant consonants tend to occur more than the voiceless obstruent phoneme in first names. Across the observed languages, female first names are more likely to sound like 'Mary' /mə'ri:ə/, whereas male first names are more likely to sound like 'Arthur' /'ɑ:θə/.

5. Discussion

This study examined the association between the sound symbolism of the phonemes of the top 100 popular male

and female first names in four languages. For consonants, a common pattern found across the languages is that two classes are preferred; more precisely, voiceless obstruent and sonorant consonants are favoured, signifying a non-arbitrary association between first name choice and gender category. These systematic tendencies are actually consistent with earlier observations that the voiceless obstruent tends to be used more frequently in male first names, whereas sonorant consonants tend to be used in female ones, and this holds true for other languages as well [12]. Indeed, the gender-sound congruity that was identified in first names might be derived from the symbolic association with angular and round sounds. Hence the previous findings revealed male first names were more likely to have sounds that were associated with angular things, whereas female names were more likely to be associated with round things.

Acoustically speaking, this preference in first names is not arbitrary; it has a phonetic basis, as it is triggered by acoustic characteristics observed in the waveform of the two classes, hence this association between angular shapes and voiceless obstruents arises from 'abrupt amplitude modulations during the burst and friction of these sounds', and the 'aperiodic noise resulting from the rise of intraoral air pressure' [19: 570]. On the other hand, systematic sonorant-roundness association arises from 'periodic

energies of sonorants, reflecting regular vocal fold vibrations, look round on waveforms' [19: 571].

Another finding is that the emergence of phoneme-gender associations in existing first names offers evidence that the effect of sound symbolism can be extended to real words and restricted to invented words and beyond name stimuli. While the study finding indicates that sound-gender association in male and female first names in four languages is consistent with the observed tendencies of earlier studies, it does not predict the observed association to be true universally or in languages with restricted phonological systems. Other systematic sound-gender might be found and such distinctions might be regarded as language-specific.

Interestingly, the study findings showed the emergence of the maluma-takete effect in real first name choice across languages, hence the correspondence between first name and the different gender categories correlated with angular or round things on the basis of the phonemes they have. Thus, sound symbolism in names has been shown to be a rich perspective for understanding the sound symbolism phenomenon, with more potential findings in the future. It looks like there is much more to explore in a name.

6. Conclusions

To conclude, this study has provided further indications concerning the phonetic symbolism found in first name choices in four languages, which are in fact consistent with earlier findings. Further investigations of the sound symbolism of phonemes can be made with new datasets combining the top 100 popular first names across languages. Nevertheless, two conclusions emerge from this examination: (1) female first names do favour sonorant consonant, while male first names prefer voiceless obstruent ones; (2) the systematic sound-gender associations are affected by phonetic factors, namely acoustics and phonological aspects, which it is necessary to consider in a study of the sound symbolism phenomenon and accurately determine the prevalence of any systematic sound-meaning correspondences that are consistently found in human languages. Finally, future research might consider exploring how the phonetic characteristics of our speech are represented in our sound symbolic knowledge using non-phonetic principles or even exploring names that differ in various phonological aspects.

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