The Sound Structure Of Hell And Heaven Names

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Abstract

This study investigated how sounds (phonemes) and sound symbolism operated in the structure of names and influenced perception. Focusing on well-known Arabic hell and heaven names, the hypothesis proposed that knowledge about them alluded to the perception of sounds and sound symbolic association that maintained attributes exclusively associated with each name. The hypothesis was tested explicitly by using the bouba/kiki image of shapes and the size symbolic associations, and explicitly by asking the respondents to identify the sound they perceive to represent the label. Results revealed that familiarity and knowledge have affected the perception of spiky-shape and small-size symbols relevant to the harshness and negative implications of hell-names. The function of these sounds in the phonological structures of the names demonstrated the mechanism that alluded to negative/positive perception. Extensive attributes of harshness (vs. softness) are characterized with unconventional linguistic patterns of sound and symbolic associations. The finding emphasizes the effect of knowledge with non-arbitrary intuition of sound and sound-meaning association. It also contributes to the creativity of names that appeal to match attributes and expectations.

Keywords: hell/heaven names, sound-symbolism, name-building mechanism, linguistic-patterning.

أسماء الجنة والنار في البنـاء الصوتي

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المستخلص:

تبحث هذه الدراسة عن الكيفية التي تؤثر فيها الأسماء على نظرتنا وتوقعاتنا عن شخصية حاملها، وقد وقع اختيار البحث على أسماء الجنة والنار لثراء معانيها وعمق مدلولاتها التي لا تخفى على أحد، وبذلك فإن فرضية البحث هي أن اختلاف البناء الصوتي المكون لهذه الأسماء ظاهرة لنا، وتمكننا من إدراك الحرف الصوتي الذي يميزه ويحمل السمات الخاصة لكل اسم. فبناء على نظرية رمزية الصوت، فإن هذه الحروف الصوتية تعطي دلالة الاسم المكون لها، ولقد تم اختبار الفرضية بطريقتين: الأولى بعرض صورة لرمزية bouba/kiki لبحث الكيفية التي سيتم فيها ربط الأشكال ذات الزوايا الحادة أو ذات المنحنى، ومفهوم السعة والضيق لأي من أسماء الجنة أو النار. أما الطريقة الثانية فكانت بطلب المشاركين تحديد الحرف الصوتي الذي يرونه يمثل المعنى الذي يعرفه عن الاسم. ولقد أكدت النتائج أن المعرفة بهذه الأسماء أسهمت في رؤية الرمز في الصورة ذات الزوايا الحادة لترتبط سلبًا بأسماء النار وتخصيص الصورة ذات المنحنى لترمز إلى الإيجابية بربطها بأسماء الجنة، أما عند اختيار الحرف الصوتي فقد أوضحت النتائج أن هناك توافقًا بين سمات هذه الحروف ودلالات الاسم، كما أوضحت الآلية التي يتم من خلالها بناء اسم يوحي سلبًا أو إيجابًا، والتي تعتمد في مجملها على صفات الحرف وترتيبها بين الحروف الأخرى ونوع المقطع في الكلمة، فكلما كان الاسم يحمل معاني القوة والقسوة تطلب ذلك حروفًا ذات سمات تطابقها في مدلولاتها. وبذلك فإن البحث يسهم في توضيح مفهوم اللاعشوائية في اللغة وفن صناعة الأسماء؛ لتكون برّاقة، وتضفي الإيجابية لحاملها.

الكلمات المفتاحية: أسماء الجنة والنار، رمزية الحرف الصوتي، ميكانيكية بناء الكلمة، الأنماط اللغوية.

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Introduction

Research in sound symbolism has emphasized the psychological effect of sounds (phonemes) to the perception of attributes associating the names they structure. These sounds pertain to the connection between physical articulation and sound-meaning. The size of volume increases (vs. decreases) as the tongue lowers (vs. rises) and thus derived large/small symbols in association with front/back vowels (Swadesh, 1971; Ohala, 1984; Lowrey and Shrum, 2007). Similarly, the high frequency of consonants and continuant of friction are associated with motion and those with hard impact of plosives are associated with solid structures and thickness (Swadesh, 1971; Klink, 2000; Lowrey and Shrum, 2007; Jurafsky, 2015).

Such symbols were defined further to contain more accurate attributes of the names. The voicing sound-categories were reported to stimulate different shapes based on *bouba/kiki* effect (Ramachandran and Hubbard, 2005). Images of spiky-angular shapes ascribed to names containing voiceless non-sonorant stops /p t k/ more than those with voiced and sonorant consonants /b l m n/ that were associated with curvy-round shapes (Ramachandran and Hubbard, 2005; Rojczyk, 2011; D'Onofrio, 2014; Sidhu and Pexman, 2015). "small" was extended to include properties of lighter, milder, softer, colder, more bitter, more feminine, weaker, or sharper when associated with patterns of voiceless fricatives or stops and front vowels more than voiced plosives and back vowels (Klink, 2000, 2001; Nielsen and Randall, 2011; Klink and Athaide, 2012; Klink and Wu, 2014).

Sound symbolic association has been explored across the languages and emphasized its universality. Rojczyk (2011) indicated the effect of vowel duration and pitch to uphold the perception of size in Polish words. GuillamÖn (2013) confirmed the association of vowels to color perception in Arabic and English. Kawahara, Shigeto, Noto, Gakuji, Kumagai, Atsushi (2016) reported that voiced obstruent in association with back vowel and positioning at word-initial operated strength of evolution levels, magnitude of size, and strength parameters in characterizing Japanese Pokémon names. Al-Siyami (2018) explored the occurrence of Arabic heavy fortes sounds to emphasize the authentic, luxury, and credibility of the product as schematized in the prosody of car-ads slogan.

Distinguishing from previous studies that examined brand-names, Sidhu and Pexman (2015) used real first names and reported similar sound symbolic association that have changed the perception of the target-names. Curvy shape tends to be associated with names that contain sounds symbolically associated with large attributes. According to Sidhu and Pexman (2015), these sounds were round-sounding /m b l/ and were perceived relevant to female-names whereas sharp-sounding /p k t/were perceived relevant to male-names. However, Sidhu and Pexman (2015:19) emphasized that knowledge and familiarity of names may reduce the effect of sound symbolism.

The study adopts the premise to investigate Arabic hell and heaven names. The references to hell and heaven names are well established in the Arabic culture and provide a wealth of semantic dimensions. They are richly associated with abstract attributes that typically represented antonyms of misery/luxury, rewards/punishment, and bad/good. The targeted responses may maintain such implications. They are also well recognized on daily basis as some hell-names are used to symbolize misery and misfortune

(*Jaheem, Haawiyat*) whereas some heaven names are used to name children (*Firdaws*, *Jannat*, or *Jannaat*).

Taking the universal sound symbolism implication, the study aims to capture the mapping of sound and sound-meaning and identify the mechanism with which phonemes are distributed to implement negative/positive perceptions. The study examines the following questions: Does the sounds structuring hell/heaven names capture sound symbolic association? How can knowing interfere in the negative/positive perception of these names? And, what mechanism distinguishes a hell-name from a heaven?

The hypothesis proposes that knowledge of hell/heaven names alludes to the perception of sounds and sound symbolic association that maintained attributes exclusively associated with each name. Specifically, the abstract attributes of size and shape of the labels may demonstrate different interpretation of shape and size symbolic association under the effect of knowledge and familiarity with the names. The concept of knowledge indicates that the distinctive sounds composing the phonological structures of hell/heaven names manifested in the respondents' mind. The hypothesis is tested explicitly and explicitly by asking the respondents to identify their perception of the names and the sounds representing the attributes.

Exploring Arabic names that are emotionally associated with semantic implication, the study contributes to the universal non-arbitrariness of sounds relevant to Arabic language system and culture. By displaying the mechanism of which names are constructed, it gives insights to the processes of naming-preferences for marketing and speech understanding in different cultures.

Arabic hell and heaven names

Arabic hell and heaven names are well established in the Holly Quran. Interpretation books have explained the meanings of these names in the context of the verses and as narrated by the prophet. Seven hell-names are recognized. Interpreters explained that they refer to hell gates. However, heaven-names exceed in number and variation. The study chose six heaven-names that are very popular in Islamic culture. The investigated hell/heaven names are included in table 1.

Table1 Glossary of Arabic hell and heaven names

Hell-names			Heaven-names		
		Transcription			Transcription
هـاويـة	Haawiyat	ha:wijat	جنة	Jannat	ʤannat
لـظى	LaZaa	laža:	عـدن	cadn	ʕadn
جـهنم	Jahannam	ʤahannam	نـعيم	Naceem	naʕi:m
جـحيم	Jaheem	ʤaħi:m	فـردوس	Firdaws	firdaws
سقر	Saqar	saqar	مـأوى	Ma'waa	maʔwa:
سعير	Saceer	saʕi:r	خـلد	khuld	xuld
حطمة	Hutamat	ħuŤamat			

The names are derived from verbs of the same consonants and similar implication. *Jaheem* denotes the act of burning and simmering with accelerated heat that glimmers in redness as in baking. It connotes torture and misery. *Jahannam* denotes the act of scowling and griming the face. It connotes flames that grimed and creep into a face with extreme heat leaving it as charcoal before gobbling the whole

body. *laZaa* denotes huge flames that originate from cinder heat and blast up curling and rising high. It connotes unusual features of fierce and energetic flames that rip off flesh starting from the face.

Saqar denotes the act of burning and roasting tender flesh by dryness. It connotes one of agonizing and slow destruction place. *Saceer* denotes the act of fueling heat continuously. It connotes furious movements of stinging heat. The flames swirl, rotate, and extend up high as they are continuously fueled from a bunker beneath. The bunker is inhabited with stingy creatures.

Hutamat denotes the act of breaking and smashing hard dry objects. It connotes heat that reaches deep into the bones, drain out moister, and eventually smashes into pieces. *Haawiyat* denotes the act of falling and trundling from a high place. It connotes a large ridge that abruptly ended with a narrow opening. The mystery of the name is the fact that it has no end or way up.

The selected heaven-names form noun phrases of which *Jannat* or its plural form *Jannaat* is the head-noun. *Jannat* is the general name for heaven. It denotes the act of covering, sealing, and veiling to the extent of not seen. The name connotes a place that mysteriously includes unseen pleasures, comforts, joy, and eternity. The plural emphasizes verities, spacious, and limitless blessing of the place.

Ferdous is the only noun that is not derived. It denotes the summit of a unique place that is specified for elite residence as prophets and pious. c*adn* is derived from the verb c*adn*. It denotes the act of stabling, settling, and prospecting the center of solid structure. As a noun, it refers to a place containing the crux of pleasures, bounty, and stability.

Ma'waa denotes the act of lodging into a place for settlement and protection. The name connotes a place that extends in space and accommodations for all the believers to lodge and gain worthy blessings. *Khuld* denotes the act of being eternal. It connotes eternity indulged with blessings. *Naɛeem* denotes being blessed. It connoted the status of being in heaven and indulged with bounty. Both *khuld* and *Naɛeem* refer to dedications and bounties of heaven.

Evidently, the semantic domain of both hell and heaven names conveyed contrastive attributes. Names of hell referred to unusual huge flames or a place with accelerating heat and cramped compact terrain. Reversely, names of heaven referred to pleasant open spacious or limitless various blessings. Asymmetrical interaction was observed between the connotation of largeness and smallness of the referents. With hell-names, increased misery was asymmetrically related to small compact zones but symmetrically to increase of residence. With heaven-names, increased luxury was symmetrically related to large spaces and verity of blessings but asymmetrically to specified residence. These implications are emphasized in linguistic patterns as hell-names have no plural form or associated with any plural implications in contrast to hell-names.

Sound symbolism and sound function in the phonological structure of hell and heaven names

The selected 13 hell/heaven names in table 1 deliberated 22 natural phonetic features: 18 consonants /s ʤ ʕ t d f ʔ x q ŤĦ ž h n m l r w/, three vowels /a i u/ and one back diphthong /aw/. These phonemes demonstrated different functions within the phonological structure of the names. According to sound symbolic association, solid and hard impact exhibited in names containing stops /ʔ t Ť q d/ as *Hutamat,*

Saqar, cadan, Ma'waa, Firdaws, Khuld. The inclusion of fricatives /h s f ħ x ž ʕ/ emphasized the symbol of motion.

Patterning voiceless fricatives with front vowels emphasized smallness, less power and sophistication, sharpness, lightness, etc. in *Firdaws, Jaheem* (Klink, 2000; Lowrey and Shrum, 2007; Klink and Athaide, 2012; Jurafsky, 2015). Size symbol was demonstrated in the association of voiced obstreunts /ʤ d ž/ with back vowel to depict the evolution development of energetic blaze and the immense of heat in *Jaheem* and *Jahannam* or reiterated heaviness and strength in *cadn, Khuld, Firdaws*. But with emphatic fricative /ž/ in *LaZaa*, the duration of /a/ distinctively reiterated symbols of largeness and length to the motion symbol. These sounds conformed with sound symbolic association of Kawahara, et al. (2016).

However, the function of these sounds and symbolic association exhibited different degree that defined the symbol accuracy. Solidness in hell-names was distinguished with dryness-heat and lean for /q/ in *Sa**qa**r* but arid-draught for /Ť/ in *Hu**Ta**mat*. The strength of motion symbolized the magnitude and rigidness of stingy sharp heat because of back vowel /a u/ association (Klink and Athaide, 2012). Moreover, the sequence of voiceless /s q ħ Ť t/ in the structure of these names added extra degrees of harshness and massive destruction that depicted the attributes of the labels. With heaven-names, the voiced stop /d/ emphasized solidness differently to amiable implicature that depicted the altitude of *ca**d**n*, *Firdaws*, and *Khul**d*** with.

Evidently, the phonemic properties of these sounds emphasized the function of articulation in defining the quality of friction across-model mapping. Pogacar, et al. (2015: 559-560) determined that thick friction sounds may confer negative or positive sound symbolism properties to a name, but word-position functions as moderator for the perception. The structure of hell/heaven names marked the presence of at least one thick-friction sound that functioned as stimulus. It designed the phonetic structure of the name. The degree of constriction between the articulators and complexity differentiated the stimuli to be consistent with the physical perception of size and shape.

This was evident in the inclusion of the active energetic friction of uvular /q/ that develops length of duration more than the intense emphatics /Ť ž/ (Khattab et.al., 2006; Al-Solami, 2017) and the distinction between the emphatic /ž/ and /Ť/ that shows much stronger and harder friction than the former (Al-Ani, 1975). Furthermore, the abundance sequence of voiceless obstruents in *Saqar* and *Hutamat* confirmed the negative attributes of shape and size symbols as the thick friction accelerated from word-center towards the margins. The unusual sound symbolic association that was brought up from the unconventional pattern of voiceless (vs. voiced) emphatics with back vowel emphasized the unusual attributes of the referents.

Such unconventional linguistic patterning of voiceless obstruents with back vowels or vice versa associated unconventional attributes. It was also apparent with the duration of vowel in association with /w/ to emphasize lavish wide space in *Ma'waa* but depicted the length of distance for the abyss implication in associating with /h/ in ***haa**wiyat*. The association of sonorant /w/ with front vowel in *Haawiyat* that demonstrated abrupt sharp turn. Moreover, the duration of /i:/ extended mildness that characterized the pharyngeal /ʕ/ in *Naceem* but not in *Saceer* or *Jaheem*.

The presence of stimuli with less friction /ħ s l m/ affected their phonetic features. Uvular and emphatics extend impact upon aligned sounds of which vowels are included (Al-Ani, 1975; Zawaydeh, 1997; Khattab et.al. 2006). This is sensed in the production of /l/ that changes to dark in *LaZaa* and /s/ changes to sound like the emphatic /š/ in *Saqar*. In contrast, the thick friction of /d/ is characterized to be not as arid as /Ť/ nor parched sear as /q/. The occurrence of /d/ in the sound-structure of heaven-names demonstrated distribution of friction in the context of /x/ in *khuld* or /f s n ʕ/ in *cadn* and *Firdaws*. As /d l s m t/ including /u/ "confer to positive sound symbolism properties" (Pogacar, et al., 2015: 559), their occurrence in heaven-names emphasized positive implicature.

The word-position of shared sounds contributed to the function of friction and emphasized wearisome/ light motion and negative/positive implication. The development effort of /dʒ/ caused undue friction and turbulence energy that was released at word-initial of the open CV structure in *Jahannam* and *Jaheem* but distributed in the disyllabic CVC structure of *Jannat*. The image of grandiose catastrophe or slacked weary motion were activated by the back glottis /h/, the tense pharyngeal /ħ/ with long tense /i:/, and the closure with bilabial nasal-stop /m/. However, the smoothness of /n/ assigned its nature to the perception of /ʤ/ (Anderson, 2016: 16) in the heaven-name.

As for nasals and approximants, the former is marked with less energy and low frequency resonance than the latter that is a bit higher than vowels but greater than the fricatives due to occlusion with the articulator (Roach, 2009, 58-61). The intermediate deliquescent feature enabled approximants to ascend/descend frequency akin to the quality of the preceding friction. However, the stop sound-feature of nasals echoed the harsh/soft friction so that the gemination of /n/ in *Jahannam* characterized the escalation of heat coming from the vocalic and stacked in the small nasal cavity but not in *Jannat* that emphasized soft friction in a disyllabic CVC structure.

Between thick and soft friction lies the intermediate types that also vary in friction based on their articulatory features. Both /s f/ share high F1 and F2 as voiceless fricative. However, the strident and coronal features of /s/ make turbulent hissing sharper and clearer than /f/ that is produced by the interaction of the lip and the dental. The simple articulation and soft friction of /f/ recognized the specification of *Firdaws* whereas the weak voiceless /h/ carried the long duration of the vowel in *Haawiyat* or the thick friction of /ʤ/ in *Jahannam*.

The pharyngeal /ʕ ħ/ are produced by the retraction of the tongue-root and the back of the pharynx and situated at the developed small cavity below the approximation (Al-Ani, 1975). The uniqueness of /ʕ/ determines the flow to be not too loose as /h/ nor strict as /ʔ/, or rough as /ɣ/ nor higher than /ħ/. It is a mild soft friction that was sharpened in the context of /s/ and long front vowel /i/, and /r/ in *Saceer* but smoothened with /n/ in *Naceem* and *cadn*. Furthermore, the intermediate position of the pharyngeals between the uvular at the top and the glottal underneath emphasized the semantic implication of agitated bunker in *Saceer* and *Jaheem* but pleasance in *Naceem*.

Final-word position of the shared consonants emphasized their function in the phonological structure of the names. /m/ carried the mildness impact of /ʕ/ in *naceem* but stacks the heavy friction of /ʤa/ and

tense sharp /ħi:/ within the narrow nasal channel in *djaHee**m*** and *djahanna**m***. The word-final of /t/ weakened the unreleased friction to sound like the lenis /h/ in *djanna**t**, haawiya**t***, and *HuTama**t***. Whereas the retroflexed approximant /r/ extended the abundance of tense under the effect of /q/ and /ʕ/ to continue disturbance at word-final of *saqa**r*** and *sacee**r***.

Clearly, sound-function in the phonological structure of hell/heaven names has distinguished a mechanism that confirmed the semantic implication of the names. Unconventional symbolic association of spiky/sharp-edge (vs. curvy) shape was demonstrated with patterns of voiceless (vs. voiced) stops and sonorants. Small (vs. large) symbol was associated with front (vs. back) vowels and voiceless (vs. voiced) obstruents. The function of the stimulus is expected to attract perception based on word-position, vowel duration, and the phonetic features of neighboring sounds. This is to be explored in the next section.

Method

The Procedure

The study followed the interview and questioning methodology. As the respondents affirmed their consent and understanding of the study, they were asked three main questions. For the first question, the images of *bouba/kiki* from Ramachandran and Hubbard's (2005), were introduced (see appendix) as they were given the list of the names. They were asked to relate the most appropriate image that would figuratively identify each name. A verification was included for each trial but that was optional. This question intended to value the respondents' perception of the names relevant to different dimensions of shapes.

The second question asked the respondents to specify the size of each name in the list. This question intended to define the perception of size relevant to the semantic implication of the names. Respondent were also asked optionally to verify their choice. The third question asked them to identify the sound(s) that best represent the qualities of the name. It intended to explore the effect of knowledge in the perception of hell/heaven names.

After recording the responses for each name and for each question, the data were set for analysis. The preferences were classified for patterns of sound-symbolism association of hell/heaven names to shapes and sizes. The relationship between names and symbols was counted. The preferences of sounds were categorized into natural sound categories to signify the basic sound-structure that distinguished hell/heaven names. They were also compared and related to the previous sound symbolism associations.

The stimuli

The tested names from table 1 (section 2) are conceived as unfavored hell-names and favored heaven-names to the knowledge of the respondents. The different semantic attributes illustrated the two antonymic shapes (spiky/curvy) and sizes (small/large) relevant to blaze, heat, space, and blessings (section 2). They emphasized sound symbolic association. Sharpness and length may stimulate the respondent's perception of negative/positive traits. However, the study did not intend to deflect responses in the process of exploring as each respondent evaluated the

names according to his/her own subjective perception.

The stimuli demonstrated different degrees of friction that characterizes the sound of each name. it was evident that the function of word-position, articulatory features, and vowel duration emphasized the perception attributes relevant to any of shape/size symbolic associations (section 3). Names containing /Ť q t/ and /ž/ related the harshness of thick friction to the negative perception of hell-names. The resonance of /n/ ensured the pleasance of heaven-names.

The respondents

70 respondents were recruited from different grand malls in Makkah and Jeddah. They included people wandering in the malls, shopping, or working there. These respondents were of different backgrounds: ages (above 18), education, gender, occupations, and Arab nationalities. They represented citizens living in Saudi Arabia.

Results

910 responses represented the respondents' perception of shapes (angular/curvy) and sizes (large/small) and the sound that distinctively represented hell/heaven names. Responses to the first question showed insignificant differences in the frequency of preferences for associating hell/heaven names to the antonymic shapes. Associating hell-names with spiky-shapes scored 46.5%. to7.4% whereas associating heaven-names with spiky-shape scored 4.4% to 41.9%. The preferences indicated a significant correlation between angular and curvy shapes ($p<0,01$). Figure 1 is illustrative.

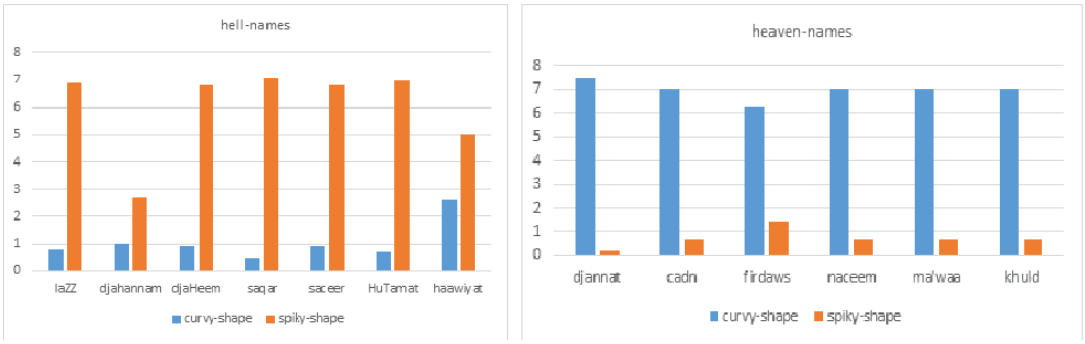

Figure 1: associating hell/heaven names to angular/curvy shapes

The figure shows a decisive preference for associating hell-names with angular-shape and heaven-names with curvy-shape. The preferences indicated that the perception of the angular-image was related to negative association with hell-names and the curvy-image to positive association with heaven-names. The respondents verified that the angular image prompted the perception of blaze with sharp edges or stingy heat. In contrast, the curvy image prompted the perception of cloud loaded with benevolence or reflected unharmful image.

For the second question, associating hell-names with small-size scored 38.7% to 15.1% with large-size whereas associating heaven-names with large-size scored 39.1% to 7.1% with small-size. The frequency of preferences indicated a significant correlation between small and large symbols ($p<0,01$). This indicated that the conception of smallness was related negatively to hell-names and largeness was

related positively to heaven-names. Figure 2 is illustrative.

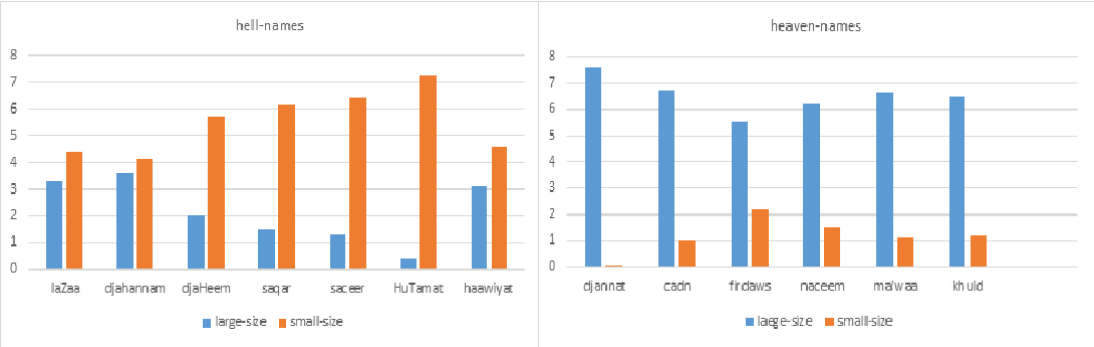

Figure 2: Size evaluation of hell and heaven names

The figure shows instances of indecisive choices that contradicts atypical tendency. *LaZaa, Jahannam, Jaheem, Saqar,* and *Haawiyat* exhibit the association of largeness. *Firdaws* and *Naceem* exhibit the association of smallness. The respondents acknowledged the perception of largeness to include more abstract attributes of which large zones and increase of misery. To the knowledge of these respondents, hell/heaven names are commonly conceived to be large enough to include luxury or misery anticipating all humans based on their deeds.

Results of the third inquiry showed variation of responses that captured the variation of sound-friction. Preferences for sounds that are characterized as harsh and fortes prevailed with hell-names. Table 2 is illustrative.

Table2 Observed frequency of preferences with hell-names.

	Obstruent				Sonorants						Total
	Voiceless	*f*	Voiced	*f*	Nasals	*f*	Liquids	*f*	Glides	*f*	
Haawiyat	h t	46 1	-		-		-		w j	11 12	70
LaZaa	-	ž	68				l	2	-		70
Jahannam	h	28	ʤ	36	n	6	-		-		70
Jaheem	ħ	32	ʤ	37	m	1	-		-		70
Saceer	s	14	ʕ	51	-		r	5	-		70
Saqar	s q	5 61	-				r	4	-		70
Hutamat	Ť ħ t	60 5 3	-		m	2	-		-		70
		255		192		9		11		23	490

The table demonstrates a clear-cut preference for /Ť q ž/ (*n.189=38.57%*) as representative of the hell-names they construct. The preference affirmed the association of angular and small symbols to such names (figure 1 and 2). The observed frequency of the voiceless fricatives indicated a conditional relevance to adjacency sounds. /h/ scored 65.71% in the context of /w j/ of *Haawiyat* but only 4% in the

context of the affricate /ʤ/ and the nasal /n m/ of *Jahannam*.

This holds true with /s/ and / ħ/ in the context of /ʤ q Ť ʕ/. The frequency of /ħ/ was more observed in adjacency with /ʤ/ (*45.71%*) in *Jaheem* than / Ť / (*7.14%*) in *Hutamat.* The frequency of /s/ was less observed in adjacency with / q/ (*7.14%*) in *Saqar* than /ʕ/ (*20%*) in *Naceem*. Certainly, the fortes friction of the voiceless emphatics /q Ť/ over casted the neighboring sounds more than the fortes friction of the voiced /ʤ/.

With heaven-names, the preferences spread among the distributed sounds structuring heaven-names. Consistent agreement was not observed in the preferences of sounds that particularly structured heaven-names as /d/ except for /x/. Table 3 is illustrative.

Table3 Observed frequency of preferences with heaven-names.

	Obstruent				Sonorants						Total
	Voiceless	*f*	Voiced	*f*	Nasals	*f*	Liquids	*f*	Glides	*f*	
Jannat	t	1	ʤ	33	n	36	-		-		70
cadn	-		ʕ d	18 18	n	34	-		-		70
Naceem	-		ʕ	43	n m	24 3	-		-		70
Firdaws	f s	30 11	d	25	-		r	4	-		70
Ma'waa	ʔ	29	-	-	m	15	-		w	26	70
Khuld	x	61	d	3	-		l	6			70
		132		140		112		10		26	420

Reversely, table 3 shows the preferences of voiced obstruent and sonorants. /d/ and /w/ have challenged the frequency of the voiceless /f s ʔ/ in *Firdaws* and *Ma'waa*. This is also observed with /n/ in *Jannat* or /ʕ/ in *cadn* and *Naceem*. The variation of frequencies indicated that the preferences of /n/ was intriguing. It prevailed with heaven-names (*n 94= 22.38%*) and declined with hell-names (*n 6=1%*). /n/ scored 48.57% with ***cadn*** despite of positioning at word-final and 34.29% with *Na**c**eem* though positioned at word-initial.

Apparently, preferences seemed to be distributed among more than one sound, which were either characterized as soft mild friction (l r n m ʕ) or assigned to smooth nature of adjacent sounds as with /ʤ d/, in the structure of heaven-names. The strong agreement upon selecting /x/ to represent positive implication of angular and small symbols (figure 1 and 2) affirmed the word-initial position to draw attention and the implication of heaven-names.

However, despite the initial-word position of /ʤ/, 14.9% of responses perceived it with hell-names but 7.86% perceived it with heaven-names to the privilege of /n/. /ʕ/ showed 72.86% of preferences in *Saeer* but 61% in *Naceem*, though it shared the same syllable-initial position and front vowel. /w/ and /j/ marked similar frequency in *Haa**wiy**at* that experienced indefinite perception of size or shape symbols (figure 1 and 2) and so were /r l/.

Comparing table 2 and 3, the voicing feature of obstruents demonstrated the association of voiceless obstruent (*n 255=52%)* with the discrepancy of perceiving size and shape symbols in figure 1 and 2. That prevalence of sonorants (*n 148=35%*) with heaven-names in contrast to (*n43=8.78%*) with hell-names and that nasals (*n.112= 12.31%*) with heaven-names to (*9=0.99*) with hell-names enforced the function of harshness with hell-names but softness and smooth with heaven-names. The variation of friction has drawn the respondents' perception to define negative/positive association.

Thus, the data demonstrated the perception of sounds and sound symbolism association relevant to attributes that the label implicates. The exceptional cases demonstrated that the absence or presence of /ʤ/ and /n/ distinguished the association between the antonymic symbols of size relevant to negative/ positive perception.

Discussion

One important character of hell/heaven names is the wealth of meaning that they communicate upon encountering them. As this study confined this into two figuratively antonymic symbols of shapes and sizes, relating these names in cross mapping intriguingly challenged perception. The influence of knowledge about hell/heaven names was attentively present to the respondents' mind as emerged in a general tendency for perceiving all hell-names negatively and all heaven-names positively. However, negative/positive reference has been interpreted differently when related to the symbols (figure 1 and 2). Despite of the common perception of relating angular-shape and small symbol to pain and misery, they were also positively perceived.

Perceptions that contradicted the common tendencies conformed to the semantic implication of the labels and represented one's perception and expectations. Small/angular symbols were positively perceived relevant to the summit in specification and "sophistication" or the sharp edges of brightness. Whereas, large/curvy were negatively perceived relevant to quantities of torment and magnitude of blaze. Figure 1 and 2 demonstrated the dichotomy of the antonyms across two hell-names (*Jahannam* and *LaZaa*) but for one heaven-name (*Firdaws*) where the voiced obstruent tipped the scale. Clearly, knowledge and familiarity about hell/heaven names contributed to the variation of perceptions.

The preferences of sounds maintained the congruency between sound and the selected symbol. The preferences of voiceless obstruents emphasized the perception of angular and small symbols in hell/ heaven names relevant to sharpness in line with sound symbolic association (Sidhu and Pexman, 2015; Klink and Athaide, 2012). However, the unanimous perception was directed to /Ť q x/ that confirmed the degree of harshness, rigidity, and negative perception relevant to harsh phonemic features. Articulatorily affected perception of sound symbolic association (Sidhu and Pexman, 2015).

The effect of uvular and emphatic /Ť q x/ in the context of back vowels drew perception of the large volume at the back of the articulators (Khattab et al, 2006; Al-Solami, 2017) and thus associated with large. The pattern increased the association with negative perception, to the exception of /x/ in *Khuld* which clearly emphasized the effect of knowledge. Similarly, the perception of strength, power, largeness in association with names contained the voiced thick friction of /ž d ʤ/ conformed with

sound symbolic association of Kawahara, et al. (2016). Yet, relating curvy/large symbols to negative/positive association of hell/heaven names explicated knowledge effect.

The effect was maintained further with the discrepancy of preferences among the shared sounds relevant to the conception of hell and heaven (table 2 and 3). Even though /t l n s/ were characterized as positive association (Pogacar, et al., 2015), they showed different realization across the two antonymic pairs. /s/ for example contributed to the positive perception of angular and small sound-symbolism with ***Fi****rdaws* as positioned at word-final but not with *Saceer* as positioned word-initial. Word-final position weakened the friction of /t/ and blurred its perception in *Hu̱ta̱mat*, *Haawiyat*, and *Jannat* not to be perceived. Furthermore, the soft friction of /n m l/ emphasized the association of curvy/large symbol with negative/positive perception, though occupied different positions.

The combination of mild /ʕ/ and weak /h/, that was classified as positive sound by Pogacar, et al. (2015), identified the impact of adjacent friction in perception. Both sounds positioned syllable-initial in *Ja.han.nam*, *Haa.wi.yat, Sa.ceer, cadn*, and *Na.ceem*. The prevalence of /h/ demonstrated the impact of the thick friction of /ʤ/ and the duration of /i:/. The increase of thickness that characterized the structure of hell-names evidently drew perception to the stimulus source. However, thickness was distributed with heaven-names and led to indecisive preferences of one stimulus obstruent.

Even though the smoothness of /n/ assigned this nature to the perception of /ʤ/ (Anderson, 2016: 16), the negative/positive association of /ʤ/ was determined by the effect of syllable-structure CVC (vs. CV) in *Jahannam*, *Ja̱heem*, and *Jannat*. The preferences in the perception of sounds and particularly /n/ maintained the positive sound association with equal distribution of friction and simple natural structures that characterized heaven-names.

Thus, the finding of the study supported the hypothesis and demonstrated that Knowledge and familiarity alluded perception. It stood as a replication of *bouba/kiki* effect (D'Onofrio, 2014; Sidhu and Pexman, 2015). The stimulus that generated acceleration for its word-position, vowel-duration, and adjacent sounds drew attention to the association of voiceless (vs. voiced) obstruents with front (vs. back) vowels to angular (vs. curvy) and small (vs. large) symbols. However, despite of this systematic association, the conception of hell/heaven names attentively defined the targeted antonymous symbols relevant to negative/positive association based on the conception of hell/heaven names. Even the perception of voiced obstruents and sonorants with curvy/large symbol were interpreted based on knowledge about the semantic implication of hell/heaven names.

In short, the harsher (vs. softer) the names would sound, the more unconventional the sounds and sound symbolic association are demonstrated in the mechanism of linguistic patterning. Whether it is the word-position and/or phonemic feature of associated sounds, it was evident that negative (vs. positive) implication varies based on background of experience and familiarity, i.e., knowledge.

Conclusion

This study investigated the premise that knowledge and familiarity about names affected the perception of sounds that maintained the distinctive attributes of Arabic hell/heaven names. The finding demonstrated a configuration of different vowel length and voicing obstruent that distinguished the function of sound and sound symbolism in each name. It revealed that harsh names determined unconventional linguistic patterns that attracted perception for disturbing and agitating the sequence of friction in the name-structure. Only when the path of friction complied to the natural sonority of a syllable structure that a word-form was deliberately distinctive for a heaven name.

The finding reached in this study are limited to Arabic phonemes that transcribe Arabic hell/heaven names and individual perceptions of the respondents. However, results can also be utilized across languages to determine the common phonetic features that derive the effect of perception since hell and heaven names are lexically and culturally established across languages. Moreover, further systematic investigations are motivated in considering the frequency of such phonemes and phonemic mapping for different effects or explore the negative association of thick friction sounds in open syllable structures of other word-forms.

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Appendix

Angular and curvy shapes