

**Examining Quality-Sensitive Stress in a Selection of Five Transliterated Islamic**

**Terminologies:**

**A Study in Optimality Theory**

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Terminologies:

### A Study in Optimality Theory

Nowadays, the Islamic terminologies have a great impact in the world since 9/11; after 9/11 attacks, people in America and Europe began to be more sensitive to Muslims and their religious practices. Thus, new Arabic words started to take its place into the vocabulary of Europe and America in which it reflected the west's acquaintance with Islam. Accordingly, people started to be familiar with terms like *Qur'an*, *Shari'a* law, *Jihad*, and *Hijab* (Ezzat, 2010). As a consequence, most of the Islamic words are borrowed from its original MSA into English; such as the following borrowed transliterated Islamic terms: *Minbar* which means *pulpit* (Adamec, 2009, p. 253), *Fitra* which means *innate goodness and purity* (Oliver & Steinberg, 2005, pp. 135, 204), and *Umma* which means *community* (Burke, 2015, p. 33). Although the transliterated Islamic words were copied into the English language, but some of it resisted the phonological stress of English and preserved its own MSA stress. However, some non-native speakers of Arabic language pronounce Arabic terms incorrectly by accentuating the wrong syllables of it.

For example, in a video called *The Hudaibiyah Treaty, and its Consequences #25*, the voiceover of this video explains the consequences that led to the Hudaibiyah Treaty, he says:

"When Muslims realized that soldiers have been sent against them, they changed their route and settled in Hudaibiyah." Hence, this voiceover stresses the first syllable of the transliterated Islamic name *Hudaibiyah* /'hudejbejə/ ([TRUTH SHALL PREVAIL](#), 2014, minute 1:06), yet the accurate MSA articulation should be stressing the third syllable in

*Hudaibiyah* الحُدَيْبِيَّةُ (AbnManthūr, p. ٧٩٥); /ħodar'bejə/. Consequently, this paper is intended to show the precise utterance of MSA by examining the most sonorous vowel of the transliterated Islamic word to decide the most optimal stress of its vowel quality plays a role in determining the location of stress" (McCarthy, 2004, p. 191).

The quality-sensitive stress theory of Kenstowicz's (1997) goes back to Selkrik (1980). Liberman and Prince (1977), firstly, identified the phonological contrast by their feature [±stress] equal to [± heavy] in Vanderslice and Ladefoged (1972). Therefore, a syllable with a full vowel as its nucleus has a complete prominence over any syllable with a reduced vowel or sonorant consonant. Following these features, Selkrik (1980) stated his proposal towards stress according to vowel quality; this proposal produced a level of stress where the prominence is phonologically defined by the distribution of qualitative features of vowel quality. Then, if a syllable has a full specification for vowel height and backness, such as the low front vowel /æ/—it is specified as being [+ low] and [- back]—then it is more prominent than any syllable that does not have such a specification. Moreover, there are accompanying differences in duration and loudness, for instance, in *gymnast* /dʒɪmnæst/ or *mailman* /meɪlmæn/, the vowel /æ/ in the second syllables of these words is longer and more intense than the schwa /ə/ in *tempest* /tempəst/ or *German* /dʒɪmən/ (Keating, 1994, pp. 9-10) (this proposal is displayed in terms of the constituent stress foot; see Figure 1).

Quality-sensitivity, in the paper "Quality-Sensitive Stress" by Michael Kenstowicz (1997), is not a total rejection in the concern of metrical phonology (MP)<sup>1</sup>, but it can be regarded

<sup>1</sup> It is a theory that developed in generative phonology (Carr, 2008, p. 100). It started during the late seventies as part of nonlinear phonology which was founded by Liberman (1975), it was then elaborated by Liberman and Prince (1977), and Halle and Vergnaud

as an advancement in the tradition of MP. It is defined as follows: Stress is attracted to the most sonorous vowel in a word that consists of two syllables or more where sonority<sup>2</sup> is decided according to the quality of the syllabic nucleus or the vowel (p. 157). So, when a syllable has a less resonant vowel, this syllable will never be heavier than one with a more sonorous vowel, for example, in any language; the syllable /ti/ will never be heavier than /ta/ since the vowel /i/ is less resonant than the vowel /a/. As a result, Kenstowicz (1996) states that the sonority of vowels vary according to two parameters: peripheral<sup>3</sup> and height. For this reason, this leads to the sonority hierarchy for vowels: [a > e, o > i, u > ə > ɪ] (de lacy, 1997, pp. 50-51).

Accordingly, there are two factors which are distinguished: Firstly, lower vowels are more optimal than higher vowels and secondly, peripheral vowels are more optimal than central vowels (Kenstowicz, 1997, p. 157). Hence, the lower vowels which are [a > e, o > i, u] are ranked over the higher vowels [ə / > /ɪ/] and as for the peripheral vowels [i e a o u] they are ranked over the central vowels which are [ə / and /ɪ/] (de lacy, 1997, p. 51) (vowel sonority hierarchy clarifies the divisions of vowels; see Figure 2). As a

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(1978) (Goldsmith, 1996, p. 368). The work in MP was chiefly concerned with suprasegmental phenomena (Carr, 2008, p. 100), in other words, the central assumption of MP is that stress is a rhythmic phenomenon that is encoded by strong-weak relations between syllables (Lieberman & Prince 1977, Hayes 1980, 1995, Halle & Vergnaud 1987) (Kager, 2004, p. 142). Although MP started as a theory of stress, but expanded at present to become a more general theory of the syllable and phonological boundaries above the syllable (O'Grady, 2013, p. 90).

<sup>2</sup> It means vowel height. It is a kind of prominence associated with a segment, and how this segment is articulated (Trask, 1996, 327). As a result, "Every speech sound has a degree of sonority", this is determined by several factors like the loudness of a sound and its relation to other sounds, the extent a sound can be long, and the degree of openness in the vocal tract (Davenport & Hannahs, 2010, p. 75).

<sup>3</sup> It is units which are positioned at the margins of a structure (Crystal, 2008, p. 358).

consequence, several languages search for the most optimal vowel when accentuated by the following hierarchies: First hierarchy is: [a, ä > e, o > i, u] and second one is: [a, ä, e, o, i, u > ə] (McCarthy, 2004, p. 191). Consequently, whether a vowel is stressed or not, this can be judged by comparing that vowel to its neighboring vowels (Archangeli & Langendoen, 1997, p. 57). Furthermore, languages that make a weight distinction between vowels of different heights "are based on the hierarchy of weight (vowel height and fullness; see Figure 3). Thus, vowels are arranged as follows: Low vowels are the heaviest, then mid vowels, followed by high vowels, and last in the hierarchy are reduced vowels (Gordon, 2006, pp. 28, 127).

Based on the theory discussed above, similar proposals exist to explain quality-sensitive stress. In her thesis "Stress and Weight in Québec French", Armstrong (1999) argues that Québec French<sup>4</sup> is a quality-sensitive language; according to the stress rule of Paradis and Deshaies (1990), stress favors a syllable in which its "nucleus is neither high vowel nor schwa". So, this rule parallels Kenstowicz's quality-sensitivity (1996): "in several diverse languages stress seeks out the most optimal vowel". Armstrong, therefore, applies her proposal by adopting quality-sensitive stress within the framework of OT (Prince & Smolensky, 1993) in that she applies the sonority-based peak-prominence (PKPROM)<sup>5</sup> constraints on the hierarchy of vowels [ $*p/ə > *p/i, u, *p/e, o, *p/ä, a$ ] (pp. iii, 33, 109, 110, 112) as Kenstowicz (1997) examined in his theory.

<sup>4</sup> It is the predominant French language in Canada in its standard and informal forms. This language is used in everyday interactions, education, the media, and government ("Quebec French", 2016).

<sup>5</sup> It means the following: "Peak (x) > Peak (y) if  $|x| > |y|$ "; by PKPROM, the element x is a better peak than the element y if the prominence of x is greater than that of y (de Lacy, 1997, p. 112), where peak is the nucleus of a syllable (Matthews, 2007, p. 291).

In addition, Armstrong reduces Kenstowicz's set of constraints by eliminating the constraint  $p/*\text{ə}$  from the constraint set because she assumes that schwa is weightless and also because Paradis and Deshaies (also Cedergren & Simoneau, 1985) make no distinction between low and mid vowels towards stress placement, then, the only necessary constraint is  $*p/i, \ddot{u}$  which represents the preference for stress not to fall on a high vowel". Hence, Armstrong displays the following constraint  $*p/H(\text{igh})$ —it is a constraint which is against accentuating a high vowel—and shows it on the word *Dîner/diné* (1999, pp. 112, 124) which means *to have dinner* (*Dîner*) (see Table 1, for explanation of the Québec French word *Dîner*). As a result, the proposal of Armstrong maintains Kenstowicz's (1997) theory of quality-sensitive stress in that stress favors a syllable with a low vowel over a mid and high vowel.

## Method

### Participants

Concerning the corpus size of the study, this paper examines five transliterated Islamic terms and they are Ka'ba, Tawhīd, Firdaws, Qiblatayn, and Ḥudaybiyah. These five words are selected from five different sources: The name Ka'ba is extracted from the dictionary *Historical Dictionary of Islam* by Ludwig W. Adamec (2009), the term Tawhīd is chosen from the research paper *Understanding the Concept of Islamic Sufism* by S. Biliqies (2014), the name Firdaws is selected from the online newspaper article "Maryam and the Minotaur" in the *Al-Ahram Weekly Online* (2009), the term Qiblatayn is extracted from the book *Jerusalem and Its Role in Islamic Solidarity* by Y. Reiter (2008), and finally the

name Hudaibiyahis chosen from the video *The Hudaibiyah Treaty, and its Consequences* #25 by [Truth Shall Prevail](#) (2014).

### Materials and Procedure

In this paper, the quality-sensitive stress theory of Michael Kenstowicz (1997) is adopted within the framework of OT in order to test five transliterated Islamic words. OT provides a clear way of expressing the hierarchies of quality-sensitive stress "with its key idea of ranked and violable constraints". Thus, the OT model is extended by three proposals: First, the PKPROM constraint which is developed by Prince and Smolensky (1993) for quantitative distinctions in Hindi stress (McCarthy, 2004, pp. 191-192)—where Hindi stress states that "Stress falls on the heaviest available syllable, and in the event of a tie, the rightmost nonfinal candidate wins (Hayes 1991/95: 276)" (Prince & Smolensky, 2004, p. 47)—is extended to vocalic distinctions, i.e. [a, ä > e, o > i, u] and [a, ä, e, o, i, u > ə]. Second, the constraint of PKPROM is broken down into a set of micro constraints for each level in the hierarchy. "Third, the prominence hierarchy is used in a "worst-to-best" way rather than a "best-to-worst" way (McCarthy, 2004, pp. 191-192). The following illustrates the previous three proposals: [\*P/i, u >> \*P/e, o >> \*P/a, ä] and [\*P/ə >> \*P/i, u, e, o, a, ä]. The order of these constraint rankings' hierarchies is fixed by universal grammar (UG)<sup>6</sup> and cannot be reversed by individual grammars (McCarthy, 2004, p. 193). As a consequence, Kenstowicz's (1997) theory is directly related to Prince

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<sup>6</sup> It is a term that is associated with the work of Noam Chomsky (Carr, 2008, p. 184). Chomsky (1965) argues that universal grammar which is part of the human beings' knowledge of language is innate (Duanmu, 2008, p. 240). UG has two goals: First, it describes the universal properties of language and secondly, it shows the range of variation that is possible among languages (Blutner & Zeevat, 2004, p. 2).

and Smolensky's (2004) proposal about fixed ranking and the sonority influence on syllable structure (de lacy, 2007, p. 283).

### Procedure

The British English Received Pronunciation (RP)<sup>7</sup> vowels and diphthongs are chosen to be the phonemes of the five transliterated Islamic terms. According to the above explanation of the quality-sensitive stress theory in the introduction, the arrangement of the RP vowels and diphthongs (Cruttenden, 2008, p. 92) is based on sonority, as follows: long vowels are sonorous than short vowels [a:, u:, i: > æ, ɒ, ʌ, e > ʊ, ɪ > ə] and long diphthongs are sonorous than short vowels [aʊ, aɪ > æ, ɒ, ʌ, e > ʊ, ɪ > ə]. The reason for only adopting three long vowels and two diphthongs from RP is that the MSA sound system has three long vowels which are [ā, ū, ī] and two diphthongs which are [aw/, ay/] (Ryding, 2005, pp. 25, 33). Hence, the chosen RP vowels and diphthongs are equivalent to those in the MSA. Then according to the above discussion of OT in the materials and procedure, the PKPROM constraint is added to the two sonority hierarchies of vowels and diphthongs, accordingly, they are the following: [\*P/ə >> \*P/ɪ, ʊ >> \*P/e, ʌ, ɒ, æ >> \*P/i:, u:, a:] and [\*P/ə >> \*P/ɪ, ʊ >> \*P/e, ʌ, ɒ, æ >> \*P/aɪ, aʊ]. These two hierarchies are applied on the selected five Islamic words. Therefore, based on the latter vowels and diphthongs' sonority hierarchies, PKPROM is the higher-ranking constraint in the hierarchy, while the head-right (HEAD-R) is the lower-ranking one in it.

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<sup>7</sup> Informally, it is the accent known as BBC English. Since nineteenth century, RP became the regionally "neutral variant of British English" that started in the court and the public schools. The term "received" shows that this accent was considered suitable for the people who wished to be accepted in the English society (O'Grady, 2013, p. 115).

In other words, the entire PKPROM constraint rises above the constraint of HEAD-R which orients stress in the foot as a right-headed iamb. However, PKPROM is related to markedness<sup>8</sup> constraints family (Prince & Smolensky, 2004, p. 282), while the HEAD-R belongs to the alignment<sup>9</sup> constraints family (McCarthy, 2004, p. 594). If the various PKPROM constraints fail to make a decision and chose a retracted stress, so, another constraint instead of HEAD-R is admitted which is Nonfinality (NONFIN). NONFIN is a lower-ranking constraint in the hierarchy and it is also related to markedness constraints family (Prince & Smolensky, 2004, p. 282). Consequently, each transliterated Islamic term in this paper is divided into two sections: A and B. Section A illustrates the word into six points: source of transliterated term, transcription<sup>10</sup> (according to MSA

<sup>8</sup> It favors certain structural arrangements over others in evaluating the form of the output candidate, such as syllables with onsets over syllables without onsets. ONSET, for example, is a markedness constraint in OT. This constraint assigns a candidate one violation mark (\*) for every vowel that occurs at the beginning of a syllable requiring instead that syllables should begin with a consonant (McCarthy, 2002, pp. 13, 14). For instance, though in English, the coda [rd] in the word card is allowed, however the consonant /d/ according to ONSET constraint is part of the second syllable in the word sardine; [sa]r[di]n (Archangeli & Langendoen, 1997, p. 38).

<sup>9</sup> It requires that the edges of a constituent should coincide or agree (McCarthy, 2002, p. 17). Alignment constraints are responsible for creating the input tone string in that it demand that the location of a phonological or morphological element should be like the phonological or morphological structure of expression (Gussenhoven, 2004, pp. 145, 150). For example, the constraint Align (PrWd, L, Ft, L) states that the left edge of the Prosodic Word agrees with the left edge of a foot. Then, this constraint is satisfied in English stress (McCarthy, 2004, p. 74), as in the word [ðəp]e[ráti]c (Archangeli & Langendoen, 1997, p. 48).

<sup>10</sup> It is one of the key skills of a phonetician (Knight, 2012, p. 9). Transcription is: "A method of writing down speech sounds in a systematic and consistent way". Today, the phonetic symbols which are known as "phonetic alphabet" are the most widely used by the International Phonetic Alphabet (IPA); an organization which was founded by a group of European phoneticians (Paul Passy and others) in 1886 and a system used for transcribing the sounds of a language (Crystal, 2008, pp. 251, 490, 491). So, transcription is phonemes that are used in phonetic writing. For instance, the word truth

dictionaries), pronunciation (based on *Forvo*<sup>11</sup> and *YouTube*<sup>12</sup> websites), function, definition, and original sentence. As for Section B, it explains the word into two points: Stress location; each extracted term is examined by a detailed discussion of the correct place of stress with an OT tableau, and pitch; the higher or the highest pitch in the chosen word is traced and accompanied with a pitch graph (according to *Praat*<sup>13</sup> software).

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consists of four phonemes /t/, /r/, /u:/, /θ/ (Birjandi&Salmani-Nodoushan, 2005, p. 12). There are two main kinds of transcription: phonemic and phonetic (Crystal, 2008, p. 490). Concerning phonemic transcription, it only uses the sounds of a language, which are phonemes, and does not show the finer points of pronunciation. Phonemic notation is written between slanted lines, for example, the English word foot is written as /fot/. As for phonetic transcription, it uses the phonetic symbols for various sounds in order to show in a detailed way how a particular sound is pronounced. Thus, it is used to show the finer points of pronunciation. Phonetic notation is written between square brackets. For instance, the English word pin is written as [p<sup>h</sup>m] with the raised [h] showing the aspiration of the phoneme [p] (Richards et al., 2007, p. 460).

<sup>11</sup> It is the largest website in the world which shows how to pronounce the words; hence, millions of words are spoken by the original inhabitants. The idea of Forvo was first envisioned in 2007 ("About Forvo"), by co-founder Israel Rondón ("Forvo," 2015) and it became to be available on the internet since January 2008. Forvo Media SL, from San Sebastian, Spain is the owner of this internet site ("About Forvo").

<sup>12</sup> It is an American website of video-sharing that its main office is located in San Bruno, California, United States. In February 2005, this service was created by three former employees of PayPal: Chad Hurley, Steve Chen, and Jawed Karim. YouTube was bought by Google for US \$ 1.65 billion in November 2006. Therefore, now, YouTube operates as one of Google's companies. This site allows users to do several actions on videos: Upload, view, rate, share, add to favorites, report, and comment. It uses the following programs: WebMD, H.264/MPEG-4AVC, and Adobe Flash Video in order to display a wide variety of user-generated and corporate media videos. The content which is available on YouTube includes video clips, TV shows clips, music videos, short and documentary films, audio recordings, movie trailers, video blogging, short original videos, and educational videos. Accordingly, most of YouTube's content has been uploaded by individuals, but media corporations that include CBS, the BBC, Vevo, and others offer some of their material via this website. In July 2016, YouTube was ranked by Alexa Internet as the second most popular site ("YouTube," 2016).

<sup>13</sup> It is the Dutch word for "talk" or "speak" ("Praat," 2015). Praat is a computer program with which researchers can analyze, form, and manipulate speech, and create high-quality pictures for their articles and theses. The Praat software or program was designed by Paul

## Results

This paper has been an analytical one as it examined a selection of five transliterated Islamic terminologies that have been borrowed from Arabic into English language by applying Kenstowicz's quality-sensitive stress theory within the framework of OT according to the right-tutterance of MSA. The findings in this paper have a number of implications for the study of stress. First, three of the five Islamic words that are explained have shown that by using the HEAD-R they belong to iambic foot type ( $\sigma\sigma'$ ) and they are Tawhīd/taʊ'hi:d/, Firdaws/fer'daʊs/, and Qiblatayn /qɛblə'tam/. On the other hand, the other two transliterated terms which are Ka'ba/'kəʃbə/ and Ḥudaybiya/ħudai'bejə/ are related to trochaic foot type ( $\sigma'\sigma$ ). Therefore, the transliterated Islamic words that belong to iambic foot are (right-headed syllable), while those which are related to left-headed syllable or any syllable before the last are related to trochaic foot. This finding suggests that MSA belong to iambic foot type (right-headed syllable) ( $\sigma\sigma'$ ) because the terms that are related to iambic foot type outnumbered those which belong to trochaic ones (see Table 7, for MSA is a right-headed syllable).

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Boersma and David Weenink of the Institute of Phonetics Sciences of the University of Amsterdam (Boersma & Weenink, 2011) since 1992 (Boersma & Heuven, 2001, p. 341) and it continues to be developed by them ("Praat," 2015). This software allows researchers to record a sound with a microphone or any other audio input device, or to read a sound from a sound file on disk. As a consequence, one will be able to have a look inside this sound. Praat has versions for most of the common operating systems: Macintosh, Windows, Linux, and several Unix workstations (Solaris, Silicon Graphics, Hewlett-Packard). There were more than 5,000 registered users in 99 countries by September 2001 (Boersma & Heuven, 2001, p. 341). Moreover, the home page for Praat software is <http://www.praat.org> or <http://www.fon.hum.uva.nl/praat/> (Boersma & Weenink, 2011).

Concerning the second finding, the five Islamic words abide by the rules of both; the OT constraints (PKPROM, HEAD-R, and NONFIN) and the exact pronunciation of MSA. The transliterated name Firdaws /fer'daʊs/, for instance, follows the requirements of the PKPROM; \*P/e >> \*P/aʊ >> HEAD-R by accentuating the most resonant vowel which is the long back closing diphthong /aʊ/, and at the same time fulfills MSA articulation. When the constraints of PKPROM fail to make a decision in choosing the optimal candidate, hence, the HEAD-R makes it by selecting the candidate that is a right-headed syllable; as in the term Tawhīd /taʊ'hi:d/. This word has a diphthong /aʊ/ and a vowel /i:/ of equal sonority, as a consequence, this term sticks to the rule of the HEAD-R; \*P/aʊ, \*P/i: >> HEAD-R by stressing the right-headed long high front vowel /i:/ and it also satisfies the accurate utterance of MSA. Yet, if this choice of the HEAD-R constraint is not suitable to the precise MSA pronunciation, as a result another one should be used. This alternative is NONFIN. It resolves the tie in favor of a retracted stress; as in the name Ka'ba /kəʔbə/. This word has two equivalent reduced central vowels /ə/ and /ə/, it meets both; the requirement of the NONFIN constraint; \*P/ə >> NONFIN by accentuating the left-headed vowel /ə/ and the native MSA articulation.

Accordingly, the numbers of terms that are decided by the PKPROM are three, as for the HEAD-R, it is only one word, and concerning the NONFIN, it is also one term (see Table 8, for conclusion of the three constraints towards the five transliterated Islamic terminologies). Thirdly, the higher-ranking vowels and diphthongs on the PKPROM hierarchy; [\*P/i:, u:, a:] and [\*P/aɪ, aʊ] are assessed a fatal violation \*! either on the HEAD-R or on the NONFIN, while the lower-ranking vowels; [\*P/ə >> \*P/ɪ, ʊ >> \*P/e, ʌ, ɒ, æ] are only evaluated with a violation \* on either the HEAD-R or on the

NONFIN constraints due to the importance of the former (higher-ranking vowels and diphthongs) and the less importance of the latter (the lower-ranking vowels). Consequently, the number of words that have higher-ranking vowels which have a crucial violation \*! on the HEAD-R are none, while the number of terms that have lower-ranking vowels which take a violation \* on the HEAD-R constraint are two, and it is only one word on the NONFIN. Therefore, these four terminologies mentioned in this finding abide by the rules of violation in OT (see Table 9, for violations of higher and lower-ranking vowels on HEAD-R and NONFIN constraints).

Fourth finding, the vowels which are weaker in the sonority hierarchy; [ $*P/\text{ə} \gg *P/\text{ɪ}, \text{u} \gg *P/\text{e}, \text{ʌ}, \text{ɒ}, \text{æ}]$  are assigned a fatal \*! or multiple crucial \*\*! peak violations if they are in a competition with the higher-ranking vowels; [ $*P/\text{i}, \text{u}, \text{a}:$ ] or diphthongs; [ $*P/\text{aɪ}, \text{aʊ}]$ . This is because, based on Kenstowicz's quality-sensitive stress,—as in the word *Qiblatayn/qeblə'tam/*—the place of stress must not be on the first or the second syllables as the short mid front unrounded vowel /e/ is weak and the schwa vowel /ə/ is even arranged in the hierarchy as the weakest among the vowels. Thus, when the short vowels /e/ and /ə/ are in a competition with the long front closing diphthong /aɪ/, the latter diphthong wins. For this reason, the vowels /e/ and /ə/ are valued multiple fatal \*\*! and crucial \*! peak violations. However, when a weak vowel is assessed a fatal peak violation \*!, then this means that stressing this vowel is incorrect. Moreover, when a weak vowel is evaluated with multiple peak violations \*\*!, so this shows that accentuating this vowel is an even more irrelevant stress. As a consequence, weak vowels in the PKPROM hierarchy follow both requirements of quality-sensitive stress and OT

violation. Though this previous statement should be fulfilled, an exception may appear in weak vowels as it will be shown in the coming section of discussion.

Finally, the fifth finding in this paper states that the winning candidate does violate a constraint, but other competing candidates violate a more highly ranked one, hence this helps the winning candidate to still be the winner. In other words, when a candidate has a violation \* or a crucial violation \*! on lower-ranking constraints, this will not exclude it when it has a good performance on higher-ranking ones. Yet, there are no winning candidates in this paper that have fatal violations on lower-ranking constraints. Concerning failing vowels, for instance, although the short high back vowel /ʊ/ in the Islamic name Ḥudaybiya/ħudar'bejə/ has no violation on the NONFIN, but it fails the stress competition, accordingly it is assigned multiple crucial violations \*\*! on the PKPROM. As a result, the higher and lower-ranking vowels sticks to the strict constraint domination in OT except for some terms in Arabic as the name Ḥudaybiya that may not follow this above statement in order to satisfy the correct MSA utterance. Then, the number of the winning candidates in the Islamic words that have a violation \* or a fatal violation \*! on the HEAD-R and the NONFIN are none, while the number of the failing candidates in the transliterated terms that have crucial \*! or multiple fatal \*\*! violations on the PKPROM are three (see Table 10, for winning and failing vowels that have crucial \*! or multiple fatal \*\*! violations on HEAD-R, NONFIN, and PKPROM constraints).

### Discussion

In this paper, there are seven points or notices that need to be discussed. Firstly, the examination of the five transliterated Islamic terminologies through adopting Michael Kenstowicz's (1997) quality-sensitive stress within the framework of OT have shown the

same results as Armstrong's (1999) thesis "Stress and Weight in Québec French" which is explained above in the introduction in that stress is preferred not to fall on a high vowel, as in the word *Dîner/diné/* (p. 112). The same is, for example, in the Islamic name *Ḥudaybiya/ħodar'bejə/* which is stressed on the third syllable since it has the front close-mid vowel /e/ (Collins & Mees, 2008, p. 63). Second point, concerning the vowels or diphthongs of equal sonority, in the table of the term *Tawḥīd*, a broken line is drawn between the two constraints; \*P/aʊ and \*P/i:, while in the table of the name *Ka'ba*, the constraint \*P/ə of the two vowels /ə/ is drawn in the same column. This is because the diphthong and the vowel of the word *Tawḥīd* are related to different hierarchies while the two vowels of the name *Ka'ba* belong to the same hierarchy. Thirdly, one exception is revealed in the term *Ḥudaybiya*. This word is accentuated on the third syllable /ħodar'bejə/ even though the vowel /e/ is from among the weak vowels in the sonority hierarchy mentioned above in the procedure. This exception is done in order to meet the right pronunciation of MSA.

Fourth point, different lower-ranking constraints are chosen for the three transliterated terms: *Firdaws*, *Qiblatayn*, and *Ḥudaybiya*. The HEAD-R is selected for the two words: *Firdaws* and *Qiblatayn*, while the NONFIN is chosen for the name *Ḥudaybiya*. This is because both of the terms *Firdaws/fer'daʊs/* and *Qiblatayn/qeblə'taɪn/* are stressed on the last syllable from the right; therefore, the HEAD-R is a suitable lower-ranking constraint. On the other hand, the name *Ḥudaybiya /ħodar'bejə/* is accentuated on the syllable before the last; thus, the NONFIN is an appropriate lower-ranking constraint. Fifthly, although MSA dictionaries, Forvo and YouTube websites, and Kenstowicz's (1997) theory of quality-sensitive stress have shown the exact articulation of

the five transliterated Islamic words, but when these terms were analyzed by Praat software in order to discover the higher or the highest pitch of these words, three weaknesses were found. First weakness is displayed in the name Firdaws. This term is stressed on the second syllable /fer'daʊs/; consequently by testing it by Praat software the expected consequence is that the long diphthong /aʊ/ in the second syllable should have the most energy. On the contrary, the opposite conclusion happened in that the short vowel /e/ in the first syllable gained a higher energy and its frequency is 214 Hz, while the diphthong /aʊ/ had a lower one and its frequency is 202 Hz.

Second weakness is shown in the word Qiblatayn. This term is accentuated on the third syllable /qeblə'tam/; as a consequence by analyzing it by Praat software the expected result is that the long diphthong /aɪ/ should have the most energy. However, the opposite outcome occurred in that the short vowel /e/ in the first syllable obtained the most energy and its frequency is 213.8 Hz, while the diphthong /aɪ/ had a lower energy and its frequency is 208.9 Hz. Third weakness is found in the name Ḥudaybiya. This word is stressed on the third syllable /ħudai'bejə/; accordingly by examining it by Praat software the expected consequence is that the short vowel /e/ should have the most energy. Yet, the opposite conclusion happened in that the weakest vowel /ə/ in the hierarchy acquired the most energy and its frequency is 247.9 Hz, while the vowel /e/ had a lower energy and its frequency is 218.2 Hz. Sixth point, due to 9/11 terrorist attacks on the US, Muslims and Islam come under focus and discussion (Salem, 2011). From a theoretical and practical point of view, this present study is important as it tested the stress of five selected Islamic terms that are borrowed from Arabic into English language. Hence, in this paper the accurate stress of MSA is fully explained which is unknown to a

vast popularity of foreign people who are non-native speakers of Arabic but they exert lots of efforts to pronounce these loan words exactly as its native people do.

In a theoretical way, as a result, Kenstowicz's(1997) quality-sensitive stress within the framework of OT and MSA dictionaries were adopted to explain on which proper syllable the vertical line or stress should be placed concerning each examined term in order to search for the precise stress location of these five words. Practically, on the other hand, Forvo website and YouTube videos, and Praat software were used to display the acoustic and visual sides of these terms. As for the findings reached to above, the correct utterance of the transliterated words is more obvious than before. For instance, if the transliterated Islamic name *Hudaybiya* used to be incorrectly accentuated by foreign people on the first syllable /'hudejbejə/ as mentioned earlier in the introduction, then this term is now apparent since it is tested in this paper in that it should be stressed on the third syllable /ħodar'bejə/. Seventh and final point, further work is required in the future to gain a more complete understanding of the subject of borrowed words as their stress is based on the stress patterns of the languages from which they are borrowed from (Birjandi & Salmani-Nodoushan, 2005, p. 110). These future researches should be done by all means of information such as books, dictionaries, research papers, theses, newspaper articles, radio, and television.



