Lenition in Kuwaiti Arabic: An Optimality Theory Approach

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Abstract

In this paper, we attempt to analyze lenition in Kuwaiti Spoken Arabic (KSA) within the framework of the Optimality Theory (OT) and following constraints proposed by Johnson (1965), Kirchner (2001), and Mustafawi (2006). Mustafawi (2006) analyzed and proposed constraints regarding the lenition of /dʒ/ to /j/ in Qatari Arabic. In this study we attempt to test the universality of these constraints (namely LAZY, LAZYRime, (LAZY/ [+low])Rime, and * GG). We conclude that the constraints that regulate lenition in Qatari Arabic apply in Kuwaiti Spoken Arabic. We also propose more language-specific constraints (namely LAZY*cc, and LAZY*DL) that regulate lenition in Kuwaiti Spoken Arabic. Furthermore, we analyze the lexical exceptions that restrict the lenition of /dʒ/ to /j/ and mention three main approaches, in the literature, within OT to account for lexical exceptions.

Keywords: Lenition, Optimality Theory, Germination, Double Lenition, LAZY Constraint.

1. Introduction

The different dialects of Arabic language diverge from the Standard on all linguistic levels. These differences are prominent but are most evident at the phonological level. One of these dialects is Kuwaiti Spoken Arabic (KSA henceforth), which is spoken by more than 1.2 million speakers in the State of Kuwait (cf. Al-Qenaie 2011; Al-Otaibi 2017). Kuwait’s speech society is multicultural and ethnographically diverse. This diversity is evident in the linguistic characteristics of the country’s dialects. Arabic is the official language of Kuwait; however, Kuwaitis use KSA in their everyday spoken acts. To appreciate Kuwait's linguistic and sociolinguistic situation, we must first address the country's speech situation, which is described as one of diglossia, whereby two varieties of language exist within a single speech society. Ferguson (1959, 33) defines diglossia as the co-existence of two distinct varieties of the same language, one of which is considered (H)igh and the other (L)ow. For example, classical Arabic hātif 'telephone' versus dialectal telifōn' telephone.' Both varieties have distinct un-mutual domains in which speakers use them. Al-Qenaie (2011, 52) states that "change is an inherent characteristic of any
current language (cf. Bright 1997; Chambers 2004; Denison 1997; Honey 1997; Milroy and Milroy 1997; among others) and is evinced in different parts of the linguistics of a language, such as phonology and lexicon.” He further adds that KSA has undergone various phases of contact with other languages. The phonological changes that have manifested are part of the dialect’s natural trajectory (cf. Al-Wer 2002; Hoffman 2008; Kerswill and Trudgill 2005; Taqi 2010).

One of the most widespread changes in KSA—and once considered the hallmark of the Kuwaiti dialect—is the change from the voiced post-alveolar affricate /dʒ/ to the voiced palatal approximant [j] (cf. al-Qenaie 2011; Dashti et al. 2015; among others). This change is not new to Arabic dialects; it has been attested in the writings of the Arabian Tribe of Bani Tamim at the Eastern Coast or the Arabian Peninsula and is considered an original sound in the dialect's phonemic inventory (Al-Matlabi 2007).

KSA is generally divided into Hadari (sedentary) and Bedouin dialects. The phonological change in question here is mainly exclusive to Kuwait’s sedentary community (cf. Taqi 2010; al-Qenaie 2011; Dashti et al. 2015). The Hadari-Bedouin divide has several unique elements and is deeply rooted in history and emigration, and it is noteworthy that contact between both groups is increasing in Kuwait. The phonological process of lenition—the weakening of a sound achieved through an increase in the sound’s sonority—is almost exclusive to the Hadari (sedentary) part of the population. In this paper, we analyze the occurrence and processes of lenition in KSA within the framework of optimality theory (OT). Mustafawi (2006) analyzed and proposed constraints regarding the lenition of /dʒ/ to /j/ in Qatari Arabic. In this paper, we test the universality of the constraints proposed by Mustafawi (2006)\textsuperscript{1}, and further propose dialect-specific constraints that regulate lenition in KSA.

2. Literature Review

2.1 Optimality Theory

Optimality theory (OT) was first introduced by Alan Prince and Paul Smolensky in 1993 (McCarthy 2008). It is a linguistic model that suggests that forms of language arise from the interaction of conflicting constraints. Prince and Smolensky (1993) proposed the following outline of OT:

Input → GEN → CON (candidate set) → EVAL (constraints) → optimal output

This theory includes three main components:
1- GEN: takes a given input and generates a list of possible candidates.
2- CON: provides the criteria to decide between candidates in the form of violable constraints.
3- EVAL: chooses the optimal candidate according to the constraints.

According to OT, these three components are universal to all languages, and these languages’ grammatical differences reflect the different rankings of the universal constraint set. Every grammar can generate an infinite number of candidates for each input. The grammar’s ranking of constraints will determine the optimal outcome by EVAL (i.e., the evaluator component of OT). Moreover, in OT, constraints are universally shared by all languages. Two basic types of constraints exist: faithfulness and markedness constraints.
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Faithfulness constraints include any constraint that requires that outputs preserve the properties of the primary lexical forms (i.e., similarity between the output and its input). Markedness constraints include any constraint that “assigns violation-marks to a candidate based solely on its output structure, without regard to its similarity to the input,” based on language universals that are grounded in properties of the articulatory and perceptual systems (McCarthy 2002, 14).

2.2 Arabic and OT

The Arabic language has been the subject of numerous studies implementing the OT framework (Archibald 2003; Edzard 2000; Gafos 2002; Haddad 2005; McCarthy 2005; and Mustafawi 2006), resulting in the identification of several language-specific aspects. Three key aspects are relevant to the study at hand.

First, word-initial vowels are prohibited in Arabic (Gadou 2000; Haddad 2005). Moreover, Carter (2004) and al-Qenaie (2011) maintain that Classical Arabic does not allow a syllable to start with a vowel.

Second, like many languages, such as Swedish, Norwegian, Japanese, and Hindi, to name a few, Arabic allows gemination (Kawahara 2015). It allows word-initial gemination as in Casablanca Moroccan (Boudlal, 2004), mid-word gemination as in Cairene Arabic (McCarthy 2003), or word-final gemination as in Eastern Arabic varieties (Kawahara 2015).

Third, and the focus of our study, is that Arabic and its different dialects are among the languages that incorporate lenition. For example, in KSA, words such as khanjar ‘dagger’ and jarrāra ‘drawer’ are always produced as khanyar and yarrara in Hadari KSA (al-Qenaie 2011).

Hence, a pan-Arabic rule that prohibits onsetless syllables, the occurrence of gemination in various positions, and the occurrence of lenition are three particularly important features that would be at the core of the analysis to come.

2.3 Lenition in Arabic

According to Kirchner (1998, 2001), the term ‘lenition’ (< L. lenis, ‘weak’) refers to an act of sound change whereby a sound becomes weaker, or where a weaker sound bears an allophonic relation to a stronger sound (Kirchner 1998:3). Lenition may occur either synchronically—within a language at a particular point in time—or diachronically—as a language changes over time. According to Kirchner (2001), lenition encompasses several operations:

(2) a. degemination: shortening of long consonants
b. flapping: reduction of a stop to a flap
c. debuccalization: reduction of a buccal (oral) consonant to a laryngeal consonant

(1) a. nnĪes ‘becomes sleepy’ (Casablanca Moroccan)
   b. ḥadʒdʒi ‘pilgrim’ (Cairene Arabic)
   c. sˤədʒdʒ ‘true, truth’ (Eastern Arabic)
d. spirantization: reduction of a stop or affricate to a fricative or approximant continuant

In this paper, we focus particularly on spirantization, the reduction of the voiced palato-alveolar affricate /dʒ/ to the palatal approximant [j].

Lenition (/dʒ/→[j]) and fortition ([j]→/dʒ/) are phonological phenomena of considerable antiquity in Arabic. Written evidence of the alternation between /dʒ/ and [j] can be found in Thamudic scripts/inscriptions which can go back to as far as 800BC and to as early as 600AD. Some solid evidence has been recently found in Southern Saudi Arabia, where the word *jamal* ‘camel’ has been found inscribed as *yamal* (Al-Jundi, 1983). The Old Arabic grammarians, Sibawayh (16th Century) and Al-Du’ali (15th Century), observed the lenition of /dʒ/, which is a reflection of the Proto-Semitic /*g/ in some varieties of Colloquial Arabic (CA): /*g/ was rendered to /gʲ/ or to /ɟ/ (Fischer 1997; Watson 2004).

Fortition is the opposite of lenition, whereby a consonant such as [j] is strengthened through increasing the degree of stricture and substituted with /dʒ/. Historically, it is attested in the variety of Arabic that is mainly spoken by some branches of the Tamim and Quda’a tribes (Al-Salih, 1989; Anis, 1995; Matar, 1985). Currently, it is applied in the variety of Arabic spoken in Abu Dhabi (Johnstone, 1967). All examples of fortition in historical texts appear to have the [j] in a coda position, either standing alone or as the first element of a geminate (Mustafawi, 2006). This may be attributable to the prohibition of lenition in geminates, as will be observed below.

Lenition is currently used in different parts of the Arabian Peninsula. The varieties of Arabic spoken in Kuwait, Qatar, Bahrain, Al-Ehsa’a (east coast of Saudi Arabia), UAE, and other varieties of the East Arabian coast substitute /dʒ/ with [j] (Johnstone 1967). The CA /dʒ/ remains unchanged in most Bedouin tribal dialects, rural Levantine varieties, and in most Iraqi dialects (Mustafawi 2006).

### Table 1: CA/SA /dʒ/ reflexes in modern varieties of Arabic

<table>
<thead>
<tr>
<th>Proto-Semitic *g</th>
<th>Regions/varieties</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yemen (Ṣan‘ānī Arabic)</td>
<td>Kaye &amp; Rosenhouse (1997)</td>
</tr>
<tr>
<td>Gʲ</td>
<td>Yemen</td>
<td>Kaye &amp; Rosenhouse (1997)</td>
</tr>
<tr>
<td></td>
<td>Upper Egypt, Parts of Sudan, Northern Yemen, Arabian Peninsula</td>
<td>Johnstone (1967)</td>
</tr>
<tr>
<td>dʒ</td>
<td>Saudi Arabia (Medina), Sudan Egypt (Bedouin), Major cities in the Levant, Morocco, Algeria, and Tunisia</td>
<td>Kaye &amp; Rosenhouse (1997)</td>
</tr>
<tr>
<td>dʒ</td>
<td>Kuwait, Iraq, Oman (Dufar), Iran (Khuzistan), Bedouin varieties in the Levant, Yemen (Hadramawt)</td>
<td>Matar (1985), Watson (2004), Kaye &amp; Rosenhouse (1997)</td>
</tr>
</tbody>
</table>

(Mustafawi 2006, 122)
In KSA, as in other varieties of Eastern Arabic, lenition is optional, albeit optimal, “in subset of items that include /dʒ/” (Mustafawi, 2006, p.127). Both /dʒ/ and [j] may occur as word-initials, mid-word, and as word-finals (Mustafawi, 2006). Furthermore, lenition can occur in all syntactic categories.

(3) a. ḍʒinni jinni ‘genie’ - Noun - Word initial
b. ḍja ja ‘he came’ - Verb - Mid word
c. ʕawadj ʕawaj ‘bent’ - Adjective - Word final

However, akin to Qatari Arabic (Kirchner, 2001; Mustafawi, 2016), lenition in KSA is more frequently applied in the onset position than in the coda position. This is not a universal tendency where segments in the syllable onset generally undergo strengthening and resist weakening while segments in the syllable coda are subject to be weakened. But what is occurring in KSA is reversed.²

There are several studies (Johnstone 1967; Matar 1967, 1985; Anis 1995; Kirchner 2001; Mustafawi, 2006; Alasmari 2015; among others) that have examined spirantization lenition in the Arabian Gulf dialects; albeit more studies are needed for a more rounded understanding of the nature of lenition in the numerous different dialects in the region. All the previously mentioned studies suggest that lenition may occur freely in all word positions (although in some positions more frequently than others as previously mentioned); however, not all lexical items accept lenition. Moreover, these studies have reported different degrees of lenition between different dialects (Cantineau 1937; Johnstone 1967; Matar 1985; Anis 1995; Kirchner 2001; Mustafawi 2006); and within a single linguistic society (Johnstone 1965; Mustafawi, 2006). Furthermore, a speaker’s age in some dialects was a factor in determining the degree of utilization of lenition. In Alasmari’s 2015 study, where he investigated the lenition of /dʒ/ to [j] in Rijal Alhajir dialect in different initial, medial, and final phonological environments, he reported that age was an influencing factor in the utilization of lenition. In his study, older speakers utilized lenition 29% more times than younger speakers of the same dialect. Another study relevant to the current one is Mustafawi (2006) in which lenition in Qatari Arabic was examined with relation to the Optimality Theory. Qatari Arabic is the closest Arabic variety to KSA. Hence, in this paper, we test the universality of the constraints proposed by Mustafawi (2006), and further propose dialect-specific constraints that regulate lenition in KSA.

4. Methodology and Constraint

4.1 Methodology

Data were compiled from Al-Rushaid’s (2014) The Concise Encyclopaedia of Kuwait Everyday Colloquial and Al-Rushaid’s (2020) Al-Badiyya: The Beginning of Kuwaiti Arabic and its Hidden Story, in addition to two of the authors’ own knowledge of KSA as native speakers. A total of 50 words were collected. The words included for analysis were randomly chosen from a list compiled that included only the words that were phonetically relevant. Subsequently, a description of the main constraints identified in earlier literature is provided³, followed by the introduction of two major constraints in KSA. The data are then analyzed and the results are presented.
4.2 Main constraints

In 2001, Robert Kirchner proposed that lenition is driven by a phonetic imperative, (i.e., minimization of articulatory effort). He proposed an effort-minimization constraint, which he called LAZY. He envisages the effort's hierarchy as follows:

(4) strident affricates > strident fricatives > stops > non-strident fricatives > glides
(5) LAZY

Segments are lazily articulated.

(Kirchner 2001, 91)

In line with Kirchner (1998, 2001a, 2001b, 2004), we believe lenition in KSA to be the result of a minimizing effort. The output of these constraints may include any segment that involves less effort than /dʒ/. [j] is optimal since it is a glide, and glides are the least effortful of the consonants (Kirchner 2001).

Other glides are unfaithful: they are not optimal due to their unfaithfulness to the input, in terms of feature specification. LAZY in (5) interacts with the faithfulness constraint (MAX-IO (+strident)), which stands against the deletion of the feature [+strident] (Mustafawi 2006, 129).

(6) Faithfulness: MAX-IO (+strident)

Every [+strident] specification in the input has a correspondent in the output.

Lenition may only be possible when LAZY outranks MAX-IO (+strident) (as seen in Tableau 1). When the ranking is switched, lenition is blocked (as seen in Tableau 2). Further constraints are essential to rule out unfaithful mapping.

(7) Faithfulness: MAX-IO (voice)

Every [voice] specification in the input has a correspondent in the output.

(8) Faithfulness: MAX-IO (anterior)

Every [anterior] specification in the input has a correspondent in the output.

(Mustafawi 2006, 129-130)

Constraints (7) and (8) need not outrank LAZY or MAX-IO (+strident) since the outcome is the same regardless of whether they are higher or lower in ranking.

<table>
<thead>
<tr>
<th>Tableau 1: Constraint ranking: MAX-IO (+strident) &gt;&gt; LAZY, MAX-IO (voice), MAX-IO (anterior)</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dʒ/</td>
</tr>
<tr>
<td>a. → dʒ</td>
</tr>
<tr>
<td>b. j</td>
</tr>
<tr>
<td>c. [ʃ]</td>
</tr>
<tr>
<td>d. [tʃ]</td>
</tr>
<tr>
<td>e. g</td>
</tr>
<tr>
<td>f. [k]</td>
</tr>
<tr>
<td>g. z</td>
</tr>
</tbody>
</table>
Kirchner (2001a) proposed that affricates receive four violations to LAZY, strident fricatives three, stops two, and glides one. In this study, for the sake of simplicity, and to be as close as possible to Mustafawi (2006) for the sake of comparison, glides receive no violations, and all other outputs receive one violation accordingly. As Tableau (1) illustrates, candidates (b), (e), and (f) violate the highly ranked faithfulness constraint MAX-IO (+strident); thus, they are ruled out. Candidates (a), (c), (d), and (g) violate LAZY. Candidates (c) and (d) also violate the faithfulness constraints MAX-IO (voice), and candidate (g) violates the faithfulness constraint MAX-IO (anterior), ruling them all out and making candidate (a) optimal.

**Tableau 2:** Constraint ranking: LAZY >> MAX-IO (+strident), MAX-IO (voice), MAX-IO (anterior)

<table>
<thead>
<tr>
<th>Candidate</th>
<th>LAZY</th>
<th>MAX-IO (+strident)</th>
<th>MAX-IO (voice)</th>
<th>MAX-IO (anterior)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. dʒ</td>
<td>*!</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>b. j</td>
<td></td>
<td>*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>c. tʃ</td>
<td>*!</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>d. ʃ</td>
<td>*!</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>e. g</td>
<td>*!</td>
<td>-</td>
<td>*</td>
<td>-</td>
</tr>
<tr>
<td>f. ʁ</td>
<td>*!</td>
<td>-</td>
<td>*</td>
<td>-</td>
</tr>
<tr>
<td>g. z</td>
<td>*!</td>
<td>-</td>
<td>-</td>
<td>*</td>
</tr>
</tbody>
</table>

As seen above, candidate (b) is the only candidate that does not violate the highly ranked LAZY constraint, making it the optimal choice. Throughout this study, constraints LAZY and MAX-IO (+strident) must be unranked with respect to each other to account for the variability of the process.

**Tableau 3:** Constraint ranking: LAZY, MAX-IO (+strident), MAX-IO (voice), MAX-IO (anterior)

<table>
<thead>
<tr>
<th>Candidate</th>
<th>LAZY</th>
<th>MAX-IO (+strident)</th>
<th>MAX-IO (voice)</th>
<th>MAX-IO (anterior)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. dʒ</td>
<td>*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>b. najis</td>
<td></td>
<td>*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>c. najis</td>
<td>*</td>
<td>-</td>
<td>*!</td>
<td>-</td>
</tr>
<tr>
<td>d. najis</td>
<td>*</td>
<td>-</td>
<td>*!</td>
<td>-</td>
</tr>
<tr>
<td>e. najis</td>
<td>*</td>
<td>-</td>
<td>*!</td>
<td>-</td>
</tr>
<tr>
<td>f. nazis</td>
<td>*</td>
<td>-</td>
<td>*</td>
<td>-</td>
</tr>
<tr>
<td>g. nazis</td>
<td>*</td>
<td>-</td>
<td>*!</td>
<td>-</td>
</tr>
</tbody>
</table>

In Tableau (3), candidates (a) and (b) are equal in receiving the least violation of all candidates. This tableau illustrates the optimality of using both /dʒ/ and [ʃ] for the same word (Anmita and Cho 1998; Cote 2000, 2004; Mustafawi 2006).

**5. Restrictions**

In this section, we present cases restricting the sound /dʒ/ to undergo lenition in KSA. We test the universality of the restrictions proposed by Mustafawi (2006) that block lenition in Qatari Arabic and to see whether it applies in KSA. These restrictions are Low Vowel and Gemination. Furthermore, we introduce two language-specific restrictions to Kuwaiti Arabic, namely Consonant Cluster and Double Lenition.
5.1 Low Vowel

According to Mustafawi (2006), lenition is triggered when adjoined to segments that contain articulation points with wide structures. Since [a, aː] has a wider structure than those of other segments, only these two vowels can trigger the process in this position. This situation can be accounted for by breaking the LAZY constraint down further into three constraints (10)-(12).

(9)

\[
\text{Syllable} \\
| \text{Onset} | \text{Rime} |
\]

\[
| \text{Nucleus} | \text{Coda} |
\]

(10) \text{LAZY}_{\text{rime}}

A consonant dominated by a rime node is articulated lazily.

(11) \text{(LAZY/[+low])}_{\text{rime}}

If a consonant is adjacent to a low vowel and both segments are dominated by a rime node, then the consonant is articulated lazily.

(12) \text{LAZY}_{\text{syllable}}

A consonant dominated directly by a syllable node is articulated lazily.

These constraints are ranked as follows: (LAZY/[+low])_{rime}, LAZY_{syllable}, MAX-IO (+strident) >> LAZY_{rime}.

(Mustafawi 2006, 133-134).

Following Mustafawi’s (2006) ranking, constraint (10) must be dominated by both constraints (11) and (12), which are unranked with respect to one another and with respect to the MAX-IO (+strident) constraint. Thus, constraint (10) is violated whenever /dʒ/ surfaces in coda position, preceded by low vowels. Constraint (12) is violated when /dʒ/ surfaces in onset position.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
Tableau 4 & \text{i. /Xdʒ$/} & (LAZY/[+low])_{rime} & \text{MAX-IO (+strident)} & \text{LAZY}_{\text{rime}} \\
\hline
a. & Xdʒ$ & & * & \\
\hline
b. & Xj$ & * & \\
\hline
\end{tabular}
\end{table}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
Tableau 5 & \text{ii. /SdʒX/} & (LAZY/[+low])_{rime} & \text{MAX-IO (+strident)} & \text{LAZY}_{\text{rime}} \\
\hline
a. & $dʒX$ & * & \\
\hline
b. & $jX$ & * & \\
\hline
\end{tabular}
\end{table}
Tableau 6

<table>
<thead>
<tr>
<th>iii. /Adʒ$/</th>
<th>(LAZY/ [+low])_Rime</th>
<th>LAZY_Syllable</th>
<th>MAX-IO (+strident)</th>
<th>LAZY_Rime</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (\rightarrow) Adʒ$</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. (\rightarrow)Aj$</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tableau 7

<table>
<thead>
<tr>
<th>iv. /$dʒA/</th>
<th>(LAZY/ [+low])_Rime</th>
<th>LAZY_Syllable</th>
<th>MAX-IO (+strident)</th>
<th>LAZY_Rime</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (\rightarrow) $dʒA</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. (\rightarrow) $jA</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Tableau 4, candidate (b) is ruled out by violating the faithfulness constraint MAX-IO (+strident). By contrast, in Tableau 5, both candidates are optimal since both MAX-IO (+strident) and LAZY_Syllable are unranked with respect to one another. In Tableaus 6 and 7, in which [dʒ] is adjacent to a low vowel, variable lenition applies regardless of the syllabic position of [dʒ].

5.2 Geminates

Earlier studies reported that the process of lenition is always blocked in geminates. (Kirchner 2001a; Lavoie 2000; Inkelas and Cho 1993; Keer 1999; Mustafawi 2006).

(13) a. shadʒdaʕāf * shajjaʕ ‘Encouraged’
    b. madʒdʒadʒ * majjadʒ ‘Become soggy’
    c. nadʒdʒar * najjar ‘carpenter’
    d. redʒdʒ * rejį ‘shake’
    e. radʒdʒaʕāf * rajjaʕ ‘he returned something/vomited’

Every item in each geminate above, with the exception of (13d), occurs in an onset position. However, lenition does not apply to these items. In (13d), both elements of the geminate are in the coda position, preceded by other than low vowels.

Tableau 8: Constraint ranking: (LAZY/ [+low])_Rime, MAX-IO (+strident), LAZY_Syllable >> LAZY_Rime

<table>
<thead>
<tr>
<th>/redʒdʒ/</th>
<th>(LAZY/ [+low])_Rime</th>
<th>MAX-IO (+strident)</th>
<th>LAZY_Syllable</th>
<th>LAZY_Rime</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (\rightarrow) redʒdʒ</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. sreį</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>c. rejįdʒ</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>d. redʒį</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

However, these constraints in Tableau 8 cannot block lenition in forms (11a, b, c, and d), as illustrated in Tableau 9. Since stops lenite to fricative and voiceless obstruents to voiced obstruents, Kirchner (2000) suggests that lenition is blocked in geminates because the effort required to maintain the oral constriction for geminate stops and voiceless geminates is less than that required for geminate fricatives and voiced geminates, respectively. Since lenition is motivated by an effort-minimizing requirement, the process is blocked in geminates. Although this argument may be valid for spirantization
and voicing blockage in geminates, it does not account for the reduction of obstruents to sonorants, as is the case of lenition in Qatari Arabic (c.f. Mustafawi 2006) or KSA.

**Tableau 9:** Constraint ranking: (LAZY+[+low])Rime, MAX-IO (+strident), LAZYSyllable >> LAZYNime

<table>
<thead>
<tr>
<th>/ shadʒdaʕ /</th>
<th>(LAZY+[+low])Rime</th>
<th>MAX-IO (+strident)</th>
<th>LAZYSyllable</th>
<th>LAZYNime</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. → shadʒdaʕ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. ? shajjaʕ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. ? shajdʒaʕ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. ? shadjiaʕ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, based on his 2015 study that includes typological study of Arabic geminates, Shigeto Kawahara recognized that geminate obstruents are marked less than geminate sonorants. Hence, he proposes the following universal constraint ranking: *GG (glides) >> *LL (lateral) >> *NN (nasal) >> *OBS GEM (obstruent), emphasizing that the markedness constraint *GG must dominate LAZY constraints.

(14) Markedness: * GG  
*Geminate glides are prohibited.*

Thus, the ranking will be: *GG>> (LAZY+[+low])Rime, MAX-IO (+strident), LAZYSyllable.

Furthermore, to account for the different types of geminates, geminate integrity, the highly ranked faithfulness constraint proposed by Schein and Steriade (1986) will be used.

(15) Geminate Integrity  
*Identical segments in the input remain identical in the output.*

**Tableau 10:** Constraint ranking: *GG, Geminate Integrity >> (LAZY+[+low])Rime, MAX-IO (+strident), LAZYSyllable

<table>
<thead>
<tr>
<th>/ shadʒdaʕ /</th>
<th>*GG</th>
<th>Geminate Integrity (LAZY+[+low])Rime</th>
<th>MAX-IO (+strident)</th>
<th>LAZYSyllable</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. → shadʒdaʕ</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. shajjaʕ</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>c. shajdʒaʕ</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>d. shadjiaʕ</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
</tbody>
</table>

In Tableau 10 candidate (a) is the most optimal since candidate (b) violates the markedness constraint *GG, and candidate (c) and (d) are ruled out for violating the Geminate Integrity constraint.

5.3 *Restriction not included in Mustafawi (2006)*

This study was based on restrictions and constraints mainly proposed by Mustafawi (2006), among other studies, in view of the similarity between Qatari Arabic and KSA. However, some constraints are absent from Mustafawi (2006), likely because the constraints are unique to KSA. These constraints are discussed below:
5.3.1 Final Consonantal Cluster

As in Qatari Arabic (Mustafawi 2006), KSA lenition is applied more frequently in the onset position than in the coda position. That’s not to say it does not occur in the coda position; it does but is much less frequent.

(16) a. bandʒ *banj ‘anesthetic’
    b. θaldʒ * θalj ‘ice’

It is apparent in (15) that lenition is blocked when /dʒ/ is in the final consonant cluster position. Hence, we propose the following constraint.

(17) LAZY *Complex Coda (LAZY*cc)

Consonants in final consonant cluster cannot be lenited.

Like Qatari Arabic, in which consonant clusters are more permitted in the onset than in the coda (Bukshaisha, 1985; Al-Sulaiti, 1993; Mustafawi, 2006), KSA does not permit the lenition of consonant clusters in coda position.

Tableau 7: Constraint ranking: LAZY*cc >> LAZY, MAX-IO (+strident), MAX-IO (voice), MAX-IO (interior)

<table>
<thead>
<tr>
<th>/θaldʒ/</th>
<th>LAZY*cc</th>
<th>LAZY</th>
<th>MAX-IO (+strident)</th>
<th>MAX-IO (voice)</th>
<th>MAX-IO (anterior)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. → θaldʒ</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. θalj</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| c. θal[ŋ] | * | *! | | | *
| d. θal[l] | * | *! | | | *
| e. θalɡ | * | *! | | | *
| f. θalw | * | *! | | | *
| g. θalz | * | *! | | | *

In Tableau 7, candidate (b) violates the highly ranked constraint LAZY*cc making candidate (a) with the less violations; hence the most optimal.

However, when in coda position, lenition may occur only if preceded by a low vowel.

(18) a. Faradʒ Faraj ‘Proper name (male)’
    b. Nadʒma Najma ‘Proper name (female)’
    c. ʕawadʒ ʕawaj ‘bent’

This is consistent with both Kirchner (2001, 2004) and Mustafawi (2006).

5.3.2 Double lenition

KSA utilizes different forms of spirantization lenition. One form, which is the focal issue in this study, is /dʒ/ spirantization—the reduction of the voiced palato-alveolar affricate /dʒ/ to the palatal approximant /j/. Another form of spirantization utilized by KSA is the reduction of the voiced velar stop /ɡ/ and the voiceless uvular stop /q/ in native Arabic words to the voiced palate-alveolar /dʒ/.

(19) a. riːɡ riːdʒ ‘saliva’
    b. ḥalg haldʒ ‘mouth’
    c. Qaasim dʒaasim ‘proper noun’
d. Migrin    Midʒrin    ‘proper name’
e. qibla     dʒibla     ‘direction of prayer’

However, when a word has undergone a spirantization lenition from /g/ or /q/ to /dʒ/, it cannot undergo another lenition process from /dʒ/ to /j/.

(20) a. ri:g    ri:dʒ   *ri:j   ‘saliva’
b. halg      haldʒ   *halj   ‘mouth’
c. Qasim     dʒasim  *jasim  ‘proper noun’
d. Migrin    midʒrin  *mijrin  ‘proper name’
e. qibla     dʒibla   *jibla   ‘direction of prayer’

Hence, we propose the following constraint:

(21) LAZY * Double Lenition (LAZY*DL)

A sound cannot undergo lenition twice.

Tableau 12: Constraint ranking: LAZY*DL >> LAZY*cc >> LAZY, MAX-IO (+strident), MAX-IO (voice), MAX-IO (interior)

<table>
<thead>
<tr>
<th>/ri:dʒ/</th>
<th>LAZY*DL</th>
<th>LAZY*cc</th>
<th>LAZY</th>
<th>MAX-IO (+strident)</th>
<th>MAX-IO (voice)</th>
<th>MAX-IO (anterior)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. → ri:dʒ</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. ri:j</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen above, between /dʒ/ and /j/, candidate (a) does not violate the highly ranked LAZY*DL constraint in addition to it having the least violation, making it optimal.

6. Lexical exceptions

Although lenition is detected in KSA with a degree of regularity, lenition applies to certain lexical items but not others.

(22) a. dʒaww jaww   ‘they came’
      dʒaww *jaww   ‘weather’
b. ʕadʒam ʕajam   ‘Persian descendant (pl.)’
      hadʒam *hajam  ‘he attacked’
c. mo:dʒ mo:j   ‘sea wave’
      zo:dʒ *ző:j   ‘husband’

Earlier analyses of lenition are unsatisfactory since they are not applicable to the entire data set. In (22c), /mo:dʒ/ can lenite but /zo:dʒ/ cannot. Additionally, in (22a)—an example of homonyms—the first word can lenite while the other cannot. It is evident that some lexical exceptions occur. According to earlier studies (Ito and Mester, 2001; Mustafawi, 2006), linguists have categorized three approaches to lexical exceptions in OT.

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6.1 Approaches to lexical exceptions in OT

As previously mentioned, there are three main approaches within OT to account for lexical exceptions. The first approach advocates the notion that any language consists of core and peripheral areas. The core consists of all items that adhere to the phonological generalization of the language’s grammar, and the peripheral areas consist of loan words. Hence, according to Mustafawi (2006), “… the lexicon consists of different strata, with fixed ranking of the markedness constraints, but unique ranking of the faithfulness constraints with respect to these markedness constraints in each stratum. As a result of the different ranking of the faithfulness constraints, phonological generalizations fail to apply to items belonging to certain strata, and consequently, lexical exceptions are observed” (Mustafawi 2006, 141).

However, this analysis cannot account for lenition in KSA, as observed in QA by Mustafawi (2006), since an exception to lenition in KSA cannot be distinguished from items that adhere to the process. Furthermore, loan words with /dʒ/ sounds, once introduced in the lexicon, can be leniated to /j/ or withstand lenition (Ito & Mester 1999, 2001, Mustafawi 2006).

The second approach utilizes specific constraint ranking and accounts for items that exhibit exceptional patterns by arguing that these items are “governed by different rankings of some of these constraints from that applicable to the rest of the grammar” (Mustafawi 2006, 141). However, items that undergo lenition or resist it in KSA are considered ‘normal’ by speakers of KSA.

The third approach deduces that prespecification can account for lexical exceptions. According to Mustafawi, this approach argues that “phonological generalization applies to forms that are not lexically specified for relevant feature, whereas exceptions to this generalization are forms that are lexically specified to this feature. Due to highly ranked faithfulness constraints, exceptions, which are specified for the relevant feature are mapped faithfully onto the surface. Since non-exceptions are not lexically specified for this feature, the faithfulness constraint is not decisive for promoting the output of these forms, for which a lower ranked constraints (the constraint forcing the generalization or the change) determines the optimal candidate” (2006, 142).

7. Conclusion

In this paper, we have briefly analyzed the lenition of /dʒ/ in KSA within the framework of OT and proposed constraints, following Mustafawi (2006). We further proposed two additional constraints that may be unique to KSA, and to the best of our knowledge, these constraints have not been proposed hitherto. Similar to QA, KSA-speakers resort to lenition as a means of minimizing articulatory effort. This approach is driven by effort-minimizing constraints. Although KSA-speakers alternate freely between /dʒ/ and /j/, there remain instances in which constraints prohibit such lenition. For example,
lenition never applies in geminates, probably due to the markedness of geminate glides, and nor does it apply to words that have already been lenited.

Furthermore, the process is associated with several positional restrictions, whereby lenition is more frequently applied in the onset than in the coda position. Furthermore, in the coda position, lenition is prohibited when /dʒ/ is preceded by other than a low vowel and never occurs in a final consonant cluster. This contextual restriction is consistent with the cross-linguistic generalization that lenition is more frequently favored in the context of segments with wide apertures.
Lenition in Kuwaiti Arabic: an Optimality Theory Approach

Endnotes

1 The constraints and their tableaus used in this study are mainly from (Mustafawi 2006) unless specified otherwise.
2 It is a well-attested generalization that syllable onset is typically the position where strengthening takes place while weakening usually occurs in syllable coda position. Presumably, that is why CV is considered the most unmarked syllable structure in phonological theories: we have strengthened onset ‘C’ but have a weakened coda which is realized as zero in this case. In other words, KSA has a marked status in terms of phonological generalization just mentioned. Thus, it is recommended that further research is done on the fact that KSA has a weakening process in onset rather than in coda.
3 The constraints used in this study are mainly from (Mustafawi 2006) unless specified otherwise.
4 X represents any segment other than low vowels, and A represents a low vowel.
5 An example of lenition in the coda position is the lenition of [mo:dʒ] to [mo:j].

References


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Keer, E. W. 1999. Geminates, the OCP and the nature of CON. PhD diss., The State University of New Jersey, New Jersey.


