دراسة مقارنة لعملية حذف الصوائت في اللغتين الإنجليزية والعربية (اللهجة السورية)

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الملخص

تبحث هذه الدراسة في عملية حذف الصوائت في اللغة العربية (اللهجة السورية) والإنجليزية في إطار Optimiality Theory التي اقترحها برنس و سمولنسكي (1993). تستهدف عملية الحذف هذه الصوائت القصيرة في المقاطع الصوتية غير المنبورة. ستظهر الدراسة أن وضع قوانين التمييز (markedness) constraints أعلى من قوانين الالتزام بالأصل (faithfulness constraints) سيضمن بالتأكيد حذف الصوائت القصيرة في المقاطع الصوتية غير المنبورة. كما ستظهر الدراسة أن اللغة الانكليزية هي لغة تفاضلية فيما يتعلق بحذف الصائت في المقاطع الصوتية غير المنبورة، في حين أن اللهجة السورية غير تفاضلية حيث أن جميع الصوائت عرضة للحذف في المقاطع غير المنبورة. إلى جانب حالات حذف الصوائت الموجودة باللغة العربية(اللهجة السورية) والإنجليزية ، توجد حالات أخرى يتم فيها حظر هذه العملية وعدم المساس بالصوائت. ستظهر الدراسة أنه في اللغة الإنجليزية لا نحذف الصائت في بداية الكلمات و نهايتها على الرغم من أنه يكون في مقاطع صوتية غير منبورة بينما تفشل هذه العملية في اللهجة السورية في حذف الصوائت في اللواحق حتى لو جاءت في مقاطع صوتية غير منبورة.

الكلمات المفتاحية: Optimality Theory، حذف الصوائت ، القوانين ، الترتيب ، الخيار الثابت ، الخيار الأفضل.

Vowel Elision: A Contrastive Study of English and Arabic

Abstract

The present study investigates the process of vowel elision in Syrian Arabic and English in the framework of Optimality Theory proposed by Prince and Smolensky (1993). The process of elision in both languages seems to target vowels in weak positions; short vowels are syncopated in unstressed syllables. It is shown that ranking markedness constraints above faithfulness constraints certainly ensures that unstressed short vowels in open syllables are liable to be elided. It is argued that English is a differential language as far as vowel elision is concerned since only /★/ is susceptible to be deleted in unstressed open syllables. Syrian Arabic, on the other hand, proves to be non-differential as all short vowels are liable to be deleted in unstressed open syllables. Together with the cases of vowel elision found in Syrian Arabic and English, however, there exist other situations where this process is blocked and the vowel surfaces intact. It is shown that ,in English, vowel elision does target /★/ in word-initial or final positions although it occurs in unstressed syllables. In Syrian Arabic, this process fails to target vowels in suffixes even if they occur in unstressed open syllables.

Key words: Optimality theory, vowel elision, constraints, ranking, faithful candidate, the winning candidate.

1 Introduction

The tendency for short vowels to be elided in unstressed open syllables seems to characterize many languages (Ladefoged & Maddieson 1996, Roca & Johnson 1999, Roach 2009, among others). However, the optimal target of this process is not the same as far as height is concerned. Specifically, only high vowels /i, u/ are susceptible to elision, as recorded in dialects like Egyptian Arabic (Broselow 1976, and Kenstowicz 1980), Jordanian Arabic (Abu-Abbas 2003), and Palestinian Arabic (Herzallah 1990). Interestingly, /★/ is liable to be deleted in unstressed open syllables as argued by Roca and Johnson (1999) in English and Anderson (1982) in French. In other dialects, however, elision targets all short vowels, high and low, as found in Syrian Arabic (Cowell 1964 and Adra 1999) and Iraqi Arabic (Odden 1978).

2 Differential and Non-differential Vowel Elision

In order to put the two scenarios of vowel elision in a broader perspective, we refer to the differential and non-differential nature of vowel elision cross-linguistically. In differential dialects/languages, "only a subset of a language's vowel inventory syncopates" (Gouskova 2003: 11). Gouskova presents data from Lushootseed (a dialect or language spoken by one of the Salish Native American groups of Washington) in which only high sonority vowels (like /a/) are deletable whereas low sonority ones are preserved. The following example illustrates this.

(1) - /RED-walis/ [1] → [waʕwlis] "little frog" not *[waʕwa☒lis]

(Gouskova 2003: 264)

What is interesting about this example is the fact that the low vowel /a/ surfaces in strong positions (as in the first stressed syllable), and syncopates in weak positions (as in the second unstressed syllable).

The second example of elision in differential languages is (prevalent in many Arabic dialects) where only high short vowels /i, u/ are liable to be deleted in unstressed syllables. A point of difference among Arabic differential dialects is the tendency of some to syncopate one or both high short vowels (front and back), as argued by Abu-Rakhieh (2009). An

[1] In (1), 'RED' refers to the process of reduplication. The open syllable 'wa' is reduplicated to denote 'smallness', as argued by Gouskova (2003).

example of a dialect that only deletes the high front vowel is Palestinian Arabic, as recorded by Herzallah (1990: 34).

(2) -

Input	Output	Glossary
a) - /□aa.mi.l-a⁄at/ →	[□aam.la⁄at]	“carrying 3rd f. pl.”
b) - /ni⁄.zi.l-at/ →	[ni⁄z.lat]	“she came down”

In Egyptian Arabic, however, all high short vowels are targeted, as found in Broselow (1976: 2, 3). The following examples illustrate this:

(3) - i-elision u-elision

a) - [sa⁄a□ib] ‘friend (m)’ b) – [ta⁄akul] ‘you (m) eat’

[sa⁄□ba] ‘friend (f)’ [ta⁄kli] ‘you (f) eat’

[sa□bii⁄n] ‘friends’ [ta⁄klu] ‘you (p) eat’

In English, /★/ is more likely to be deleted in unstressed open syllables. The following examples show this process:

(4) - ★-elision in English

[p★li:s] [pli:s] "police"

[p★te☟t★✞] [pte☟t★✞] "potato"

In non-differential dialects/ languages, on the other hand, all short vowels (high and low) are susceptible to elision in weak positions (unstressed open syllables). This will be exemplified by the dialect of Syrian Arabic as can be seen in the following examples:

(5) –

a)- /☪a.li:d/ → [☪li:d] "ice"

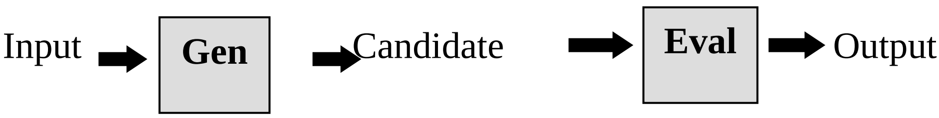
b)- /bu.ju:t/ → [bju:t] "houses"

c)- /☪i.ba:l/ → [☪ba:l] "mountains"

3 Optimality Theory Framework

Optimality Theory (henceforth, OT) is a constraint-based theory proposed by Prince and Smolensky (1993). This linguistic model postulates that Universal Grammar incorporates a set of universal constraints on the well-formedness of phonological structures. In other words, the criteria which govern representational well-formedness are the same cross-linguistically. What distinguishes a language from another is the way these criteria are prioritized, that is, how these universal constraints are ranked with respect to each other.

In OT, every phonological structure has two forms (representations): an *input* (underlying) form and an *output* (surface) form. OT operates on these forms through two major functions: the GENERATOR (Gen) produces an indefinite number of potential candidates (outputs) and the EVALUATOR (Eval) evaluates these candidates via a set of ranked constraints so as to eventually recognize the optimal candidate. This is shown in the following flowchart as proposed by McCarthy (2002).



3.1 Richness of the Base

This hypothesis has been used to describe the status of the lexicon as being unrestricted. This ‘unrestricted’ nature of the lexicon is summarized in McCarthy (2002: 70) as follows: “[Richness of the base] says that there are no language-particular restrictions on the input, no linguistically significant generalizations about the lexicon, no principled lexical gaps, no lexical redundancy rules, morpheme structure constraints, or similar devices”. Given this, the input level is immune to constraints. However, it is at the output level that constraints become active.

Constraints in OT fall into two main categories: markedness and faithfulness constraints. The constraints in each category may conflict with one another as well as with those in the other category. Let us illustrate these categories in turn.

Markedness Constraints

Markedness constraints evaluate the well-formedness of outputs. They ensure that marked structures (whether segmental, syllabic or metrical) are avoided in the surface forms. Accordingly, a violation of a markedness constraint yields a less natural structure in the output. Here are some examples of these constraints.[2]

- *** [☠**

  No word-initial velar nasal.

[2]These constraints can be said positively (as ONSET) or negatively (as *[☠ and *CLASH...etc.)

- **ONSET**

Syllables must have onsets

- **$*\alpha_{\mu\mu\mu}$**

Trimoraic syllables are barred

- *** CLASH**

Adjacent stressed syllables are prohibited.

Faithfulness Constraints

Unlike markedness constraints, these constraints check the discrepancy between the input and the output. They penalize overparsing and underparsing as argued by Prince and Smolensky (1993).

- **FILL**

Syllable positions must be filled with underlying segments.

- **PARSE**

Underlying segments must be parsed into syllable structure.

Let us now consider the way OT represents this conflict between markedness and faithfulness constraints. Typically, the language-specific ranking of constraints and the way in which the optimal candidate is chosen are depicted by the following tableau:

Input	CONS 1	CONS 2	CONS 3
Candidate A	*!		*
Candidate B		*!	
☞ Candidate C			*

To understand this tableau, we need to refer to some important points to be considered carefully. Constraints are ranked left to right. Candidates, however, are listed in the leftmost column. Here are some notational conventions used in OT:

- The winning (optimal) candidate is given the sign {☞}
- Constraint violation is referred to as {*}
- Fatal constraint violation is represented as {*!}[3]
- The lines between constraints are:
    1. **Solid** if the ranking between these constraints is valid.[4]
    2. **Dotted** if the ranking is insignificant.[5]

[3] Constraint violation is fatal when it makes a candidate lose out.
[4] Valid ranking entails that one constraint outranks the other.
[5] In such a case, the constraints are equally ranked.

The candidate with the fewest serious violations will be selected as the winner.

Let us now move to study vowel elision in English and Syrian Arabic and see how constraint ranking can account for this process in both languages.

4 Vowel Elision in English

In English, schwa /★/ is syncopated in unstressed open syllables. Check the examples in (6):

Underlying	Surface	Glossary
a)- /p★.✂li:s/	[pli:s]	Police
b)- /p★.✂l✌✋t/	[pl✌✋t]	Polite
c)- /s★.✂p★✞zs/	[sp★✞z]	Suppose
d)- /k★.✂rekt/	[krekt]	Correct
e) - /b★.✂lu:n/	[blu:n]	Balloon
f)- /✂se.v★.r★l/	[sevr★l]	Several
g)- /✂t♠Θ.k★.l✋t/	[t♠Θkl✋t]	Chocolate
h)- /✂se.p★.r★t/	[sepr★t]	Separate
i)- /b★.✂li:v/	[bli:v]	Believe
j)- /✂me.d★.s✋n/	[meds✋n]	Medicine
k)- /✂f♉k.t★.ri/	[f♉ktr✋]	Factory
l)- /✂s↗:.d☪★.ri/	[s↗:d☪r✋]	Surgery
m)- /✂brΘ.k★,li/	[brΘkli]	Broccoli
n)- /✂♉.v★.r✋d☪/	[♉vr✋d☪]	Average
o)- /✂k♉8★.l✋k/	[k♉8l✋k]	Catholic

In the examples (6) a-o, /★/ is elided in unstressed open syllables. Take for example the word /✂se.v★.r★l/ in (6)-f which is realized as [sev.r★l]. The vowel /e/ in the first syllable is immune to elision since it is in a stressed syllable. The vowel /★/ in the third syllable is also retained as it is located in a closed syllable. The vowel /★/ in the second syllable is liable to be deleted because it occurs in an unstressed open syllable.

5 Vowel Elision in Syrian Arabic

All short vowels are syncopated in unstressed open syllables. To get a solid grip on this process, let us examine the examples in (7):

(7) – Vowel elision in Syrian Arabic:

a) - [✂t≅.ʕeb] "he got tired"

- [ˈt≅ʕ.bet] "she got tired"
- [ˈt≅ʕ. bu] "they got tired"

b) - [ˈΣa.ra□] "he explained"
- [ˈbtiΣ.ra□] "she explains"
- [ˈbjiΣ.ra□] "he explains"

As can be noticed, /e/ and /a/ have no chance to be parsed in unstressed open syllables. Consider the example in (7)-a. The non-actual forms */ˈt≅.ʕe.bet/ and */ˈt≅.ʕe.bu/ fail to surface, as the short vowel /e/ is retained, although it occurs in an unstressed open syllable, /ʕe/. The vowel /u/ in [ˈt≅ʕ. bu] is not deleted although it is not stressed. This might be attributed to the fact that /u/ constitutes the nucleus of the relevant suffix, as suggested by Adra (1999: 37). Adra argues that unstressed short vowels fail to syncopate in open syllables when they "mark morphological categories, i.e., they are suffixes. That is to say, short vowels in open syllables are immune to elision in suffixes.

In (7)-b, /a/ is deleted in the unstressed syllable /ra/. This accounts for the failure of forms like */ˈbti.Σa.ra□/ and */ˈbji.Σa.ra□/ where /a/ is preserved in unstressed syllables.

(8) -

a) - /du.ˈru:ʕ/ → [dru:ʕ] "shields"
b) - /bu.ˈru:Z/ → [bru:Z] "towers"
c) - /ku.ˈru:Σ/ → [kru:Σ] "bellies"

d) - /bi.ˈla:d/ → [bla:d] "countries"
e) - /Zi.ˈba:l/ → [Zba:l] "mountains"
f) - /Zi.ˈma:l/ → [Zma:l] "camels"

In (8) a-c, and (8) d-f, /u/ and /i/ are syncopated in unstressed open syllables. To check the presence of these vowels in the underlying forms, we will examine the singular forms of these words. /d≅rʕ/ "shield", /b≅rZ/ "tower", and /k≅rΣ/ "belly" are singular nouns with the template C≅CC. This template sticks to a certain template for the plural, namely CuCu:C. Singular nouns /balad/ "country", /Za.bal/ "mountain" and /Za.mal/ "camel" have the shape CaCaC which adheres to the template CiCa:C for the plural, as argued by Cowell (1964). Thus, /u/ and /i/ are considered to be present underlyingly.

6 Vowel Elision in OT

The OT analysis of elision is based on the interaction between two kinds of constraints: the markedness constraint that prohibits short vowels in unstressed open syllables, as in:

$*V_{(short)}]\ \sigma$

Unstressed short vowels in open syllables are prohibited.

and the faithfulness constraint that bans the deletion of a vowel.

MAX-IO (V)

Every vowel in the input must have a correspondent in the output.
(No vowel deletion)

When it comes to constraint ranking, it is quite clear that the markedness constraint should outrank the faithfulness constraint as shown in the following.

$$*V_{(short)}]\ \sigma >> \text{MAX-IO (V)}$$

Let us test the sufficiency of this ranking by examining example (5)-a from Syrian Arabic.

du.✂ru:ʕ/ → [dru:ʕ] "shields"

This is illustrated in (1).

(1) -

/du.✂ru:ʕ/	$*V_{(short)}]\ \sigma$	MAX-IO (V)
a)- du.✂ru:ʕ	*!	
b)- ☞ dru:ʕ		*

The faithful candidate, (a), is ruled out as it violates the high ranked constraint, $*V_{(short)}]\ \sigma$. In contrast, candidate (b) satisfies this constraint, and is accordingly chosen as the winner. Its violation of the faithfulness constraint is of less importance since this constraint is low in ranking.

When applied to the data from English, the constraint $*V_{(short)}]$ σ is not likely to give the optimal results since the elision process in this language is restricted to /★/, as we have seen in (6). What is needed then is to modify this constraint so as to comply with the requirements of English. This constraint is formulated as follows.

*** ★] σ**

Unstressed schwa in open syllables is prohibited.

Like its counterpart in Syrian Arabic, this constraint must outrank the faithfulness constraint, MAX-IO (V).[6]

The following tableau illustrates this point given this ranking of constraints.

* ★] σ >> MAX-IO (V)

The same set of constraints and ranking can account for the examples in English. Take for the example the word in (6)-j.

/✂me.d★.s✋n/ → [✂med.s✋n] "medicine"

This is shown in (2):

/✂me.d★.s✋n/	*★] σ	MAX-IO (V)
a)- ✂me.d★.s✋n	*!	
b)- ☞ ✂med.s✋n		*

With a fatal violation of the constraint *★] σ, the faithful candidate has no chance to surface. The optimal candidate wins as it only incurs a violation of a low ranked constraint, namely MAX-IO (V).

7 Failure of Vowel Elision

Along with the cases of vowel elision found in Syrian Arabic and English, however, there exist other situations where this process is blocked. In other words, short vowels fail to syncopate in unstressed open syllables in violation of the high ranked constraint *****$V_{(short)}$] σ and * ★] σ. Here are some of the cases found in both languages.

7.1 Failure of Vowel Elision in English

[6] Notice that the constraints *★] σ and *$V_{(short)}$] σ must be in a Paninian relationship (Prince 1997) since the former is included in the latter. Consequently, *★] σ will always outrank *$V_{(short)}$] σ. The fact that vowel elision in English is restricted to /★/ is attained by making the constraint *★] σ high ranked. Importantly, the constraint *$V_{(short)}$] σ is ranked lower than the constraint $MAX\text{-}IO_{(v)}$ so as to reflect the fact that elision of other vowels is not triggered in English.

There are some cases in English where /★/ escapes elision although it occurs in unstressed open syllables. Check the following examples in (9).

(9)- *Vowel failure in word-initial position*

a)- /★.✂b✌✞t/ → [★.✂b✌✞t] "about"

b)- /★.✂s✌✋d/ → [★.✂s✌✋d] "aside"

c)- /★.✂lΘN/ → [★.lΘN] "along"

(10)- *Vowel failure in word-final position*

a)- /✂Θ.p★.r★/ → [Θp.r★] "opera"

b)- /✂k♉.m★.r★/ → [k♉m.r★] "camera"

c)- /✂☪Θn.r★/ → [☪Θn.r★] "genre"

d)- /✂Θk.r★/ → [Θk.r★] "okra"

In (9) a-c, /★/ surfaces intact although the first syllable in each word is unstressed. In the same way, /★/ fails to elide in (10) a-d although the last syllable in each word is not stressed. That is to say, /★/ is preserved in word-initial and word-final positions. However, it is deleted in medial position as is the case in (10) a-b. Flemming & Johnson (2007: 86) argue that "word-internal schwa is relatively high and varies contextually in backness and lip position. Such a positional asymmetry according to the position might cause the significant distinction of vowel deletion". Specifically, since /★/ is instable in the word-internal position, it is more likely to be deleted. Additionally, Flemming & Johnson argue that /★/ in word-edges seems to be consistent and stable. This, of course, makes it immune to vowel elision. To capture this scenario in OT, we need a couple of constraints that prohibit vowel elision at word edges following Kager (1999).

ANCHORING-L: Any segment at the left edge of the input has a correspondent at the left edge of the output.

ANCHORING-R: Any segment at the right edge of the input has a correspondent at the right edge of the output.

In order to account for the previous scenario, these two faithfulness constraints should outrank the constraint ***★] σ.** This is shown in the following ranking of constraints:

ANCHORING-L, ANCHORING-R >> * ★] σ >> MAX-IO (V)

Let us see if this ranking can account for the example in (9)-b.

/★.✂s✌✋d/	ANCHORING-L	ANCHORING-R	* ★] σ	MAX-IO (V)
a)- /s✌✋d/	*!			*
b)-			*	

☞/★.✂s✌✋d/				

The first candidate has no chance to surface as it incurs a fatal violation of a top ranked constraint, namely ANCHORING-L. With a violation of a lower ranked constraint (* ★] σ), the faithful candidate in (b) wins.

With the same line of analysis we can account for the examples in (10). In the word /✂k♉.m★.r★/, vowel elision does not target /★/ in final position. This is shown in the following tableau with same ranking of constraints.

ANCHORING-L, ANCHORING-R >> * ★] σ >> MAX-IO (V)

/✂k♉.m★.r★/	ANCHORING-L	ANCHORING-R	* ★] σ	MAX-IO (V)
a)- /✂k♉.m★r/		*!	*	*
b)- /✂k♉.m★.r★/			**	
c)- ☞ /✂k♉m.r★/			*	

The candidate (a) is ruled out as it incurs a violation of a top ranked constraint. Candidates (b) and (c) satisfy the top ranked constraints. The decision between the two candidates is thus passed on to the constraint * ★] σ which favours candidate (c) as it incurs fewer violations.

7.2 Failure of Vowel Elision in Syrian Arabic

The constraint $*V_{(short)}]$ σ, if given full rein, would enforce the deletion of unstressed short vowels in all contexts, including the case of suffixes. These non-optimal results can be avoided by introducing a specific faithfulness constraint whose main job is to block this process in the case of suffixes.

MAX-IO $(V)_{suffix}$

Every vowel in the input suffix must have a correspondent in the output.

A suffix's immunity to vowel elision can be straightforwardly understood if we take morphology into consideration. Suffixes give information about the word (case, gender, possession, etc). Thus, deleting these suffixes will naturally lead to a morphological loss of identity, as argued by Adra (1999). To fully understand this point, let us investigate two of the suffixed forms for the verb /Ξa✐dam/ "he served" from Syrian Arabic.

(11) –

Input	Output			Glossary
/Ξa.✂dam.ta/	[Ξ✂dam.ta]	not	*[Ξdam.t]	"I served her"
/Ξa.✂dam.tu/	[Ξ✂dam.tu]	not	*[Ξdam.t]	"I served him"

As it turns out, syncopating the object case markers {a, u} will mislead the hearer about the target of the action. Given this view, we postulate that the identity- preserving constraint introduced before needs to be high ranked, as shown below.

$$\text{MAX-IO (V)}_{suffix} >> *V_{(short)}]\ \sigma >> \text{MAX-IO (V)}$$

Let us see how this ranking will eventually select the surface form for the input /✂t≅.ʕe.bu/ in (7)-a. This is illustrated in (12).

(12) -

/✂t≅.ʕe.bu/	MAX-IO $(V)_{suffix}$	$*V_{(short)}]\ \sigma$	MAX-IO (V)
a)- ✂t≅ʕ.b	*!		**
b)- ✂t≅.ʕe.bu		**	
c)- ☞ ✂t≅ʕ.bu		*	*

With a fatal violation of the high ranked constraint (MAX-IO $(V)_{suffix}$), candidate (a) is thus eliminated. Candidates (b) and (c), however, satisfy this constraint. Consequently, the decision between the two is passed to the constraint $*V_{(short)}]\ \sigma$, which favours candidate (c), since it incurs only one violation of this constraint.

8 Conclusion

This paper has focused on vowel elision in unstressed syllables. It has been shown that Syrian Arabic and English differ in the vowels being elided. In Syrian Arabic, all vowels are liable to be deleted in unstressed syllables. This is reflected in the constraint $\mathbf{*V_{(short)}]\ \sigma}$ being high ranked.

In English, however, only /★/ is susceptible to this process which means that the constraint * **★] σ** is high ranked in this language. In brief, we have the following ranking for both languages.

*$\mathbf{V_{(short)}}$**] σ** >> MAX-IO (V) (Syrian Arabic)

* **★] σ** >> MAX-IO (V) (English)

Some cases of vowel elision failure have been addressed in both languages. It has been found that the suffix vowel is immune to deletion in Syrian Arabic. This implies that the constraint that bars such a process is higher than the constraint that forces vowel deletion. This is shown in the following ranking:

MAX-IO $(V)_{suffix}$ >> *$V_{(short)}$] σ >> MAX-IO (V) (Syrian Arabic)

In English, however, /★/ elision fails to take place at word edges. This is ensured by ranking the constraints ANCHORING-L and ANCHORING-R higher than the markedness constraint * ★] σ. In brief, we have the following ranking in English:

ANCHORING-L, ANCHORING-R >> * ★] σ >> MAX-IO (V)

In brief, the two scenarios attested in Syrian Arabic and English are explicitly shown in the ranking of the constrain.

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