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An Optimality-Theoretic Account of Dissimilation in Persian

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Abstract

This paper provides an Optimality-Theoretic account of dissimilation in standard Persian as well as some other accents and dialects of Persian. As such, this work starts by introducing Optimality Theory (henceforth OT) and its basic concepts and then it investigates dissimilation in this framework. It argues for the superiority of OT over derivational approaches regarding a case in which both dissimilation and assimilation, with no clear feeding order, are involved.

Keywords: Optimality theory; Dissimilation; Constraint; Persian phonology

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1- Introduction

Optimality Theory was first described in depth by its creators, Alan Prince and Paul Smolensky in a course presented at the University of California, Santa Cruz in 1991 (Prince and Smolenksy 1991). However, the first detailed exposition of the theory appears in their work entitled 'Optimality Theory: Constraint Interaction in Generative Grammar. OT is one of the most significant developments in generative grammar. Its goal is to explain the phonology of languages only by using a set of universal constraints; therefore no phonological rule is being applied in its analyses. Furthermore, there is no interaction between rules and constraints, i.e., OT is not a mixed theory (McCarthy, 2002:243). Kager (1999:413) also points out that OT abandons the principles of SPE (Chomsky and Halle 1968) namely rules and serial derivations between underlying representation (UR) and phonetic representation (PR); however, UR and PR which are renamed as input and output respectively, are being assumed in the classical sense.

McCarthy (2002: 39-40) believes that phonological rules were abandoned by OT, because they generally explained language-specific phenomena. In contrast, constraints in OT are not merely solutions to language-specific problems; they are claimed to be Universal Grammar (UG) seeking to explain phonological phenomena universally.

2- Basic Concepts of OT

The core universal elements of OT architecture are summarized in (1) based on McCarthy (2002:10):

(1) Basic OT architecture

Input → GEN[1] → Candidates → EVAL[2] → Output

2-1 Input and Output

In OT, as noted above, SPE's underlying and phonetic representations are renamed as input and output respectively; however, the input-output mapping is direct, hence, no intermediate level is assumed.

2-2 Generator and Candidates

Generator (GEN) as a formal mechanism is a basic component of UG. Its function is to emit a set of diverse competing candidates for a given input. Theoretically, the number of candidates emitted by GEN can be infinite (McCarthy, 2002:8-10).

2-3 Evaluator

Just like GEN, Evaluator (EVAL) is a formal mechanism whose function is to select the optimal candidate, which is the actual output. Evaluation takes place by a set of hierarchically ranked constraints ($C_1 >> C_2 >> ... C_n$) each of which may eliminate some candidate

1 . Generator
2 . Evaluator

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outputs, until a point is reached at which only one output survives (Kager, 1999:8).

2-4 Constraints

According to OT, Universal Grammar consists of a large set of violable but these are universal constraints CON, which build the grammars of specific languages (Prince and Smolensky, 2004:2-3). All world's languages share this large set of constraints. Languages only differ in the way they rank these constraints. Due to differences in ranking, a given constraint is ranked higher in one language, but lower in another (Kager, 1999: 174; Kahn, 2006: 110). For instance, ONSET and *COMPLEX^{ONS} are two prosodic constraints. The former dictates that syllables must have onsets, and the latter forbids syllables from having consonant clusters in their onsets. These constraints are top-ranked in Persian, so their violation results in ill-formedness. However, they are low-ranked in English, because English allows onsetless syllables as well as onsets with consonant clusters. Hence, their violation does not result in ill-formedness. For example, the onsetless word "acid" that violates ONSET, and the word "freezer" that violates *COMPLEX^{ONS} due to having a consonant cluster [fr] in its onset are well-formed words of English. These words have been borrowed by Persian but it does not allow their English pronunciation. So, in Persian, in order to satisfy ONSET, a glottal stop is inserted at the empty onset position of "acid", and to satisfy *COMPLEX^{ONS} in "freezer", an [e] is inserted in the middle of [fr-]. As the result of insertion, "acid" and "freezer" are pronounced as [ʔa.sid] and [fe.ri.zer] in Persian.

The paramount difference between parameters of the Principles & Parameters Theory and constraints of OT which are both claims about UG is that a parameter that is "off"[1] is completely inactive, but a constraint that is crucially dominated is not "switched off", it can still be active. Therefore, it is predicted that the effects of some constraint may show up even in a language in which it is dominated. Given the chance, even a dominated constraint will make its presence felt, and "break into activity" (Kager, 1999: 342; McCarthy, 2002:242). The following schema represents mapping of input to output in OT grammar.

As depicted in (2), Generator emits a set of diverse competing candidates for the given input. Then the set of hierarchically ranked constraints, each of which eliminates some candidates until only one candidate survives.

1 . Chomsky compares UG to an intricate electrical system that contains a finite set of switches. If the switch of a parameter is turned on by a certain language, then this language has chosen the plus (+) value of that parameter. By contrast, if the same switch is turned off by another language, then that language has chosen the negative (-) value of the same parameter (see Katamba, 1993:9; Dabir-Moghaddam, 2004:45)

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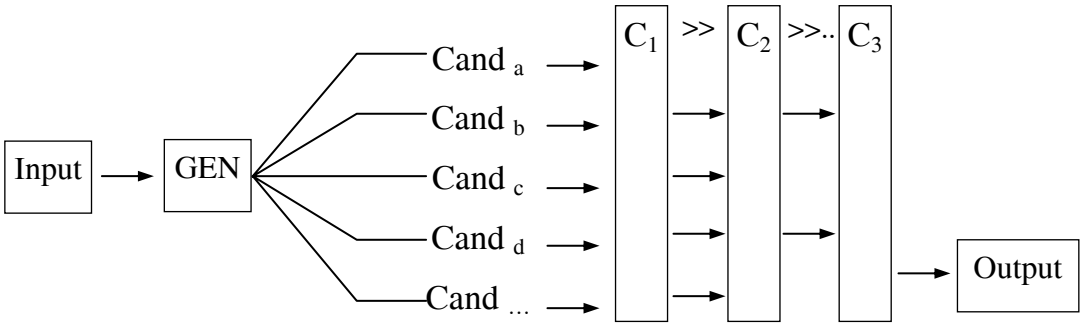
(2)



In this schema, C stands for "constraint" and ">>" indicates domination; $C_1 >> C_2 >> ...C_n$ suggests that C_1 dominates C_2, and C_2 dominates C_3. C_1 is top- ranked (undominated) and its violation by a given candidate eliminates the candidate from competition with other candidate(s). Violation of a higher- ranked constraint incurs a greater cost to harmony than violation of a lower-ranked constraint. OT constraints are of two kinds: markedness and faithfulness. Generally speaking, OT grammar is a sketch of the conflict between these two constraint families, which ultimately leads to the selection of the optimal candidate.

2-4-1 Markedness constraints

Markedness constraints serve to evaluate the well-formedness of candidates, therefore they are also known as well-formedness constrinats. These constraints have no access to the input; they only evaluate output forms, that is, they penalize candidates that violate their terms, without regards to the input (Kager, 1999: 9;McCarthy, 2002: 14). ONSET and *COMPLEX^{ONS} that were mentioned above are two kinds of markedness constraints.

2-4-2 Faithfullness constraints

Unlike markedness constraints, faithfulness constraints have access to both input and output: they serve to ensure that no change occurs in the output compared with the input. Therefore, they penalize those candidates that have not been faithful to the input. It is worth noting that faithfulness constraints cannot impose any limits on the input, since according to the richness of the base hypothesis (ROTB), input is universal, consists of all the elements of human languages, and no language specific constraint is imposed on it.

The following illustrates markedness constraints access to the output, and faithfulness constraints access to both the input and output.

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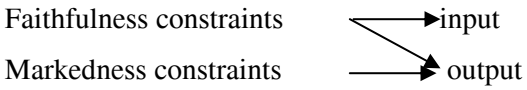
(3)



2-5 Tableau

The ranking of constraints can be demonstrated by a TABLEAU. This lists two (or any number of) output candidates vertically in random order, and constraints horizontally, in a descending ranking from left to right. A tableau consists of some cells in front of every candidate and under every constraint with the following specifications:

- A blank cell in front of a candidate and under a constraint indicates that the candidate has satisfied the constraint.
- A starred cell in front of a candidate and under a constraint indicates that the candidate has violated the constraint.
- An exclamation mark next to a star suggests that the relevant candidate has fatally violated a constraint, so it has no chance to survive and to be chosen as optimal.
- An optimal candidate is marked by the index"☞".
- The cells that are not decisive in determining the optimal candidate are shaded.
- A dotted line between two constraints indicates that they are equally ranked. The reason for this is that they are not conflicting each other, or that there is no evidence to rank one higher than the another.

All the above mentioned specifications are depicted in Tableau (1).

Tableau (1)

ınput	C_1	C_2	C_3
a. cand	*!		
b. cand		*!	
c. ☞ cand			*

In Tableau (1), the equally ranked constraints, C_1 and C_2 dominate C_3. Candidate (a) and candidate (b) have fatally violated Constraint C_1 and C_2 respectively. Candidate (c) has satisfied both C_1 and C_2 at the expense of C_3.

C_3 is so low ranked that it is irrelevant to the evaluation. This causes candidate (c) to emerge victorious.

3- Dissimilation

Dissimilation and assimilation are two opposite processes. In assimilation, two dissimilar sound segments become more alike, or identical because of the influence exercised by one segment upon the articulation of another (Crystal, 1992 :28). According to Spencer (2005:59), in dissimilation two neighbouring sounds which are similar become dissimilar as one or both undergo some phonological change. Suzuki (1998) whose doctoral dissertation is a typological study of dissimilation provides examples in which dissimilation occurred in non-neighboring sounds as well:

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(4)

a) Vowel dissimilation in Kera (a language spoken in Chad)

/ba-pa/→ [bə-pa] 'no more'

b) Lateral dissimilation in Latin

/sol-alis/→ [sol-aris] 'solar'

c) Labial dissimilation in Akkadian

/markabt/ → [narkabt] "chariot"

Dissimilation is not a very common process in standard Persian. Howerver, some Iranian linguists including Haghshenas (1995:155), Meshkotod Dini (1995: 136,199), Mahootian (1997:317), and Kambuzia (2007:388-391) have addressed this process applying the rule- based approach. Mahootian mentions the dissimilation of affricates with the following plosives in standard Persian[1]; Kambuzia provides more data on this special process as well as data from some other accents and dialects of Persian. In effect, the present paper, to an extent, is based to her data. It is also worth mentioning that Bijankhan (2005:198-204) had provided the first account on a case of dissimilation in Persian within OT framework[2].

3-1 Dissimilation in OT

According to Suzuki (1998: 10-11), in OT and in rule-based phonology, dissimilation is explained by invoking a specific principle, the Obligatory Contour Principle (OCP) (Leben 1973, Goldsmith 1976, McCarthy 1986). The OCP stipulates that adjacent identical elements are prohibited, hence; either deletion or dissimilation of one of the identical elements could satisfy the OCP. This principle, which was first proposed by Leben (1973) (the name is due to Goldsmith 1976), intended to apply to prosodic features like tone. In the work of McCarthy (1979, 1981), the OCP was extended to cover not only suprasegmental features but also segmental features. Building up on the OCP, Alderete (2003) proposes that dissimilation is the effect of a self-conjoined markedness constraint, e.g., *Lab →*Lab-2.Based on Alderete's proposal we put forward *[F]-2 as a general format that motivates dissimilation. *[F]-2 prohibits the co-occurrence of two sound segments with the same feature specification. In every case, [F] would be replaced by a certain feature involved in a certain process of dissimilation.[3] * [F]-2 triggers the cases of dissimilation investigated in parts 3-1-2 , 3-1-3, and 3-1-4.

3-1-1 Dissimilation in the feature [Continuant]

Affricates and plosives share the feature [-continuant]. In a case of dissimilation in Persian, the affricates /tʃ/ and /dʒ/ in the environment before plosives /t/, /d/, and /c/ lose their plosive element through spirantization process, so their fricative element which is [+continuant] survives:

1. This process is addressed in part 3-1-1
2. This case is not addressed in this paper

3 . In some OT works the abbreviation "OCP" itself is considered as the constraint that triggers dissimilation. We have not applied the constraint "OCP" in our analyses, because it does not specify what feature is involved in a certain process of dissimilation.

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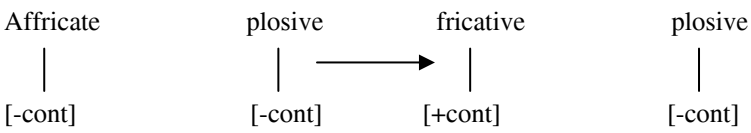
(5)



This process mainly occurs in the following words and compounds:[1]

(6)

(a)

/hitʃcas/	→	[hiʃcas]	"no one"
/hitʃci/	→	[hiʃci]	"no one"
/hitʃcare/	→	[hiʃkare]ø [2]	"good-for-nothing"
/hitʃcodam/	→	[hiʃkodam]	"none"

(b)

/vodʒdan/	→	[voʒdan]	"conscience"
/hedʒdah/	→	[heʒdah]	"eighteen"
/vadʒd/	→	[vaʒd]	"joy"
/adʒdad/	→	[ʔaʒdad]	"ancestors"
/adʒdar/	→	[ʔaʒdar]	"grooved(tyre)"
/tadʒdar/	→	[taʒdar]	"crowned"

(c)

/edʒtemaʔ/	→	[ʔeʃtemaʔ]	"gathering"
/modʒtahed/		[moʃtahed]	"Mujtahid"[3]
/modʒtabɑ/	→	[moʃtabɑ]	"Mojtaba"[4]
/modʒtameʔ/	→	[moʃtameʔ]	"complex"
/edʒtenab/	→	[ʔeʃtenab]	"avoidance"
/pandʒ-ta/	→	[panʃ-ta]	"five"

1 .These data provided by Kambuziya, 2007: 390-391.
2 .Underlying /c/surfaces as [c] before front vowels, and as [k] before back vowels. [k] represent a post palatal consonant.
3 . Mujtahid is a clergyman capable of discovering Islamic law from its sources.
4 . A name for males.

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Considering the representation in (5) and the given data, it turns out that in (6a) there is a markedness constraint prohibiting " affricate plus voiceless plosive palatal sequences" , where as in (6b), and (6c) there is another markedness constraint that prevents "affricate plus plosive alveolar sequences":

(7) *AFVLPLPAL

No affricate plus voiceless plosive palatal sequences.

(8) * AFPLAL

No affricate plus plosive alveolar sequences.

Since in the process of dissimilation in the feature [continuant], [-continuant] affricates change to [+continuant] fricatives, the faithfulness constraint that militates against any change in the value for the feature [continuant] in the output is IDENT[cont]. It must be dominated by *AFVLPLPAL or * AFPLAL in order to insure dissimilation:

(9) *AFVLPLPAL >> IDENT[cont]

(10) * AFPLAL>> IDENT[cont]

The occurrence of dissimilation in group (a) is optional, because both input and output representations are being produced as free variation in spoken Persian. In order to deal with free variation, the OT uses two different rankings of the same constraints in two tableaux. Kager (1999: 406) notes that this approach which is termed as "Free ranking" was observed as a purely theoretical option by Prince and Smolensky (1993: 51), and has since been argued to be OT counterpart of optional rule application. So, when two constraints *AFVLPLPAL and IDENT [cont] are freely ranked, the evaluation procedure branches at that point. In one branch, *AFVLPLPAL is ranked above IDENT [cont] , while in the other branch, the ranking is reversed.

With regard to the process of dissimilation.

Tableaux (2a) and (2b) present different analyses of the input /hitʃcas/

Tableaux (2a) and (2b)

Input:/hitʃcas/

	*AFVLPLPAL	IDENT [cont]
a.i [hitʃcas]	*!	
a.ii☞ [hiʃcas]		*
	IDENT [cont]	*AFVLPLPAL
b.i ☞ [hitʃcas]		*
b.ii [hiʃcas]	*!	

Faithful candidates (a.i) and (b.i) have violated the markedness constraint, because they include the [tʃ] plus [c] sequence. Unfaithful candidates (a.ii) and (b.ii) have satisfied the markedness constraint, for their adjacent consonants are[ʃ] and [c]. Domination of the markedness constraint in Tableau (2a) causes the dissimilated candidate to be chosen as optimal. On the other hand, domination of the faithfulness constraint in Tableau (2b) dictates that the faithful candidate is optimal.

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Dissimilation in group (b) seems to be obligatory. Tableau (3) demonstrates that the candidate which has undergone dissimilation is optimal.

Tableau (3)

Input:/hedʒdah/	*AFPLAL	IDENT [cont]
a. [hedʒdah]	*!	
b.☞ [heʒdah]		*

As displayed in Tableau (3), the faithful candidate fatally violates the undominated constraint because it contains [dʒ] plus [d]sequence. But, candidate (b) with [ʒ] and [d] _ the former being fricative and the latter beingpalatal alveolar satisfies the undominated constraint at the expense of the faithfulness constraint.

The occurrence of dissimilation in group (c) also seems to be obligatory. Furthermore, voicing assimilation takes place too; the voiceless plosive /t/ spreads its [-voiced] feature to the preceding consonant, this is a case of regressive assimilation. Derivational phonology, whose principle is serial ordering of rules (Kager, 1999:57), can not tell whether dissimilation feeds assimilation or vice versa. Therefore, the two following different feeding orders can be possible.

(11)

Assimilation feeds dissimilation		Dissimilation feeds Assimilation	
/-dʒ.t-/	UR	/-dʒ.t-/	UR
-tʃ.t-	Assimilation	-ʒ.t-	dissimilation
-ʃ.t-	dissimilation	-ʃ.t-	Assimilation
[-ʃ.t-]	PR	[-ʃ.t-]	PR

A case like this where the feeding order is not clear is no challenge for OT, for as mentioned earlier OT maps input directly to output without positing any intermediate levels of representation.

AGREE [voice] is the markedness constraint that triggers voicing assimilation. It is defined in (12):

(12) AGREE [voice]

Adjacent obstruents must share the same value for the feature [voice].

The faithfulness constraint that militates against AGREE [voice] is IDENT [voice]. It penalizes any change in the value for the feature [voice]. Furthermore, AGREE [voice] says nothing about the direction in which voicing assimilation should occur, thus progressive assimilation is equally possible as a means of satisfying this markedness constraint. So, to account for the fact that voicing assimilation is regressive Lombardi (1996) introduced the positional faithfulness constraint

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Ident Onset Laryngeal (IDONSLAR) which dictates that onsets must be faithful to underlying laryngeal specification. As Borowsky (2000:4) points out, this constraint takes into account the privileged status of onsets with regard to the voicing contrast.

The ranking in (13) explains the occurrence of the two processes of assimilation and dissimilation.

(11) *AFPLAL, IDONSLAR>> AGREE [voice] >> IDENT [cont], IDENT [voice]

Tableau (4)

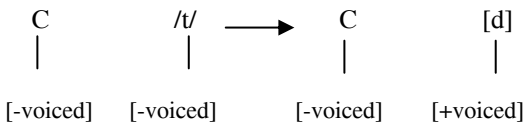
Input:/modʒ.ta.meʔ/	*AFPLAL	IDONSLAR	AGREE [voice]	IDENT [cont]	IDENT [voice]
a. [modʒ.ta.meʔ]	*!		*		
b. [motʃ.ta.meʔ]	*!				*
c. [moʒ.ta.meʔ]			*!	*	
d. ☞ [moʃ.ta.meʔ]				*	*
e. [moʒ.da.meʔ]		*!		*	*

Tableau (4) demonstrates two processes of assimilation and dissimilation undergone by the output [moʃtameʔ] from its corresponding input /modʒtameʔ/. Candidates (a) and (b) fatally violate *AFPLAL. This is due to the fact that each of them contains an affricate plus palatal alveolar sequence. Candidate (c) is ruled out by the other markedness constraint AGREE [voice]. That is because the plus voiced [ʒ] and the minus voiced [t] do not share the same value for the feature [voice]. Finally, we have the competition between (d) and (e), both of the candidates satisfy the markedness constraints, and both violate IDENT [cont] and IDENT [voice]. But it is IDONSLAR that chooses (d) as optimal.

3-1-2 Dissimilation in the feature [Voice]

In Hamedani[1] accent, the voiceless plosive /t/ changes to its voiced counterpart in the environment after a voiceless consonant (Kambuziya, 2007: 388-390)

(14)



The words that undergo this dissimilation process are divided into groups (a) and (b) in terms of their syllable structures.

1 . Hamedani accent is spoken in the city of Hamedan in the west of Iran.

[DOR: 20.1001.1.25382640.2009.16.2.7.8]

(15)

(a)

/haʃt/	→	[haʃd]	"eight"
/deraxt/	→	[deraxd/	"tree"
/haft/	→	[hafd]	"seven"
/moft/	→	[mofd]	"extremely cheap"
/boht/	→	[bohd]	"amazement"
/moʃt/	→	[moʃd]	"fist"

(b)

/reʃte/	→	[reʃde]	"thread"
/doxtar/	→	[doxdar]	"daughter"
/xaste/	→	[xasde]	"tired"
/baste/	→	[basde[	"closed"
/caftar/	→	[cafdar]	"pigeon"
/behtar/	→	[behdar]	"better"

The plosive [d] is the second member of the coda cluster in group (a), but it constitutes the onset of the second syllable in group (b) which, happens to carry the main stress. Hence, it is expected that dissimilation in group (b) to be phonetically and perceptually more distinctive. Type (b) dissimilation occurs in Esfahani[1] accent as well.

(16)

/gofteʃ/	→	[gofdeʃ]	"(s/he)[2] told him/her[3]"
/poʃteʃ/	→	[poʃdeʃ]	"his/her/its back"
/rixteʃ/	→	[rixdeʃ]	"(s/he) spilt it"
/daʃte/	→	[daʃde]	"(s/he) has owned"
/poxte/	→	[poxde]	"cooked"

1 . Esfahani accent is spoken in the city of Esfahan in the center of Iran.
2 . Persian is a pro-drop language.
3 . Morphological and syntactic structures are irrelevant in this paper, so they are not discussed.

[DOR: 20.1001.1.25382640.2009.16.2.7.8]

Regarding the representation in (14), it stands to reason that this case of dissimilation is the effect of a constraint preventing the occurrence of two adjacent voiceless consonants. Considering the general format *[F]-2, we formulate this constraint as *[-voice]-2.

(17)* [-voice]-2

No adjacent voiceless consonants

Opposing *[voice]-2 is the faithfulness constraint IDENT [voice] which penalizes any change in the value of [voice]. The following ranking triggers dissimilation in [voice].

(18)*[-voice]-2 » IDENT [voice]

This case of dissimilation does not occur in standard Persian, for in the standard accent it is the faithfulness constraint that outranks the markedness constraint.

In Tableau (5), the Hamedani word /deraxt/ is analyzed under the ranking in (18). The faithful candidate (a) incurs a markedness violation, for it contains adjacent voiceless consonants [x] and [t]. However, the unfaithful candidate (b) satisfies *[-voice]-2 and in spite of violating IDENT [voice], it is chosen as optimal.

Tableau (5)

Input:/deraxt/	* [-voice] -2	IDENT [voice]
a. [deraxt]	*!	
b.☞ [deraxd]		*

3-1-3 Lateral dissimilation

[l] and [r] are distinguished from one another only by the feature [lateral]; [l] is [+lateral] but [r] is [-lateral] just like other consonants of Persian. As a result of the similarity between these two liquids, it is expected that they interact in phonological processes of different languages. In the following data from Sabzevari, dialect /l/ changes to [r]:

(19)

/dellɑl/	→	[dellɑr]	"dealer"
/xlɑl/	→	[xlɑr]	"toothpick"
/zlil/	→	[zlir]	"abject"
/zolɑl/	→	[zolɑr]	"pure"
/dlil/	→	[dlir]	"reason"
/xlil/	→	[xlir]	"Xalil"

As depicted in the data, there are two l's in the input representation, therefore, we see another case of dissimilation once the second /l/ changes to [r] in the output representation. The markedness constraint that triggers this process of dissimilation is *[+lateral]-2 defined in (20):

(20) *[+lateral]-2

No sequence of two [+lateral] consonants.

IDENT [lateral] is the faithfulness constraint that militates against the constraint *[+lateral]-2 by penalizing any change in the value for the feature [lateral] in the output representation. In this dissimilation process, the markedness constraint dominates the faithfulness constraint.

[DOR: 20.1001.1.25382640.2009.16.2.7.8]

The non-occurrence of this process in standard Persian is the effect of an opposite ranking.

Tableau (6) demonstrates that the candidate which has undergone dissimilation is optimal.

Tableau(6)

Input:/zolɑl/	* [+lateral] -2	IDENT [lateral]
a. [zolɑl]	*!	
b.☞ [zolɑr]		*

3-1-4 Vowel dissimilation (Vowel disharmony)

Vowel dissimilation is the process opposite vowel harmony. In vowel harmony, dissimilar vowels of a word assimilate in some feature(s), while in vowel dissimilation similar vowels become dissimilar. In Esfahani accent if the nuclei of both first and second syllables of an input form are /a/, then the second occurrence of /a/ changes to [e] in the phonetic representation, as in the following words.

(21)

/adas/	→	[ʔades]	"lentil"
/Gafas/	→	[Gafes]	"cage"
/sabad/	→	[sabed]	"basket"
/caftar/	→	[cafter]	"pigeon"
/namac/	→	[namec]	'salt"
/nafas/	→	[nafes]	"breath"

This dissimilation process is the effect of the undominated markedness constraint $*\begin{bmatrix} low \\ -back \end{bmatrix}$-2 which prohibits a sequence of two syllables whose nuclei are filled with the [low] and [-back] vowel [a]. Since in this process the [low] vowel /a/ changes to the [mid] vowel [e], the faithfullness constraint that opposes $*\begin{bmatrix} low \\ -back \end{bmatrix}$-2 is IDENT [low]. This phonological process however does not take place in standard Persian by virtue of the domination of IDENT [low] over $\begin{bmatrix} low \\ -back \end{bmatrix}$-2 in the standard accent.

Tableau (7)

Input:/Gafas/	$*\begin{bmatrix} low \\ -back \end{bmatrix}$ -2	IDENT [low]
a. [Gafas]	*!	
b.☞ [Gafes]		*

4. **Conclusion**

In this paper, we started by introducing the basic concepts of OT , and then in the main part we investigated dissimilation in standard Persian and some other accents and dialects of Persian. We argued that in the environment before [-continuant] plosives /t/ ,/d/ , and /c/, [-continuant] affricates change to [+continuant] fricatives because they lose their plosive element. This is a case of dissimilation in the

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feature [continuant] triggered by one of the two markedness constraints that ban affricate plus /t/ or /d/ or /c/ sequences. We also argued that in the case of changing /dʒ/ to [ʃ] both processes of dissimilation and assimilation are involved. We showed that a case in which the feeding order does not clearly pose challenge to OT.

With regard to the data from other accents and dialects of Persian, we discussed our dealing with cases of dissimilation in features [voice] and [lateral] as well as vowel disharmony each being the effect of markedness constraints *[-voice]-2, *[+lateral]-2, and $*\begin{bmatrix} low \\ -back \end{bmatrix}$-2 respectively.

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بررسی فرایند ناهمگونی در زبان فارسی در چهارچوب نظریه بهینگی

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در این مقاله فرایند ناهمگونی در فارسی و چند لهجه و گویش دیگر فارسی در چهارچوب نظریه بهینگی مورد تحلیل قرار می‌گیرد؛ ابتدا به معرفی نظریه بهینگی و بیان اصول و مبانی آن پرداخته می‌شود، سپس فرایند ناهمگونی در این چهار چوب مورد بررسی قرار می‌گیرد. در این مقاله استدلال می‌شود که نظریه بهینگی بر رویکردهای اشتقاقی برتری دارد. این استدلال مبتنی بر یکی از مواردی است که در آن هر دو فرایند همگونی و ناهمگونی به گونه‌ای رخ می‌دهد که مشخص نیست کدام یک زمینه چین دیگری بوده است.

واژگان کلیدی: نظریه بهینگی، ناهمگونی، محدودیت، واج شناسی فارسی

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