INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH AND KNOWLEDGE
ISSN-2213-1356 www.ijirk.com

Reduplication in Sorani Kurdish[1] within Optimality Theory (OT)

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Abstract

In morphology, word– formation process plays a crucial role. Among word formation– processes reduplication as a fascinating and fun aspect of language is encountered in every language and affects all types of linguistic units. Several studies of reduplication have been done in different languages that lead to many theories. Reduplication, as Charles Kauffman (2015) points out is a morphological process that through doubling a morpheme enhances, emphasizes, amplifies, enlarges, diminishes, adds number or changes verb tense – to bring about significant meaning changes or shades of meaning. Two basic forms of reduplication have been identified: partial reduplication and full reduplication. By providing an OT-based analysis, this article investigates reduplication in Sorani Kurdish. The scope of OT which explains a wide range of linguistic phenomena (including syntax, morphology and phonology) is able to explain reduplication, a constant challenge to rule – based approaches, using constraints. The research method of this study is descriptive – analytic. In order to verify various claims about reduplication in Sorani Kurdish, data have extracted from Kurdish – Kurdish – Persian Dictionary (Hanbane Borina) and some native Kurdish speakers, the intuition of the writer of this article as a native speaker of Sorani as well. The conclusion will summarize the results that various types of reduplication processes based on specific structure satisfy specific constraints. In each reduplication process constraints have a particular ranking. Using different rankings of markedness and faithfulness constraints reduplicated structure will be explained based on the meanings.

1. The Kurdish dialect under discussion is called ‘Sorani’, also known as "Central Kurdish" is the language of a plurality of Kurds of Kurdistan and West Azarbaijan provinces in Iran, and Suleymania, Kerkuk and Arbil provinces in Southern Kurdistan in Iraq, with about 8 million speakers.

Keywords*: reduplication, Sorani Kurdish, Optimality Theory, full, partial, markedness and faithfulness constraints*

1. Introduction

In linguistics, morphology deals with how words are formed and studies their relationship to other words in the same language. It analyzes the structure of words and parts of words, such as stems, root words, prefixes, and suffixes. Affixation is a very common morphological process whereby a bound morpheme, an affix, is attached to a morphological base. New words are made through different processes in different languages. Inflection and derivation are the two main processes of word formation. One form of affixation is rather different from the standard prefixation and suffixation operations, so much so that it is not universally regarded as affixation. This is the phenomenon of reduplication, in which some part of a base or the complete base is copied and attached to the base, either to the left, or to the right, or, occasionally, in the middle (Spencer 1991:13, Haspelmath 2002:38). Basic element in reduplication process is called reduplicant that belongs to one of different grammatical categories (verb, noun, adjective, adverb, etc.). The material reduplicated can be a whole word, a whole morpheme, a syllable or sequence of syllables, or simply a string of consonants and vowels which doesn't form any particular prosodic constituent (i.e. syllable, foot, morpheme, etc.) but a specific meaning is given to the base (Spencer 1991:150). Reduplication can be associated with concepts such as strengthening and weakening which are contradictory. The interesting thing about reduplication is that it involves adding material, just like any other form of affixation, but the identity of the added material is partially or wholly determined by the base. Reduplication serves a wide variety of functions cross-linguistically and within individual languages. These functions range over the standard morphological functions of derivation and inflection. Reduplication can also serve as a phonological concomitant of affixation and even simply as a semantically contentless structural repair. It is possible to distinguish between partial reduplication (involving a segment or a syllable) and complete reduplication (involving a morpheme). Many examples of reduplication in different languages prove that this process expresses different concepts whether in new words or in the inflection. For example, in some languages reduplication is used for nominalization (Spencer 1991:11,150):

1. infinitive: *mambasa* (*to study*) → nominalization: *mambabasa* (*studying*) (Tagalog)
2. infinitive: *dùn (to be tasty)* → nominalization: *didùm* (*taste*) (Yoruba)

In some languages reduplication helps to change the tense from present to future, present perfect, etc. (Spencer 1991:11,150):

3. infinitive: *sulat* (*to write*) → *susulat* (*will write*) (Tagalog)
4. infinitive: *grapho (I write)* → *gegrapha (I have written)* (Classical Greek)

In verbs, reduplication often indicates continuation, frequency or repetition of an event or action.

5. *pik (touch it)* → *pipik (touch it lightly, repeatedly)* (Tzeltal) (Katamba,Stonham 2006:181)
6. *guyon (to jest)* → *guguyon (to jest repeatedly)* (Sundanese) (Katamba,Stonham 2006:181)

Verbs are not the only categories which undergo reduplication, nouns, adjectives and adverbs undergo reduplication, too. Often reduplication has an augmentative meaning. It signals an increase in size, frequency or intensity. This is illustrated by the following:

7. *dolu (full)* → *dopdolu (quite full)* (Turkish) (Katamba,Stonham 2006:182)
8. *dii (to be good)* → *diidii (to be extremely good)* (Thai) (Katamba,Stonham 2006:182)

Conversely, reduplication may have a diminutive effect, often with connotations of endearment as in (9) or simply of attenuation as in (10):

9. *xóyamac (child)* → *xóyamacxóyamac (small child)* (Nez Perce) (Katamba,Stonham 2006:18
10. *kɛ̀ɛ* (old (of people)) → *kɛ̀ɛ - kɛ̀ɛ(elderly)* (Thai) (Katamba,Stonham 2006:182)

In nouns, reduplication often indicates plurality and inclusion:

11. *kurdu (child)* → *kurdukurdu (children)* (Walpiri) (Katamba,Stonham 2006:182)
12. *reo (voice)* → *reoreo (conversation)* (Maori) (Katamba,Stonham 2006:183)

In some other languages part or parts of a prosodic constituent such as a syllable, a morpheme or a word is repeated that ends with no prosodic constituent. For example:

13. *qa.χ (bone)* → *qaqa.χ (bones)* (Quileute) (Katamba,Stonham 2006:184)
14. *gen (to sleep)* → *gen (to be sleeping)* (Shilh) (Katamba,Stonham 2006:184)

Plural form of "Qa.χ" in 13 is made by copying CV of the word and leaves /χ/ behind even though this splits the syllable. Similarly, in Shilh, the first consonant is copied, leaving behind the rest of the syllable. The obvious conclusion to draw from this is that Treating reduplication as nothing more than constituent copying is oversimplification. Example 13, 14 show reduplication process is not a simple constituent copying or affixation. Now the questions are: Which part must be copied? Why? What kinds of specific phonological, morphological and prosodic features of languages determine production of reduplicated words? That's why recent phonological and morphological theories have found reduplication an interesting phenomenon. Phonological and prosodic features of reduplicant have been the subject of studies in generative phonology. These is a close interface between reduplication process and other phonological and morphological rules because reduplication is both phonological and morphological happening. Sometimes separation of these two is a big challenge. On one side the aforementioned process is a kind of affixation it is considered as a morphological process and on the other side reduplicant has exclusive phonological and prosodic properties which are often different from the properties of the base it is taken as a phonological process. Optimality Theory (OT) is one of the recent theories which has given special attention to reduplication process. OT is like other theories of generative grammar in its focus on the investigation of universal principles, linguistic typology and language acquisition. This article is seeking the answer of the following questions within OT: How reduplication in Kurdish works? How can OT cope with the explanation of reduplication in Kurdish? What kinds of constraints are involving for analyzing this process and how are they ranked? To answer these questions data have extracted from Kurdish – Kurdish – Persian Dictionary (Hanbane Borina) and interviewing some native Kurdish speakers. The intuition of the author of this article (Kurdish Native speaker) has been used as another tool of data gathering.

2. Optimality Theory

Around 1990, Alan Prince and Paul Smolensky began collaborating on a new theory of human language. This collaboration led in fairly short order to a book-length manuscript, *Optimality Theory: Constraint Interaction in Generative Grammar*. Photocopies of the manuscript were widely distributed and had a terrific impact on the field of linguistics, even though it wasn't formally published until more than a decade later (as Prince and Smolensky 1993/2004). OT had and continues to have its greatest effect on phonology, but it has also led to important work in syntax, semantics, sociolinguistics, psycholinguistics, historical linguistics, and other areas. OT belongs on anyone's list of the top three developments in the history of generative grammar. One of Prince and Smolensky's goals for OT was to solve a longstanding problem in phonology (McCarthy, John J, 2008:). At the heart of Optimality Theory lies the idea that language, and in fact every grammar, is a system of conflicting forces. These 'forces' are embodied by *constraints*, each of which makes a requirement about some aspect of grammatical output forms. There are two types of constraints in OT: markedness constraints that impose universally unmarked structures on the output, and faithfulness constraints that require strict correspondence to the input form. Constraints are typically conflicting, in the sense that to satisfy one constraint implies the violation of another. The two types of constraints actually consist of families of constraints that involve either markedness or faithfulness constraints. In fact, optimality involves neither *compromise* nor *suppression* of constraints, but instead it is built on (strict) domination of constraints in a

hierarchy (Kager, 1999). These two basic types of constraints compete to provide the optimal output candidate, determined by ranking the set of universal constraints, which selects for the particular language involved. Note that the optimal output is not necessarily the perfect candidate, in that it may have violated certain lower ranked constraints. In this sense, it is the least intractable candidate (Katamba,Stonham 2006:205). No form can satisfy all constraints simultaneously, there must be some mechanism selecting forms that incur 'lesser' constraint violations from others that incur 'more serious' ones.

There are three basic components of the theory:

1. GEN takes an input, and generates the list of possible outputs, or candidates,
2. CON provides the criteria, in the form of strictly ordered violable constraints, used to decide between candidates, and
3. EVAL chooses the optimal candidate based on the constraints, and this candidate is the output.

Optimality Theory assumes that these components are universal. Differences in grammars reflect different rankings of the universal constraint set, CON. Part of acquisition can then be described as the process of adjusting the ranking of these constraints. OT relies on an input-output mapping architecture. For a given input, the grammar generates and evaluates a potentially infinite set of output candidates – the candidate set – which consists of alternative structural realizations of that input. The component of the grammar responsible for generating the candidate set corresponding to a particular input called *Gen* (for Generator). The set of Universal well - formed constraints is called *Con* (for constraints). The component responsible for evaluating the candidate outputs is called *Eval* (for evaluator). Evaluation of candidate outputs relies on a set of hierarchically ranked constraints of *Con*: $C_1 >> C_2 >> \ldots\ldots C_n$. Note that the constraint ranking constitutes the language -particular component of the grammar – that is, it is the only component that admits variation - while the set of constraints itself is claimed to be universal. OT relies on a unique type of constrains to regulate the input-output mapping. This input-output faithfulness constrains limit how far candidate outputs may differ from input. They require the output to express all and only the properties of the input. Faithfulness constrains are crucial to the OT conception and have played a pivotal role since the theory's inception. Without them all input structures would map to the same, least marked, output.

3. Reduplication in Optimality Theory

After publication of two articles of Prince and Smolensky in 1993, OT became popular and base of several studies. McCarthy and Prince (1993, 2001) have investigated prosodic morphology and posed fruitful point about these two fields regarding reduplication. The interesting thing is that almost all studies which have been done within OT about morphology have investigated reduplication. OT is an especially attractive model for reduplication, because it offers a solution to problems which the phenomenon causes in other theories. Within the investigations done on different languages three properties have been found about reduplication patterns (Kager, 1999: 195,196):

1. *invariant prosodic shape*: has no one-to-one relation with a prosodic unit in the base. In both Nootka and Diyari, reduplicants can be described in terms of prosodic units (syllable and foot). However, in neither case does the reduplicant exactly match an analogous prosodic unit in the base.

15. Nootka (σ): *wa:-wa:s-čil* *(not *wa:s-wa:s.čil)*

16. Diyari (Ft): *ṯʲil.pa- ṯʲil.par.ku* *(not *ṯʲil.pa-ṯʲil.par.ku)*

In (15) reduplicant is a part of first syllable of the root, but in (16) reduplicant is a sequence of two syllable in which all of first syllable with some parts of the second reduplicated. For this reason, reduplication cannot be simply ‘constituent copying’.

2. *Unmarkedness of the reduplicant*: The second observation comes after the first property which can also be illustrated by reduplications in Nootka and Diyari. Reduplicants tend to have *unmarked phonological structures*, as compared to the phonotactic options generally allowed in the language.

In both Nootka and Diyari unmarked prosodic structure emerges in the reduplicant prefix, an open syllable. This is interesting since aforementioned languages do not generally ban codas. Nevertheless, we know that open syllables are universally less marked than closed syllables. The unmarked status of open syllables is captured in OT by the constraint No-Coda (Kager, 1999: 196). The reduplicant in Diyari has another prosodic unit called *disyllabic foot.*

3. *Identity of reduplicant and base:* the third and the most important property of reduplication patterns is that reduplicants tend to preserve phonological identity with the base. The pressure towards identity may even happen at the cost of transparency in the application of the phonology that is the reduplicant may undergo some changes (17) from Javanese, but there will be no changes in (18) from the same language:

	Underlying Surface		Reduplicated
17.	a. */donga/ do.ngɔ*	→	*do.ngɔ- do.ngɔ 'prayer'*
	b. */donga-ne/ do.nga.ne*	→	*do.nga.ne- do.nga.ne (*do.ngɔ-do.nga.ne)*
18.	a. */abur/ a. bʊr*	→	*a.bʊ.r-a.bʊr (not *a.bu.r-a.bʊr)*
	b. */abur-e/ a.bu.re*	→	*a.bu.r-a.bu.re 'flight'*

As it is seen in (17b), the process of word-final 'a-*rounding*' /a/ → [ɔ] which applies at the end of the word underapplies in reduplicant. In (18b), another process of *closed syllable laxing* /u/ → [ʊ] overapplies to the reduplicant, even though it fails to meet the structural requirement of a closed syllable. In both cases, the reduplicant maintains segmental identity with the base.

In reduplication process different forces interface and different languages select different types of reconciliations of these conflicts. McCarthy and Prince (1994a, 1995) concluded that faithfulness input-output constraint and identity of reduplicant and base are from the same nature. So, they proposed the notion of correspondence theory. The full theory of reduplication involves correspondence between underlying stem and surface base, between surface base and surface reduplicant, and between underlying stem and surface reduplicant. The following diagram portrays this system of relations:

19. **Basic Model**

Input: /AF_{RED} + **Stem**/

↕ *IO-Faithfulness*

Output: **R** ⇔ **B**

BR-Identity

This model, as depicted in (19), has an input and an output level. The input of reduplication consists of a segmentally empty reduplicative affix, which is abbreviated as Af_{RED} or red, plus the stem to which the affix adjoins. Input faithfulness constraints require that the stem's input specifications be preserved in the output – the 'base' of the base–reduplicant combination. Base–reduplicant identity constraints require that both parts of this output base–reduplicant combination be identical in some respect.

4. Kurdish Reduplication analysis within Optimality Theory

Reduplication in Kurdish is one of the most productive processes. There are generally two kinds of reduplications in Kurdish, each with varied patterns: 1. Full Reduplication and 2. Partial Reduplication.

4.1.1. Full Reduplication

This type of reduplication applies doubling of the entire word. Doubling of entire words or stems enhances or significantly changes the quality of the idea intended by the word. The word is simply repeated, often to yield continuity, increase and the intensity. They sometimes signify the counting and even reduction. In terms of phonological and morphological, second element is like iteration of first element and the emphasis is on its meaning. Total reduplication is the least marked reduplication pattern that occurs in natural languages and may be a true language universal. Repeated morpheme can be noun, adjective, adverb or verb base. There are two types of total reduplication in Kurdish:

a. *CV reduplication*: complete iteration (without adding any element) is displayed as: CV+CV

20. Unreduplicated Reduplicated

zu 'fast' → *zuzu 'very fast'*

re 'way/road' → *rere 'striped'*

du 'two' → *dudu 'a group made of two members'*

b. *CVC reduplication*: complete iteration (without adding any element) is displayed as: CVC+CVC

21. Unreduplicated Reduplicated

jar 'once' → *jarjar 'sometimes'*

læt 'piece' → *lætlæt 'broken into pieces'*

sur 'red' → *sursur 'very clearly'*

taw 'time' → *tawtaw 'occasionally'*

Now let's test these data with OT. In the above examples alignment which is a significant part of OT is seen and it is followed by correspondence. Correspondence entails some constraints. Identity and faithfulness constraints are constraints which play a key role in preserving input. MAX is a constraint works to preserve input by no deletion of the base or reduplicant to choose the optimal candidate.

MAX-IQ (the 'anti-deletion'), MAX-BR (Every element of B has a correspondent in R), DEP-IO (Output segments must have input correspondents. ('No epenthesis')) and DEP-BR (Every element of R has a correspondent in B) are faithfulness constraints are needed for our analysis and their ranking with respect to one another is totally irrelevant to the outcome. NO-CODA (Syllables are open) is the markedness constraint which places at the lowest ranking. To explain total reduplication process in Kurdish constraints are ranked in the following tableau (1):

1. Full Reduplication of /lætlæt/

/læt +RED/	MAX-IQ	MAX-BR	DEP-BR	DEP-IO	NO-CODA
☞ a. læt.læt					**
b. læt.læ		*!			*
c. læ.læ	*!	*			*
d. læt.læ.tæ			*!		*
e. læ.tæ.læt				*!	*

In the above tableau none of MAX-IQ, MAX-BR, DEP-BR and DEP-IO is higher than the other one, that is, there is no conflict among them. For two constraints to be directly rankable, they must conflict; that is, they must disagree in their assessment of a pair of competing output candidates derived from the same input (McCarthy 2008:41). When a constraint is satisfied by a candidates and the other one is violated they are still in conflict. If one of the candidates is winner, the constraint which is violated prefers the winner to the loser, so it must be higher. In the aforementioned tableau faithfulness constraints cannot be ranked but faithfulness constraints dominate. Candidate 'a' optimal is the winner candidate which violated only the lowest constraint. Prince and Smolensky believe that the optimal candidate does not necessarily satisfy all constraints.

Evaluation of candidates by the set of constraints is based on strict domination, and accordingly, satisfaction of higher-ranked constraints has uncompromised priority over satisfaction of lower-ranked ones (Kager, 1999:23). In standard OT constraints are strictly ranked but they are sometimes violable and some of the violations are fatal.

4.1.2. Superadded Full Reduplication

Another group of Kurdish full reduplication involves the addition of some free or bound grammatical morphemes (whether derivational morphemes or clitics) to the base elements. The patterns are divided into two subcategories: medial full reduplication and final full reduplication. If the superadded morpheme is located between the base and the reduplicant, the process involved is called medial full reduplication. However, when the reduplicant appears right after the base element and the output ends in a derivational morpheme, the process is called final full reduplication.

4.1.2.1. Medial Full Reduplication

Medial full reduplication involves locating a free or a bound morpheme between the base and the reduplicant. The free or a bound morpheme which is added to the base may be one of these: æ, æw, e, u. (onsetless syllables). The medial full reduplication under this investigation is made by adding /æ/ between the base and the reduplicant. For example:

22. Unreduplicated Reduplicated

kut	*'hit'*	→	*kutækut*	*'hit repeatedly'*
læq	*'loose'*	→	*læqælæq*	*'wobbling repeatedly'*

In all medial full reduplication, like other full reduplication faithfulness constraints are higher than markedness constraints. It is worth mentioning that Kurdish added morphemes in medial full reduplication have no onset which leads to violation of ONSET (a markedness constraints: avoid onset-less syllables). So this constraint places higher than faithfulness constraints. To satisfy ONSET, final consonant of the base places as the onset of the next syllable but this breaks the alignment of the end of the syllable and the end of the base. The result is violation of ALIGN-R(B-σ) which is defined as: **ALIGN-R**: The right edge of the reduplicant must match the right edge of the prosodic word. (Kager, 1999) To choose the optimal candidate ALIGN-R(B-σ) constraint must be ranked lower than ONSET. Ranking the constraints in medial full reduplication is seen in tableau (2):

2. Medial Full Reduplication of /kutækut/

/kut + æ + RED/	ONSET	MAX-IQ	DEP-BR	DEP-IO	ALIGN-R(B-σ)	NO-CODA
☞ a. ku.tæ.kut					*!	*
b. kut.kut		*!				**
c. kut.æ.kut	*!					**
d. ku.tæ.kutt			*!		*	
e. ku.tæ.ku.tæ				*!	*	

In tableau (2) ONSET and faithfulness constraints are ranked higher ALIGN-R(B-σ) and NO-CODA. As both ALIGN-R(B-σ) and NO-CODA are not in conflict none of them is higher than the other one so they do not play a role in choosing the optimal candidate. Candidate 'c' has fatal violation against ONSET. Candidates 'b,d,e' have violated higher constraints and they cannot be the optimal candidate. Candidate 'a' is the optimal candidate, though it has violated (minimally) both ALIGN-R(B-σ) and NO-CODA.

4.1.2.2. Final Full Reduplication

Another subcategory of Kurdish total reduplication is called final full reduplication in which the base is followed by the reduplicant and a suffix. The most common Kurdish suffixes used in this kind of reduplication are /æ/, /o-kæ/ and /o-ke/. Two examples of this pattern are given in (23):

23. Unreduplicated Reduplicated

a. fər	*'fly'*	→	fərfəræ	*'toy'*
b. xał	*'dot'*	→	xałxałokæ	*'ladybird'*
c. baz	*'jump'*	→	bazbazoke	*'jumping game'*

Reduplicated structure of (23c) is CVC+CVC+V+CV. The first CVC is the base and the second CVC is the reduplicant and the final suffix is made of a vowel and a suffix showing manner. The vowel of this structure is an onsetless syllable. As it was mentioned violation of ONSET is fatal so it places in a higher rank. The ALIGN-R(B-σ) markedness constraint is violated and places in a lower rank. Faithfulness constraints which are determinative in reduplication process place higher than ALIGN-R(B-σ). Both ALIGN-R(B-σ) and NO-CODA have the same rank in hierarchy. Tableau (3) evaluates the final full reduplication which resembles medial full reduplication:

3. Final Full Reduplication of /kutækut/

/baz + RED + o + kæ/	ONSET	MAX-IQ	MAX-BR	ALIGN-R(B-σ)	NO-CODA
☞ a. baz.ba.zo.kæ				*	*
b. baz.baz		*!			**
c. baz.baz.o.kæ	*!			*	**
d. baz.ba.zo		*!	*	*	*

Tableau (3) shows that candidate 'a' is the optimal candidate with minimal violation.

4.2. Partial Reduplication: partial reduplication may come in a variety of forms, from simple consonant gemination or vowel lengthening to a nearly complete copy of a base. This type of reduplication uses a part of the words, typically a syllable that is repeated, changed or deleted not the entire word. There are two types of partial reduplications:

4.2.1. Prefixal Partial Reduplication: reduplicant comes before the base partially (deleted or changed). This process is seen in the following examples:

24. Unreduplicated Reduplicated

a. toz	*'dust'*	→	tæputoz	*'dust and the like'*
b. tʃom	*'river'*	→	tʃælutʃom	*'ready to attack'*
c. kwer	*'blind'*	→	kætukwer	*'absolute blind'*

Examples 'a, b' both have the same morphological structure (CVC+V+ CVC) and the same initial consonant in base and reduplicant but all other elements have different phonological features. To evaluate 'a' some vital constraints are needed: ONSET which arises from insertion of a vowel and ALIGN-R(B-σ) which places in the low rank and IDENT-IQ (HIGH)(If an input segment is [αhigh], then its output correspondent is [αhigh] (Kager, 1999: 395)). As /æ/ has raised to /o/ in candidate 'a' IDENT-IQ (HIGH) is violated, it places in the low rank among faithfulness constraints. There is no consonant correspondence between final consonant of the base and the reduplicant so *IDENT (-vc) B-R (no consonant correspondence between final vowel and

consonant of the base and the reduplicant) becomes active. This constraint bans such correspondence. Ranking of constraints for /tæputoz/ is shown in tableau (4):

4. Prefixal Partial Reduplication of /tæputoz/

/RED + u + toz /	ONSET	DEP-IQ	MAX-IQ	IDENT-IQ	*IDENT (-vc)B-R	ALIGN-R(B-σ)	IDENT-IQ (HIGH)	NO-CODA
☞a. tæ.pu.toz						*	*	*
b. tu.zu-tuz		*!			*!*	*		*
c. tæ.pu.tæp				*!		*	*!	*
d. tæp.u.tuz	*!							*
e. tæ.pu.tu.zo		*!				*		
f. tæ.pu.tu			*!			*		
g. tu.pu.tuz					*!	*		*

Candidates 'e, f' violate DEP-IQ and MAX-IQ, therefore they are not optimal candidates. The vowel of Candidate 'c' has raised and has fatal violation against IDENT-IQ (HIGH) and this is a reason for IDENT-IQ to dominate *IDENT(-vc)B-R. Candidates 'b, g' are not optimal because they have violated *IDENT(-vc)B-R. Candidate 'a' is the optimal candidate in spite of violation ALIGN-R(B-σ), IDENT-IQ (HIGH) and NO-CODA.

4.2. 2. Suffixal Partial Reduplication: reduplicant comes after the base partially (deleted or changed). In this type of reduplication reduplicant is usually meaningless. To certify let's analyze these examples:

25. Unreduplicated Reduplicated

a. rek	*'clean and tidy'*	→	rekupek	*'organized'*
b. ʃax	*'mountain'*	→	ʃaxudax	*'mountains'*
c. kar	*'work'*	→	karubar	*'work and the like'*

In the above examples the first consonant of reduplicant usually changes to a labial consonant and a vowel insertion is seen between base and reduplicant. The morphological structure of these examples is CVC+V+CVC. Prefixal partial reduplication has an onsetless syllable, too, therefore violation of ONSET is fatal so it places in a higher rank. The optimal candidate by satisfying this constraint (ONSET) violates ALIGN-R(B-σ) and it places in the lowest rank. As reduplicant faces some changes, *IDENT(c)B-R is violated by the optimal candidate. According to *IDENT(c)B-R it is not allowed for the first consonant of the base to the same as the first consonant of the reduplicant. So this constraint is ranked lower than other faithfulness constraints. Ranking of constraints for /karubar/ is shown in tableau (5):

5. Suffixal Partial Reduplication of /kutækut/

/kar+u +RED /	ONSET	MAX-IQ	MAX-BR	DEP-BR	*IDENT(c) B-R	ALIGN-R(B-σ)	NO-CODA
☞a. ka.ru.bar						*	*
b. kar.bar		*!					**
c. kar.u.bar	*!						**
d. ka.ru.ba		*!	*			*	*
e. ka.u.bar	*!	*	*				
f. ka.ru.ba.ræ				*!		**	

As we see in tableau (4) the optimal candidate 'a' has violated ALIGN-R(B-σ) and NO-CODA minimally.

5. Conclusion

The present study aimed to analyze and examine full and partial reduplication patterns in Sorani Kurdish within Optimality Theory. The study concluded that all two subcategories involved are capable of being accounted for within Optimality Theory. Optimality theory, as founded by Prince and Smolensky (1993), is a theory of generative linguistics based on the interaction of constraints. The central idea of Optimality Theory (OT) as stated by Kager is that "surface forms of a language reflect resolutions of conflicts between competing demands or constraints. A surface form is 'optimal' in the sense that it incurs the least serious violations of a set of violable constraints, ranked in a language-specific hierarchy" (Kager 1999: xi). The two types of reduplication patterns are semantically as well as phonologically distinct, requiring different constraint rankings to generate the outputs we see.

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