Reduplication without RED: Evidence from Diddly-infixation

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1. Introduction

Diddly-infixation is a novel language game made famous on the television show The Simpsons. The process involves infixation of the nonsense word diddly into a base word with initial stress as well as reduplication of the rhyme of the stressed syllable:

(1)  Diddly-infixation
    
    welcome → wel-diddly-écome
    action → ac-diddly-áction

We argue that the reduplication involved in diddly-infixation is motivated by phonological rather than morphological factors, because it appears only in specific prosodically-determined environments. This runs counter to claims made by Inkelas & Zoll (2005) and Kawahara (2004), who argue that phonological copying consists of epenthesis and feature sharing, and is therefore limited to a single segment and subject to locality restrictions. The reduplication in diddly-infixation is non-local and larger than a single segment, and as such is better captured by an account of phonologically-driven reduplication that involves copying via correspondence (McCarthy & Prince, 1995).

In this paper, we discuss the results of parallel questionnaire studies, one testing reduplicative preferences in diddly-infixation and the other testing reduplicative preferences in the related process of expletive (fuckin) infixation (McCarthy, 1982), which does not involve reduplication (e.g. fan-fuckin-tastic). In these experiments, speakers were asked to extrapolate patterns of reduplication to words with stress patterns other than those canonically found with the infixation processes under consideration.

With diddly-infixation, the majority of our subjects preferred reduplicative forms in words with initial stress (wel-diddly-écome) but dispreferred reduplication when stress was non-initial (fan-diddly-tastic rather than fantas-diddly-astic). We argue that this asymmetry can be accounted for with reference to phonological factors: reduplication is necessary in initial-stress words in order to allow both infixation and correspondence between the position of main stress in the base and the derived form. We provide an account of this process using Optimality Theory (OT)(Prince & Smolensky, 1993/2004), showing the interaction between Output-Output faithfulness to main stress (Benua, 1997) and a preference for right-aligned word stress in English.

With fuckin-infixation, speakers behaved as expected with respect to non-initial stress words (fan-fuckin-tastic) but the majority dispreferred infixation in words with initial stress, either with or without reduplication (*wel-fuckin-come, *wel-fuckin-écome). We argue that this difference relates to the ability of fuckin to appear as an independent, non-infixed word (fuckin-welcome), a possibility which is not available for diddly (*diddly-welcome).1

This paper is organized as follows. Section 2 provides background on diddly-infixation and phonologically-driven reduplication. Section 3 discusses the questionnaire study on diddly-infixation and provides an OT analysis of the phenomenon. Section 4 discusses the questionnaire study on fuckin-infixation. Section 5 concludes the paper.

1 Thank you to Lyn Frazier, John Kingston, John McCarthy, and the audiences at UMass Phonology Group and WCCFL 27 for many insightful comments. This research was partially supported by the Social Sciences and Humanities Research Council of Canada. All remaining errors are our own.

1 The use of the word diddly as an infix is distinct from its use in expressions such as diddly-squat or diddly-shit — see Section 4.3 for further discussion.

2. Background
2.1. Diddly-infixation

Diddly-infixation is a form of expletive infixation popularized by the speech of Ned Flanders on the television show *The Simpsons*. Even while those familiar with the show may not be aware of the process or use it productively in everyday life, it shares with other language games the characteristic of being easily generalized by speakers to be applied to a variety of environments.

In the most canonical examples of diddly-infixation, such as those most often used on the television show, the nonsense word *diddly* infixes following an initial stressed syllable, and triggers reduplication:

\[(2) \text{ Canonical Examples} \]
\[
\begin{align*}
\text{w´ elcome} & \rightarrow \text{wel-diddly-élc\text{o}me} \\
\text{áction} & \rightarrow \text{ac-diddly-áct\text{\text{o}n}} \\
\text{múrder} & \rightarrow \text{mur-diddly-úr\text{\text{d}er}} \\
\text{órd\text{\text{é}r}} & \rightarrow \text{or-diddly-órd\text{\text{é}r}}
\end{align*}
\]

As is common in language games involving infixation (Yu, 2007), diddly only ever occurs as an infix, never as a prefix or a suffix:

\[(3) \text{ Obligatory Infixation} \]
\[
\begin{align*}
\text{w´ elcome} & \rightarrow *\text{diddly-wélc\text{o}me} \\
\text{órd\text{\text{é}r}} & \rightarrow *\text{diddly-órd\text{\text{é}r}}
\end{align*}
\]

This offers a stark contrast to other types of infixation, where the infix can appear outside the word (see, e.g., Prince & Smolensky (1993/2004); McCarthy & Prince (1986, 1990, 1993); Yu (2007)). For example, the material that can infix in expletive infixation in English (McCarthy, 1982) can also appear outside the word:

\[(4) \text{ Non-obligatory Infixation} \]
\[
\begin{align*}
\text{fant\text{\text{á}stic}} & \rightarrow \text{fan-fuckin-tástic, fuckin-fant\text{\text{á}stic}} \\
\text{incr\text{\text{é}dible}} & \rightarrow \text{in-fuckin-cred\text{\text{é}ible, fuckin-incred\text{\text{é}ible}}}
\end{align*}
\]

Diddly-infixation also differs from other types of infixation by targeting words with initial stress, as seen in the above examples. Expletive infixation in English typically involve base words with non-initial stress, and these cases do not involve reduplication:

\[(5) \text{ Fuckin-infixation} \]
\[
\begin{align*}
\text{fant\text{\text{á}stic}} & \rightarrow \text{fan-fuckin-tástic} \\
\text{incr\text{\text{é}dible}} & \rightarrow \text{in-fuckin-cred\text{\text{é}ible}}
\end{align*}
\]

We hypothesize that reduplication is used as a phonological repair. Because diddly must appear within the word, infixing it into words with initial stress poses difficulties for stress assignment that are not found when infixation occurs in words where stress is non-initial. Reduplication might then occur to allow the position of stress to remain faithful to its base form. If this is the case, the reduplication that comes with diddly-infixation is expected to occur only in this environment and not as an integral part of the process. This hypothesis was tested in the two parallel questionnaire studies discussed below.

2.2. Phonologically-driven reduplication

Yu (2004, 2005), Inkelas & Zoll (2005), Kawahara (2001, 2004) and others have noted that phonological copying can serve as a phonological repair, resolving marked configurations like illicit clusters or onsetless syllables. For example, the vocalic plural marker in Hausa infixes between consonants in a stem-final cluster. If no cluster is available, a single consonant reduplicates:

\[\text{Data are from The Simpsons Archive, http://www.snpp.net/guides/flanders.file.html}\]
(6) Hausa (Newman, 1972)

<table>
<thead>
<tr>
<th>Root</th>
<th>Singular</th>
<th>Plural</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. gurb</td>
<td>gurbii</td>
<td>guräabuu</td>
<td>‘hollow place’</td>
</tr>
<tr>
<td>b. turk</td>
<td>turkèe</td>
<td>turàakuu</td>
<td>‘tethering post’</td>
</tr>
<tr>
<td>c. gaɓ</td>
<td>gafàa</td>
<td>gaɓàfu</td>
<td>‘joint, limb’</td>
</tr>
<tr>
<td>d. kaf</td>
<td>kafàa</td>
<td>kafafuu</td>
<td>‘foot’</td>
</tr>
</tbody>
</table>

In (6a-b), the stem ends in a cluster, and the plural morpheme `aa infixes between the two consonants. However, in (6c-d), the stem ends in a single consonant which reduplicates, and `aa infixes between the two copies. In this case, reduplication does not contribute to the meaning of the form. This differs from reduplication as a morphological phenomenon, where it originates as an abstract RED morpheme (McCarthy & Prince, 1995) which carries semantic content.

Inkelas & Zoll (2005) and Kawahara (2004) claim that phonologically-driven reduplication is limited to a single segment and subject to locality restrictions. Yu (2005) argues against the single-segment limit on the basis of ma-infixation (Yu, 2004) and Cantonese loanword adaptation. Another example involves syllable reduplication by German children to satisfy minimal word requirements:

(7) German Child Speech (Dressler et al., 2005)

<table>
<thead>
<tr>
<th>Adult Form</th>
<th>Jan, 1;3</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Bär ‘bear’</td>
<td>bebe</td>
</tr>
<tr>
<td>b. Bauch ‘belly’</td>
<td>baubau</td>
</tr>
</tbody>
</table>

In addition, under Kawahara (2004)’s analysis, phonologically-driven reduplication must necessarily be radically local — the two copies must be adjacent on some tier. In other words, vowels can copy across consonants, but not other vowels, and consonants can copy across vowels, but not other consonants. This is a consequence of the fact that, according to both Inkelas & Zoll and Kawahara, what appears to be “copying” is in fact the result of epenthesis plus assimilation. An epenthesized segment receives its features by sharing them with another (necessarily local) segment.

*Didddy*-infixation, if phonologically-motivated, provides evidence against both the single-segment limit and the locality restriction, since the material copied is the rhyme of a syllable, not a single segment, and copying occurs across the infixed word:

(8) Multiple Segments

- welcome $\rightarrow$ wel-diddly-écome
- action $\rightarrow$ ac-diddly-áction

Non-locality of the sort seen in *diddly*-infixation is not compatible with an epenthesis-plus-feature-spreading account like Kawahara’s, since it would require feature spreading to skip intervening segments. To account for non-local, multi-segment phonological copying, it is necessary to posit that there is in fact copying involved — copying via correspondence relationships (McCarthy & Prince, 1995) may be non-local, and correspondence relationships may hold between segments in a string in addition to single segments.

2.3. Summary

*Didddy*-infixation is a novel language-game process that involves obligatory infixation of the nonsense word *diddly* into base words with initial stress. In these words, infixation always involves reduplication of the rhyme of the stressed syllable, and in the resulting form, the infix *diddly* precedes the main stress.

As discussed above, *diddly*-infixation differs from other forms of expletive infixation in English which may appear as an independent word, typically do not involve reduplication, and target base words with non-initial stress. Didddy-infixation also differs from certain cases of phonologically-driven copying in that it involves reduplication of more than a single segment, and the two copies are non-local. This

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3Inkelas & Zoll (2005) refer to the phenomenon as “phonological copying”, while Kawahara (2004) uses the term “echo epenthesis”.
paper seeks to question the extent to which the reduplication associated with diddly infixation can be considered to be an example of non-local, prosodically-driven reduplication.

3. Experiment 1: Diddly-infixation

We conducted a questionnaire study intended to test the preferences of native English speakers with respect to reduplication in diddly-infixation. In order to probe the hypothesis that the location of word stress (initial vs. non-initial) crucially correlates with the presence of reduplication, we presented our subjects with words containing a variety of stress patterns and asked them to choose their preferred form. Our hypothesis is that if reduplication in diddly-infixation is acting as a phonological repair, it will appear only where it is phonologically improving (see Section 3.3 for discussion of the motivations for the repair). If, on the other hand, it is a meaningful part of the process, it will appear in all environments.

3.1. Methods

The questionnaire study was performed on 113 undergraduate students who were all native speakers of English. Subjects were trained on canonical examples of diddly-infixation, five initial-stress words with reduplication and one monosyllabic example. They were then presented with initial-stress words, non-initial-stress words, and monosyllabic words. The complete word list is given in (9):

(9) List of words used in Experiment 1

<table>
<thead>
<tr>
<th>Initial Stress</th>
<th>Non-Initial Stress</th>
<th>Monosyllabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0</td>
<td>2 1 0</td>
<td>2 0 1 0</td>
</tr>
<tr>
<td>captain</td>
<td>artistic</td>
<td>anaconda</td>
</tr>
<tr>
<td>maple</td>
<td>magnetic</td>
<td>application</td>
</tr>
<tr>
<td>panther</td>
<td>October</td>
<td>California</td>
</tr>
<tr>
<td>pilot</td>
<td>pandemic</td>
<td>information</td>
</tr>
<tr>
<td>serpent</td>
<td>umbrella</td>
<td>intervention</td>
</tr>
<tr>
<td>winter</td>
<td>Wisconsin</td>
<td>Massachusetts</td>
</tr>
</tbody>
</table>

For words with initial and non-initial stress, subjects were asked to choose between infixation with and without reduplication, and were given options for “both” and “neither”. An example of the task is given in (10):

(10) Winter

A) win-diddly-inter
B) win-diddly-ter
C) A and B are equally acceptable
D) Neither A nor B is at all acceptable

For monosyllabic words, the choice was between reduplication of all or part of a coda cluster (e.g. jump-diddly-ump vs. jum-diddly-ump), and were again given choices for “both” and “neither”. A and B responses were counterbalanced, and examples were presented in pseudo-random order.

Reduplication is predicted in initial-stress and monosyllabic words, regardless of whether reduplication in diddly-infixation is phonologically-conditioned or is morphological:

(11) Predictions: Initial Stress

<table>
<thead>
<tr>
<th>Stress Pattern</th>
<th>Morphologically Driven</th>
<th>Phonologically Driven</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0 (captain)</td>
<td>Reduplication</td>
<td>Reduplication</td>
</tr>
<tr>
<td></td>
<td>(cap-diddly-aptain)</td>
<td>(cap-diddly-aptain)</td>
</tr>
<tr>
<td>1 (bite)</td>
<td>Reduplication</td>
<td>Reduplication</td>
</tr>
<tr>
<td></td>
<td>(bi-diddly-ite)</td>
<td>(bi-diddly-ite)</td>
</tr>
</tbody>
</table>

*Examples of this type appear frequently on The Simpsons and were used as training in this experiment.*
However, reduplication should be dispreferred in words with non-initial-stress if copying is being used as a phonological repair. On the other hand, if reduplication is indeed morphological, it should occur regardless of the placement of main stress:

(12) Predictions: Non-Initial Stress\(^5\)

<table>
<thead>
<tr>
<th>Stress Pattern</th>
<th>Morphologically Driven</th>
<th>Phonologically Driven</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 1 0 (artistic)</td>
<td>Reduplication (artis-diddly-istic)</td>
<td>No Reduplication (ar-diddly-tistic)</td>
</tr>
<tr>
<td>2 0 1 0 (anaconda)</td>
<td>Reduplication (anacon-diddly-onda)</td>
<td>No Reduplication (ana-diddly-conda)</td>
</tr>
</tbody>
</table>

3.2. Results

In initial-stress words, the majority of participants preferred the reduplicative form to any of the other responses, including non-reduplication. Similarly, speakers preferred to reduplicate simple codas in monosyllabic words. In contrast, speakers preferred not to reduplicate in words with non-initial stress. This is illustrated in the following two tables:

(13) Questionnaire Responses: Initial Stress.

<table>
<thead>
<tr>
<th>Response</th>
<th>Reduplication (cap-diddly-aptain)</th>
<th>Non-reduplication (cap-diddly-tain)</th>
<th>Both</th>
<th>Neither</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>62%</td>
<td>25%</td>
<td>5%</td>
<td>8%</td>
</tr>
</tbody>
</table>

(14) Questionnaire Responses: Non-Initial Stress

<table>
<thead>
<tr>
<th>Response</th>
<th>Reduplication (anacon-diddly-onda)</th>
<th>Non-reduplication (ana-diddly-conda)</th>
<th>Both</th>
<th>Neither</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>17%</td>
<td>56%</td>
<td>7%</td>
<td>19%</td>
</tr>
</tbody>
</table>

(15) Questionnaire Responses: Monosyllabic Words

<table>
<thead>
<tr>
<th>Response</th>
<th>Reduplication (jum-diddly-ump)</th>
<th>Non-reduplication (jump-diddly-ump)</th>
<th>Both</th>
<th>Neither</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>47%</td>
<td>19%</td>
<td>10%</td>
<td>24%</td>
</tr>
</tbody>
</table>

The results of the study support the assertion that the preference for reduplication is phonologically-conditioned: speakers prefer to reduplicate with initial stress and monosyllabic words, but not with non-initial stress words. If reduplication was morphological (i.e. not phonologically-conditioned), reduplication should have been preferred in all forms.

3.3. Analysis: Motivating Reduplication

The results of the experiment conform to the hypothesis that reduplication in words with initial stress is conditioned by phonological factors:

(16) Reduplicated and Non-Reduplicated Forms

<table>
<thead>
<tr>
<th>Non-Reduplicated</th>
<th>Reduplicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>anaconda → ana-diddly-conda</td>
<td>winter → win-diddly-inter</td>
</tr>
<tr>
<td>artistic → ar-diddly-tistic</td>
<td>captain → cap-diddly-aptain</td>
</tr>
</tbody>
</table>

\(^5\)Examples involving non-initial stress do not typically appear on *The Simpsons.*
We argue that by reduplicating, speakers create an environment where *diddly* can be infixed without disrupting the assignment of primary stress. In this section, we develop an account of the infixation patterns using OT, where prosodic constraints interact with a faithfulness constraint banning reduplication.

When stress is initial, *diddly* cannot precede the stressed syllable without preceding the entire word. As discussed previously, *diddly* may not appear outside the word, as is common with language games that involve infixation (Yu, 2007). However, if *diddly* is infixed following the main the main stress, it will disrupt the normal application of English word stress. Assuming that primary word stress in English normally occurs on the stressed syllable of the rightmost foot as long as it is non-final (Liberman & Prince, 1977), infixing *diddly* within a word with initial stress would require either that *diddly* bear main stress or that the main stress occur on a foot which is not rightmost:

(17) Two possibilities

| welcoming | → | a. wël-diddly-come |
|           |   | b. wël-diddly-come |

However, both of these possibilities violate prosodic constraints. Possibility (17a) violates the markedness constraint 1ARYR, which requires word stress to occur on the rightmost foot:6

(18) 1ARYR: assign one violation mark for every prosodic word whose head is not the rightmost foot.

Possibility (17b) violates a correspondence constraint on Output-Output faithfulness (OO-Faith) (Benua, 1997), which requires transderivational correspondence between the base and morphologically-related forms. When main stress falls on *diddly* rather than on the initial syllable of the target word, OO-faithfulness to main stress is violated even though 1ARYR is satisfied. This constraint can be formalized as follows:

(19) OO-1ARY: assign one violation mark for every word where the head foot in the base does not correspond to the head foot in the derived form of the base.

By reduplicating the initial syllable, the infix precedes the head foot while allowing the main stressed syllable to satisfy both 1ARYR and OO-1ARY. Reduplication violates the faithfulness constraint INTEGRITY (McCarthy & Prince, 1995), which is dominated by both 1ARYR and OO-1ARY:

(20) INTEGRITY: assign one violation mark for every segment in the input that has two correspondents in the output.

<table>
<thead>
<tr>
<th></th>
<th>1ARYR</th>
<th>OO-1ARY</th>
<th>INTEGRITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>(wël)(come+diddly)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. (wël)(diddly)(e)(come)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>b. (wël)(diddly)(come)</td>
<td>W₁</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>c. (wël)(diddly)(come)</td>
<td>W₁</td>
<td>L</td>
<td></td>
</tr>
</tbody>
</table>

As discussed above, *diddly* is infixed without reduplication when stress is non-initial:

(22) Non-Initial Stress

<table>
<thead>
<tr>
<th></th>
<th>→</th>
</tr>
</thead>
<tbody>
<tr>
<td>anacónda</td>
<td>ana-diddly-cónda</td>
</tr>
<tr>
<td>fantástic</td>
<td>fan-diddly-tástic</td>
</tr>
</tbody>
</table>

This generalization falls easily from the above analysis, because the infixed forms satisfy both 1ARYR and OO-1ARY. Reduplication gratuitously violates INTEGRITY, and is therefore avoided:

It should be noted that English stress is subject to some degree of exceptionality — words like *salamander* and *Lådefoged*, for example, run counter to the generalization expressed by 1ARYR. However, these cases may be accounted for by suggesting that there is exceptional foot extrametricality in English. Foot extrametricality does nothing to help the cases in (17), and reduplication is a necessary repair here.
In summary, reduplication is used with initial stress words to allow infixation without violating OO-1ARY or 1ARYR. However, reduplication is not necessary when stress is non-initial, because diddly can be infixed without violating either constraint. The distribution of reduplication as shown in the results of our experiment support this analysis, where reduplication is conditioned by phonological constraints and is not a meaningful part of the process. Further, diddly-infixation involves reduplication of more than a single segment where the two copies are not adjacent, because they are separated by the infix. This aspect supports the claim that phonologically-driven reduplication can be non-local and can exceed a single segment.

One advantage of this analysis is that it relies on speakers’ knowledge of their own grammar. Experiments like the one discussed above are interesting cases of the poverty of the stimulus problem — speakers are asked to create generalizations about a process and extrapolate these generalizations to new situations based on extremely little data. Given only six examples, subjects were able to make remarkably consistent decisions about how that process should apply with a stress pattern they have not seen it applied to before.

This ability is unexpected under a subcategorization approach to infixation processes like the one proposed by Yu (2007) — the problem of learning an extrapolation should be too great. However, if speakers are making generalizations about the patterns involved in novel tasks (like infixing language games) based on grammatical knowledge they already have, the ability to extrapolate based on so few examples is entirely plausible.

4. Experiment 2: Expletive Infixation

As discussed above, the results of the experiment on diddly-infixation showed that subjects were willing to infix diddly without reduplication when reduplication did not allow for the satisfaction of the two higher-ranked constraints 1ARYR and OO-1ARY. We conducted a second, similar, experiment on fuckin infixation, which asked whether or not speakers are willing to reduplicate with a different infix where it would be necessary. Unlike diddly-infixation, fuckin-infixation typically operates on non-initial stress words. This experiment tested the behavior of fuckin in initial-stress words: if reduplication is possible as a phonological repair in diddly-infixation, it should be a possible repair for fuckin-infixation as well.

4.1. Methods

The experiment was performed on 119 undergraduate students who had not participated in the previous experiment and elicited reduplicative preferences in fuckin-infixation. In this experiment, subjects were trained on four canonical examples consisting of infixation with non-initial word stress (e.g. fan-fuckin-tastic, in-fuckin-credible). The task was the same as in the previous experiment: subjects were presented with initial-stress words, non-initial-stress words, and monosyllabic words using the same word list as in Experiment 1. As before, speakers were presented with a choice between infixation with reduplication and infixation without reduplication for initial and non-initial stress, and between simple and complex coda reduplication for monosyllabic words. Speakers were also offered the option of choosing both or neither option.

4.2. Results

In non-initial stress words, subjects preferred non-reduplication:

\[ \begin{array}{|c|c|c|}
\hline
(\text{fan})(\text{t} \ast \text{s})(\text{tic}+\text{diddly}) & 1 \text{ARY} & \text{OO-1ARY} \\
\hline
\text{a.} & \text{(fan)}(\text{diddly})(\text{t} \ast \text{s})(\text{tic}) & \\
\hline
\text{b.} & (\text{fan})(\text{t} \ast \text{s})(\text{diddly})(\text{t} \ast \text{s})(\text{tic}) & \text{W}_2 \\
\hline
\end{array} \]

[7] In this case, restrictions on metrical structure in English — see McCarthy (1982) for similar claims about grammatical knowledge in fuckin infixation.
(24) Questionnaire Responses: Non-Initial Stress

\[ Binomial \, probability \, Non-Redup \, vs \, Neither: \, z = 8.58, \, SE = 0.10, \, p < 0.05 \]

<table>
<thead>
<tr>
<th>Reduplication (anacon-fuckin-onda)</th>
<th>&lt; 1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-reduplication (ana-fuckin-conda)</td>
<td>89%</td>
</tr>
<tr>
<td>Both</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Neither</td>
<td>10%</td>
</tr>
</tbody>
</table>

In contrast, subjects preferred neither option for infixation when presented with initial-stress words or monosyllabic words:

(25) Questionnaire Responses: Initial Stress

\[ Binomial \, probability \, Non-Redup \, vs \, Neither: \, z = -0.29, \, SE = 0.10, \, p < 0.05 \]

<table>
<thead>
<tr>
<th>Reduplication (cap-fuckin-aptain)</th>
<th>7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-reduplication (cap-fuckin-tain)</td>
<td>39%</td>
</tr>
<tr>
<td>Both</td>
<td>2%</td>
</tr>
<tr>
<td>Neither</td>
<td>51%</td>
</tr>
</tbody>
</table>

(26) Questionnaire Responses: Monosyllabic Words

\[ Binomial \, probability \, Non-Redup \, vs \, Neither: \, z = 5.43, \, SE = 0.13, \, p < 0.05 \]

<table>
<thead>
<tr>
<th>Simple coda (jum-fuckin-ump)</th>
<th>9%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex coda (jump-fuckin-ump)</td>
<td>2%</td>
</tr>
<tr>
<td>Both</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Neither</td>
<td>89%</td>
</tr>
</tbody>
</table>

In summary, subjects preferred non-reduplication in non-initial stress words. In initial-stress and monosyllabic words, speakers chose neither infixation option.

4.3. Analysis

The results of Experiment 2 suggest that fuckin behaves differently from diddly with respect to the subjects’ willingness to reduplicate in initial-stress words: reduplication is dispreferred in fuckin-infixation, but preferred in diddly-infixation. We suggest that this difference stems from the fact that, unlike diddly, fuckin may appear outside of the word:

(27) Non-Infixed Forms

\[
\begin{align*}
\text{welcome} & \rightarrow *\text{diddly-welcome} \\
& \rightarrow \text{fuckin-welcome} \\
\text{fantastic} & \rightarrow *\text{diddly-fantastic} \\
& \rightarrow \text{fuckin-fantastic}
\end{align*}
\]

In the case of fuckin, the poverty of the stimulus is less extreme than with diddly. Speakers have almost certainly encountered non-infixed forms with fuckin, and are aware that fuckin’ fantastic and fan-fuckin-tastic are approximately equivalent in meaning.\(^8\)

Because speakers are familiar with both the non-infixed and the infixed form of fuckin, they may be aware that reduplication is not the only possible option for infixation in initial-stress words. Placing fuckin outside the word would not significantly alter the meaning expressed, but would resolve the prosodic dilemma. Because the questionnaire did not provide them with the non-infixing option for fuckin, a “neither” response would plausibly include the non-infixed form and the choice of this response by our subjects may be reflecting this option.

In contrast, because diddly does not have a non-infixed form that can serve as an alternative to infixation. Speakers have likely encountered forms like diddly-squat and diddly-shit, but these do not contribute the same meaning as the infixed version. Furthermore, use of diddly here is connected closely

\(^8\)The exact meaning of fuckin is not straightforward to describe, as it is used as an expressive — see Potts (2003) for more on the semantics of expressives.
to specific lexical items, and the use of *diddly* outside the word is unacceptable with other cases — the use of *diddly* in these particular items is distinct from its use as an infix. Because speakers have no prior knowledge of *diddly* outside the word as an alternative to the infixed form, the fact that such forms did not appear in the training set means that speakers would not posit non-infixation as an acceptable alternative repair to reduplication.

5. Conclusion

In this paper, we have provided experimental evidence that supports the assertion that the reduplication found in *diddly*-infixation is phonologically-conditioned: for the majority of speakers, it is used only when it is necessary to satisfy high-ranking prosodic constraints. Specifically, we argued that reduplication in *diddly*-infixation is triggered by the constraints 1ARY and OO-1ARY, which outrank INTEGRITY. This result provides further evidence for the claim that phonologically-driven reduplication can be non-local and can exceed a single segment.

Finally, we suggested that the absence of reduplication in *fuckin*-infixation was the result of the subjects’ knowledge that *fuckin* can occur outside of the word. This contrasted with *diddly*, which can only be found in an infixation environment. This finding supported the above analysis by showing that infixation is marked for *fuckin* in the same environment that triggers reduplication with *diddly*.

With *diddly*-infixation, subjects drew robust generalizations based on very little evidence, suggesting that processes like infixing language games make use of speakers’ grammatical knowledge. In our analysis, constraint rankings governing the placement of primary stress in English give rise to generalizations about the placement of the infix. However, reduplication is not typically used as a repair strategy in English. Yu (2007) suggests that reduplication is particularly common among language games, and Ferguson (1983) and others have noted that non-morphological reduplication is widespread in child phonology. Further research is needed to determine why reduplication is so often preferred over alternative repairs.

References


