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Prepositionalities of Deverbal Prepositions:
Differences in Degree of Grammaticalization*

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1. Introduction
How do lexical items change into grammatical forms? Recently, many linguists have become interested in this topic, undertaking studies on grammaticalization to investigate the diachronic change of the grammatical category from “content words” to “function words.” Among the linguistic phenomena that undergo such change, what have been termed “deverbal prepositions” such as during, failing, notwithstanding, except, and past are cases in point (Fukaya 1997; Kortmann and König 1992). Previous studies have provided empirical analyses of the diachronic development of lexical items and their pathways of grammaticalization based on data from the Oxford English Dictionary (OED) or from historical corpora such as the Corpus of Historical American English (COHA). They have analyzed individual lexical items such as following (Olofsson 1990), considering (Kawabata 2003), excluding (Hayashi 2013b), barring (Hayashi in press), seeing/supposing (that) (Mair 2004), notwithstanding (Rissanen 2002), and supposing (Visconti 2004).

The aim of this research, however, is to demonstrate the degree of grammaticalization of the items, presupposing that the process whereby verbs are grammaticalized into prepositions is gradual (see Hopper and Traugott 2003: 107), and that this categorical change from verbs to prepositions can therefore be examined in terms of an incremental transfer from the verbal to the prepositional pole. The current investigation suggests that these items are better analyzed with respect to their degree of “verbality” and/or “prepositionality” to avoid creating a dichotomy between verbs and prepositions. The objects of analysis in this study are 37 deverbal prepositions collected from previous studies and dictionaries:\(^1\)

(1) according to, allowing for, bar, barring, bating, concerning, confronting, considering, covering, depending on, during, except, excepting, excluding, facing, failing, following, given, granted, granting, including, lacking, notwithstanding, owing to, past, pending, pertaining to,

preceding, regarding, related to, respecting, save, saving, starting, succeeding, touching, wanting

Note that Kortmann and König (1992) indicate that deverbal prepositions are “marginal in their lexical class,” because of the following five characteristics:

(2)  a. low frequency (often due to stylistic constraints)
    b. number of syllables
    c. exclusion from syntactic rules typical of the core group of prepositions (such as preposition stranding)
    d. restricted range of meanings
    e. conversion of verbal properties (for example, deictic character of come and ago, combinability with adverbs)

(ibid.: 683)

Thus, the prepositionality of these items will be examined in terms of whether or not they behave as typical prepositions grammatically (or syntactically). This study analyzes the items using the judgments or characteristics of PPs (prepositional phrases) that have been employed in previous studies, such as (i) the cleft construction (Emonds 1976: 132–134, 173–174) and (ii) “behavior of the particle right“(ibid.: 174–175).

2. Previous studies
2.1 Theoretical backgrounds

It is widely known that the process of grammaticalization displays certain characteristics. For instance, Hopper (1991) proposes five principles of grammaticalization: layering, divergence, specialization, persistence, and decategorialization. Hopper and Traugott (2003) also note the principles of pragmatic inferencing, semantic bleaching, renewal, and reanalysis. In what follows, I aim to investigate the phenomenon of decategorialization in more detail since it is highly relevant to the grammaticalization of deverbal prepositions.

Hopper and Traugott (2003: 107) claim that “when a form undergoes grammaticalization from a lexical to a grammatical form... it tends to lose the morphological and syntactic properties that would identify it as a full member of a major grammatical category such as noun or verb.” This kind of change is manifested as “a cline of categoriality”:

(3) major category (> intermediate category) > minor category

(ibid.)
They further claim that major categories such as nouns and verbs are relatively “open” classes, while minor categories such as prepositions and conjunctions are relatively “closed” classes. They also indicate that “adjectives and adverbs comprise an intermediate degree between the major and minor categories” (ibid.). Moreover, they maintain that this categorical change, as shown in (3), has “unidirectionality”: the change can only occur from major to minor categories and not from minor to major categories.

In fact, Hopper (1991: 31) takes considering in (4) as an example and claims that it “has no properties of the verb to consider” and “is perhaps to be described as a preposition” as it does not hold syntactic constraints in “co-reference.” By co-reference he means that “at least the written language requires that the subject of the main clause and the understood subject of the participal clause be identical” (ibid.).

(4) Considering its narrow beam, the boat is remarkably sea-worthy. (ibid.; italics mine)

Many deverbal prepositions, called “dangling participles” (see Akimoto 2014: 190; Kortmann and König 1992: 679; Olofsson 1990: 24), behave in the same way grammatically as considering. Referring to Hopper’s (1991) principle of “layering,” Akimoto (2014: 190) claims that syntactic ambiguity can be observed in the grammaticalizing process whereby dangling participles can function both verbally and prepositionally. He observes some examples of considering in which its behavior is interpretable both as a present participle and as a preposition, because there are many cases of considering in which the subject is the same in the main clause and subordinate clause (Akimoto 2014: 185). This kind of ambiguity has been gradually lost over time, but both uses of considering (as preposition and participle) can still be observed in present-day English (ibid.: 190; italics in original).

Regarding decategorialization, Hopper and Traugott (2003: 108) claim that “as they have grammaticalized, verbs may lose such verb-like attributes as the ability to show variation in tense, aspect, modality, and person-number marking,” as in (5).

(5) a. Carefully considering/Having carefully considered all the evidence, the panel delivered its verdict.

b. Considering (‘Having carefully considered) you are so short, your skill at basketball is unexpected.

(ibid.; italics mine)

Hopper and Traugott claim that the participle considering in (5a) can collocate with an adverb modifier carefully, and its tense can be either present or past to meet the subject-identification rule; on the other hand, considering in (5b) is understood as a
conjunction, because “none of these verb-like attributes are available to considering” (ibid.). This paper adopts Hopper and Traugott’s assumption of decategorialization, meaning that verbs may gradually become grammaticalized as prepositions and that this categorical change, i.e., the pathway of grammaticalization, has unidirectionality.

### 2.2 Gradualness in the degree of prepositionality

In their study, Kortmann and König (1992: 684) argue for a “gradient with respect to the degree of reanalysis of participles as prepositions,” represented as follows:

![Figure 1: Gradient with respect to the degree of reanalysis of participles as prepositions (ibid.)](image)

In Figure 1, past, ago and bar “exhibit the highest degree of reanalysis,” i.e., they are at the highest degree of prepositionality. This may be because they are all “monomorphematic” and it is unclear if they originated as derivations from other words. The next level of participle, including during and pending, also marks a relatively high degree of reanalysis; however, as it consists of complex morphemes, it is clear how they have developed into prepositions, despite the fact that their underlying verb stems are not in current use. Participles such as according to, allowing (for), and owing to are of a lower degree because they are more complex in form than during and pending. Lastly, facing, lining, preceding, succeeding, failing, barring, and following have partially functional or semantic similarity to typical prepositions such as after, before, or about, with which they can be replaced in a specific context.

Another study of note was that of Fukaya (1997), which utilized a corpus-based survey of the 14 -ing prepositions cited in Sinclair (1991): according to, barring, concerning, considering, depending on, during, excepting, excluding, following, including, notwithstanding, owing to, pending, and regarding. He examined three “prepositional properties”: (i) “subject interpretation,” (ii) pied piping and stranding, and (iii) “development into prepositional adverbs” (Fukaya 1997: 287 – 293) to demonstrate the gradualness of their grammaticalization. Subject interpretation refers to whether the -ing preposition can meet the “identical-subject rule” (ibid.: 293) in the participial construction. This is related to Hopper’s (1991) principle of decategorialization, as in sentence (4). Fukaya (1997) examines 14 -ing prepositions using this principle, as in (6):
(6)  a. Should we, considering the circumstances, send a representative to the funeral?
    b. Considering the conditions in which they worked, this is scarcely surprising.

    (ibid.: 291; italics mine)

Sentence (6a), which has we as the subject of the subordinate clause and main clause, demonstrates that the subject interpretation rule is applicable, while sentence (6b), which (perhaps) has the speaker as the understood subject of the subordinate clause and this as the subject of the main clause, demonstrates that the subject interpretation rule does not work in some cases. The numbers in (7) refer to Fukaya’s survey of applicability of this rule to each of the above-mentioned -ing forms: the numbers on the left indicate applicable cases; those on the right indicate inapplicable cases.


    (ibid.)

This survey demonstrates that the grammaticalization of -ing forms into prepositions is gradual; regarding, including, excluding, owing (to), following, barring, considering, and excepting are “found to be at intermediate positions on the cline” and to behave both as prepositions and participles (ibid.).

Fukaya (1997) also indicates that some -ing forms behave as pied piping, as in (8a-c), and stranding, as in (8d).

(8)  a. An essential part of the programme is a period of practical training in France during which students apply their accumulated knowledge of the country and its language.
    b. Likewise, Kant formulated the nebular hypothesis, according to which the solar system was evolved from a rotating mass of incandescent gas, …
    c. They were witnessed in the ministry at three in the afternoon, following which the parties involved got down to some serious drinking.
    d. “Could I speak to Mr James, please?” “May I tell him what it’s concerning?”

    (ibid.: 292; italics mine)

In his analysis of corpora and dictionaries, Fukaya finds pied piping with during (77 instances), according to (1), and following (5), and stranding of concerning (1).
Based on the analysis above, Fukaya (1997) evaluates prepositional properties as in (9):

(9) a. identical-subject rule: 
   \textit{during, according to, depending on, concerning, notwithstanding, pending}

b. pied piping and stranding: \textit{during, according to, following, concerning}

c. prepositional adverbs: \textit{considering, following, notwithstanding}

(ibid.: 293)

Finally, he concludes that \textit{during, according to, concerning, following, and notwithstanding} “are more grammaticalized into prepositions than the others since they have more prepositional properties” (ibid.); that is, the -ing prepositions that meet more than one property in (9) can be said to have been more grammaticalized into prepositions than the other nine -ing prepositions.

2.3 An attempt to define “verbality” of deverbal prepositions

My earlier work (Hayashi 2014) can perhaps be evaluated as an attempt to examine grammaticalization into deverbal prepositions in terms of verbality. I focused on the adverbial collocation of deverbal prepositions, which gradually changes as these items grammaticalize from verbs into prepositions. As the verb \textit{consider} has grammaticalized into the deverbal preposition \textit{considering}, it does not co-occur with an adverb such as \textit{carefully} because it has lost its verbal property. Thus, when a verb becomes grammaticalized into a deverbal preposition, it tends to become less acceptable in collocation with adverbs. However, this is not the case where the verbal property of the verb has been preserved. For example:

(10) a. When you finish college, I think you should \textit{seriously consider} getting a Ph.D. in theology, …

b. It is necessary to \textit{carefully consider} many issues related to implementation in a specific context.

(COCA)

The verb \textit{consider} can co-occur with adverbs such as \textit{seriously} and \textit{carefully} as in (10), while it does not co-occur with such adverbs as in (11b, c) in the case of the deverbal preposition \textit{considering}:
(11) a. He looks young, considering his age.  
   b. He looks young, seriously considering his age.  
   c. He looks young, carefully considering his age.  

(Hayashi 2014: 207)

Hayashi (2014) explained the degree of decategorialization of each deverbal preposition in terms of decrease of acceptability as in (11b, c). For example, the verb lack can often collocate with the adverb completely, as in (12a). The example in (12b) includes the deverbal preposition lacking. The deverbal preposition lacking can also co-occur with the adverb completely, as in (12c). Therefore, lacking in (12b, c) preserves more verbal properties than the case of considering in (11).

(12) a. They completely lack the ability to…  
   b. He was a wild young man, lacking reserve.  
   c. He was a wild young man, completely lacking reserve.  

(example sentence from (12c))  

(KDEC)  

(Hayashi 2014: 207–208)

In a previous study (Hayashi 2014), I surveyed 28 deverbal prepositions, in which I examined the adverbs that occur with a target verb,2 for example, the adverb typically collocating with the verb include, as shown in (13a). I created sentences by adding these adverbs to deverbal prepositions, as in (13b, c), and asked one native speaker of British English to judge the acceptability of these sentences.

(13) a. These treatments typically include psychotherapy, a drug, or what amounts to a placebo, such as supportive counseling during a waiting period.  
   b. I’ve got three days’ holiday including New Year’s Day.  
   c. *I’ve got three days’ holiday typically including New Year’s Day.  

(COCA)  

(OALD)  

(Hayashi 2014)

The results of this survey are shown in Table 1. The top row of the table, which is shaded, shows each of the deverbal prepositions, the second row shows the adverbs tested in the analysis, and the third row shows the results of the native speaker judgment of acceptability. OK is acceptable (in syntax and semantics), ? is slightly unnatural (in syntax and semantics), and * is unacceptable (cf. ibid.: 209). Rows 4 to 12 of the table simply repeat the organization method of the first to third rows.
Table 1: Deverbal prepositions and adverbial collocations (ibid.: 208)

<table>
<thead>
<tr>
<th>allowing for</th>
<th>barring</th>
<th>concerning</th>
<th>confronting</th>
<th>considering</th>
<th>covering</th>
<th>during</th>
</tr>
</thead>
<tbody>
<tr>
<td>theoretically</td>
<td>immediately</td>
<td>directly</td>
<td>directly</td>
<td>carefully</td>
<td>exactly</td>
<td>exactly</td>
</tr>
<tr>
<td>?</td>
<td>*</td>
<td>*</td>
<td>?</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>excluding</td>
<td>excepting</td>
<td>facing</td>
<td>failing</td>
<td>following</td>
<td>given</td>
<td>granted</td>
</tr>
<tr>
<td>explicitly</td>
<td>–</td>
<td>currently</td>
<td>completely</td>
<td>directly/</td>
<td>immediately~*</td>
<td>explicitly</td>
</tr>
<tr>
<td>?</td>
<td>–</td>
<td>OK</td>
<td>/*</td>
<td>OK or *</td>
<td>?</td>
<td>*</td>
</tr>
<tr>
<td>including</td>
<td>lacking</td>
<td>notwithstanding</td>
<td>owing to</td>
<td>past</td>
<td>pending</td>
<td>preceding</td>
</tr>
<tr>
<td>typically</td>
<td>completely</td>
<td>clearly</td>
<td>largely</td>
<td>quickly</td>
<td>–</td>
<td>immediately</td>
</tr>
<tr>
<td>*</td>
<td>OK</td>
<td>?</td>
<td>?</td>
<td>*</td>
<td>–</td>
<td>OK</td>
</tr>
<tr>
<td>regarding</td>
<td>respecting</td>
<td>rising</td>
<td>saving</td>
<td>starting</td>
<td>touching</td>
<td>wanting</td>
</tr>
<tr>
<td>usually</td>
<td>usually</td>
<td>usually</td>
<td>actually</td>
<td>typically</td>
<td>briefly</td>
<td>really</td>
</tr>
<tr>
<td>*</td>
<td>*</td>
<td>*</td>
<td>?</td>
<td>*</td>
<td>?</td>
<td>*</td>
</tr>
</tbody>
</table>

From the results, I evaluated the deverbal prepositions as follows:

(14) OK: facing, (following), lacking, preceding

?: allowing for, confronting, (failing), given, notwithstanding, owing to, saving, touching

*: barrnig, concerning, considering, covering, during, (failing, following), including, past, regarding, respecting, rising, starting, wanting

(ibid.)

When the example sentences are judged as OK, i.e., when the deverbal prepositions whose adverbial collocations are still preserved have not lost their verbal property, they have high verbality and low prepositionality. On the other hand, when the sentences are judged as *, i.e., when the collocations have been lost since the verbs have grammaticalized into deverbal prepositions, the items have lost their verbal property. Thus, they have low verbality and high prepositionality. The results indicate the different degree of grammaticalization of each item.

2.4 Implications of Previous Studies

Considering the previous studies explicated above, grammaticalization from verbs into prepositions can be regarded as a gradual process. Focusing on the subject identification rule and adverbial collocation, Fukaya (1997) and Hayashi (2014) consider loss of verbal property to characterize grammaticalization. Fukaya (1997) maintains that this loss is one
of the prepositional properties, demonstrating the gradualness of this process by analyzing corpus data related to subject interpretation, as in (7). However, there are three remaining problems. First, there is no agreement on what can be defined as a deverbal preposition; it is possible that the gradualness of grammaticalization makes it difficult to clarify prepositionality.\(^3\) Second, there are a number of further deverbal prepositions that have yet to be analyzed (cf. Kortmann and König 1992, as in Figure 1). Hayashi (2014) analyzes examples from dictionaries and previous studies (cf. Hayashi 2013a), while Fukaya (1997) also analyzes the -ing prepositions in Sinclair (1991). However, there is no comprehensive description that integrates all such prepositions under a unified viewpoint. Third, further parameters that characterize the pure “prepositionality” of deverbal prepositions must be considered. Compared to typical prepositions such as about, after, and before, the categorical behavior of deverbal prepositions needs to be discussed in detail.

As a solution to these problems, in this study, I conduct a further survey based on informants’ judgment and offer a comprehensive analysis of 37 deverbal prepositions, employing the two tests used in Emonds (1976) to identify prepositions. This process is described in the next section.

3. Prepositionality of deverbal prepositions

This section examines the prepositionality of the 37 prepositions listed in (1) using the following syntactic tests: the cleft construction and the behavior of the particle right. I administered two questionnaires to native speakers to judge the test sentences (see Appendix for details) on a maximally five-point Likert-type scale: 5 = acceptable and natural; 4 = acceptable, but perhaps somewhat unnatural; 3 = doubtful, but perhaps acceptable; 2 = marginal, but not totally unacceptable; 1 = thoroughly unacceptable; 0 = horrible. In total, 18 answers were collected. Based on the average acceptability score, the prepositionality (i.e., the acceptability of an item as a preposition from the test that examined “typicality” as a preposition) of each item was estimated. The procedure and results of the two tests are explained in subsections 3.1 and 3.2.

3.1 Test 1: The cleft construction

Maruta and Hirata (2001: 121–123), citing Emonds (1976), indicate that cleft sentences can be used as a test to distinguish PPs from adverbs. Hence, I assume that noun phrases (NPs) and PPs can be emphasized in cleft sentences, while participles cannot. NPs or PPs can be inserted into cleft sentences, but adverbial phrases cannot be paraphrased into cleft sentences, as in (15) and (16):

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\(^3\) A subscript number or symbol is used to denote a specific point or footnote in the text, indicating that a detailed explanation or a citation is provided elsewhere in the document.

---
(15) a. It’s the custard pie that I disliked. (NP)
   b. It was a tax break that was counted on. (NP)
   c. It was to John that she spoke. (PP)
   d. It is with great pleasure that I presented our speaker. (PP)
(16) a. *It was too carefully that she spoke. (AdvP)
   b. *It’s very unhappy that Bill is. (AP)
   c. *It is blow up some buildings that you should. (VP)

(Emonds 1976: 133)

Using this cleft sentence test, (17) can be assumed:

(17) Presupposition A: As the prepositionality increases, the phrase including the -ing preposition can be emphasized in cleft sentences.

In this study, sentences including the 37 deverbal prepositions in (1) were emphasized using cleft sentences (see Appendix (B1-B37)), and the acceptability of these sentences was judged by eight English native speakers: four American English speakers, two Australian English speakers, one British English speaker, and one Canadian English speaker. Here, the average score of acceptability of each item was assumed to constitute its prepositionality. Table 2 shows the results of the research.4

Table 2: The prepositionality of deverbal prepositions assumed by the cleft construction
(Numbers in parentheses are the prepositionalities of each item)

<table>
<thead>
<tr>
<th>Prepositionality</th>
<th>Deverbal Preposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 3</td>
<td>during (4.6), following, starting (3.5), according to, succeeding (3.1),</td>
</tr>
<tr>
<td></td>
<td>pertaining to (3.0)</td>
</tr>
<tr>
<td>More than 2 to 3</td>
<td>owing to, past (2.9), regarding (2.6), depending on (2.4), given, respecting</td>
</tr>
<tr>
<td></td>
<td>(2.3), excluding, related to, including, pending (2.1)</td>
</tr>
<tr>
<td>More than 1 to 2</td>
<td>concerning (2.0), barring, preceding (1.9), except (1.8), confronting (1.6),</td>
</tr>
<tr>
<td></td>
<td>allowing for, granting, notwithstanding (1.5), failing (1.4), considering,</td>
</tr>
<tr>
<td></td>
<td>covering, lacking, save, touching (1.3)</td>
</tr>
<tr>
<td>1 or lower</td>
<td>wanting (1.0), granted (0.9), saving (0.8), bar, bating, excepting, facing (0.5), bating (Poutsma 1926) (0.4)</td>
</tr>
</tbody>
</table>

According to Table 2, apart from 16 deverbal prepositions, all others had a relatively low prepositionality, i.e., scored lower than or equal to 2.0 for prepositionality. The items that
denote spatio-temporal back-and-forth relationships, such as during, following, starting, succeeding, and past scored high for their degree of prepositionality; this tendency indicates that, in some aspects, high prepositionality is perhaps related to the meaning typical in prepositions. Moreover, archaic, old-fashioned items that are rarely observed (presumably as they are obsolete) in present-day English such as bating (cf. Curme 1979: 330, 563; Jespersen 1954: 410; Visser 1972: 1218; GENIUS; Readers) are judged at the lowest level of prepositionality both in the example sentence for barring, which had a similar meaning, and in a sentence from Poutsma's book, which was published in the 1920s (see Appendix; Poutsma 1926: 712). The results indicate that more than half of the deverbal prepositions have low prepositionality, which supports the description in Kortmann and König's (1992) study that “they are marginal” in the category of prepositions.

3.2 Test 2: Co-occurrence with right

Maruta and Hirata (2001: 121) also indicate that co-occurrence with the intensifiers right/straight can be a judgment test for identifying prepositions. Emonds (1976: 174) notes that the members of the category of prepositions “that express spatial or temporal location and direction (but not frequency) can all be preceded by right.”

(18) a. He kept on drinking right until midnight.
   b. She put it right into her pocket.
   c. The boy came right from the store.
   d. They kissed right after the ceremony.

(cf. ibid.; italics mine)

From this observation, I assume that co-occurrence with right can be a valid test to identify whether the deverbal prepositions behave in the same way as prepositions with spatial or temporal meaning, such as at, by, for, from, in, on, to, about, above, after, before, and into (cf. Ando 2005: 621, 632). As in 3.1, the examples including deverbal prepositions in (1) were judged with regard to whether they can co-occur with the intensifier right (see Appendix (C1-C37)). The acceptability of the sentences was judged by ten English native speakers: six American English speakers, three Australian English speakers, and one Canadian English speaker. The prepositionality of each item was then assumed depending on the average level of acceptability. Table 3 shows the results of the research.
Table 3: The prepositionality of deverbal prepositions assumed from co-occurrence with right (Numbers in parentheses are the prepositionailities of each item)

<table>
<thead>
<tr>
<th>Prepositionality</th>
<th>Deverbal Preposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 3</td>
<td>past (4.9), preceding (3.4), regarding (3.2)</td>
</tr>
<tr>
<td>More than 2 to 3</td>
<td>including (3.0), following (2.9), during (2.8), depending on, starting (2.5), according to (2.3), lacking, succeeding (2.1)</td>
</tr>
<tr>
<td>More than 1 to 2</td>
<td>allowing for, pertaining to, touching, save (2.0), except, granting, related to (1.8), concerning, excluding (1.7), confronting, given, notwithstanding, pending, respecting (1.6), considering, owing to (1.5), bar, barring, granted (1.4), failing, saving, wanting (1.3), covering (1.2)</td>
</tr>
<tr>
<td>1 or lower</td>
<td>facing (1.0), excepting (0.9), bating, bating (Poutsma 1926) (0.8)</td>
</tr>
</tbody>
</table>

According to Table 3, deverbal prepositions that express spatial or temporal meaning, such as past, preceding, during, including, and following (paraphrased as “after” in some contexts, but not always; cf. Olofsson 1990) tend to mark high prepositionality. Regarding, on the other hand, which does not have a spatial or temporal meaning, scores relatively highly for prepositionality. Moreover, apart from 11 prepositions (past, preceding, regarding, including, following, during, depending on, starting, according to, lacking, and succeeding), the remainder scored lower than or equal to 2.0 in prepositionality. This result indicates that deverbal prepositions are marginal in terms of prepositionality. Bating also scored the lowest here, as in Test 2. It is also noteworthy that the prepositions meaning exception (cf. Koma 2001), such as save, except, excluding, bar, barring, saving, and excepting, scored less than or equal to 2.0; thus, it may be said that the meaning of prepositions bears some relation to their degree of prepositionality.

3.3 Summary of the study
This study tested the degree of prepositionality of 37 deverbal prepositions by surveying native speakers. The total degree of prepositionality assumed by the analyses given in Sections 3.1 and 3.2 is shown in Figure 2.
Figure 2: The prepositionality of deverbal prepositions

Note that the maximum score of prepositionality in the two tests was 5.0. If the item was marked at the highest level of prepositionality in the two tests, the prepositionality assumed from both tests was 10.0 (5.0 + 5.0). However, Figure 2 shows that only 10 out of 37 prepositions (past, during, following, starting, regarding, according to, preceding, succeeding, including, and pertaining to) scored 5.0 or more in terms of total degree of prepositionality. This indicates that deverbal prepositions are marginal in terms of prepositionality, i.e., typicality as prepositions, as well as “in their lexical class” (cf. Kortmann and König 1992: 683). Figure 2 also indicates that they are gradual in their degree of prepositionality, that is, in their stage of grammaticalization. If the stage of grammaticalization of each item proceeds similarly in degree, the amount of prepositionality also cannot differ greatly. Difference in score on prepositionality is indicative of gradualness in degree of grammaticalization. Moreover, the deverbal prepositions that express spatial and temporal meaning, such as past, during, following, starting (meaning after as a preposition; cf. LLA), and succeeding (which can presumably have the same meaning as following, i.e., after) score highly for degree of prepositionality. This result indicates that prepositions that have a spatial or temporal meaning are more similar to typical prepositions in terms of prepositionality. It is also noteworthy that items expressing spatial or temporal meaning
such as during, following, starting, succeeding, and past tended to score higher in Test 1, despite the fact that this test was not concerned with the meaning of the prepositions. On the other hand, Test 2 evaluated the meaning of each item, because the level of acceptability was scored higher when they had a spatio-temporal meaning (if they do not have such meanings, the prepositionality is generally lower). In particular, past, during, following, and starting scored higher than or equal to 2.5 in both Test 1 and Test 2. Thus, some relation can exist between prepositionality and the meanings typical in prepositions. It is assumed that the semantic factor related to spatio-temporal meaning motivates the typicality of prepositions.

4. Conclusion
This study attempted to measure the degree of prepositionality of deverbal prepositions using qualitative analysis. The results enable us to evaluate the prepositionality of deverbal prepositions, based on native speakers' judgments.

The contribution of this study is as follows. First, this study demonstrates that deverbal prepositions are marginal, because they tend to score lower in degree of prepositionality. As evidence for this, the highest item, past, scored 7.8, while the average prepositionality of the 37 items was 3.8/10.0. Second, this study has indicated that prepositionality is related to the semantics of prepositions, that is, their typicality as prepositions. The results from Test 1, which did not test the meaning of deverbal prepositions, had some overlap with the results of Test 2 (as discussed in 3.3). Third, both synchronic and diachronic aspects of language are deeply concerned with grammaticalization. The lowest prepositionality of bating and the relatively lower prepositionality of other deverbal prepositions in this study indicate that historically obsolete expressions tend to score low in acceptability. We can observe historical linguistic facts through present-day English. The “panchronic” perspective (that some aspects of language phenomena observed from the synchronic perspective can be motivated by the facts related to diachronic change; cf. Yamanashi 2000: 6–7) enables us to analyze the “panchronic” process of grammaticalization (cf. Croft 2000: 63, citing Heine, Claudi and Hünnemeyer 1991).

As a final remark, I wish to mention remaining issues. For one thing, the relationship between prepositionality and verbality needs to be considered in greater detail. While the grammaticalization of deverbal prepositions is thought to gradually result from the loss of verbal property (see Section 2.4), it is arguable whether this simply means a gain in prepositionality (cf. Hayashi in press). Secondly, there is scope for comparison between items such as bar, barring, save, saving, and excepting with typical prepositions such as but, except, and without (cf. Koma 2001, Hayashi 2013b). Concerning the “layering” of
grammaticalization (see Fukaya 1997, Hopper and Traugott 2003, Akimoto 2014),
differences exist in the use, usage, and using contexts as well as in prepositionality.
Thirdly, there are some further examples that have yet to be studied, such as prepositional
ago (Kortmann and König 1992) and rising (Ando 2005: 622), and tests that have not been
examined, such as the “coordination test” (when a phrase can be coordinated with typical
prepositions, it can be judged as a preposition, as in He rushed in and down the stairs; see
Maruta and Hirata 2001: 122–123). Finally, the validity of the methodology is a discussion
question for future study. This study has revealed some aspects of prepositionality
through inspection by native speakers. However, an integrated corpus-based study and
acceptability-based study would provide more rigorous results. Therefore, a corpus-based
approach, such as that of Fukaya (1997), should be adopted in a future study.

Notes
* This research was supported by JSPS KAKENHI 15J00373 and is a revised version of
Hayashi (2013a, 2014), employing different types of sample sentence and an additional
10 deverbal prepositions. The sentence containing rising, which was examined in
Hayashi (2013a, 2014), was excluded from this process, because it was judged to be
“thoroughly unacceptable” by a native speaker of British English.
1. Thirty-seven prepositions were collected on the basis of the following standard: -ing
(partly including -en or -ed) forms that are defined or referred to as (deverbal)
prepositions in previous studies or dictionaries. The sources of the sentences including
prepositions in (1) are provided in the Appendix and body section of this paper.
2. Hayashi (2014) searched COCA for “the target verbs + -ly” and then excluded other
parts of speech ending in the form “-ly,” such as family, friendly, or lovely. Some
example sentences from the analysis of Hayashi (2014) were created by the author and
checked by a native speaker of British English.
3. As evidence, the description in previous studies differs. For example, regarding
stranding and in particular reference to concerning, during, except, and regarding,
Declerck (1991: 552) notes that “a number of prepositions cannot normally be found at
the end of the relative clause.” On the other hand, Fukaya (1997) indicates an example
of stranding of concerning, as in (8d).

Appendix
The sentences discussed in Section 3 follow (italics mine). The majority of the sentences
were collected during my previous studies, because this paper presents a revised version
of Hayashi (2013a). However, some sentences needed to be changed for a more accurate
discussion. While this paper aims to further analyze sentences that have been discussed in
previous studies, 10 deverbal prepositions have been newly collected from previous studies and dictionaries. Thus, some sentences differ from those in Hayashi (2013a); the original sources and previous studies that cite and discuss the sentences follow. The sentences that include deverbal prepositions, for which there were no example sentences in previous studies or dictionaries (granting, preceding, succeeding, touching, and wanting) were created by the author; existing examples, such as following in (A17) below, are substituted with examples of deverbal prepositions that presumably have the same meaning, such as succeeding in (A35). In the case of bating, which had already become obsolete by around 1970 (cf. Visser 1972: 1218), the example sentence (A5’) is substituted with a sentence (A4) using barring (assumed to have a similar meaning; cf. KNED), because the example (A5) from Poutsma (1926) is from approximately 90 years ago.

(A1) You’ve been absent six times according to our records. (OALD)
(A2) It will take about an hour to get there, allowing for traffic delays. (OALD)
(A3) The students all attended, bar two who were ill. (OALD)
(A4) Barring accidents, we should arrive on time. (OALD)
(A5) Bating a little wilfulness, I don’t know a more honest or gentle creature. (THACK, Pend., II, Ch. XVI, 163.; cited from Poutsma 1926: 712)
(A5’) Bating accidents, we should arrive on time. (example sentence from (A4))
(A6) He asked me concerning my health. (Zandvoort 1972: 35)
(A7) Drug abuse is one of the problems confronting modern Western society. (Genius)
(A8) Considering his age, he looks very young. (Ando 2005: 622)
(A9) The remainder will be paid in installments covering a period of five years. (KDEC)
(A10) Prices vary widely depending on where you live. (OBED)
(A11) He was taken to the hospital during the night. (OALD)
(A12) We work every day except Sunday. (OALD)
(A13) Everyone was present, not excepting Tom. (Genius)
(A14) Lunch costs £10 person, excluding drinks. (OALD)
(A15) With some dealers facing decreasing sales, something’s got to give. (Genius)
(A16) Failing instructions, I did what I thought best. (Genius)
(A17) Dickens died in 1870 following a collapse. (Radden and Dirven 2007: 29)
(A18) Given the present conditions, I think she’s done rather well. (Quirk et al. 1985: 660)
(A19) Granted his obsequious manner, I still think he’s ambitious enough to do the job. (Quirk et al. 1985: 667)

(A20) Granting his age, he looks very young. (example sentence from (A8); cf. Declerck 1991: 43)
(A21) I’ve got three days’ holiday including New Year’s Day. (OALD)
(A22) He was a wild young man, completely lacking reserve.  
(KDEC)

(A23) He is very active notwithstanding his age.  
(Genius)

(A24) The game was cancelled owing to torrential rain.  
(OALD)

(A25) He hurried past them without stopping.  
(OALD)

(A26) Research was underway pending formal approval.  
(KDEC)

(A27) He offered information pertaining to the accident.  
(KDEC)

(A28) He talked of the time preceding the tragedy.  
(example sentence from KDEC)

(A29) She has said nothing regarding your request.  
(OALD)

(A30) The results included $5 million pre-tax charge related to workforce reductions.  
(OBED)

(A31) I am writing to make an inquiry respecting the necessary procedures for becoming a member of your society.  
(KDEC)

(A32) We know nothing about her save her name.  
(OALD; cited from Koma 2001: 77)

(A33) Saving your presence I don’t think the suggestion is very sensible.  
(LDCE; cited from Koma 2001: 78)

(A34) Starting today Miss Carey will be in charge of the Sales Department.  
(LLA)

(A35) Dickens died in 1870 succeeding a collapse.  
(example sentence from (A17))

(A36) She has said nothing touching your request.  
(example sentence from (A29); cf. Ando 2005: 652)

(A37) Tom gave me a book wanting a cover.  
(example sentence; cf. Readers)

For Test 1, the sentences in (B1-B37) were created from (A1-A37) (see Section 3.1 for details).

(B1) It is according to our records that you’ve been absent six times.

(B2) It will be allowing for traffic delays that it will take about an hour to get there.

(B3) It was bar two who were ill that the students all attended.

(B4) It is barring accidents that we should arrive on time.

(B5) It is bating a little wilfulness that I don’t know a more honest or gentle creature.

(B5') It is bating accidents that we should arrive on time.

(B6) It was concerning my health that he asked me.

(B7) It is confronting modern Western society that drug abuse is one of the problems.

(B8) It is considering his age that he looks very young.

(B9) It will be covering a period of five years that the remainder will be paid in installments.

(B10) It is depending on where you live that prices vary widely.

(B11) It was during the night that he was taken to the hospital.
(B12) It is except Sunday that we work every day.
(B13) It is not excepting Tom that everyone is present.
(B14) It is excluding drinks that Lunch costs $10 person.
(B15) It was facing decreasing sales that with some dealers, something’s got to give.
(B16) It was failing instructions that I did what I thought best.
(B17) It was following a collapse that Dickens died in 1870.
(B18) It is given the present conditions that I think she’s done rather well.
(B19) It is granted his obsequious manner that I still think he’s ambitious enough to do the job.
(B20) It is granting his age that he looks very young.
(B21) It is including New Year’s Day that I’ve got three days’ holiday.
(B22) It was lacking reserve that he was a wild young man.
(B23) It is notwithstanding his age that he is very active.
(B24) It was owing to torrential rain that the game was cancelled.
(B25) It was past them that he hurried without stopping.
(B26) It was pending formal approval that research was underway.
(B27) It was pertaining to the accident that he offered information.
(B28) It was preceding the tragedy that he talked of the time.
(B29) It is regarding your request that she has said nothing.
(B30) It was related to workforce reductions that the results included a $5 million pre-tax charge.
(B31) It is respecting the necessary procedures for becoming a member of your society that I am writing to make an inquiry.
(B32) It is save her name that they know nothing about her.
(B33) It is saving your presence that I don’t think the suggestion is very sensible.
(B34) It will be starting today that Miss Carey will be in charge of the Sales Department.
(B35) It was succeeding a collapse that Dickens died in 1870.
(B36) It was touching your request that she has said nothing.
(B37) It was wanting a cover that Tom gave me a book.

For Test 2, the sentences in (C1-C37) were formed from (A1-A37) (see Section 3.2 in detail).

(C1) You’ve been absent six times right according to our records.
(C2) It will take about an hour to get there, right allowing for traffic delays.
(C3) The students all attended, right bar two who were ill.
(C4) Right barring accidents, we should arrive on time.
(C5) Right bating a little wilfulness I don’t know a more honest or gentle creature.
(C5') Right batting accidents, we should arrive on time.
(C6) He asked me right concerning my health.
(C7) Drug abuse is one of the problems right confronting modern Western society.
(C8) Right considering his age, he looks very young.
(C9) The remainder will be paid in installments right covering a period of five years.
(C10) Prices vary widely right depending on where you live.
(C11) He was taken to the hospital right during the night.
(C12) We work every day right except Sunday.
(C13) Everyone is present, not right excepting Tom.
(C14) Lunch costs $10 person, right excluding drinks.
(C15) With some dealers right facing decreasing sales, something’s got to give.
(C16) Right failing instructions, I did what I thought best.
(C17) Dickens died in 1870 right following a collapse.
(C18) Right given the present conditions, I think she’s done rather well.
(C19) Right granted his obsequious manner, I still think he’s ambitious enough to do the job.
(C20) Right granting his age, he looks very young.
(C21) I’ve got three days’ holiday right including New Year’s Day.
(C22) He was a wild young man, right lacking reserve.
(C23) He is very active right notwithstanding his age.
(C24) The game was cancelled right owing to torrential rain.
(C25) He hurried right past them without stopping.
(C26) Research was underway right pending formal approval.
(C27) He offered information right pertaining to the accident.
(C28) He talked of the time right preceding the tragedy.
(C29) She has said nothing right regarding your request.
(C30) The results included a $5 million pre-tax charge right related to workforce reductions.
(C31) I am writing to make an inquiry right respecting the necessary procedures for becoming a member of your society.
(C32) We know nothing about her right save her name.
(C33) Right saving your presence I don’t think the suggestion is very sensible.
(C34) Right starting today Miss Carey will be in charge of the Sales Department.
(C35) Dickens died in 1870 right succeeding a collapse.
(C36) She has said nothing right touching your request.
(C37) Tom gave me a book right wanting a cover.
References


**Dictionaries and Corpora**


動詞派生前置詞の前置詞性

林智昭

語彙項目は、どのようにして文法項目へと変化していくのだろうか。この問題は、文法化研究において、名詞・動詞といった語彙項目に属する語（内容語）が、通時的なプロセスを経て、前置詞・接続詞といった文法機能を表す語（機能語）へと変化していく現象の研究などを通じて、様々な研究者が関心を寄せている。その中でも、during, failing, notwithstanding, except, past などの通時的に動詞に由来する前置詞、いわゆる「動詞派生前置詞 (deverbal prepositions)」は、通言語的に見られる興味深い文法化事例のひとつとして着目されている。本稿では、これらの現象を、共時的観点から統語的・意味論的に規定していくことを目的とする。本研究では、動詞から前置詞へ段階的に文法化が進むものと想定する。「動詞であるのか、前置詞であるのか」というような二分法で議論することを避け、動詞派生前置詞の前置詞性 (prepositionality) を見出す。具体的には、先行研究および辞書より収集した37種類の動詞派生前置詞を分析対象として作例を行い、Emonds (1976) による以下のテストを用いて調査を行った：(i) 分裂文（the cleft construction）、(ii) 強意の副詞 rightとの共起可能性。英語母語話者の内省により容認度を調査し、その結果に基づき前置詞性を算出した。分析を通じて、past, during, following, starting, regarding, according to, preceding, succeeding, including, pertaining toを除く動詞派生前置詞は前置詞性が低いものと位置づけられた。本稿が提示した前置詞性の分布は、文法化の進行度に段階性が見られることを示唆する。また、テスト (i) に加え、空間的・時間的意味をもつ事例の前置詞性が高いと判定される (ii) においても past, during, following, starting の前置詞性が高いと判定されることから、これらの意味が、前置詞としての典型性に関わりをもつ可能性があると指摘した。本研究のアプローチは、共時的分析を通じて、文法化という通時的・共時的側面の接点へと迫る汎時的（パンクロニック）な視座を提供するものである。