Distancing the Constraints on Syntactic Variations

Hye-Won Choi*†
Ewha Womans University

Hye-Won Choi. 2007. Distancing the Constraints on Syntactic Variations. *Language and Information 11.1*, 77–96. This paper investigates syntactic variations in English such as Dative Alternation, Particle Inversion, and Object Postposition (Heavy NP Shift) within the framework of Optimality Theory, and shows that the same set of morphological, informational, and processing constraints affect all these variations. In particular, it shows that the variants that used to be regarded as ungrammatical are in fact used fairly often in reality, especially when processing or informational conditions are met, and therefore, grammatical judgment may not be always categorical but sometimes gradient. It is argued that the notion of distance in constraint ranking in stochastic OT can effectively explain the gradience and variability of grammaticality in the variation phenomena. (**Ewha Womans University**)

Key words: dative alternation, particle inversion, phrasal verb, heavy-NP shift, object postposition, Optimality Theory, stochastic OT, heaviness, focus, constraint, ranking, distance

1. Introduction

In this paper, we will investigate three major syntactic variation phenomena in English: the first is Dative Alternation as shown in (1), the second is Particle Inversion as exemplified in (2), and the third is Object Postposition (also known as "Heavy NP Shift") as illustrated in (3).

(1) V NP NP ~ V NP PP (Green (1974, 157); Pinker (1989, 110–111))

a. Mary taught John linguistics. ~ a′. Mary taught linguistics to John.

b. I threw John the box. ~ b′. I threw the box to John.

* I am grateful to three anonymous reviewers for their insightful comments. I'd also like to thank the audience of the 2006 Summer Conference of Korean Society for Language and Information, where some of the ideas that later became part of this paper were presented.

† Department of English Language and Literature, Ewha Womans University. 11-1 Daehyun-dong Seodaemun-gu, Seoul 120-750, Korea. Email: hwchoi@ewha.ac.kr.

c. Ann faxed Beth the news. ~ c′. Ann faxed the news to Beth.

(2) V Part NP ~ V NP Part (Farrell, 2005, 100)

a. Max messed up the song. ~ a′. Max messed the song up.

b. We turned on the lights. ~ b′. We turned the lights on.

c. My wife took in the newspaper.~c′. My wife took the newspaper in.

(3) V NP PP ~ V PP NP (Arnold et al., 2000, 28)

a. The waiter brought the wine we had ordered to the table. ~

a′. The waiter brought to the table the wine we had ordered.

b. He brought the economic blockade to an end. ~

b′. He brought to an end the economic blockade.

What is alternated in Dative Alternation are the goal[1] and theme arguments. In (1a), for example, the goal *John* is realized as a dative NP and ordered right after the verb, hence a ditransitive construction with two objects; in (1a′), however, the goal is realized as a PP, *to John*, and ordered after the theme NP object *linguistics*. In Particle Inversion in (2), the order between the particle and the object NP is the issue. For instance, in (2a), the particle *up* is ordered right after the verb and before the object NP *the song*; in (2a′), on the other hand, the particle is ordered after the object NP. Finally, in the Object Postposition alternation, the object phrase, which must usually come right after the verb in English, may be ordered after the PP, as shown in (3a′), especially when the object is extra long or heavy, hence the name "Heavy-NP Shift."[2] Note, however, that in (3b′) the shifted object, *the economic blockade*, is not particularly long, which shows that heaviness may not be everything to determine the shiftability in this construction.

In what follows, we will show the scope of these variations, that is, how far away variants "deviate" from what is conventionally accepted, and identify what linguistic constraints–semantic, pragmatic, or other[3]–are involved to limit and also to expand the scope. Also, it will be argued that the OT model proposed for Dative Alternation proposed by Bresnan and Nikitina (2003) and Choi (2005) can be extended and applied to the Particle Inversion and Object Postposition ("Heavy NP Shift") alternations also, and therefore that all three variations in English can

[1] I refer to the dative argument as 'goal' in a neutral sense, particularly to avoid it being interpreted as an affected argument when it's referred to as 'recipient.'

[2] We will call this phenomenon Object Postposition instead of "Heavy-NP Shift" to avoid the strong implication that the shifted NP must be "heavy."

[3] It has long been noted that the goal argument instantiated as a dative NP, unlike the PP counterpart, tends to be interpreted as an 'affected' argument or to entail 'successful transfer of possession' (Green, 1974, among others). Some have argued that the difference is really semantic, i.e. truth conditional (Harley, 2002; Krifka, 2003). However, Levin (2004) and Bresnan and Nikitina (2003) argued against the semantic approach and proposed an informational approach (see Choi (2005) for details).

be accounted for by the same underlying principles, encoded as violable constraints that are ranked at varying distances in stochastic Optimality Theory (Boersma and Hayes, 2001).

2. Constraints on Variations

Assuming that the syntactic variations we have seen above are not free in most cases, we will investigate what constraints affect these alternating constructions. Some of the constraints are lexical, some are processing-related, and others are informational. In this section, we will see how each of these conditions constrains the variations and how these constraints can actually allow traditionally unacceptable variants while interacting with each other.

2.1 Lexical and Idiom Constraints

Before we discuss variations, we should note that not all verbs and phrases that belong to each variation group actually allow the variation. It is well known, for example, that while a dative verb *give* shows variation quite freely, a latinate verb *donate*, which is pretty close to *give* in meaning, does not show the variation and only allows the PP-goal structure. This is due to the lexical property of the latinate verbs. Another example of this is manner verbs, as illustrated in (4). Unlike *throw* and *fax* shown in (1), which allow both the ditransitive and PP variants, *lower* and *yell* do not allow alternation and only appear in the PP variant.

(4) V NP PP only (Krifka, 2003)

a. I lowered the box to John. $\not\sim$ a'. *I lowered John the box.

b. Ann yelled the news to Beth. $\not\sim$ b'. *Ann yelled Beth the news.

By contrast, such verbs as *cost* and *deny* appear only in the ditransitive variant, as illustrated in (5) below.

(5) V NP NP only (Marantz, 1993; Bruening, 2001, 261, cited in Bresnan and Nikitina (2003))

a. The car cost Beth five thousand dollars.
$\not\sim$ a'. *The car cost five thousand dollars to Beth.

b. Ann denied Beth the icecream.
$\not\sim$ b'. *Ann denied the icecream to Beth.

A similar lexical variation exists in the phrasal verb (Verb+Particle) construction. Expressions such as *give off, take up, brush up,* and *eke out,* the object NP is placed only after the particle. See examples in (6) below.

(6) V Part NP only (Farrell, 2005, 107)

a. These animals give off a foul odor.
$\not\sim$ a'. *These animals give a foul odor off.

b. She decided to take up a new career.
$\not\sim$ b'. *She decided to take a new career up.

c. I need to brush up my Spanish. $\not\sim$ c'. *I need to brush my Spanish up.

d. He eked out his income by teaching.
$\not\sim$ d'. *He eked his income out by teaching.

On the other hand, the object is placed before the particle in such expressions as *boss about, count in, tell apart,* and *bring to,* as illustrated in (7).

(7) V NP Part only (Farrell, 2005, 108)

a. He is always bossing his wife about. $\not\sim$ a'. *He is always bossing about his wife.

b. You can count these people in. $\not\sim$ b'. *You can count in these people.

c. I could hardly tell the two of them apart
$\not\sim$ c'. *I could hardly tell apart the two of them.

d. She brought the patient to with smelling salts.
$\not\sim$ d'. *She brought to the patient with smelling salts.

Another lexical phenomenon we should note has to do with idioms. Idioms do not allow alternations; that is, an idiom is used in one fixed order or the other. As noted by Harley (2002) and Levin (2004), idioms with "fixed theme" only take the ditransitive variant. Examples of this kind are: *read x the riot act; lend x an ear; show x the ropes; promise x the moon; give x the old shoulder; give x the creeps; give x the boot; give x a headache.* On the other hand, idioms with "fixed goal" take the PP-goal variant only. Such examples are: *send x to the showers; take x to the cleaners; push x to the edge; carry x to extremes; send x to the devil; throw x to the wolves.* There are idioms of phrasal verb construction that are used in one order, too. Examples used only in the V+Part+Object order are as follows (Fraser, 1976, 19): *blow off steam; close up shop; dance up a storm; knock off work.*

Judging from the lexical differences among seemingly close verbs and the fixed character of idioms, we can conclude that we need to acknowledge these lexical properties somehow in grammar.

2.2 Givenness (Definiteness/Specificity) Constraint

One of the most common constraints cited in linguistics regarding word order may be definiteness, specificity, or givenness constraint. Definiteness or specificity constraint is there to capture the general tendency that a definite or specific phrase is placed before an indefinite or nonspecific phrase in English sentences. This constraint can be subsumed by the givenness constraint, which can in short be stated that given information is placed leftward and new information is placed rightward. So, if there are two phrases that differ in their informational status, the phrase with old or given information comes before the one with new information.

This works well with dative alternation, which involves two arguments, a goal and a theme. For example, in (8), the goal is a definite and specific expression, *Mailer*, which marks given information, and the theme is an indefinite and nonspecific phrase, *an idea for a book,* which marks new information. Indeed, the most natural order between these two arguments is the one like (8a), where the given precedes the new. In fact, if the indefinite theme precedes the definite goal as in (8b), the sentence does not sound good, in normal context.

(8) Dative Alternation (Snyder, 2003, cited in Levin (2004))

a. Nixon's behavior gave Mailer an idea for a book.

b. *Nixon's behavior gave an idea for a book to Mailer.

Similarly, in the Verb-Particle phrasal verb construction, given information tends to be placed leftward, i.e., left to the particle. In (9a), for instance, the definite and specific object phrase, *the parcel,* comes before the particle *up.* In contrast, *a parcel* in (9b), an indefinite and nonspecific object, comes after the particle.

(9) Particle Inversion (Dixon, 1982, cited in Chung (2005))

a. On the morning of Christmas Eve together we'll make the parcel up.

b. We'll make up a parcel for them.

From these examples, we can roughly define the givenness constraint as below:

(10) Givenness Constraint: Given information is placed leftmost.

Of course, 'left' and 'right' are relative terms. Since the variations discussed in this paper are all about the order of the elements after the verb, we will interpret "leftmost" as leftmost toward the verb.

Meanwhile, object postposition is different from the other two variations in that simple 'givenness' would not license a definite PP phrase to come before an indefinite object. For example, if we go back to example (1a′) and switch the order between the indefinite object *linguistics* and the definite PP *to John*, as in (10b) below, the sentence becomes ungrammatical.

(11) a. Mary taught linguistics to John. = (1a′)

a′. *Mary taught to John linguistics.

This shows that in English the object is strongly attached to the verb so that only a strong constraint, one that is stronger than the Givenness Constraint, can move it to another place.

2.3 Pronoun Constraint

Another constraint that restricts word order is Pronoun Constraint. Pronouns, unlike regular NPs, must be placed close to the verb. Therefore, if the theme argument is a pronoun in dative construction, only the PP variant as in (12a′), not the double accusative variant as in (12a), is grammatical. Compare the NP theme counterpart in (12b).

(12) a. *Tom gave an aunt them. $\not\sim$ a′. Tom gave them to an aunt.

b. Tom gave an aunt cookies. $\sim$ b′. Tom gave cookies to an aunt.

(Collins, 1995, 39)

Similarly, in the V-Particle construction, a pronoun object must be placed close to the verb, i.e., before the particle. See (13a) below in comparison with (13b).

(13) a. *She turned off them. $\not\sim$ a′. She turned them off. (Farrell, 2005, 116)

b. She turned off the lights. $\sim$ b′. She turned the lights off.

Finally, a pronoun object cannot be postposed and needs to be placed next to the verb in the OBJ-PP construction. See (14a) below. Actually, this is not surprising considering that a pronoun is not "heavy."

(14) a. He brought it to an end. $\not\sim$ a′. *He brought to an end it.

b. He brought the economic blockade to an end.
$\sim$ b′. He brought to an end the economic blockade.

In fact, that pronouns need to be close to the verb is understandable for two reasons. First, pronouns, especially weak pronouns, possess clitic-like characteristics; they are short and dependant, and thus need a host like a verb. The other reason is that pronouns represent 'given' information; a pronoun is used when the entity represented by it is well established in the discourse, more so than a definite NP. Thus, even by the Givenness Constraint, pronouns should be placed earlier than the other arguments. This shows that Givenness Constraint and Pronoun Constraint will not conflict with each other as far as pronouns are concerned.

Interestingly, however, Pronoun Constraint may conflict with the lexical restrictions we have seen in section 2.1. And when they conflict, Pronoun Constraint seems to be able to override the lexical restrictions.

(15) (Bresnan and Nikitina, 2003, 6–7)

a. Therefore, when he got to purgatory, Buddha lowered him the silver thread of a spider as his last chance for salvation.
<www.inch.com/jufimura/ImofGrmain.htm>

b. I think he was poking fun at the charges that Blackmore has been making that he chronically forgets words–he went over to Jon Lord during 'Smoke' and seemed to be getting Jon to yell him the words!!
<www.thehighwaystar.com/reviews/namerica/asbuandr.htm>

Recall the examples in (4), where *lower* and *yell* were used only in the PP variant. In (15) above, however, they are used in the ditransitive variant, in which the pronoun goal is the object. If the goal were a regular NP instead of a pronoun, the ditransitive variant would not sound grammatical, as we have already seen in (4).

Similarly, the phrasal verb construction that allowed the V-Part-Obj order only, as we have seen in (6) above, allows the V-Obj-Part order if the object is a pronoun. See (16) below (Farrell, 2005, 130).

(16) a. It it a truly foul odor and these are the plants that give it off/*give off it.

b. When he took up smoking, I decided to take it up/*take up it.

As seen above, Pronoun Constraint appears to be fairly strong, strong enough to override some of the lexical restrictions discussed in section 2.1. This shows that some constraints are stronger than others and that weak constraints may be violated when they are in conflict with stronger constraints. We will see more of this in what follows.

2.4 Heaviness Constraint

We cannot discuss Heaviness Constraint without mentioning Object Postposition, aka "Heavy NP Shift." As discussed above, object is supposed to be positioned right after the verb in English. Yet, under special conditions, e.g., if the object is "heavy," the object can be postposed. Recall the example in (3), where the "heavy" object was postposed, and compare it with the example in (11), where the postposing did not happen because the object was not "heavy" enough. These examples are repeated in (17) below.

(17) a. The waiter brought the wine we had ordered to the table. ~

a′. The waiter brought to the table the wine we had ordered.

b. Mary taught linguistics to John. ~

b′. *Mary taught to John linguistics.

This Heaviness Constraint can disturb not only the regular object case as above, but also the lexical cases with fixed orders. For example, *cost* and *deny*, which are known to be used always in ditransitive construction, as shown in (5), can in fact have the goal argument in PP and have it postposed if that PP is long. In other words, Heaviness Constraint can override the lexical restriction that these verbs have.

(18) (Bresnan and Nikitina, 2003, 11)

a. Any reduced rate, however, will still cost jobs to Californians in the tele-services profession, drive up costs, increase inefficiency, and place an undue restraint on technology.
<www.ataconnect.org/htdocs/govtrel/news/2000/aug/08-18/ca_ab2721update.htm>

b. After all, who could deny something to someone so dedicated to the causes of international friendship and collaboration?
<www.eawc.org/7forum/loula_greece.html>

Similarly, the Verb-Particle phrases that always have the object between the verb and the particle, such as *boss about* in (7), can also have the object after the particle when the object is long. See an example below.

(19) A feisty little Salford lass bossed about a strapping Scouser who seemed genuinely interested in my hesitantly proffered tip about peeling grilled peppers in a bag.
<www.gfw.co.uk/newsarchive/vol0106/fairbridge.html>

Heaviness can even break the fixed idiomatic order as well as the lexically-determined orders we have seen above. Recall that idioms with fixed theme are known to have the ditransitive structure, e.g. *give x a headache, give x a hard time.* Interestingly, these idioms can also take the PP-goal structure when the goal is long. See below.

(20) a. [S]ending a copy to every elector is a nice gesture, but futile, because it is unreadable, guaranteed to give a headache to anyone who looks hard at the small print. (The Guardian, Sep. 17, 1992, Levin (2004))

b. Those who have come before traditionally give a hard time to those who have just come. (Bresnan and Nikitina, 2003, 10)
<www.mcny.org/byron/GCAintro.htm>

Finally, the Heaviness Constraint can override the Givenness Constraint. In contrast to (8b), which is less than acceptable due to its violation of Givenness Constraint, (21) is fairly good exactly because the *to*-phrase is heavy.

(21) Nixon's behavior gave an idea for a book to every journalist living in New York City in the 1970s. (Snyder, 2003, 35, cited in Levin (2004))

Likewise, in (22), the definite object, which is long, is readily placed after the particle, in contrast to (9) above. And in the Object Postposition example in (23), the postposed object is definite, also violating the Givenness Constraint.

(22) Sandy picked up the freshly baked apple pie. (Arnold et al., 2000, 28)

(23) a. They brought the discussion that had lasted for months to an end. ~

b. They brought to an end the discussion that had lasted for months.

To summarize, Heaviness, like Pronoun Constraint, appears to be a fairly strong constraint, overriding other constraints such as lexical restrictions and Givenness Constraint. In the next subsection, we will discuss Focus Constraint, which seems to be able to override almost all other constraints.

2.5 Focus Constraint

First of all, Focus Constraint can override the lexical restrictions. Just like Heaviness Constraint, Focus Constraint can override the lexical restrictions of the verbs like *cost* and *deny*.

(24) V NP PP (Bresnan and Nikitina, 2003, 11)

a. The IRS is unionized, and the union apparently has the fear that outsourcing will cost jobs to their members.
<www.collectionindustry.com/agencyNews/feedback.cfm?issue=4>

b. Most grievances will involve only a dispute between the grievor and the employer. The employer has underpaid, or disciplined, or denied a leave to a teacher; resolution of the grievance does not impact directly on others.[4]
<www.betf.ca/bargain/grievances/backgrounder.html>

In (24a) above, the goal object *their members* is not heavy at all, so its postposition is not caused by Heaviness. What then caused this unusual order? The answer is "focus." In English, the last element of a sentence is given focus by default. This also has to do with the Givenness Constraint, which demands that new information be placed in the rightmost position. If the relevant clause in (24a) were in the normal order, that is, *outsourcing will cost their members jobs,* then *jobs* would get the default focus. However, in this particular context, the information that what is at stake is jobs is redundant, not worthy of the focus. Rather, the main concern is who will be affected, i.e., *their members.* In other words, *their members*, to receive special attention or focus, is postposed to the last position, i.e., the focus position. It is true, however, that an element can get focus in its default position, especially with the help of intonational stress; *their members* also can receive focus in its normal position as the first object of the clause. In fact, this is what happens in many more cases, and (24a) is actually rather an unusual, if not impossible, case.

Then how can we capture this uneasy situation in grammar? We can posit Focus Constraint to be stronger than the syntactic constraint that will secure the normal order, in order to explain the order we see in (24a). At the same time, we do not want the Focus Constraint to win the syntactic constraint all the time, because focus can be given in the default position. In fact, we see a similar situation with Heaviness Constraint in the examples in (18) through (23). While Heaviness can override the lexical and syntactic constraints, it does not do so all the time because the normal orders are fine too in those examples. In other words, the problem is the optionality of variation and this is exactly what we are trying to capture in this paper.

We can see more examples where focus disrupts the normal order in the V-Part construction. For instance, *give off* is an expression that takes its object after the

[4] While focus is a factor to cause the unusual order in this example because *a teacher* is being contrasted with *others*, parallelism also seems to be a consideration. The object *a teacher* is shared by all three predicates, i.e., *underpaid, disciplined* and *denied a leave to*, so it may be said that the object is RNR-ed and the given order is the best to maintain the parallelism of the sentence.

particle, as we have seen above in (6). Yet, in (25) below, it takes its object before the particle *off*.

(25) V NP Part

a. The warm surface water gives its heat off to the atmosphere, which in turn keeps Europe about 5–10°C warmer than it would otherwise be.
<www.nerc.ac.uk/publications/latestpressrelease/2004-03centralheat.asp>

b. As for carbon monoxide i dunno but, i do know in order to get carbon monoxide you need to burn something that would give that gas off as a waste product such as ...
<www.thatsite.com/forums/index.cfm?fuseaction=read&id=67739&forum=41>

Taking (25b) as an example, the normal order of the relevant part would be *give off that gas*. As discussed above, the clause-final position is the focus position in English, so the object *that gas* would get the focus in the normal order. In this context, however, the object *that gas* does not carry any new information and simply refers back to the carbon monoxide that was mentioned before. What should be in focus rather is the fact that the gas is being *off*, not the gas itself. Therefore, it seems that this irregular order shown in (25b) achieves two purposes, i.e., to avoid focus on the object *that gas* and to give focus to the particle *off*.

A contrary case is *boss about* in (26), where the object must be placed before the particle, as seen in (7). However, in (26) below, the object *Aunt Belle* is placed after the particle, exactly because the object is now in focus since it is contrasted with *everyone*.

(26) V Part NP
Shawn has ignored everyone's orders, yet feels justified in bossing about his Aunt Belle. He needs to realize she has every right to run herself through.
<www.soapcentral.com/days/scoop.php?section=twoscoops&year=2005&date=050711>

Similarly, a non-heavy object can be postposed if it is focused. In (27a), *Barry Bonds*, not *to the plate*, is new information that should be in focus, whereas in (27b), the object *a grammar* and *an optimal structure* are in focus as they are contrasted with each other. Likewise, the object in (27c) and (27d) is focused.

(27) V PP NP

a. That brings to the plate Barry Bonds. (Arnold et al., 2000, 32)

b. to take as input a grammar and to associate with it, as output, an optimal structure. (Arnold et al., 2000, 32)

c. To choose contraceptive drugs take into account your metabolism.
<newsfromrussia.com/science/2004/12/29/57636.html>

d. There are reports, unconfirmed I have to stress at this stage, that some deal has been done between the Israelis and the Palestinians to bring to an end this standoff.
<transcripts.cnn.com/TRANSCRIPTS/0205/05/bn.01.html>

In addition, Focus Constraint can override the informational restriction, that is, the Givenness Constraint. Recall the ungrammatical example (8b), which is almost identical to example (28b) below. According to Givenness Constraint, (28b) also should be ungrammatical, but the context in (28) makes it possible for *Mailer* to receive a (contrastive) focus so that now Focus Constraint licenses this order.

(28) a. It is very difficult to get book ideas simply from interviews.

b. Well, interviewing Nixon gave an idea for a book to Mailer. (Levin, 2004)

Focus goes even further to override the Pronoun Constraint. Even though Pronoun Constraint is pretty strong securing a pronoun closest to the verb even in some lexically unfavorable situations, focus can separate a pronoun from the verb. See examples in (29) below.

(29) a. You should never give out your address or phone number online and you should never send someone them in the mail either.
<www.girlpower.gov/girlarea/sciencetech/web/step1htm>

b. Note: I don't give children peanut butter until they are 3 years old since it is recommended not to give children it to avoid possible allergies.
<www.fastq.com/~jbpratt/recipes/children-recipes/html>

In (29a), *someone* in *send someone them* is not a meaningful information in this context; it is almost like a place holder. If this part were in the regular order, i.e., *send them to someone*, *someone* would get focus, which is not desirable. On the other hand, *them*, although it does not carry new information, is emphasized again in this context and thus holds focus. Therefore, this unusual order serves double purposes in (29a). The situation is quite similar in (29b) too.

Likewise, a pronoun may be placed after a particle in the phrasal verb construction if the pronoun holds focus. In example (30) below, the pronoun *you* is contrasted with *Fred*, hence carrying contrastive focus. Here again, Focus Constraint overrides Pronoun Constraint.

(30) I put up you, not Fred, for the presidency.
(Bolinger, 1971, 39–41, cited in Chung (2005))

Moreover, Focus can override the lexical and pronominal restrictions together. Below, the pronominal object *you* in (31a) and *them* in (32b) receive contrastive focus, being contrasted with *me* and *the good guys* respectively.

(31) a. "I bossing about you, largely you gotta care about me" I didn't ask you in transit to care for me. most often a long negotiations in which ...
<www.laxat.com/Delusions-of-normal-people-1222168.html>

b. you think these people wear uniforms So we may tell apart them from the good guys? Until then we have to consider them all ... potential terrorists.
<www.frontpagemag.com/GoPostal/commentdetail.asp?ID=10113&commentID=173080>

Finally, a pronoun object may even be postposed when it is focused.

(32) Thus desires of the child are not always taken into account, and, maybe, someone would like to take into account them and to direct the child according to his inclinations and abilities, but does not know them.
<www.socionics.in.ua/eng/vyhovan.htm>

In this case, the phrasal expression *take into account* was already introduced in the first clause, hence no need to give focus on the PP *into account.* At the same time, *them* (referring to the *desires* in the first clause) is getting refreshed as it is compared with the following *his inclinations and abilities*, and therefore deserves focus by being postposed.[5]

As we have seen throughout this section, unusually ordered sentences, traditionally considered "ungrammatical," are in fact pretty acceptable and competing with the normally ordered ones, especially when processing or informational considerations such as heaviness and focus are taken into account. In other words, judgment on grammaticality is vague and the range of variation is wider than traditionally accepted. Therefore, it seems obvious that to explain the variety of unusual variations displayed in this section, the notion of gradience and variability of grammaticality needs to be incorporated in grammar descriptions.

[5] An anonymous reviewer asked how the current analysis explains the ungrammaticality of the following examples regarding the interaction between Pronoun Constraint and Focus Constraint.

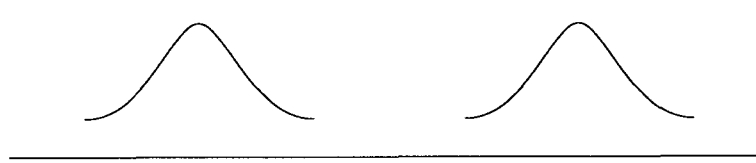
(i) a. *Tom didn't give Mary THIS, but he bought Bill THAT.
b. *Tom turned off IT, but Bill turned on IT (again).
c. *He brought to an end IT, but she brought to light IT (again).

If we take (ib) and (ic) first, we can see that focus is in wrong places, given the context; there is no reason why *it* gets focus in these contexts. In (ib), *off* and *on* instead of *it* should be focused because they are contrasted; likewise, in (ic), *to an end* and *to light*, not *it*, should be focused. Then, the pronoun object *it*, not being focused, cannot be positioned sentence-finally, because both Pronoun Constraint and Focus Constraint would penalize *it*'s postposing. Even if we suppose that the pronoun *it* be focused for some reason in addition to the particles or PPs, the current analysis would favor the normal-order variant: the normal-order variant and the postposed variant would not differ in terms of Focus Constraint because both the object *it* and the particles/PPs are focused, but Pronoun Constraint would favor the normal-order one because only that satisfies Pronoun Constraint. As for (ia), in fact, (ia) does not sound so bad except that the goal object should be focused as well in this context. Since both the goal and the theme are in focus, Focus Constraint would not distinguish the two variants. Also, *this* and *that*, as focused deictics, are different from regular pronouns and therefore not subject to Pronoun Constraint. Therefore, the goal and theme arguments in (ia) are free to change their positions due to the interaction of *STRUCT and FAITH(R).

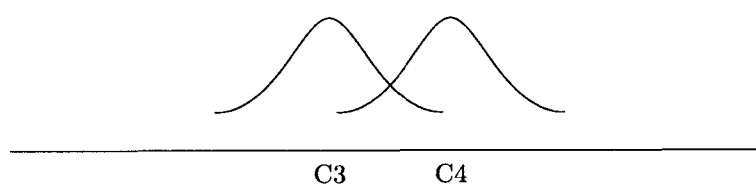
3. Weighing and Distancing the Constraints

Following up on the stochastic OT model of Bresnan and Nikitina (2003) and Choi (2005), I suggest all three alternations can be accounted for by the same mechanism within the model. The key idea in the stochastic OT model is that constraints are ranked on a continuous ranking scale and each constraint does not have a discrete ranking value but instead a ranking value with normal distribution around a mean. With their ranking values on normal distribution, constraints ranked closely together on the scale may overlap. As a result, their rankings may be reversed at a frequency determined by the distance between them. That is, the rankings of these constraints are variable.

(33)



(34)



In (33), for instance, constraint C1 is ranked higher than constraint C2, and the ranking distance between them is pretty far. Thus it is unlikely that the rankings between them are reversed: C1 always outranks C2. By contrast, constraints C3 and C4 in (34) are ranked at a close distance on the ranking scale, so although C3 is ranked higher than C4 in most cases, C4 may outrank C3 in the overlapped area. Therefore, the closer the constraints are on the scale, the bigger chances of ranking reversal, and of course, the more ranking reversals, the more variable outputs. As such, the notion of distance in constraint ranking can capture both gradience and categoricality of grammaticality. Namely, closely ranked constraints will yield variable outputs, hence causing gradience of grammaticality; distantly ranked constraints will yield constant and fixed outputs, hence resulting in categorical grammaticality.

3.1 Free Variation and Lexical Differences

A simple OT model of variation can be based on two conflicting constraints that are closely distanced. As proposed by Bresnan and Nikitina (2003), Dative Alternation is explained by interaction of the constraints *STRUCT and FAITH(REC). To recall, Constraint *STRUCT is an economy constraint that demands to avoid syntactic structure, and will thus penalize the *to*-variant, which has an extra PP structure. On the other hand, constraint FAITH(REC) demands to express the recipient (goal) role with distinct marking, hence penalizing the ditransitive variant,

where the recipient role is not structurally distinct from the theme role. The core idea is that the ranking distance between *STRUCT and FAITH(REC) is so short that the reverse ranking is also possible, as shown in (34). Therefore, we end up getting both the ditransitive variant and *to*-variant (See Choi (2005) for details).

Similarly, Particle Inversion can be accounted for by interaction of two conflicting constraints, i.e. OBJ-ADJ and PART-ADJ.

(35) Constraints on Particle Inversion

a. OBJECT-ADJACENCY (OBJ-ADJ): Place the object adjacent to the verb.

b. PARTICLE-ADJACENCY (PART-ADJ): Place the particle adjacent to the verb.

OBJ-ADJ is a well-known syntactic constraint that ensures that the object be (right-)adjacent to the verb (e.g., to receive Case). Therefore, this constraint will penalize any sentence that does not have its object right next to the verb. On the other hand, PART-ADJ is a constraint that demands the particle to be (right-)adjacent to the verb, so that the verb and the particle form a single unit as a phrasal verb. These two constraints are naturally in conflict because they compete for a single position, i.e., one that is right next to the verb.

These two constraints are proposed to be ranked very close to each other, OBJ-ADJ a little higher than PART-ADJ (OBJ-ADJ >> PART-ADJ). The short ranking distance between these constraints, as illustrated in (34), will make the reverse ranking (PART-ADJ >> OBJ-ADJ) possible too, so we get two variable rankings, which virtually result in free variation. Let us take (2b) as an example. When OBJ-ADJ is ranked higher than PART-ADJ as in (36), candidate (a) *We turned the lights on* will be the optimal candidate; on the other hand, when PART-ADJ is ranked higher than OBJ-ADJ as in (37), candidate (b) *We turned on the lights* will be the optimal candidate. In short, the Particle Inversion variation seen in (2) comes from the variable ranking of OBJ-ADJ and PART-ADJ, which is caused by the short ranking distance between them.

(36) Alternating Phrasal Verb

(2b′)		OBJ-ADJ	PART-ADJ
☞ a.	We turned the lights on		*
b.	We turned on the lights	*	

(37) Alternating Phrasal Verb

(2b)		PART-ADJ	OBJ-ADJ
a.	We turned the lights on	*	
☞ b.	We turned on the lights		*

Then how would the lexical differences be captured? As observed in section 2.1, not all verbs or particles of phrasal verbs are created equal. Some do not allow

variation. Hence, verbs can be subgrouped according to the variability. First of all, while dative verbs such as *give, teach, sell, fax, throw*, etc. are freely alternatable (Alternating Group), latinate verbs such as donate, manner verbs such as *yell, mutter, lower, carry*, and idioms with fixed goal take only the *to*-variant (VOP Group); by contrast, verbs like *cost* and *deny* and idioms with fixed theme take only the ditransitive variant (VOO Group). The difference comes from their lexical property as to how to realize the recipient (goal) role, so the FAITH(REC) constraint should be subdivided to represent each group, as shown in (38a).[6] Also, phrasal verbs can be divided into three groups according to the variability too: those that freely alternate such as *turn on/off, figure out, mess up, take in/out* (Alternating Group); those that have the particle right next to the verb such as *give off, take up, brush up, eke out* (VPO Group); finally those that have the particle after the object such as *boss about, count in, see through, tell apart, bring to* (VOP Group). This grouping also results from the lexical property of the particle of the phrasal verb, and hence each group will be represented by a PART-ADJ constraint, as shown in (38b).[7]

(38) Constraints for lexical differences

a. FAITH(REC): give, fax, throw, teach, sell, read
FAITHvop(REC): Latinate verbs (e.g., donate);
yell, mutter, lower, carry, mutter;
Idioms with fixed goal (e.g., send to the showers);
FAITHvoo(REC): cost, deny;
Idioms with fixed theme (e.g., give a headache)

b. PART-ADJ: turn on/off, figure out, mess up, take in/out
PARTvpo-ADJ: give off, take up, brush up, eke out
PARTvop-ADJ: boss about, count in, see through, tell apart, bring to

The constraints in each group in (38) do not differ in their content. What they differ is their ranking in relation to the conflicting constraint, i.e., *STRUCT and OBJ-ADJ respectively. For instance, all the PART-ADJ constraints in (38b) state that the particle must be adjacent to the verb, but their strength relative to OBJ-ADJ is different, as demonstrated in (39) below (the distance between constraints is represented by ... below).

(39) Lexical Differences Encoded in Constraint Ranking

a. FAITHvop(R) ... >> *STRUCT >> FAITH(R) >> ... FAITHvoo(R)

b. PARTvpo-ADJ ... >> OBJ-ADJ >> PART-ADJ >> ... PARTvop-ADJ

[6] Choi (2005) proposed six different subconstraints of FAITH(REC) and their ranking relative to *STRUCT as follows: $F_{Go}(R)$ >> $F_{yell}(R)$ >> $F_{fax}(R)$ >> *STRUCT >> $F_{give}(R)$ >> $F_{cost}(R)$, $F_{Th}(R)$.

[7] This lexical property of a phrasal verb is also represented by the [LEX +/-] feature of the particle in Chung (2005).

As mentioned above, the PART-ADJ for alternating verbs is ranked closely with OBJ-ADJ, thus allowing rank reversal. However, PARTvpo-ADJ is ranked much higher than (and distant from) OBJ-ADJ, so does not overlap with it, which means that ranking reversal is unlikely to happen. This is exemplified in (40) below. In contrast, PARTvop-ADJ is ranked much lower than (and also distant from) OBJ-ADJ, thus no overlapping with OBJ-ADJ, so no ranking reversal either, as exemplified in (41).

(40) VPO-ordered Phrasal Verb

(6a)		PRTvpo-A	OBJ-ADJ	PRT-ADJ	PRTvop-A
a.	give a foul odor off	*			
☞ b.	give off a foul odor		*		

(41) VOP-ordered Phrasal Verb

(7a)		PRTvpo-A	OBJ-ADJ	PRT-ADJ	PRTvop-A
☞ a.	boss his wife about				*
b.	boss about his wife		*		

Under normal circumstances, therefore, we only see candidate (b) in (40), and candidate (a) in (41). This way, we can show that there exist lexical differences among the subgroups in their variability and explain why the variability differs by the notion of ranking distance.

3.2 Linguistically Conditioned Variation

As seen above, dative construction and phrasal verb construction are theoretically in free variation in neutral condition. In reality, however, these constructions are almost always linguistically conditioned, especially because object is never completely neutral: it is either indefinite or definite, given information or new, pronoun or non-pronoun, long or short. It may even be focused or defocused. Therefore, these variations are not really free and in fact are influenced by the morphological, informational, and processing constraints such as Pronoun, Givenness, Focus, and Heaviness.[8]

(42) Constraints Conditioning Variations

a. GIVEN-L: Align a given element rightmost.

b. PRON-L: Align a pronoun leftmost.

c. HEAVY-R: Align a heavy element rightmost.

[8] Given-L, Pron-L, and Heavy-R are combined under one umbrella constraint in Bresnan and Nikitina (2003) as below:

(i) Double-Object Primacy (OO-PRIMACY):
Given>Accessible>New; Definite>Indefinite; Pronoun>Noun; Shorter>Longer

These constraints are proposed to be separated in this paper because (1) they play a significant role not only in dative alternation but also in particle inversion and object postposition; (2) each of these constraints shows a different strength, so must be ranked differently.

d. FOCUS-R: Align a focused element rightmost.

These are the constraints that can disrupt the "default" order, and they are also ranked among themselves. Based on the discussion in section 2, FOCUS-R and HEAVY-R turn out to be the strongest of all, being able to override all other constraints; PRON-L probably next, overriding the lexical constraints; GIVEN-L the weakest (although stronger than some default constraints), meaning close to and thus readily reversible with syntactic constraints (recall examples (8) and (9)).

As a result, we suggest the following constraint ranking for each alternation.

(43) Constraint Rankings:

a. Dative Alternation:
Fvop(R) >> FC-R >> HV-R >> PRN-L >> GV-L >> *STR >> F(R) >>...Fvoo(R)

b. Particle Inversion:[9]
PRTvpo >> FC-R >> HV-R >> PRN-L >> GV-L >> OBJ-A >> PRT >>...PRTvop

c. Object Postposition:
FC-R >> HV-R >> PRN-L >> GV-L >> OBJ-A >>...PP-L

Note that the ranking distance between these constraints are proposed to be pretty close to each other except for the few distant constraints. That is, the rankings between neighboring constraints are reversible. For example, although PARTvpo-ADJ is ranked higher than FOCUS-R in (43b), their ranking can switch easily. This is what happens in example (25). However, PARTvpo-ADJ is ranked higher but quite far apart from GIVEN-L, so their rankings are hardly switched. That's why we don't see examples where a given-information object precedes the particle in the VPO phrasal verbs. On the other hand, we see some examples in the regular alternating phrasal verbs, as in (9), because GIVEN-L is closer to PART-ADJ, than to PARTvpo-ADJ.

The high ranking of FOCUS-R and HEAVY-R is well attested with Object Postposition. Note that the Object Postposition variation was never free from the beginning. Under normal circumstances, an object NP phrase will always precede a PP, which can be encoded by the ranking, OBJ-ADJ >> PP-L, the distance between the two being pretty far, i.e., irreversible. As seen in section 2, it was only the high-ranking constraints FOCUS and HEAVY that can trigger an Object Postposition.

---

[9] Farrell (2005) suggested the following constraint ranking for Particle Inversion variation.

(ii) ... >> Heavy-Right >> DO-Left >> P-Left

Apart from the fact that the range of data that are covered differs, this discrete ranking proposed in Farrell cannot account for the potentially freely variable nature of this alternation especially in non-heavy object cases.

Let's take (3) (= (17a)) as an example to see how the high-ranking constraint HEAVY-R, for instance, triggers an Object Postposition alternation. In (44) below, the object-postposed candidate (b) becomes the optimal output because constraint HEAVY-R, ranked higher than OBJ-ADJ, rules out the regularly ordered candidate (a).

(44) Heaviness on Object Postposition

(3)		FOC-R	HV-R	...	OBJ-ADJ	PP-L
a.	brought the wine we had ordered to the table		*			*
☞ b.	brought to the table the wine we had ordered				*	

Similarly, FOCUS-R shows an even more drastic case of Object Postposition. Take (27b) as an example. Here the object *a grammar* is not heavy at all, but is focused by being contrasted with *an optimal structure* in the sentence. In (45) the normally ordered candidate (a), where the focused object is not placed rightmost, is ruled out immediately because it violates the highest-ranking constraint FOCUS-R. Candidate (b) becomes the optimal output exactly because FOCUS-R outranks OBJ-ADJ.

(45) Focus on Object Postposition

(27b)	focus = an input	FC-R	HV-R	...	OBJ-ADJ	PP-L
a.	take a grammar as input	*				*
☞ b.	take as input a grammar				*	

Finally, let's see an example where FOCUS-R incurs a Particle Inversion variation against all odds. In example (31a), the pronoun *you* as the given-information object of the VOP phrasal verb *boss about* would be placed right after the verb in normal situation; for constraints PRON-L, OBJ-ADJ, and GIVEN-L would all demand the object to be right-adjacent to the verb. However, only one constraint demands the object *you* to be placed rightmost because it is focused, and since this constraint outranks all the other constraints, the object *you* can be placed after the particle *about*.

(46) Focus on Particle Inversion

(31a)	focus = you	FC-R	HV-R	PRN-L	OBJ-A	GV-L	PRT	PRTvop
a.	bossing you about	*						*
☞ b.	bossing about you			*	*	*		

Note also that this theoretical model of variation does not exclude the possibility where the focused pronominal object *you* stays in its more regular position, i.e., between the verb and the particle, which actually happens. Even though FOCUS-R and PRON-L are not next to each other, their rankings can still switch because constraints have values on normal distribution and they are not too far away from each other.

4. Conclusion

To summarize, three syntactic variations in English, i.e., Dative Alternation, Particle Inversion, and Object Postposition, have been examined and shown that they can all be explained to be triggered and controlled by the same mechanism in the stochastic OT model. Specifically, the notion of distance in constraint ranking can capture the existence and the degree of variation. That is, while the short distance between *STRUCT and FAITH(REC) for Dative Alternation and that between OBJ-ADJ and PART-ADJ for Particle Inversion yield frequent variations, the relative longer distance between OBJ-ADJ and PP-L results in rare occurrences of neutral variation. At the same time, the higher ranking of informational, morphological, and processing constraints such as GIVEN-L, FOC-R, PRON-L, and HEAVY-R cause linguistically-conditioned variations. In conclusion, the notion of relative distance in addition to the idea of constraint ranking can effectively explain the syntactic instability, lexical differences, and informational and processing effects of variation phenomena.

<References>

Arnold, Jennifer, Thomas Wasow, Anthony Losongco, and Ryan Ginstrom. 2000. Heaviness vs. Newness: The Effects of Complexity and Information Structure on Constituent Ordering. *Language* 76, 28–55.

Boersma, Paul and Bruce Hayes. 2001. Empirical Tests of the Gradual Learning Algorithm. *Linguistic Inquiry* 32, 45–86.

Bolinger, Dwight L. 1971. *The Phrasal Verb in English.* Harvard University Press, Cambridge.

Bresnan, Joan and Tatjana Nikitina. 2003. On the Gradience of Dative Alternation. Master's thesis, Stanford University Department of Linguistics.

Bruening, Benjamin. 2001. QR Obeys Superiority: Frozen Scope and ACD. *Linguistic Inquiry* 32, 233–273.

Choi, Hye-Won. 2005. Alternating the Non-Alternate: A Probabilistic Approach to Dative Alternation. *Language and Information* 9, 51–68.

Chung, Chan. 2005. A Constraint-Based Lexical Approach to English Phrasal Verb Constructions. *Korean Journal of Linguistics* 30, 243–266.

Collins, Peter. 1995. The Indirect Object Construction in English: An Informational Approach. *Linguistics* 33, 35–49.

Dixon, R. M. W. 1982. The Grammar of English Phrasal Verbs. *Australian Journal of Linguistics* 2, 1–42.

Farrell, Patrick. 2005. English Verb-Preposition Constructions: Constituency and Order. *Language* 81, 96–137.

Fraser, Bruce. 1976. *The Verb-Particle Combination in English.* Academic Press, New York.

Green, Georgia. 1974. *Semantic and Syntactic Regularity.* Indiana University Press, Bloomington.

Harley, Heidi. 2002. Possession and the Double Object Construction. In P. Pica and J. Rooryck (eds.), *Yearbook of Linguistic Variation II.* John Benjamins, Amsterdam, pp. 31–70.

Krifka, Manfred. 2003. Semantic and Pragmatic Conditions for the Dative Alternation. In *Proceedings of the 2003 KASELL International Conference*, pp. 44–58, Seoul, Korea. The Korean Association for the Study of English Language and Linguistics.

Levin, Beth. 2004. Revisiting Dative Arguments. In *Proceedings of the 2004 Seoul Linguistics Forum*, pp. 49–57, Seoul, Korea. Language Education Institute, Seoul National University.

Marantz, Alec. 1993. Implications of Asymmetries in Double Object Constructions. In Sam A. Mchombo (ed.), *Theoretical Aspects of Bantu Grammar.* CSLI Publications, Stanford, pp. 113–150.

Pinker, Steven. 1989. *Learnability and Cognition. The Acquisition of Argument Structure.* MIT Press, Cambridge.

Snyder, Kieran. 2003. *The Relationship between Form and Function in Ditransitive Constructions.* Ph.D. thesis, University of Pennsylvania, Philadelphia, PA.

Submitted on: May 2, 2007
Accepted on: June 4, 2007