Grammatical Downsizing and The Redistribution of Semantic Wealth

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1 Introduction

In this paper we explore the consequences of *Grammatical Downsizing*. Grammatical Downsizing occurs when the rules of morphology, phonology or syntax cause a given formative to be ill-formed in a certain context. We demonstrate with examples from Kannada and Modern Greek that Grammatical Downsizing leads to an extension of the semantic domain of some other formative, redistributing the semantic resources of the grammar onto fewer forms. The central question of this paper is whether the grammar requires a dedicated mechanism of Semantic Redistribution or if the effects of redistribution arise from the interaction of independent principles.

Our exploration takes place within the framework of Distributed Morphology (DM) (Halle and Marantz, 1993) in which a level of Morphological Structure (MS) forms the interface between surface-level syntax and phonology. It is at this level that morpho-syntactic features are mapped to phonological features. Two aspects of the DM framework are relevant to the phenomena we observe. One is the idea that the insertion of vocabulary items takes place post-syntactically. While the Kannada data we discuss support the idea of mapping morpho-syntactic features to phonological exponents postsyntactically, the Greek data suggest that the range of potential phonological exponents can have a syntactic effect, indicating that the mapping from morpho-syntactic feature bundles to phonological forms may take place presyntactically. The second aspect of DM that we are concerned with has to do with two properties of MS: competition between forms and underspecification of features. These properties give rise to semantic redistribution. However, we see that this effect emerges from different principles in the two cases we discuss, suggesting (a) that underspecification cannot account for redistribution by itself, and (b) that a global rule of semantic redistribution may not be neccessary.

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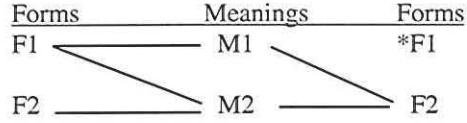
1.1 Semantic Redistribution

We use the terms Grammatical Downsizing and Semantic Redistribution pre-theoretically to describe a particular aspect of the mapping between forms and meanings. We find that the mapping of form to meaning is not fixed, but is contextually determined, depending on what other forms are available in a paradigm (cf. Lidz 1999). Grammatical Downsizing occurs when a particular form becomes unavailable in some environment. This is illustrated in (1), where two forms (F1 and F2) are available in the environment modeled by the left-hand side of the diagram. The right-hand side of the diagram shows Downsizing since F1 becomes unavailable here.

(1)



The mappings between forms and meanings are indicated with lines drawn from the forms F1 and F2 to the meanings M1 and M2. On the left-side, M1 is only mapped to F1 and not to F2. Where Downsizing has occurred (on the right), and F1 is no longer available, F2 now maps to M1 (taking on a new function or meaning). Thus, the meaning of F2 depends on what other forms are available in a given construction or environment.

1.2 A Brief Introduction to Distributed Morphology

In Distributed Morphology (DM) (Halle & Marantz 1993; Halle 1997; Marantz 1995, 1997; Noyer 1992), what is traditionally thought of as the Lexicon is divided into three distinct components. The 'pure' *Lexicon* is made up of morpho-syntactic feature bundles that are input to the syntax as terminal nodes in the tree (morphemes). *Vocabulary* items are the phonological exponents realizing the morpho-syntactic features at the level of MS. The *Encyclopedia* connects the morpho-syntactic feature bundles and meanings.

The derivation proceeds as follows. First, feature bundles are inserted into the terminal nodes of the syntactic tree. The syntax manipulates these feature bundles, for example, by bringing them together by movement. Morphology can then act on the feature bundles by various operations. Finally, vocabulary items are inserted, replacing the syntactic feature bundles with phonological exponents.

A notable property of DM is that vocabulary items are underspecified for the syntactic features that they realize. This underspecification is possible

because the vocabulary items do not provide the features that are manipulated by the syntax, nor do they provide the features that determine their meanings. Only the features that are needed to distinguish one entry from another are specified. Forms competing for insertion in the same terminal node are ordered with respect to each other, so that the most highly specified (or complex) entries are considered first. Default entries are less specified and occur lower in the block of competing forms. The competing block of forms for the copula BE are given in (2).[1]

(2) Vocabulary Component: spelling out BE (Halle 1997)

am ↔ ___ + [+1st, -Pl, +Pres, +Finite]	1sg, Pres
is ↔ ___ + [-Pl, +Pres, +Finite]	3sg, Pres
was ↔ ___ + [-Pl, +Finite]	1/3Sg, Past
are ↔ ___ + [+Pres, +Finite]	Pres
were ↔ ___ + [+Finite]	Past
be ↔ ___ <elsewhere>	

In order to realize the phonological exponent of a terminal node containing the root BE, the most specific form, i.e., the one which spells out the greatest number of features from the terminal node, is chosen. Identity between the features in the terminal node and those specified by the vocabulary item is not required. Insertion obeys a *Subset Principle*, whereby "the feature bundle of the Vocabulary item must be nondistinct from the features of the terminal node at MS that serves as the site of insertion" (Halle & Marantz 1993, 122). For example, the vocabulary item *was* need not be specified for tense in order to be inserted only in past tense environments, since the present tense items are specified for this feature.

There are also cases where a phonological exponent does not directly spell out the feature bundle manipulated by the syntax. Given only what we have said so far, we would expect the form *was* to realize the Syntactic Feature Bundle (SFB) shown in (3) for the 2nd person singular past copula. But in fact, these features are realized by the exponent *were*.

(3) [Cop, +Vb] + [-3rd, -1st, -Pl, -Pres, +Finite] SFB for 2sg, Past

To account for this mismatch, language particular rules are posited which further manipulate the features in the morphological component prior to vocabulary insertion. One of these MS rules is Impoverishment (Bonet 1991),

[1]The following discussion of the English copula borrows heavily from Halle 1997.

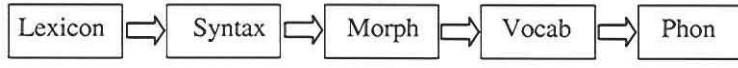
which deletes a feature in a terminal node in a given environment. The impoverishment rule shown in (4) applies to the SFB in (3).

(4) [-Pl] → ∅ / [___, -3rd, -1st]

This rule says that the [-plural] feature is deleted in the environment of the features –3rd and –1st. The full derivation is shown in (5). Once the –Pl feature is deleted, the entry for *were* is the most highly specified entry containing a subset of the features in the SFB. The form *was* cannot be inserted because its set of features contains [–Pl] which is not contained in the new SFB, and thus does not constitute a subset of the features in the SFB.

(5) [Cop, +Vb] + [-3rd, -1st, -Pl, -Pres, +Finite]	SFB for 2sg, Past
↓	
Rule (4) applies	Morphology
↓	
[Cop, +Vb] + [-3rd, -1st, -Pres, +Finite]	SFB, modified
↓	
were	Vocabulary Insertion

As mentioned above, vocabulary items are inserted only after morphological rules such as Impoverishment act on the SFBs. The diagram in (6) illustrates the architecture assumed by DM.

(6) 

Notice that the rule of impoverishment together with a process of Vocabulary insertion where forms are underspecified and where the most specific form wins gives rise to Semantic Redistribution. Considering only the 1st and 3rd person portions of the paradigm in (7), it is natural to suppose that *were* is specified for plural and that *was* is specified for singular. When *was* becomes unavailable, due to impoverishment, *were* fills in the singular slot, taking on a 'meaning' that it does not normally have.

(7)

person	sing	Plur
1	*was*	*were*
2	*??*	*were*
3	*was*	*were*

Semantic Redistribution of this sort appears at all levels of grammar. The question arises, therefore, whether its effects can be due to a component-specific rule such as Impoverishment, or whether there is a cross-modular rule of Redistribution.

The paper proceeds as follows. First, we examine Echo Reduplication in Kannada. The data support the DM view of late vocabulary insertion. However, the effect of grammatical downsizing and semantic redistribution arises from an interaction between phonological constraints and a hypothesized rule of feature enrichment. A complete account of this phenomenon also requires a cycle from MS to phonology and then back to MS. We then go on to examine Modern Greek imperatives and subjunctives. Here we find additional support for the feature enrichment hypothesis. However, the data indicate that choice of vocabulary item can have syntactic effects, suggesting that the vocabulary is accessed presyntactically. The effect of redistribution in Greek is a consequence of this early lexical choice in conjunction with Gricean principles. In the final section, we argue that no global rule of semantic redistribution is required to account for the phenomena of redistribution that we observe. The effects of redistribution fall out from independent properties of the grammar.

2 An Argument for Postsyntactic Vocabulary Access: Echo-Reduplication in Kannada

In this section, we give an argument for postsyntactic vocabulary access on the basis of two rules of Echo (or fixed melody) Reduplication (ER) in Kannada. In Conjunctive ER (Lidz 2000), the first C(onsonant)-V(owel) sequence of a morphosyntactic constituent is replaced with [gi], yielding a conjunctive interpretation.

(8) a. pustaka
'book'

b. pustaka-**gistaka**
'books and stuff.'

This rule can apply to phrasal as well as lexical categories. In (9), the entire VP is reduplicated.

(9) baagilannu much-id-e **giigilannu muchide** anta heela-beeDa
door-ACC close-PST-1S **RED** that say-PROH
'Don't say that I closed the door and did related things.'

In disjunctive ER, the first CV of a morphosyntactic unit is replaced with [pa], yielding a disjunctive interpretation.

(10) a. pustaka 'book' b. pustaka-**pastaka** 'books or related things.'

This rule can also apply to phrasal categories. In (11), the entire VP is reduplicated.

(11) baagilannu much-id-e **paagilannu muchide** anta heela-beeDa
door-ACC close-PST-1S **RED** that say-PROH
'Don't say that I closed the door or did related things.'

For both rules, there is a phonological constraint blocking reduplicative-identity. If the base word begins with the same CV as the fixed melody of the reduplicant, reduplication is impossible:

(12) a. giDa 'plant' b. * giDa-**giDa** c. panja 'claw' d. * panja-panja

It is not impossible to reduplicate such words, however. The fixed melody of the other kind of reduplication is used to convey the relevant meaning. That is, the replacement form for *gi* is *pa* and the replacement form for *pa* is *gi*.

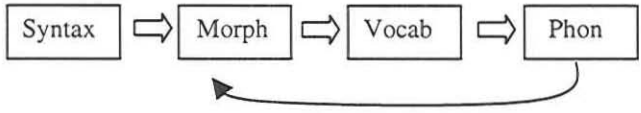
(13) a. giDa-**paDa** 'plants and related things.' 'plants or related things.' b. panja-**ginja** 'claws and related things.' 'claws or related things.'

There are two important observations here. First, both forms are now ambiguous between the conjunctive and disjunctive interpretations. The ambiguity illustrates semantic redistribution following phonological downsizing. Second, the replacement form is chosen on morphological, not phonological, grounds.[2] In other words, we do not choose some unmarked phonological segment to fix the ungrammatical output (see Alderete et al, 1999; Vijayakrishan 2000). Rather, we choose an alternative morphological form.

Now, the fact that the phonological part of ER requires looking at syntactic structure tells us that it is a post-syntactic rule. That is, ER can apply to phrasal categories and so must take syntax as its input. This observation plus the fact that phonological problems get fixed by choosing the other kind of ER indicates that Vocabulary access is postsyntactic. Furthermore, we have

[2]In fact, the solution to base-reduplicant identity in Kannada described above is only one of a number of possible solutions which differ across speakers. For some speakers, a phonological solution is taken, replacing the [gi] with [bi] or [vi]. For others, there is simply a gap in the paradigm and reduplication becomes impossible.

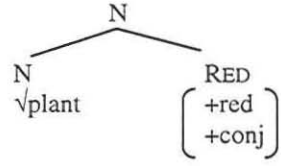
evidence that the morphology and vocabulary are addressed both before and after the phonological component. Applying the phonological constraint marking total reduplication as ill-formed requires the vocabulary to already have been addressed; and, overcoming violations of this constraint requires reaccessing the morphological component.[3] The general picture that emerges is given in (14).

(14) 

2.1 When ER is Blocked

Let us now consider the derivation of ER involving a word that begins with the same segments as those in the fixed melody, such as (13b). First, the syntax generates the structure in (15). We use the feature [+red] to indicate that ER is to apply and the feature [+conj] to indicate that it is to be conjunctive rather than disjunctive reduplication.

(15) syntax



At this point, the vocabulary is accessed and the form in (16) is chosen.

(16) vocabulary insertion: [giDa **giDa**]

Now the form is sent to the phonological component in which the constraint against total reduplication applies:

(17) phonology: * [giDa **giDa**]

If the derivation ended here, we would expect no form to be possible because there is no phonological exponent that spells out a proper subset of features.

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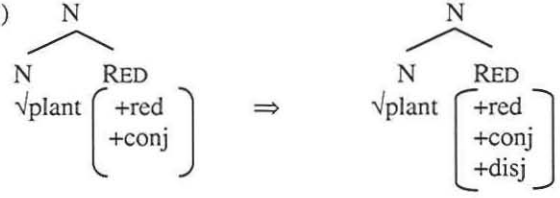
[3]Note that the constraint against total reduplication applies only in the case of echo-reduplication. There is an independent rule of total reduplication used for emphasis. Numerals and *wh*-words may also undergo total reduplication to indicate distribution (Schiffman 1983:124ff).

We might, however, expect a phonological readjustment process to take place, replacing some portion of the fixed melody with different phonological material. However, positing a phonological readjustment rule misses the generalization that the violation is repaired by choosing a formative that is typically used to convey a similar meaning. That is, the form used to overcome the violation in conjunctive reduplication is the form canonically used for disjunctive reduplication. Similarly, the form used to overcome the violation in disjunctive reduplication is the form canonically used for conjunctive reduplication. These observations suggest that the phonological violation is fixed by returning to the morphological component. In the next section, we introduce a rule of feature enrichment which inserts a feature and allows an alternative vocabulary item to be chosen.

2.2 Feature Enrichment

The rule of *feature enrichment* applies when there is no possible form to realize a given bundle of features. By adding a feature, this rule increases the chances that a form matching a subset of the features on the relevant node can be inserted. In our example, the feature that is added is [+disj].

(18)



After enrichment applies, we return to the list of vocabulary items.

(19) pa ↔ ___ + [+red, +disj]
gi ↔ ___ + [+red, +conj]

These two items are tied in the competition for insertion. Both forms match two out of three features on the syntactic terminal. However, we have already ruled out [gi] as a possible form in the phonological component. We therefore insert [pa].

(20) [giDa **paDa**]

In sum, we have seen support for the hypothesis that vocabulary access is postsyntatcic. As shown by Lidz (2000), ER in Kannada can apply to phrasal

categories and so must apply postsyntactically. We have also seen that phonological constraints on possible ERs can cause the derivation to cycle back from the phonological component to the morphological component. Finally we have seen that a rule of feature enrichment must apply in order to have a morphological solution to the phonological violation incurred by total reduplication.

3 An Argument for Presyntactic Vocabulary Look-up: Greek Imperatives

In Modern Greek, verbs in the imperative form have distinctive imperative morphology, and they canonically express directives such as commands, orders or requests. For example, in the table in (21), the first row contains the imperative forms for the verb *grafo* ('write'). However, there are no imperative forms for the verbs *ime* ('be') and *ksero* ('know').

(21)

Base form	Imperative form
grafo (*write*)	grapse (2sg), grapsete (2pl)
ime (*be*)	*
ksero (*know*)	*

In order to express directives with these verbs, subjunctive forms are used instead, as shown in (22).

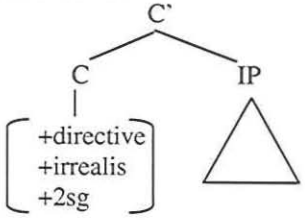
(22) a. Na **ise** eftihismenos!
NA **be-2SG.SUBJ** happy
'Be happy!'

b. Na **kseris** to mathima!
NA **know-2SG.SUBJ** the lesson
'Know the lesson!'

3.1 Prediction of the Distributed Morphology Account

According to the DM model, features provided by the lexicon are first inserted into syntactic nodes, which are then manipulated in the syntax. We assume that some of the relevant features for imperative structure include [+directive, +irrealis, +2sg]. We further assume that these features end up in C^0 either by base-generation or by movement (Han 2000). This is illustrated in (23).

(23) Step 1: Syntactic derivation



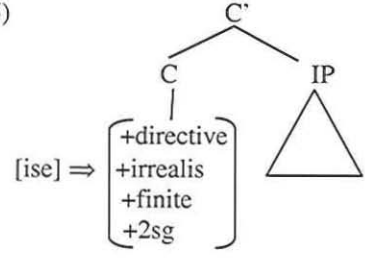
The next step in the derivation is to look up the Vocabulary and select the appropriate phonological exponent. In the case of *be* in Greek, the form that corresponds to the set of features for the imperative form is not available. This is represented in the box in (24) as an empty slot.

(24) Step 2: Vocabulary Insertion

[+directive, +irrealis, +2sg] + [√be]	↔	__
[+irrealis, +finite, +2sg] + [√be]	↔	ise

We further assume that the set of features that spells-out the subjunctive form has a [+finite] feature. This finiteness feature is necessary because subjunctives have present/past tense distinction, which is not the case for imperative forms. The subjunctive feature set does not constitute a subset of the SFB in (23), however. As a consequence, no form can be inserted into C^0. As was discussed in the previous section, we can fix this problem with the rule of feature enrichment, adding the feature [+finite]. We can then insert the subjunctive form in C^0, as illustrated in (25).

(25)



Since Vocabulary insertion in DM is a post-syntactic operation, the prediction is that we should get imperative syntax with the subjunctive verb form.

But sentences that express directives with subjunctive *be* and *know* as in (22) have subjunctive and not imperative syntax.

One piece of evidence for this comes from clitic placement. In imperatives, pronominal clitics encliticize to the verb, as in (26). But in subjunctives, they procliticize. With the verbs *be* and *know* expressing commands, clitics procliticize, as shown in (27).

(26) a. **Diavase** to!
Read-2SG.IMP it
'Read it!'

b. * To **diavase**!
it **read-2SG.IMP**
'Read it!'

(27) a. *Na **kseris** to!
NA **know-2SG.SUBJ** it
'Know it!'

b. Na to **kseris**!
NA it **know-2SG.SUBJ**
'Know it!'

Further evidence that sentences expressing directives with subjunctive *be* and *know* have subjunctive syntax and not imperative syntax comes from the compatibility with negation. In Greek, imperatives cannot be negated, as shown in (28a) (Rivero and Terzi 1995). Instead negative commands are expressed with negative subjunctives, as in (28b). But *be* and *know* can be negated to express negative commands, as shown in (29).

(28) a. *Min **grapse** to!
Neg **write-2SG.IMP** it.
'Don't write it!'

b. Na min to **grapsis**!
NA Neg it **write-2SG.SUBJ**
'Don't write it!'

(29) a. Na min **ise** eftihismenos!
NA Neg **be-2SG.SUBJ** happy
'Don't be happy!'

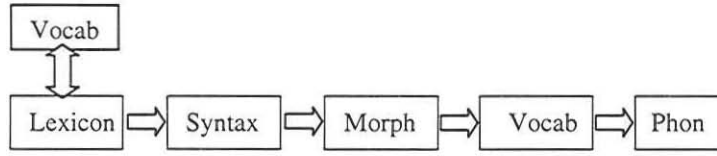
b. Na min **kseris** to mathima!
NA Neg **know-2SG.SUBJ** the lesson
'Don't know the lesson!'

3.2 Our Account

The fact that, in Greek, selecting subjunctive forms for *be* and *know* results in subjunctive syntax and not imperative syntax implies that the choice of vocabulary item has syntactic effects. This result indicates that the Vocabulary can be accessed before the syntactic derivation, as in standard lexicalist treatments. This is because the prohibition on [BE] occurring in the imperative form is a fact about a particular vocabulary item and not a fact about a feature bundle provided by the lexicon.

In the figure in (30), we summarize the model of the grammar suggested by the Greek example. Before the syntactic derivation, the Vocabulary is accessed to inform the lexicon so that it can provide the features that correspond to the subjunctive form. These features undergo syntactic derivation, deriving the subjunctive syntax. And then morphology applies, accessing the Vocabulary again to insert the subjunctive form into the syntactic node.

(30)



4 Semantic Redistribution?

The Kannada and Greek examples discussed above show the properties of Grammatical Downsizing and Semantic Redistribution that we described in section 1. In Kannada ER, there is generally a one-to-one form-meaning correspondence between *gi* and the conjunctive meaning, and between *pa* and the disjunctive meaning. However, when the form to be reduplicated already starts with the CV melody *gi*, then *pa* takes on the meaning of conjunction in addition to disjunction. Similarly, when *pa* is unavailable, *gi* takes on the disjunctive meaning.

In the Greek example, the imperative form is specified to carry directive and irrealis meanings, whereas the subjunctive is specified only for irrealis and not for directive force. With the verbs *be* and *know*, we see Downsizing where the imperative form is unavailable. Here the subjunctive appears to fill in and take over the meaning of directive.

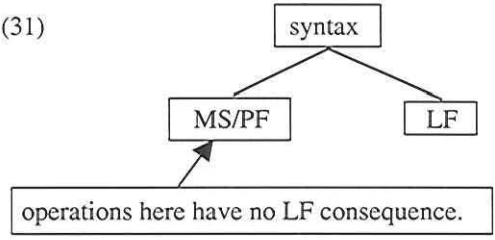
In both of these examples, we see that the meaning of a form depends on the availability of other forms in the paradigm. Facts like this might lead us to conclude that Semantic Redistribution is a general rule that applies at all levels of the grammar. However, in both of the examples presented here, we can find alternative solutions that do not involve a direct mechanism of Redistribution. Instead, we show that the general effect of redistribution is an epiphenomenon that falls out from the architecture of the grammar we are assuming, and the interaction between grammatical form and pragmatics.

4.1 Kannada Echo-Reduplication

In Kannada, when a given reduplicative form is ill-formed phonologically, the SFB is modified through Feature Enrichment in MS. Because the addi-

tion of the relevant feature ([+conj] or [+disj]) takes place in the morphological component, it has no effect on the semantics, even though it does change the phonological form of the reduplicant. The original morpheme with a single [+conj] or [+disj] feature (but not both), is shipped to the interpretive component (LF) where it is interpreted independently of whatever processes the features undergo in the morphology, as illustrated in Figure (31). Thus, although the form changes, the meaning does not. No process of Semantic Redistribution need apply.

(31)



4.2 Greek

In the Greek case, we do not assume that the subjunctive forms of *be* and *know* take on the directive meaning in the semantic (or LF) component. Rather we postulate that directive force arises through a conversational implicature in pragmatics, given the fact that all matrix sentences are associated with an illocutionary force, and therefore can be used to perform a particular speech act (Austin 1962, Searle 1969).

In our anaylsis, subjunctives are less specified than imperatives in that imperatives are specified with directive force but subjunctives are not. However, when subjunctives are used as matrix clauses, they can take on an illocutionary force and express deontic modality and wishes. Further, while imperatives are used to express direct commands, subjunctives are used to express polite requests in formal contexts. But in the case of *be* and *know*, subjunctive forms are the only forms available to express direct commands. Although an extensive corpus study is required to verify this intuition, we nevertheless believe that it is real and appeal to the Maxim of Informativeness, a pragmatic principle of cooperativeness, as defined in (32) for an explanation.

According to this principle, if a speaker intends to express a direct command, s/he will use the imperative since it is the maximally informative

form. Using a subjunctive form would not be cooperative since it is less informative than another available form.[4]

(32) Pragmatic principle of informativeness (Grice 1975):
Make your contribution as informative as is required.

When imperative forms are not available however, speakers use the next most informative form available, which is the subjunctive. Since in exactly these cases there is no more informative form, the subjunctive can express direct commands with no violations of the principles of cooperativeness. Thus, we see that we do not need to make reference to an explicit rule of Semantic Redistribution in the Greek case either. It is however notable that the same kinds of hierarchies and elsewhere-type principles are active both at the pragmatic level and at the morphological level.

5 Conclusions

In this paper, we have described two cases of Grammatical Downsizing and Semantic Redistribution. In neither case, however, do we need a particular mechanism of redistribution. Rather, the redistribution effects that we see fall out of general properties of the grammar. We have also seen that complete accounts of the pheneomena we discussed require a model in which the vocabulary is accessed both presyntactically and postsyntactically. Moreover, we have also seen that a rule of Feature Enrichment is required in the morphological component.

References

Alderete, John, Jill Beckman, Laura Benua, Amalia Gnanadesikan, John McCarthy and Suzanne Urbanczyk. 1999. Reduplication with Fixed Segmentism. *Linguistic Inquiry* 30: 327-365.

Austin, John L. 1962. *How to do things with words*. Clarendon Press, Oxford.

Bonet, Eulalia. 1991. *Morphology after Syntax: Pronominal Clitics in Romance*. Doctoral dissertation, MIT.

Grice, H. Paul. 1975. Logic and Conversation, in P. Cole and J. Morgan (eds.) *Speech Acts*, Academic Press, NY.

Halle, Morris. 1997. Distributed Morphology: Impoverishment and Fission. *MIT Working Papers in Linguistics* 30: 425-449.

[4]Using the subjunctive is cooperative if there is some additional reason to use it, such as politeness, etc.

Halle, Morris and Alec Marantz. 1993. Distributed Morphology and the Pieces of Inflection. In K. Hale and S. Keyser (eds.), *The View From Building 20*. Cambridge: The MIT Press.

Han, Chung-hye. 2000. *The Structure and Interpretation of Imperatives: Mood and Force in Universal Grammar*. Outstanding Dissertations in Linguistics. New York: Garland.

Lidz, Jeffrey. 1999. The Morpho-semantics of Object Case in Kannada. In *Proceedings of WCCFL 18*. 325-336.

Lidz, Jeffrey. 2000. Echo reduplication in Kannada: Implications for a theory of word-formation. *Penn Working Papers in Linguistics* 6.3: 145-166.

Marantz, Alec. 1995. 'Cat' as a phrasal idiom: Consequences of late insertion in Distributed Morphology. Ms., MIT.

Marantz, Alec. 1997. No Escape from Syntax: Don't Try Morphological Analysis in the Privacy of Your Own Lexicon. *Penn Working Papers in Linguistics* 4.2.

Noyer, Rolf. 1992. *Features, Positions, and Affixes in Autonomous Morphological Structure*. Doctoral dissertation, MIT.

Rivero, Maria-Luisa and Arhonto Terzi. 1995. Imperatives, V-movement and logical mood. *Journal of Linguistics* 31, 301-332.

Schiffman, Harold. 1983. *A Reference Grammar of Spoken Kannada*. University of Washington Press, Seattle.

Searle, John R. 1969. *Speech Acts*. Cambridge University Press, Cambridge.

Searle, John R. 1975. Indirect Speech Acts. In P. Cole and J. Morgan (eds.) *Speech Acts*, Academic Press, NY.

Vijayakrishnan, K.G. 2000. Conflict Resolution in Optimality Theory: The Case of Anti-Faithfulness in Reduplicative Morphology. *CIEFL Occasional Papers in Linguistics* 9:97-125.

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