

**We might should be thinking this way:
Theory and practice in the study of syntactic variation**

J. Daniel Hasty
Michigan State University

1 Introduction

This paper aims at providing a better understanding of syntactic variation, both in terms of capturing this variation in theoretical models and in terms of testing these models with empirical data. The paper provides a critical discussion of syntactic variation using the specific case study of the double modal of Southern United States English (SUSE) (1) as a way to understand what is at issue in the study of microparametric variation.

- (1) a. You know what **might could** help that is losing some weight.
b. If it's from a cold, it **may should** go away in a week or so.¹

To fully attain these goals, this paper combines methods from theoretical syntax and quantitative sociolinguistics. I begin with a brief introduction to the study of linguistic variation focusing specifically on syntactic variation and its empirical study. Next, I present the double modal construction as a case study of microparametric variation. I provide a description of the distribution of double modals, draw some parallelisms with cross-linguistic data, and analyze them as the co-occurrence of a modal form expressing modality and a modal form expressing tense. Next, I present the results of a study of elicited acceptability judgments of the double modal construction in Northeast Tennessee and show how acceptance of this construction is socially constrained. Finally, I highlight some of the methodological concerns which arise in the study of microparametric variation.

2 The study of variation

Since the foundational studies of Labov (1963, 1966, 1972), the study of linguistic variation has made great progress by utilizing the concept of the *sociolinguistic variable*. This views variation as two or more surface variants of one underlying variable. The choice between variants is governed by a combination of linguistic and social factors, and the output is modeled by variable rules of the grammar. A crucial issue, at least in the original formulation of the sociolinguistic variable, was that the variants maintain semantic equivalence. This has been loosely described as different ways of saying the same thing (c.f. Chambers and Trudgill 1998). Most studies of sociolinguistic variation have followed the methodology developed by Labov, which involves first determining the set of environments in which the variable could possibly occur, i.e., the so-called *envelope of variation*. Then, from large quantities of recorded informal speech, a researcher counts all places where the variable occurred and all places where the variable could have occurred but did not based on the envelope of variation, and thus quantifies usage percentages for each variable (c.f. Labov 1984 and Tagliamonte 2006 for discussion of these methods).

2.1 Differences between phonological and syntactic variation

¹ Naturally occurring examples from the Verilogue, Inc. database.

Although these concepts and methods were primarily designed to study phonological variables, several researchers (Sankoff 1973; Cedergren and Sankoff 1974; Weiner and Labov 1983) began to extend the sociolinguistic variable to levels of grammar other than phonology. As discussed in a longstanding debate (c.f. Lavandera 1978; Labov 1978; Romaine 1981; Cheshire 1987; Winford 1996), there are some issues with a direct extension of these methods and concepts to variation in syntax given the fundamental differences between phonological and syntactic features.

First, there are differences between phonological and syntactic features given their occurrence in speech. Phonological features are generally of such high frequency that a sociolinguistic interview lasting thirty minutes could easily generate enough tokens for statistical significance to be reached in analysis. However, syntactic features occur in much smaller quantities. To study syntactic variation through quantitative variationist methods, unless the variable occurs at high frequency like the copula or agreement, a thirty minute sociolinguistic interview will most likely not be able to capture enough instances of a syntactic variable to make accurate predictions about frequency or use.

Besides their appearance in spontaneously occurring speech, there is a fundamental difference between phonological and syntactic variables in meaning. Inherently phonological features contain no meaning in themselves. This makes determining semantic equivalence for phonological variants a relatively easy task. However, in syntax, the variables inherently have meaning. Thus, determining strict semantic equivalence between two syntactic variants is a much more difficult task, if not impossible in some cases (c.f. Cheshire 1987). Because of this most of the studies of syntactic variation have tended to look at features that vary with their absence (e.g., the copula, agreement, etc.) rather than with a distinct variant. This is not to say that quantitative methods cannot be used to study any variation in syntax. However, I believe the difficulty in determining semantic equivalence for some syntactic features points towards a distinction between different types of syntactic variables.

2.2 Types of syntactic variables

The issue of semantic equivalence for syntactic variables can actually be viewed as a problem stemming from the availability or non-availability of a clearly identified variant². Regarding this aspect of variation, there are some morphosyntactic variables that behave much like their phonological counterparts, e.g., copula absence in African American English (AAE), negative concord in AAE and SUSE, and non-standard agreement, see (2):

- (2)
- a. They \emptyset walking too fast. (12c in Green 2002:40)
They are walking too fast
 - b. I ain't never done **nothing** like that before.
I haven't ever done anything like that before
 - c. There **is** wild dogs in our neighborhood.
There are wild dogs in our neighborhood

I will refer to syntactic variables like these with clear variants as Type 1. Take copula absence (2a) as a prime example of a Type 1 syntactic variable. The null form used in AAE clearly

² Cheshire, Kerswill, and Williams (2005) also point towards the need for a distinction between syntactic variables divided in terms of being purely syntactic versus morphosyntactic.

varies with the presence of a full copula used in standard varieties in certain definable linguistic situations (see Rickford et al. 1991, Romaine 1982, and Alim 2002 for a discussion of the envelope of variation of the copula). Because of their clearly recognizable co-variants, often a null form, Type 1 variables present very little trouble in maintaining semantic equivalence. Additionally, Type 1 variables generally (although not always) occur at relatively high frequency in spontaneous speech; therefore, extension of variationist methods and theories developed for phonology to Type 1 syntactic variation is fairly straightforward. Of all the syntactic variation studied so far, the vast majority has been of Type 1, given their quantities and similarities to phonological variables, which the methods have been built on.

In contrast, there is another set of (morpho)syntactic features that appear at first blush to have no form with which they predictably vary within the speaker's dialect. In other words, it is much more difficult to define the feature's envelope of variation and quantify the environments in which the feature could have appeared but did not. Take for example stressed *BIN* in AAE, completive *done* in AAE and SUSE, and emphatic pronoun tags in Northern British varieties, see (3):

- (3) a. She **BIN** running. (53a in Green 2002:55)
She has been running for a long time
 b. I **done** told you once.
I have already completely told you
 c. I don't like it **me**. (4j in Cheshire, Kerswill, and Williams 2005:159)
I don't like it myself (emphatic)

I will refer to this type of syntactic variable as Type 2. Type 2 variables present much more of an issue for studying using traditional quantitative variationist methods since they lack strict semantic equivalence with another syntactic form or even lack a clearly identifiable alternative at any level of the grammar.

While the standard English glosses in (3) give some loose approximations for some of these variables, there are no clear single co-variants which maintain anything close to the simple one-to-one relationship and semantic equivalence as seen in the Type 1 syntactic variables in (2). Take for example the double modal construction, which will be the case study of Type 2 variation for the remainder of the paper. For this feature, there is no clear other form or construction with which it alternates³. That is, it cannot be said that (4a) or (4b) are alternate forms of the double modal in (4c) in that neither forms provide the meaning encoded in (4c) which can best be described as limiting the possible worlds in which the speaker believes that the addressee should go to the store. Syntactic variables like these, then, cannot be studied through traditional sociolinguistic methods of counting occurrences and non-occurrences, because it is difficult or even impossible to clearly determine where a Type 2 syntactic variable could have occurred but did not.

- (4) a. You might go to the store.
 b. You should go to the store.
 c. You **might should** go to the store.⁴

³ While *might could* seems to be easily translated into a standard dialect of English as *might be able to*, there is no such easy translation of other double modal pairs like *might should*, *might would*, or *may can*.

⁴ Unless otherwise noted, examples are taken from my own native speech.

Type 2 syntactic variation may best be understood and modeled as microparametric variation. Many of these variables are considered non-standard, yet they have no alternative in the standard variety. This may be because the dialect containing the Type 2 variable has a different parametric setting from the standard dialect. Under this view, then, Type 2 variation may not be variation in the strict Labovian sense, since there are not two competing forms which both express the same underlying meaning, the view of variation commonly taken by sociolinguists. Rather, these might better be understood as instances of two dialects/languages with different parametric settings, one with a setting which allows a certain syntactic feature to occur and another with a different setting which precludes that syntactic feature from ever occurring. Thus, for Type 2 variation there is no corresponding null form in another dialect (as with many of the Type 1 variables), rather the form just does not (cannot) occur. We will see this exemplified through the double modal in the next section.

This view of Type 2 variation is in line with the framework proposed by Borer (1984) and extended by Adger and Smith (2010) which views most syntactic variation as being ultimately controlled by the properties of functional heads in the lexicon. This view clearly explains inter-dialect variation as described above. However, intra-dialect variation in a single speaker also needs to be modeled. Here, Adger and Smith make a distinction between types of syntactic variables similar to what I have outlined above. They note that some variation can be explained through underspecification of features for a morphological form. This captures the type of syntactic variation that can be viewed through the concept of the linguistic variable⁵, i.e., Type 1 syntactic variables. It is beyond the scope of this paper to attempt to extend Adger and Smith's underspecification analysis to other examples of Type 1 variation. Instead I will focus on Type 2 variation, which has its locus in the inventory of functional categories in a grammar. Adger and Smith (2010:1133) view this type of variation as purely syntactic, with no reference to variable rules, and governed only by the basic operations and relations of the Minimalist Program (Chomsky 1995, 2000) like Merge, Move, and Agree. The variability in Type 2 features, according to the Adger and Smith model, is contained in the lexicon and the selection of a particular lexical item. The choice between items in the lexicon is also subject, as Adger and Smith note (2010:1133), to processing and sociolinguistic constraints, to which I would add pragmatic and discourse constraints as well.

To better understand this type of syntactic variation, the rest of the paper will look in depth at the double modal construction of SUSE as a case study of a Type 2 variable. The following section will describe the variable, argue for a model of its syntactic structure, and present some crosslinguistic evidence of this type of parametric variation.

3 Case study: The double modal construction

In SUSE and African American English, there exists a construction involving what appear to be two modal verbs⁶, see (5). This construction is puzzling because it appears to contradict the standard assumption that English can only have one modal per clause (TP), and therein lies the interest into what the structure of these forms must be.

⁵ However, Adger and Smith do not make this distinction based on the availability of a semantically equivalent co-variant as I have done.

⁶ This paper will set aside the proposed existence of so-called triple modals (e.g., *I might should oughta take these out of the oven before they burn*) which Hasty 2010 reanalyzes as a double modal along with the VP *ought* and a non-finite TP complement (*to VP*).

- (5) a. I **might could** go to the store for you.
 b. You **might should** eat before you go.
 c. Those ducks **must not can** feel cold.

Previous accounts have variously proposed the double modal to be a single lexical item (Di Paolo 1989), an adverb combined with a true modal (Labov 1972), both modals as co-heads under the same node T (Boertien 1986), or both modals as separate heads both housed under an iterated T-bar (Battistella 1995). I believe these structures have failed to capture all of the attested double modal data. In this section, I will provide an analysis in terms of contemporary syntactic theory. I argue for a structure treating both modals as separate heads with the first modal heading a Modal Phrase (MP) merged above the TP and the second located modal in T. In what follows I argue that this structure is better able to account for all of the observed data.⁷

3.1 Form and distribution

Though *might could* is considered to be the most commonly used double modal, the double modal construction can take several forms. Example (6) contains an overview⁸ of the different double modal forms attested in the literature (Butters 1973; Pampell 1975; Coleman 1975; Di Paolo, McClenon, and Ranson 1979; Feagin 1979; Boertien 1986; Di Paolo 1989; and Hasty in press):

- | | | |
|-----------------|------------|------------|
| (6) Might could | May could | Must can |
| Might should | May should | Must could |
| Might would | May would | |
| Might can | May can | |
| Might will | May will | |

Looking at the double modal forms in (6), we see a distinction made between the two modal positions of the construction, with only a few modals available for the first position as compared to the second position. First position modals are confined to *might*, *may*, and *must* all of which are epistemic, yet second position modals are more open and include: *could*, *should*, *would*, *can*, and *will*. This distribution begins to point toward an important distinction between the first position and second position in the pair, which must be accounted for under any analysis of the underlying structure of this construction. This distinction would be lost if the double modal were viewed as a single lexical item (the position taken by Di Paolo 1989), and the existence of several double modal combinations from a small subset of first position epistemic modals seems to indicate compositionality rather than a single lexical item.

⁷ See Hasty 2010 and Hasty 2011 for a complete review and critique of the previous accounts and a more detailed argument for the merged MP analysis.

⁸ This list contains the most common double modal forms as found in all previous studies, but it is not exhaustive. Other researchers list forms like *may did*, *might better*, and *usta could* which seem closely related to double modals but may not strictly be comprised of modals. See Coleman (1979), Mishoe and Montgomery (1994), and Battistella (1995) and for larger lists of reported double modals.

3.2 Double modals and questions

The importance of the distinction between the two positions of the construction becomes even more apparent when the behavior of the double modals is observed in main clause yes/no questions, see (7) and (8):

- (7) You **might could** go to the store for me.
- (8) a. **Could** you **might** go to the store for me?
b. **Might could** you go to the store for me?
c. ***Might** you **could** go to the store for me?

The question data show a clear distinction between which position modals can and cannot participate in subject/auxiliary inversion. From the base of a double modal declarative sentence such as (7) with *might* as the first position modal and *could* as the second, speakers have been reported (Boertien 1986 and Hasty in press) to invert only the second modal (8a), while others have been reported (Di Paolo et al. 1979) to invert both modals together (8b). Inversion of only the first modal (8c) is ungrammatical in every SUSE dialect so far investigated. Thus, there appear to be two possible ways to form double modal questions, by inverting only the second modal or by inverting both modals together. However, the elicited acceptability judgments of constructions such as (8b) with both modals raised have been “quite varied” (Pampell 1975:112), and I believe that such forms may vary by region. Since the respondents in my previous study of Northeast Tennessee (Hasty in press) only showed acceptance of questions with only the second modal raised (8a), I will take this as the primary question form in this paper and leave discussion of the raising of both modals to another paper⁹.

From the question data, we can begin to observe what the structure of the double modal construction must be. The second modal’s ability to ‘separate’ from the first modal and raise in questions is strong evidence against Di Paolo’s (1989) single lexical item analysis as well as Boertien’s (1986) co-heads under T analysis since no such separation should be possible under these views. Since we know English has strong C in main clause questions, it seems feasible to say that the second modal must be located in T¹⁰ since we see it invert with the subject. Where exactly the first modal is, however, is the main question. Since the second modal is in T, the first modal must be above T. A possible location for the first modal then could be C. However, the question data give us evidence that wherever the first modal is, it is not in CP since the first position modal remains lower than the subject in these main clause questions. Data from embedded clauses in (9) also provide further proof that the first modal is not in C, given the overt realization of the complementizer.

- (9) a. I thought **that** you **might could** do it.
b. I wondered **if** you **might would** do it.

⁹ See Hasty (in progress) for a preliminary analysis of questions raising both modals.

¹⁰ For ease of analysis, I am abstracting over the initial location of the second modal, which as for single modals could be analyzed as merging in an MP below T before being raised to T.

3.3 Double modals and negation

Before proposing the current analysis, I will address the view initiated by Labov (1972) that the first modal is merely an adverb. Viewing the first modal as an adverb could account for the raising of the second modal only in questions; however, I believe that the behavior of the double modal with negation shows that the first position modal acts more like a modal than an adverb.

The data in (10) show the negation patterns of double modals.¹¹ Negation can occur after the second modal (10a) or between the two modals (10c). Both full and contracted negation is allowed on the second modal (10c), but no contraction is accepted onto the first modal (10e).¹²

- (10) a. I **might could** not go to the store.
b. I **might couldn't** go to the store.
c. I **might not could** go to the store.
d. *I not **might could** go to the store.
e. *I **mightn't could** go to the store.

These data are problematic for an analysis like Labov's that views the first modal as nothing more than an adverb, for the first modal seems to behave, at least partially, like a true modal. The crucial example is (10c) where negation occurs between the two modals. If we just viewed the first modal as an adverb and not a modal, then we would have to explain why the second modal would allow negation to the left of it which is ungrammatical for a single modal and an adverb pair, (10c) compared to (11b). Therefore, it seems that the first position is more like a modal than an adverb, yet we still need to know where this modal is located.

- (11) a. I really could **not** go to the store.
b. *I really **not** could go to the store.

3.4 The merged MP analysis

The question data and the embedded clause data show us that the first modal must be above T but below C. This can leave only two possible locations: some position above T yet still inside the TP or a phrase merged above the TP. All previous analyses (Boertien 1986; Di Paolo 1989; Battistella 1995) attempt to locate the first modal inside TP, but ultimately fail to capture the question data where the second modal only is raised, the location of negation between the two modals, or the stranded quantifier data presented in section 3.4 below.

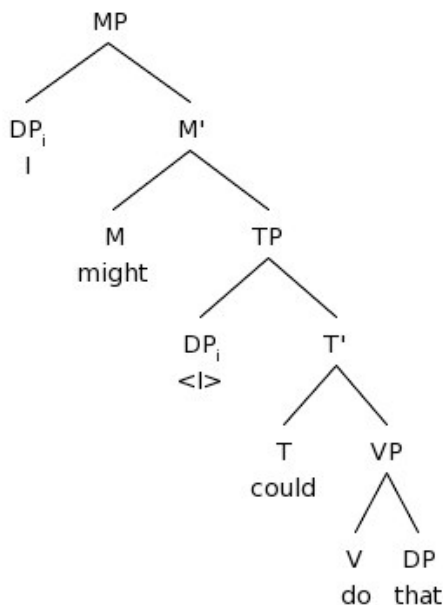
In light of this, I believe that the best possibility is to locate the first modal in a phrase above the TP. I propose viewing the first modal as the head of a Modal Phrase (MP) which contains the features encoding epistemic modality. This MP is crucially merged with TP, not adjoined inside of it as Battistella (1995) has proposed. This merged MP analysis presents a problem with the linearization of word order in a double modal sentence. That is, since we

¹¹ There is variation in the literature regarding which form of negation is used. Pampell (1975) and Feagin (1979) find negation only between the two modal; Coleman (1975) and Boertien (1986) find negation both between the two and after the second; and Di Paolo et al. (1979) find negation only after the second modal. See Hasty (in progress and 2010) for an extended discussion on the placement of negation.

¹² It is unclear if this is an aspect of double modals or merely that speaker of American English dislike contracted forms with the single modals *may*, *might*, and *must* which solely make up the first place modals as shown in (6).

assume that the subject determiner phrase is in Spec-TP, a merged MP would place the first modal above the subject at spell out. To motivate the movement of the subject above the first modal, I propose that the functional head M contains an μ D feature and an EPP feature which must be checked by a DP which yields the observed linearization. Under this analysis then, a double modal sentence like (12a) will have the structure¹³ in (12b).

(12) a. I **might could** do that.



There is precedent in the literature for functional heads other than T to contain an EPP feature. Minimalist approaches have proposed EPP features on functional heads such as v and Agr (c.f. Chomsky 1995, 2000, and Lasnik 1995); therefore, the existence of an EPP feature on M is not unreasonable. Further, given that the functional modal head M contains a modal which is housed in T for standard dialects of English, I propose that M has some of the properties we would associate with T, i.e., an EPP feature¹⁴.

3.5 Evidence from stranded quantifiers

Additional motivation for this merged MP analysis comes from double modal constructions involving the quantifier *all*. It is well known that *all* has the ability to become stranded while the DP which it quantifies over moves further up the tree (see Sportiche 1988 and Boskovic 2004). In a double modal construction like (13), we see that there are three possible

¹³ I am aware of the potential problem for this merged MP analysis presented by the question data. That is, given the head movement constraint (Travis 1984) the first head M containing the first modal would be skipped over for the second modal in T to raise. This issue is addressed at length in Hasty (in progress) through a feature driven analysis of head movement (c.f. Zwart 1996; Pesetsky and Torrego 2001) with C probing for a goal containing the feature tense in question formations. Since M crucially does not have tense (see section 3.6), this explains why the first modal is “skipped” over, i.e., because it does not have tense features and thus is not an active goal.

¹⁴ Additionally, Hasty (in progress; 2010) extends this analysis of the similarity to T to account for the placement of negation directly after the first modal.

locations for *all* to be stranded: between the second modal and the verb, between the first and second modal, and between the first modal and the subject.

(13) We (all) **might** (all) **could** (all) go to the store.

The crucial location for the merged MP analysis is the stranding of *all* between the two modals. Since the quantifier can be stranded as the DP moves through specifier positions (Sportiche 1988), the possibility of *all* between the two modals is evidence for a specifier position located between the two modals. Given that we have evidence from subject/auxiliary inversion in questions to believe that the second modal is located in T, I argue that the location of *all* stranded between the two modals is Spec-TP leaving another specifier position and thus another head above TP, which I propose is the merged MP, see (14):

(14) [MP We_i [M' [M might] [TP t_i **all** [T' [T could] [vP t_i go to the store.]]]]]

If both modals were located in TP as all the previous analyses have argued, then we would be unable to explain how it is possible to strand *all* between the two modals. For example, Battistella's (1995) T-bar adjunction view would have no way to account for this data since we have no reason to think that the subject passed through an adjoined XP on its way to Spec-TP. I take this as further evidence that a separate functional head must be merged above TP and not adjoined inside of it.

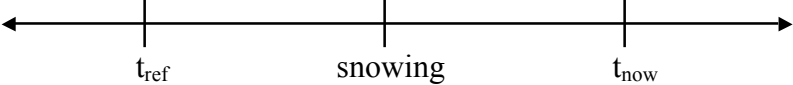
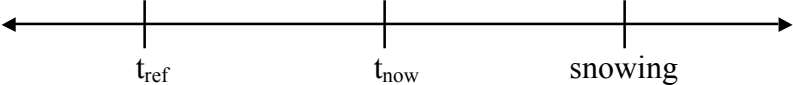
3.6 First position modal's lack of syntactic tense

If the first modal is in a merged MP located above the TP, it is crucial that the first position modal lack syntactic tense since it is completely separate from T. I believe evidence of this lack of tense can come from double modal constructions and sequence of tense effects.

The condition known as *sequence of tense* (SoT) influences the interpretations of the tenses of verbs in embedded clauses (see Enç 1987 and Stowell 1995). When a matrix clause verb is in the past tense in a language with SoT and the embedded clausal complement is in the past tense, there will be two possible readings of the sentence. Using the terminology of Enç (1987), we can describe these different readings in semantic terms as *shifted* or *simultaneous* readings. In a shifted reading, the evaluation time for the embedded clause is shifted to a time before the evaluation time of the matrix clause, and in a simultaneous reading the embedded clause has the same evaluation time as the matrix clause.

Though SoT may work slightly differently when modals are involved (Enç 1987, Stowell 1995, and Abusch 1997), the same distinction is made between past and present tense in the embedded clauses. In the SoT constructions below involving single modals, we see that the past forms *might* (15a) and *could* (15b) provide an ambiguous reading in that the snowing could have occurred either between the time of John's talking (i.e., the reference time t_{ref}) and the time John's speaking was reported (t_{now}) (the shifted reading) as shown graphically in (16a) or that the snowing will occur sometime after t_{now} (the simultaneous reading), shown in (16b).

- (15) a. John said it might snow. (ambiguous)
b. John said it could snow. (ambiguous)

- (16) a. 
 Meaning: *John said it might snow, and it did.* (shifted)
- b. 
 Meaning: *John said it might snow, but it hasn't yet.* (simultaneous)

However, we see in (17) that the present forms *may* and *can* yield only the simultaneous reading in which the snowing occurred after t_{now} (the meaning shown in 16b). That is, the snowing could not have occurred between the time of John speaking and the time John's speaking was reported:

- (17) a. John said it may snow. (simultaneous)
 b. John said it can snow. (simultaneous)

The data in (18) show that in double modal constructions, the so-called 'tensed matched' double modals behave exactly as we would expect from the single modal data. That is, in (18) *might could* follows the pattern of the past tense modal forms in (15) having an ambiguous reading, and *may can* in (19) follows the pattern of the present tense modal forms in (17) having an unambiguous simultaneous reading. To this point, the behavior of double modals tells us nothing about the tense of the first modal since it is unclear which modal is driving these effects (or if both modals have an impact).

- (18) a. John said it might could snow. (ambiguous)
 b. Meaning: *John said it might could snow, and it did.* (shifted)
 c. Meaning: *John said it might could snow, but it hasn't yet.* (simultaneous)
- (19) a. John said it may can snow. (unambiguous)
 b. Meaning: #*John said it may can snow, and it did.* (shifted)
 c. Meaning: *John said it may can snow, but it hasn't yet.* (simultaneous)

However, in so-called 'tensed mixed' double modal forms we see a distinction between the first and second position modals. In (20), *may could* provides an ambiguous reading, following the pattern of the past tense second modal *could* and crucially not the first modal *may*. If first position modals had syntactic tense, we would expect the present form of the modal here to disambiguate the reading to a simultaneous reading as was seen in the single modals in (17). Since this is not the case, it appears that the first position modal has no impact on SoT, and thus the second position modal is the only modal with syntactic tense.

- (20) a. John said it may could snow. (ambiguous)
 b. Meaning: *John said it may could snow, and it did.* (shifted)
 c. Meaning: *John said it may could snow, but it hasn't yet.* (simultaneous)

One possible alternative to this view would be that perhaps 'tense mixed' double modals always yield an ambiguous reading given the two different tenses expressed. The data in (21),

however, show that this cannot be the case, for *might can* follows the pattern of the second modal with the present form *can* in having an unambiguous simultaneous reading and remains unaffected by the apparent past tense first position modal *might*.

- (21) a. John said it might can snow. (unambiguous)
 b. #John said it might can snow, and it did. (shifted)
 c. John said it might can snow, but it hasn't yet. (simultaneous)

Therefore, I believe that SoT effects are driven by the second modal only and not a combination of the two, and that these data also show that the apparent morphological 'tense' of the first position modal has no effect on the reading of the sentence. Since the second position modal drives the reading of the sentence no matter what the form of the first position modal, I take this as evidence that the first position modal has no syntactic tense to be affected by SoT constructions. This fact is predicted if the first position modal heads a phrase merged above TP. Therefore, I believe the best way to view the existence of the double modal structure in SUSE is as an instance of microparametric variation in the availability of a functional head M containing the features for epistemic modality which c-selects TP. Thus, SUSE has the ability to have an epistemic modal co-occur with another modal form with the features for syntactic tense.

3.7 Crosslinguistic evidence for epistemic modality above tense

For the double modal construction to be considered an instance of parametric variation, we would expect other languages to exhibit a similar setting with epistemic modality located above the TP. Such evidence is presented in Cinque's (1999) proposed hierarchy of functional heads. With evidence from languages with rich agglutinating morphology, Cinque argues that epistemic modality is located higher in the structure than tense.

Cinque shows a contrast between root and epistemic modality. Languages like Turkish (22), following Baker's Mirror Principle (1985), present the ordering of functional heads in (23), with root modality expressed below tense:

- (22) Oku-y-abil-ecek-ti-m.
 read-y-MOD-FUT-PAST-1sg
 'I was going to be able to read / I would be able to read.' (5b Ch. 3 in Cinque 1999)

- (23) Mood_{speech act} > **T(Past)** > T(Future) > **Modality_{root}** / Aspect_{progressive} > Voice > V
 (7 Ch.3 in Cinque 1999)

Languages like Korean (24) present the ordering in (25) with epistemic modality expressed above tense:

- (24) Ku pwun-i caphi-si-ess-ess-keyss-sup-ti-kka?
 the person-NOM catch-PASS-AGR-ANT-PAST-EPISTEM-AGR-EVID-Q
 'Did you feel that he had been caught?' (1 Ch. 3 in Cinque 1999)

- (25) Mood_{speech act} > Mood_{evaluative} > Mood_{evidential} > **Modality_{epistemic}** > **T(Past)** >
 T(Anterior) > Voice (>V) (4 Ch. 3 in Cinque 1999)

Along with referencing double modal varieties as possibly evidence of a structural difference between epistemic and root modals as the present paper explicitly argues, Cinque provides additional evidence from Una (an agglutinating language of New Guinea, see Louwse 1988), where the contrast between the location of root and epistemic modals relative to tense is seen in the same language. In Una, epistemic modals (26a) are located above tense while root modals in (26b) are located below tense. From this, Cinque arrives at a final hierarchy with epistemic modality located above tense and root modality below tense (27):

(26) a. Er bin-kwan-de-darib.
 she go-FUT-3sg-PROBAB
 'She might go.'

b. Nibuk-ti-nyi.
 I sit-ABIL-PRES
 'I can sit.'

(9 Ch. 3 in Cinque 1999)

(27) Modality_{epistemic} > T(absolute) > Modality_{root}

(10 Ch. 3 in Cinque 1999)

Thus, there is crosslinguistic evidence for the parametric setting which yields the merged MP structure and explains the availability of epistemic modality to be expressed above tense and to co-occur with tense.

4 Social constraints on double modal acceptance

Since microparametric variation in English is seen most easily in contrast to standard varieties, syntactic variables like the double modal are by nature considered non-standard. Because standard and non-standard varieties are often in contact and because of the effect of the Standard Language Ideology (Lippi-Green 1997) whereby standard varieties are erroneously viewed in society as inherently superior, it is important to understand that social constraints will govern the use and the acceptance of Type 2 syntactic variables. Therefore, to further understand Type 2 variables, I now turn to a report of a study of elicited acceptability judgments of double modal constructions by different social groups of native double modal speakers (see Hasty in press for the full study). The results presented below show that the double modal construction is sensitive to the social factors of age, gender, and education.

The study included 30 respondents from Northeast Tennessee in an area know as the Tri-Cities¹⁵ located in the foothills of the Appalachian Mountains (population 490,238¹⁶). The respondents are balanced by gender and age (with ages ranging from 19 to 82). For analysis purposes, the respondents are split into two groups based on higher education. Those in the College group (n 17) have graduated from college or graduate school, and those in the No College group (n 13) have dropped out of high school, graduated from high school only, or been to a trade school.

¹⁵ A conurbation of the three cities Kingsport, Johnson City, and Bristol.

¹⁶ Population data is gleaned from the 2008 estimates of the US Census Bureau (www.census.gov).

4.1 Elicitation methods

As explicitly highlighted by Henry (2005), great care needs to be taken in eliciting acceptability judgments of non-standard variables, specifically using oral questioning, phrasing the questions as “could you say ...”, and keeping the entire process as informal as possible. These steps are necessary to alleviate interference from prescriptive norms based on the standard variety and enforced by the educational system. Therefore, this study employed a mixture of sociolinguistic methods.

After 10-20 minutes of casual conversation, informants were presented with a series of sentences and asked to judge, for each sentence, whether it sounded like something they could say in casual conversation. The entire process was conducted orally by the author, a native of the local speech community. The 12 sentences given in (28) were used as the double modal stimuli¹⁷:

- (28)
- a. I think I **may can** come tonight, if I can find something to wear.
 - b. If it weren't so hot, I **may could** get a little work done.
 - c. I **might can** ask my boss for the day off on Friday.
 - d. Well, I **might could** pick some up from the store if you really need them.
 - e. Since Bill won't, I guess I **might could** give you a ride home.
 - f. If you want, you **might could** make some sweet tea.
 - g. I **might should oughta** take these out of the oven before they burn.
 - h. You **might should** eat before you go to work.
 - i. If I were you, I **might would** try digging over by that creek.
 - j. If it rains, you **might would** want to have that umbrella with you.
 - k. It's cold outside, so you **might oughta** take your coat.
 - l. Those ducks **must not can** feel cold.

To keep the respondents from becoming aware of the linguistic form under study, these twelve sentences were intermingled with twenty-four other sentences not containing double modals. Some of these other sentences were constructed to be grammatical and some ungrammatical in the local dialect for mixtures of morphosyntactic and semantic reasons (garden paths, verb tense, lexical items). This was done to distract the respondents from the focus of the study and thus keep their judgments more genuine. Though not mentioned in Henry (2005), I believe this step is essential in downplaying not accepting a sentence merely because it is non-standard.

4.2 Distribution by double modal form

To examine the social constraints on acceptance of the double modal, the results of the survey were quantified with double modal acceptance coded as a binary dependent variable (accept vs reject). The surface form (i.e., the particular combination of modals) was taken as a linguistic independent variable and respondent Age, Gender, and Education were taken as social

¹⁷ These particular sentences were chosen to represent the most commonly attested double modals, and all of the sentences are grammatical according to my native intuitions. Since *might could* and *might would* have been found in all previous studies and seem to be the most salient double modals in SUSE, these particular forms were oversampled (three instances of *might could* and two of *might would*).

independent variables. Multivariate logistic regression, ANOVA, and paired T-tests were used to test for statistical significance.

Of the 360 responses to the acceptability of the 12 double modal sentences, there were 143 (39.7%) positive responses and 217 (60.3%) negative. The acceptance of the nine double modal forms tested are arranged in Table 1 according to their percentage of acceptance starting with the most accepted *might oughta* and *might should* and finishing with the least accepted *must can*.

Table 1:
Acceptance of Individual Double Modals

	%	N
might oughta	63.3	19/30
might should	63.3	19/30
might can	53.3	16/30
might could	43.3	39/90
may can	36.7	11/30
might would	36	21/60
may could	26.7	8/30
might should oughta	20	6/30
must can	13.3	4/30
Total Acceptance	39.7	143/360

This preliminary scan of the data shows that some of the double modal forms were accepted at very low rates. *May could*, *might should oughta*, and *must can* were mostly unacceptable to the respondents. For these forms there were no significant differences across any of the social groups, and thus it is apparent that these three double modals do not make up a significant part of the local dialect in Northeast Tennessee. As a result, responses to *may could*, *might should oughta*, and *must can* are not included in the analysis to follow.

The high acceptance of *might oughta* is expected from the analysis presented at length in Hasty (2010 and 2011) that treats *might oughta* not as a true double modal given that *oughta* does not invert in questions. This lack of inversion and the fact that *oughta* contains a cliticized *to* which heads a non-finite TP complement is evidence that *oughta* is a verb rather than a modal, and thus has a completely different structure than true double modals. Since *might oughta* is not a true double modal, we would expect that its acceptance would pattern differently given that its internal structure does not contain the functional head M with the marked parametric setting. This special view of *might oughta* is seen even more clearly in the high acceptance of this double modal form by the Middle Age group (90% acceptance), who are otherwise the least acceptant of double modals (as shown below in section 4.3). Therefore, because *might oughta* is not a true double modal, it is excluded in the following analysis of true double modals which are present in Northeast Tennessee. After removing the three unaccepted double modals and *might oughta*, we are left with the six forms and the updated acceptance rates shown in Table 2.

Table 2:
Acceptance of Individual Double Modals after Exclusions

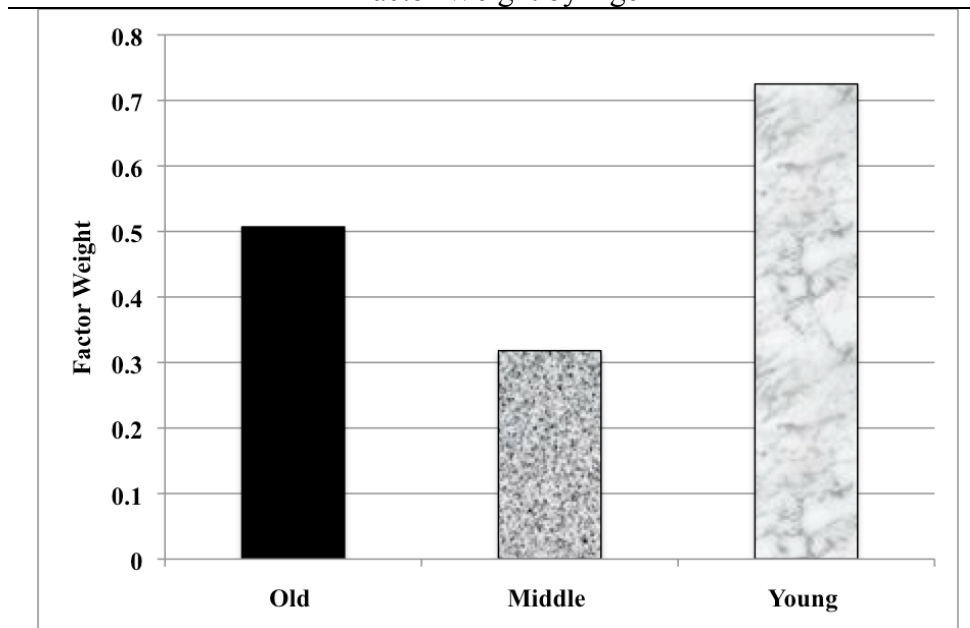
	%	N
might should	63.3	19/30
might can	53.3	16/30
might could	43.3	39/90
May can	36.7	11/30
might would	36	21/60
Total Acceptance	44.1	106/240

4.3 Distribution by age

To examine the influence of the linguistic and social factors on double modal acceptance, a multivariate analysis was performed using GoldVarb X for Mac (Sankoff, Tagliamonte, and Smith 2005). Age, Education combined with Gender, and double modal Form were shown to significantly constrain double modal acceptance (p 0.04). Overall, the results of the multivariate analysis suggest that the Young in general and the Old respondents without a college education who are male are more likely to accept double modals than other respondents.

From the range of the factor weights, we can see that respondent Age is the strongest predictor of acceptance. The Young group is shown to clearly favor double modal acceptance, with the Old slightly less acceptant. The Middle Age group is shown to disfavor acceptance¹⁸ (see Figure 1). The differences between the age groups are significant (F 15.66, p 0.00).

Figure 1:
Factor Weight by Age



The fact that Middle aged respondents were least likely to accept double modals is not suggestive of a change in progress, for which we would expect more of a linear correlation.

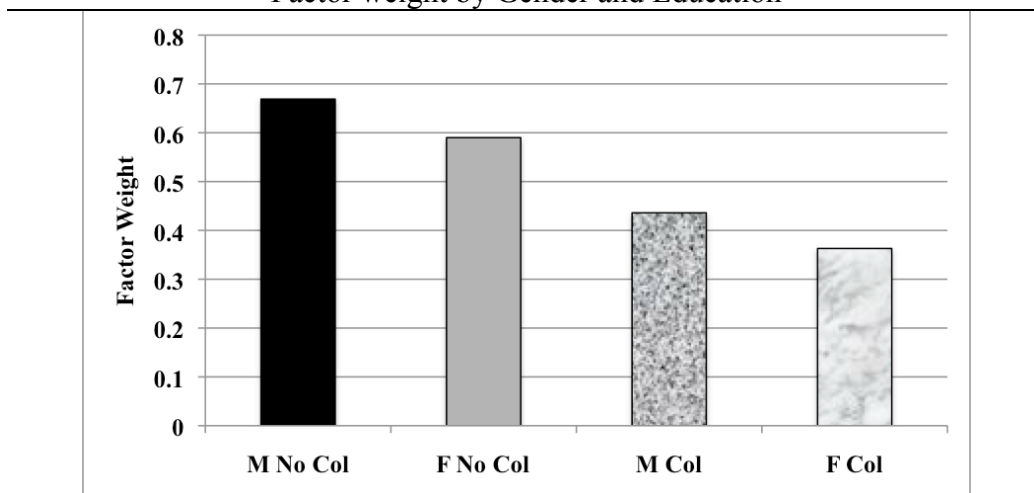
¹⁸ Factor weights of less than 0.5 in the Goldvarb analysis are said to disfavor acceptance of the dependent variable.

Instead we see a *u*-shaped distribution with a spike in the Younger ages, which is more suggestive of age grading¹⁹.

4.4 Distribution by education and gender

Along with Age, there is a clear effect of Education and Gender on the likelihood that a respondent would judge a double modal as acceptable. The factor weights show an overall Education effect with a lack of higher education favoring acceptance, and internal to the Education groups, there is an additional Gender effect with males more acceptant than females (see Figure 2).

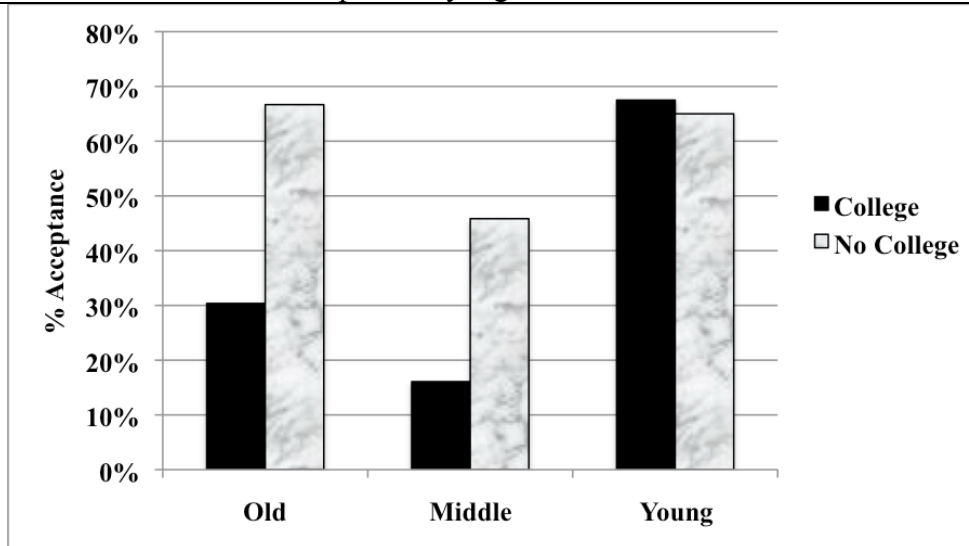
Figure 2:
Factor weight by Gender and Education



The importance of the Age factor is seen in cross-tabulations of Age with the other two social factors investigated. First, we see that the overall Education effect holds for the Old and Middle age respondents. Non-college-educated respondents are significantly more likely ($p < 0.00$ for both age groups) to accept double modals than the college-educated respondents in both the Old and Middle age groups (Figure 3). However, in the Young group, there is a high rate of acceptance in both educational groups, with no statistically significant difference between them ($p > 0.80$).

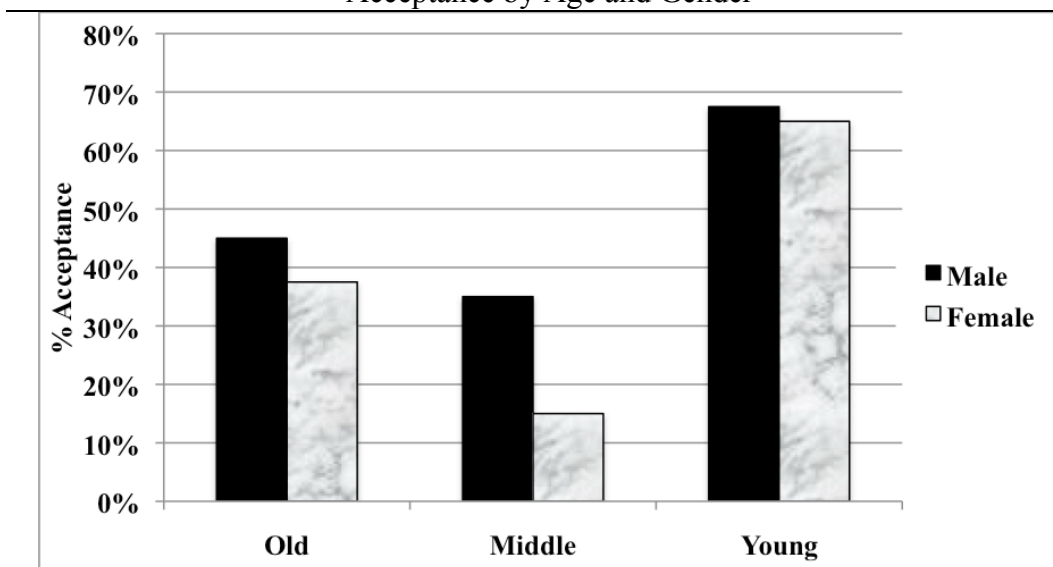
¹⁹ Age-grading is the regular association of a sociolinguistic variant with certain portions of the lifespan—such as adolescence—in every generation. Age-graded variation tends to occur with sociolinguistic variables that are above the level of community awareness—such as negative concord (Eckert 2000) and the (ing) variable (Labov 2001)—and carry overt positive or negative social value.

Figure 3:
Acceptance by Age and Education



A cross-tabulation of Age and Gender also shows differences for only the Old and Middle age groups. There is a significant difference ($p = 0.02$) between the genders with the Males leading for the Middle age group, and this trend is suggested in the Old age group, though on the border of statistical significance ($p = 0.47$). However, in the Young age group there is clearly no significant difference in double modal acceptance between the genders ($p = 0.84$) (see Figure 4):

Figure 4:
Acceptance by Age and Gender



4.5 Conclusions

The results of the acceptability judgment survey show that double modal acceptance in Northeast Tennessee is constrained by the social variables of Age, Education, and Gender and by the surface form of the double modal. The major influence on subjects' willingness to accept a

sentence containing a double modal is the respondents' Age. The other social factors and the surface form all show sensitivity to the age of the respondents in that the gender and education effects disappeared in the Young age group.

Along with the clear association of the double modal with less education, the gender effects in the data are suggestive of a socially stigmatized view of the double modal construction. Overall, females were shown to be more likely to reject a double modal. As Labov (2001: 264) illustrates, in all the studies of linguistic variation where women have access to the sociolinguistic norms of the community, females use nonstandard forms less frequently than males when the variable is above the level of awareness in the community. Since women generally avoid stigmatized linguistic variants, the lowered acceptance of the females in this study suggests that the double modal is locally stigmatized. However, the fact that the Young age group showed high acceptance of double modals with no educational or gender differences seems to indicate younger speakers have a more positive view of the double modal construction than other age groups in the community (see Hasty in press for more discussion of this).

These age and gender effects highlight the importance of social factors on constraining acceptance of Type 2 syntactic variables. In light of this, it seems of utmost importance that researchers employing traditional syntactic methods to study the grammaticality of Type 2 features which are perceived as non-standard should go beyond the precedent in the literature in only using a handful of respondents, most of which are from a single demographic. A larger and more socially diverse sample size is essential to observe the different social constraints on the acceptability of Type 2 syntactic variables as well as to understand how the variable is distributed in a community.

5 Conclusion

This paper has attempted to advance our knowledge of syntactic variation through first highlighting that not all syntactic variation should be thought of in the same way. Particularly, there are different types of syntactic variables, which I have broken down based on the availability of a clearly identifiable and semantically equivalent co-variant. This paper focused on Type 2 syntactic features with no clear co-variant. Continuing the view of Borer (1984) and Adger and Smith (2010), I argued that this type of variation is best viewed as stemming from the features of functional heads in the lexicon and is therefore best modeled as parametric variation.

Taking the double modal construction as a case study, this paper showed first a theoretical model of the structure of this Type 2 variable and presented cross-linguistic evidence of parametric variation in the co-occurrence of a modal form expressing the features for epistemic modality and a modal form expressing the features for syntactic tense. Then using a blend of syntactic and quantitative variationist methods, I problematized the study of Type 2 syntactic variation with empirical data from acceptability judgments of the construction collected in Northeast Tennessee. These data showed that the double modal is sensitive to social constraints, particularly age as well as education and gender.

The social distribution of the acceptance of double modals brings up methodological concerns in studying microparametric variation, especially for non-standard variables potentially carrying social stigma. While the low occurrence and lack of a clear co-variant for Type 2 variables will push data collection away from traditional sociolinguistic methods (e.g., Labov 1963, 1972) and toward syntactic methods like elicited acceptability judgments (e.g., Schutze 1996), a careful blend of sociolinguistic and syntactic methods is necessary. I advocate for the methods described at length in Henry (2005), which address most of the sociolinguistic concerns

in the use of acceptability judgments raised by Labov (1996). Specifically, I believe that this paper shows a need for acceptability surveys to use larger sample sizes balanced for age and gender and representative of the educational and social backgrounds of the speech community in order to cover the ranges of usage of the variable in the community. Additionally, since much of the syntactic variation in English is considered non-standard and associated with stigmatized varieties, great care needs to be taken in order to avoid potential interference from the standard language ideology. This can be accomplished partly by conducting the surveys orally by a member of the local speech community in order to avoid a register clash between written (i.e., standard) and oral varieties. Further, using distractor sentences not containing the syntactic feature under study can additionally help to direct informants' attention away from the object of study so as to keep interference from standard language ideology to a minimum.

Ultimately, I believe that the study of syntactic variation must of necessity unite the efforts of theoretical syntacticians and variationist sociolinguists if it is to allow us to fully understand and model the variation apparent in syntax. Current work highlighted in Cornips and Corrigan (2005) and the 2010 special edition of *Lingua* (120) edited by Haddican and Plunkett as well as large-scale dialect syntax projects taking place in Europe all show promise of a better understanding of syntactic variation utilizing the insights of current syntactic theory. It is my hope that this case study of a Type 2 syntactic variable modeled as microparametric variation will be another step that takes us closer to understanding and modeling syntactic variation.

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