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Finding Needles in the Right Haystack: Double Modals in Medical Consultations

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Abstract

In this paper we present a case study of a syntactic sociolinguistic variable that has resisted previous attempts at quantitative analysis of usage, the double modal construction of Southern United States English (e.g., *You know what might could help that is losing some weight*). While naturally-occurring double modals have been exceedingly rare in sociolinguistic interviews, our study represents the very first corpus investigation of double modals through a search of the right ‘haystack’: the nationwide Verilogue, Inc database of recorded and transcribed physician-patient interactions (~85 million words). As a vast source of potentially face-threatening negotiations, the Verilogue corpus provides the ideal speech situation in which to search for low frequency, non-standard syntactic features like the double modal.

A quantitative analysis of the 76 tokens extracted from doctor-patient consultations in the US South revealed that double modals are favored by doctors, especially women and those with many decades of professional experience. Among patients, those not currently in employment use double modals more frequently than the employed. We interpreted these findings with reference to the literature on the pragmatics of physician-patient talk, arguing that the double modal is used to negotiate the imbalanced power dynamic of a doctor-patient consultation. In general, the greater use of double modals by doctors shows that the construction is an active part of a doctor’s repertoire for mitigating directives. Collectively, we present a complex socio-pragmatic picture of double modal use that could not be seen without a corpus of naturally-occurring speech in a potentially face-threatening speech situation.

Finding Needles in the Right Haystack: Double Modals in Medical Consultations

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1 Introduction

Sociolinguistic variables above the level of (morpho)phonology have long presented challenges to quantitative variationist methodology (Lavandera 1978 and Pichler 2010). These include: difficulty in establishing semantically or functionally equivalent variants; the existence of pragmatic constraints on the variable context; and paucity of tokens for statistical analysis (see Walker 2010 and Pichler 2010 for discussion). In this paper we present a case study of a sociolinguistic variable that exhibits all three of these methodological obstacles, the double modal construction of Southern United States English (SUSE) (see 1). We suggest that in this case, selection of the right data source may be of particular help in overcoming those obstacles.

- (1) a. Another thing we **might could** add on is the Neurontin. (Verilogue, ID 15068)
- b. So you're kind of thinking about that, that might be something that **might would** help you? (Verilogue, ID 21955)

Linguistic structures that are functionally equivalent to double modals are difficult to specify. Double modals do not semantically or pragmatically co-vary with single modal constructions (i.e., *what might would help you* is not equivalent to *what might help you*). It is probable that their co-variants include a range of modal expressions of various kinds, but determining this range is dependent on understanding the ‘function’ of a double modal in discourse, and this is a pragmatic question that has not yet been answered. Thus while the syntactic contexts for double modal usage can be specified relatively easily (cf. Battistella 1995 and Boertien 1986), its pragmatic context, or envelope of variation, cannot. Furthermore, double modals are sociolinguistic needles in a haystack: they rarely occur in the spontaneous speech of sociolinguistic interviews. We propose in this paper that to successfully locate and analyze double modals, researchers must look in the right ‘haystack’: one that presents pragmatic and social circumstances that are favorable to double modals’ appearance.

1.1 Previous Sociolinguistic Analyses

Double modals occur in frequencies low enough to have resisted collection through traditional variationist methods such as the sociolinguistic interview. In Wolfram and Christian’s (1976) seminal study of Appalachian English, for example, the authors note that double modals were almost completely absent from the interviews they recorded. Feagin (1979) and Mishoe and Montgomery (1994) needed several years of cataloguing overheard speech to gather sufficient numbers of double modals for analysis (98 and 236 respectively). Other previous studies have turned to elicited data (Di Paolo et al. 1979) and acceptability judgments (Di Paolo 1989 and Hasty 2011) to attempt to circumvent these frequency constraints. This lack of naturally occurring usage data has left several basic sociolinguistic questions unanswered regarding the regions of the South in which the double modal construction is common and which social groups are most likely to use double modals.

A further complication, mentioned above, is that double modals also have specific pragmatic constraints which would preclude their being found in a sociolinguistic interview. Mishoe and Montgomery make the claim that double modals are primarily used in “the preservation of ‘face’ in interpersonal discourse” and in “the negotiation of a speaker’s wants or needs” (1994:12). They note the greatest incidence of double modal use in service interactions, for example at gas stations and in stores. A truly effective variationist study of double modal production would therefore re-

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quire access to large amounts of spontaneous speech in face-threatening negotiations: something that the question-answering and storytelling format of the sociolinguistic interview is not designed to provide.

1.2 Description of the Corpus

We turned to physician-patient interaction as a potential source of face-threatening negotiation. Physicians often engage in negotiations with their patients over treatment plans, whether to determine the acceptability of a given side effect, settle on the logistics of treatment administration, or decide on a non-treatment follow-up strategy (e.g., further diagnostic testing). This negotiation process is face-threatening inasmuch as it is inherently asymmetric (Have 1991). In other words, the patient's "freedom of action" (Brown and Levinson 1978:61) is limited by the physician's relative power to implement his/her agenda. This is not to say that the patient is a passive participant in medical consultations (Ainsworth-Vaughn 1998:33), but rather that the physician's status as a consultant, with role-based access to resources and presumed expertise, privileges him/her to socially constrained discourse moves. A physician can, for example, direct a patient to take a certain medication, despite the fact that this request places demands on the patient's actions. Such requests, and the negotiations they initiate, generally involve future or hypothetical states of being (e.g., *for the next week; if I feel better*). For this reason, we hypothesized that physician-patient talk would contain numerous modal expressions of possibility, probability, and/or necessity. Furthermore, we suspected that the politeness work necessary to negotiate these potential futures would elicit double modals from SUSE speakers.

In order to derive a quantitative sample of physician-patient interactions, we utilized the Verilogue corpus of medical consultations. This corpus, collected and maintained by Verilogue, Inc. (Kozloff and Barnett 2006), contains over 45,000 fully transcribed and searchable audio recordings of physician-patient visits from across the United States. Partnering physicians submit naturally occurring interactions to this corpus with the consent of patient volunteers. Identifiable information is removed from the recordings (and resulting transcripts) in compliance with HIPAA and other relevant privacy standards. The transcripts are accompanied, however, by non-identifiable demographic information on both interlocutors. For the patient, this includes age, gender, race, employment status, health insurance type, and medical information. The physician, in turn, provides his/her gender, years practicing medicine, medical specialty, and the state containing his/her practice. The sheer size (~80 million words) of the Verilogue corpus, along with its specific macro-pragmatic conditions and remarkable social depth, made it an ideal 'haystack' in which to search for double modals.

2 Findings

We exhaustively searched the Verilogue research database for all of the double modals used in judgment tasks in Hasty (2011): *might could, may could, might can, may can, might will, may will, might would, may would, might should, and may should*. The search produced 95 confirmed tokens of double modals in the sample, and these were reviewed for authenticity by the research team. To our knowledge, this represents the largest corpus of naturally occurring, audio-recorded double modals analyzed to date. Additionally, this unique collection of double modals contains audio recordings and transcription of both the double modal token as well as the entire discourse in which it was produced.

2.1 Descriptive Statistics

Of the 95 double modals found in the data, 80% (n 76) were from practices located in the South or the Midlands. This high percentage is consistent with the generalization that double modals are a feature of SUSE (cf. Mishoe and Montgomery 1994 and their analysis of the LAGS¹ data). While 20% (n 19) of the double modals were found in practices located outside the general boundaries of the South, it should be noted that the corpus only provides the location of the practice and not the

¹Linguistic Atlas of the Gulf States (Pederson, McDaniel, and Bassett 1986).

actual state of origin of the speakers. Thus, the 19 tokens from outside of the South or Midlands may be attributable to speaker relocation. Relocation is particularly likely for doctors in our sample, since medical education and postgraduate training often require geographic mobility. Patients on average may be expected to be less geographically mobile.

Given the regional distribution of the double modal construction, it was necessary to divide the complete corpus into a sample representative of speakers who were located in SUSE-speaking areas. Double modals simply do not exist in Standard American English or in regional varieties of American English other than SUSE. It would therefore be unreasonable to compare double modal frequencies for speakers in the South with frequencies for speakers who would not be expected to use a double modal (and who would in all likelihood produce none in the corpus). Thus, the rest of the discussion of the results is based on the doctor-patient consultations which took place in the South (n 76).

Since the variable context for double modals is presently unknown (and, as we will discuss, highly constrained by pragmatic conditions) we simply counted presence versus absence of a double modal produced, over all consultations recorded in the South. We acknowledge that this method fails to account for all of the sociolinguistic contexts in which a double modal could have occurred but did not. However, we provide at least an initial snapshot of the double modal's social distribution across the South: something that no previous study has achieved. Of all the consultations in the South (n 17,642), double modal occurrence in these consultations was only 0.4% (n 76), showing that the double modal truly is a low frequency feature, even in SUSE.

In the same Southern consultation sample, doctors and nurses produced 66% (n 50/76) of the double modals in the sample, with patients producing only 33% (n 25/76). This finding is quite interesting since acceptability judgment data in Hasty (2011) showed an inverse relationship between higher education and double modal acceptance. The fact that doctors use double modals as frequently and in fact more frequently than patients confirms Feagin's (1979) observation that double modals are used by all members of society in the South.

The final important finding to be seen from the descriptive statistics relates to where in the consultation the double modals occurred. In the data, 70% (n 67/95) of the double modals occurred during the discussion of treatment rather than in introductions or discussion of symptoms. This finding supports the analysis presented in Mishoe and Montgomery (1994): that double modals are favored in pragmatic situations which are face threatening and involve negotiations. Two prime examples of these negotiations are shown in (2) given by a doctor and (3) by a patient.

(2) You know what **might could** help that is losing some weight. (Verilogue, ID 53207)

(3) My bones **might not can** take that. (Verilogue, ID 33896)

2.2 Multivariate Analysis

To understand the effect of social factors on double modal usage, we performed a multivariate analysis on the data utilizing Goldvarb X for Mac. The presence of a double modal in a speaker's consultation was coded as a binary dependent variable (1 for the presence of a double modal and 0 for the absence of a double modal). Factor groups analyzed included:

- Interaction Type (acute, lifestyle, chronic, and neoplastic)²
- Doctor Gender (male, female)
- Doctor's Years in Practice (<1 decade, 1–2 decades, and 3+ decades)
- Patient Gender (male, female)
- Patient Age (<39, 40–69, and 69+)
- Patient Employment Status (employed and not employed)

²Acute: a medical condition that develops suddenly and resolves within a finite period (e.g., injury, allergic rhinitis, influenza). Lifestyle: a medical condition that affects patients' quality of life, but does not pose a threat to their physical well-being (e.g., erectile dysfunction, facial wrinkles, acne). Chronic: a medical condition that does not resolve within a finite time period (thus requiring long-term care) (e.g., ADHD, Alzheimer's Disease, Hepatitis C, HIV/AIDS, Lupus, Parkinson's disease). Neoplastic: a medical condition stemming from or defined by the presence of a neoplasm, i.e., cancer.

The factor groups retained in the regression analysis included only Doctor's Gender, Doctor's Years in Practice, and Patient Employment Status (Table 1). The ages of the doctors were not recorded by Verilogue.

Total N: 76 / 24,231		Corrected Mean 0.003	
	Factor weight	%	app N / total N
Years in Practice			
3-4 decades	0.71	0.7	76 / 1,760
2-3 decades	0.53	0.3	25 / 7,638
0-1 decades	0.46	0.3	39 / 14,833
<i>range</i>	25		
Patient Employment			
Not employed	0.56	0.4	54 / 14,498
Employed	0.39	0.2	15 / 8,029
<i>range</i>	17		
Doctor's Gender			
Female	0.63	0.5	20 / 4,095
Male	0.47	0.3	56 / 20,136
<i>range</i>	16		

Table 1: Statistical model of double modal usage.

The ranges of the factor groups indicate that Doctor's Years in Practice is the strongest predictor of double modal usage in a consultation, with a range of 25. More experienced doctors are more likely to use a double modal than are less experienced doctors. As will be discussed at length below, it is possible that the pragmatics of the double modal construction are advantageous to doctors when negotiating discussion of treatment with patients. The next factor group pertaining to the doctor is the Doctor's Gender. Female doctors are selected as significantly favoring double modal usage in a consultation.

Lastly, the multivariate analysis shows the influence of the Patient's Employment Status. Verilogue provides several entries for the employment status of the patient including: part-time, full-time, homemaker, student, retired, unemployed, don't know, and N/A. For the purposes of this study, these distinctions were too fine-grained to use as predictors since many of these categories resulted in empty or unbalanced cells. Thus, these groups were collapsed into a binary distinction between Employed, including part-time and full-time, and Not Employed, including unemployed, homemaker, retired, student and don't know. Consultations with N/A (i.e., unknown) given as employment status were not included in these results. The Not Employed group favors the presence of a double modal and the Employed group disfavors the production of a double modal.

3 Discussion

At first blush, it seems surprising that doctors use more double modals overall than patients. The double modal is a regional feature: one that is not generally considered to belong to the standard variety of US English, and thus not a feature that we would expect doctors to use, given their uniformly high level of education and professional status. However, as noted above, the existing sociolinguistic literature on double modals' social distribution and evaluation is limited and somewhat contradictory. Feagin (1979) asserted, based on participant-observation, that all social classes in the South use double modals. Yet in a recent acceptability judgment study (Hasty 2011), non-college-educated respondents from Tennessee were more likely to find a double modal acceptable than were their college-educated counterparts. In addition, women were generally less likely to accept double modals than men, supporting the view that double modals are not considered to be part of the standard language (see Labov 1990 on the conservative linguistic behavior of women). However, it is the doctors who use the non-standard double modal construction the most frequent-

ly in the Verilogue data, and it is female doctors who use them at the highest rate. Thus it seems that gender and social class (insofar as the latter can be approximated by occupation/education), cannot be the only factors in play.

Instead, it seems as if the situational pragmatics of the physician-patient interaction may be influencing physicians' use of the variable. Within our sample, double modals were largely constrained to treatment discussions, especially in the case of physician uses. As noted above, this context is characterized by asymmetric negotiations around the patients' treatment plan. Both participants have socially defined goals during the negotiation process, as well as social constraints on the ways in which they pursue these goals. The physician's role as a consultant creates expectations for his/her behavior. This is often characterized in terms of the physician's power (see above) or role-derived authority: "physicians are in a position of situational authority vis-a-vis their patients, since only physicians are possessed of the technical qualifications (and institutional certification) to provide medical care" (West 1984:101). Physicians are expected to provide recommendations for the patients' care (e.g., *You'll need to get an MRI*) based on his/her expertise. These recommendations generally take the form of directives (hints, suggestions, orders, etc.) that are intended to guide patient actions. As such, directives threaten patient's negative face (Brown and Levinson 1987). From this perspective, physicians may have competing goals in the treatment interaction: to provide the patient with well-informed health recommendations and to do so without violating politeness constraints. Of course, the extent to which physicians tend to observe politeness constraints varies, as does their choice of linguistic means for negotiating this macro-pragmatic task. Double modals may serve as one such linguistic resource for maintaining a positively valued interaction in a potentially face-threatening exchange. In other words, double modals may be functioning as a mitigating element in physician's directives (see 3), where the inclusion of an epistemic modal (*might*) modulates the directive's illocutionary force. Qualitatively, our data support this hypothesis.

- (3) You **might could** try and see if you want to try a little bit of that and see how it does for you. (Verilogue, ID 32081)

Assuming that physicians are using double modals to attenuate their directives, the association in the data between double modals and female physicians can be interpreted with reference to the medical communication literature. In Roter and Hall's (2004) meta-analysis of gendered physician communication findings, several studies reported that female physicians were more likely to tend to their patients' psychosocial needs than male physicians: talking less, promoting emotionally focused topics, making more positive statements to their patients, etc. Overall, these results point to female physicians' attentiveness to patients' social needs at a behavioral level. It is plausible that this orientation may also manifest itself through linguistic indirectness. That is, female physicians may be using double modals to mitigate the face threatening implications of their directives, while using other devices (e.g., hedges, passive structures) to perform similar functions in other contexts.

Our finding regarding physician experience, that double modals are favored with more experienced physicians, may also be related to indirectness and face management. In this case, however, the connection between double modals and physician behavior is rooted in overarching professional goals. Specifically, the way in which physicians negotiate treatment discussions influences the likelihood of a patient adhering to his/her treatment plan. Following Goodwin (1980, 1988, and 1991), West (1990) notes that directives and the responses to these directives are an important aspect of establishing the social order between the doctor and the patient. Further, whether these directives are formulated, using the terminology of Labov and Fanshel (1977), as 'aggravated' (i.e., orders) or 'mitigated' (i.e., suggestions), indicate how the power dynamic is being negotiated. West (1990) and Goodwin (1980, 1991) argue that aggravated directives, following the framework of Brown and Levinson (1987), are indicative of a speaker asserting her right to impose on another individual and emphasize the asymmetry of the doctor's authority over the patient. Mitigated directives, on the other hand, act as what Brown and Levinson (1987) classify as a negative politeness strategy and show attention to the face needs of the hearer and a more balanced power dynamic. West (1990) argues that the form of directive a doctor uses has a direct effect on how likely a patient will be to follow that directive. West found overall that the more aggravated the directive,

the more likely that it would be rejected by a patient in her data, while more mitigated directives were more likely to be met with compliance. Experienced physicians, those who have had years to perfect methods of promoting patient adherence, may be more likely to mitigate their directives. They may be more or less aware of the social effects of such formulations, having seen the outcomes of various linguistic strategies for motivating behavior. Though this hypothesis is compatible with our data, it is relatively unsupported in the literature and requires further testing, ideally with a diachronic sample.

Finally, the results for the patients, wherein employed patients were less likely to use double modals than unemployed patients, must be interpreted with caution. The patients constitute a socially much more homogenous group than the doctors, and our binary occupational subgroups (employed versus not employed) reflect analytical convenience more than true social reality. Recall that the “not employed” group, for instance, includes homemakers, retirees and students. In general, unemployment is not necessarily commensurate with lower social status. Furthermore, patients’ goals in the consultation are different from those of the doctors with whom they interact. The pragmatic constraints on their use of double modals may then also be different: a possibility that raises the theoretical question of whether patients’ and doctors’ talk should be considered as two separate variable environments for analysis. We propose that future analysts consider this seriously. Nonetheless, we might interpret the results as follows. Patients have less pragmatic requirement for double modals than doctors, as we have already argued. Thus patient production of double modals might be more heavily influenced by speaker-based social factors (such as social status) than by pragmatics. Under this hypothesis, it follows that lower status patients will be more likely to use a non-standard feature such as a double modal than higher status patients. If this is the correct interpretation, it resolves the conundrum of Feagin (1979) and Hasty’s (2011) conflicting demographic findings. Double modals are indeed used by all social classes, as Feagin reported, but we submit that the interactional circumstances must be favorable to double modals in order for high status speakers to use them. Under any other circumstances, higher status speakers will evaluate them negatively (as Hasty found) and be less likely to use them, as our results for patients suggest.

4 Conclusion

The Verilogue corpus provides the hitherto elusive double modal production data. As a vast source of potentially face-threatening negotiations, it is the ideal ‘haystack’ in which to search for this low frequency, non-standard syntactic feature. A quantitative analysis of the 76 tokens extracted from doctor-patient consultations in the U.S. South revealed that double modals are favored by doctors, especially women and those with many decades of professional experience. Among patients, those not currently in employment use double modals more frequently than the employed. We interpreted these findings with reference to the literature on the pragmatics of physician-patient talk, arguing that the double modal is used to negotiate the imbalanced power dynamic of a doctor-patient consultation. In general, the greater use of double modals by doctors shows that the construction is an active part of a doctor’s repertoire for mitigating directives.

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