It's no problem to be polite: Apparent-time change in responses to thanks[1]

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This paper reports a rapid and anonymous study of apparent-time change in Toronto among the use of expressions such as *you're welcome* and *no problem* as responses to *thanks*, *thank you*, and *thank you very much*. We observe change in progress toward *no problem* and *no worries* at the expense of *you're welcome*. Meanwhile, a change in stylistic stratification is also taking place: for older speakers, *no problem* is a less formal response, suitable principally for responding to more perfunctory *thanks*, rather than more formal *thank you*; among younger speakers, *no problem* appears at equal rates in response to all levels of thanking expressions. This combination of changes may explain the intensity of the negative attention *no problem* attracts from prescriptivists and in popular media, in that older people perceive younger speakers as using what to them is an informal variant disproportionately frequently when a formal variant is called for.

Cet article rapporte les résultats d'un sondage rapide et anonyme ciblant un changement en temps apparent en anglais torontois concernant les expressions telles que *you're welcome* et *no problem* en réponse à *thanks*, *thank you* et *thank you very much*. Nous constatons un changement en cours vers *no problem* et *no worries* au détriment de *you're welcome*. Ce changement est accompagné d'un nivellement stylistique : chez les locuteurs aînés, *no problem* constitue une réplique moins polie, convenable en réponse à *thanks*, variante familière, plutôt qu'à *thank you*, variante plus soignée; en revanche, chez les jeunes *no problem* affiche des taux de fréquence contextuels qui ne tiennent pas compte de la nature de l'expression de remerciement utilisée. L'emploi de *no problem* fait couler beaucoup d'encre, ce qui s'expliquerait potentiellement par la complexité de cet ensemble de changements : les aînés constateraient dans le discours soutenu des jeunes l'utilisation accrue d'une variante jugée déplacée, alors que les jeunes n'associent aucune marque de formalité à cette variante croissante. [French]

KEYWORDS: Apparent time, politeness, rapid and anonymous study, responses to thanks, variational pragmatics

1. INTRODUCTION

There is robust variation in how English speakers respond to being thanked – *you're welcome*, *no problem*, *anytime*, *my pleasure*, and a broad range of other variants are well attested as available responses to *thank you* in multiple English-speaking communities. This variation is the subject of substantial popular commentary from prescriptivists and ostensible etiquette authorities, and such commentators often focus especially on condemning one variant in particular: *no problem*. A Google search turns up multiple articles and blog posts with titles like '*no problem* is a problem' (e.g. Blasingame 2014; Flanagan 2013; Opelka 2017), condemning the use of *no problem* in no uncertain terms. Remarks such as (1a–c) are typical, attacking *no problem* on the grounds of supposed unpleasantness (1a) and as an erosion of civilized norms (1b), with some warning of potential dire consequences for its use (1c).

1. a. 'But my Number One worst pet peeve is how people constantly use "No problem" as the response to almost everything. . .. Not only do my temples throb, but my brain screeches every time I hear those two words.' (Seid 2011)
   b. 'To me, it feels like a culturally significant obliteration of the difference between giving and demanding, expressing gratitude and saying sorry.' (Noë 2015)
   c. 'When small business employees say no problem to a customer instead of you're welcome, it's a serious problem that over time could be the equivalent of a business death wish.' (Blasingame 2014)

The popular discourse on *no problem* also perceives it as an innovation, or characteristic of young people, in comparison to other thanks responses such as *you're welcome*: Noë (2015) describes *no problem* as 'a fairly recent change', and Flanagan (2013) attributes it to 'everyone born after 1980'. Opelka (2017) considers *no problem* the latest step in a decades-long shift toward informality. The belief that *no problem* is an innovation is not restricted to prescriptivists complaining about it; a relatively widely-shared 2015 blog post, originating on the Tumblr blog *Absolutely No Sequins Whatsoever*, claims that the choice of thanks responses 'clearly separates Baby Boomers from Millennials', and in particular suggests that ' "you're welcome" means to Millennials what "no problem" means to Baby Boomers, and vice versa'.

So, at least in popular perception, *no problem* is believed to be the target of change in progress. Is this perception correct? Surprisingly – and despite the vehemence of the negative social evaluation of *no problem* – little sociolinguistic research on this variable has been conducted.

2. PREVIOUS RESEARCH

The existing literature on responses to thanks resides within the research paradigm of pragmatics. Such research typically focuses on how thanks

responses fit into the structure of a discourse, and how their pragmatic function is expressed. For example, as Schneider (2005: 103) puts it, the pragmatic function of responses to thanks is 'to minimize the thanker's indebtedness', which thereby 'terminates the sequence it occurs in'. Aijmer (1996: 39–40) categorizes the different phrases that serve as thanks responses in English according to how they accomplish this pragmatic function – by 'minimizing the favor' (e.g. *that's okay*), 'expressing pleasure' (e.g. *great pleasure*), or 'expressing appreciation of the addressee' (e.g. *you're welcome*). Later researchers add additional categories to these or subdivide them differently; for instance, Schneider (2005) adds categories 'returning thanks' and 'acknowledging the thanks'. Some prescriptivist commentators criticize *no problem* on grounds related to these pragmatic functions: for instance, Noë (2015) argues that *no problem*, rather than minimizing the favor, calls attention to it as an inconvenience; and Flanagan (2013), on a similar note, contends that *no problem* might be appropriate as a response to thanks for major favors but not for simple or trivial transactions.

The pragmatics literature occasionally shows interest in differences between regional varieties of English in the use of thanks responses. Schneider (2005: 109) interprets previous research (Aijmer 1996; Edmondson and House 1981) as claiming that responses to thanks are used less frequently in British English than in American English, but notes that little empirical support has been offered for this proposition. Several of the studies discussed below do empirically compare regional varieties, though they do not directly test this specific claim.

The studies of responses to thanks that have engaged empirical data quantitatively have also not examined the question of whether change is in progress. Schneider (2005) reports the results of a written questionnaire study in which thanks responses were elicited by providing a thanking expression, *Thanks for the coffee* or *Thank you very much for the lift*, and asking the respondent to 'please complete' the discourse interaction. Schneider finds large differences in choice of response between the three communities in which this study was conducted: in Tadcaster (Yorkshire, England), by far the most frequent 'realization type' was OKAY[2] (including *it's okay*, *that's okay*, etc.), while in Knoxville (Tennessee, U.S.) WELCOME held the majority, and in Carlow (Ireland) WELCOME was the most frequent but only by a slight plurality. In each, NO PROBLEM was more frequent in the *lift* scenario than the *coffee* scenario. However, 'age and sex-based differences [were not] considered' (Schneider 2005: 111), and in two out of three communities all informants were females under the age of 20, making it impossible to determine whether the variable is undergoing change. A follow-up study in Truro, Nova Scotia, using the same methodology, found NO PROBLEM to be the most frequent variant (Schneider and Sickinger 2014, cited by Schneider 2017). The higher rate of NO PROBLEM here than in Schneider's earlier study could be the result of real-time change toward NO PROBLEM, or it could be (as Schneider 2017 suggests) a regional difference.

Mulo Farenkia (2012) reports a similar questionnaire study conducted in Cape Breton, Nova Scotia, using a different set of prompts. NO PROBLEM is by far the most common response type in Mulo Farenkia's data, but less frequent in a hypothetical interaction with a professor than with a friend or stranger. Potential change in progress is not investigated, and 90 percent of respondents were under the age of 25.

Rüegg (2014) studied thanks responses in natural speech by collecting data from service interactions with waiters at upscale, mid-range, and downscale restaurants in Los Angeles. NO PROBLEM is unattested in her data, and WELCOME is the most frequent response, especially at the upscale restaurant; however, her 14 hours of recorded data contain only 55 tokens of responses to thanks; and yet again, it was not possible for her to look for effects of age.

Gesuato (2016) elicited conversation including responses to thanks by having pairs of speakers perform role-play scenarios with each other. All her speakers were between the ages of 17 and 24; and although some of the scenarios asked participants to perform characters of different ages, her analysis does not break down the results on that basis. She does break down her data according to the nature of the social relationship between the two characters in the scenario; and it appears that WELCOME is more likely than NO PROBLEM when the two characters are peers, while NO PROBLEM is more likely when the thanker is in a position of lower 'social power' than the responder. In the peer scenario, only about half of thanks expressions received overt responses at all; perhaps unexpectedly, thankers of lower 'social power' were more likely to receive a response.

Bieswanger (2015) carried out a rapid and anonymous study in New York and Vancouver, asking people on the street for directions to nearby locations and saying *thank you* to elicit a response. In both cities, WELCOME is the most common response and NO PROBLEM is rare. Not only does Bieswanger not examine age effects, he goes out of his way 'to avoid what could be called "youth language" ' by only collecting data from white speakers 'between 30 and 50 years of age. . . and dressed in what could best be described as "business casual" attire' (Bieswanger 2015: 536).

Bieswanger notes a striking difference between the low rate of NO PROBLEM in his own results and the higher rates of NO PROBLEM found by Mulo Farenkia (2012) in Nova Scotia and by Schneider (2005) in Tennessee. He theorizes that this might be due to the different methodologies by which the data was collected – rapid and anonymous elicitation in his study, and written questionnaires in the others. Although it is certainly likely that the methodological difference plays a role in the difference between the studies' results, the populations studied were also very different: middle-aged 'business casual' individuals in Bieswanger's own study, university students in Mulo Farenkia's, and (mostly) teenagers in Schneider's. Bieswanger (2015: 541–542) very briefly acknowledges the age difference as a conceivably relevant factor; but then he goes on to discuss the difference between the studies' results

solely in terms of the difference in methodology. He states that 'speakers seem to use [NO PROBLEM]. . . much less than they think or wish they would' – thereby attributing the difference between his and Schneider's results apparently solely to the fact that one study collected actual speech and the other self-reported questionnaire answers, to the exclusion of the fact that the two studies were conducted in different communities, with speakers of drastically different ages, ten years apart in real time.

Thus, despite a popular perception that the system of responses to thanks is undergoing change toward *no problem*, none of the existing empirical studies of this variable have tested this claim. The goal of this paper is to fill that gap and verify the hypothesis, in at least one speech community.

3. METHODOLOGY

3.1 Data collection

The data reported in this paper was collected by undergraduates at the University of Toronto as an assignment for Linguistics 351, an introductory/ intermediate class in variationist sociolinguistics, in three academic terms. In November 2013, March 2015, and June 2015, after reading Labov's (1972) foundational rapid anonymous study in New York department stores, students in this class were assigned to carry out a rapid anonymous study of variation in responses to thanks in Toronto, using a methodology similar to that of Bieswanger (2015). Durian, Papke, and Sampson (2009) discuss some of the pedagogical benefits of a rapid and anonymous study as an assignment in an introductory sociolinguistics class, and Ellis, Groff, and Mead (2006) have published research based on data collected via such an assignment.

Students were instructed to approach strangers in public places – passers-by on the street, or employees or customers in shops – and ask for directions to nearby locations. Upon being given directions, they were to respond with either *thanks*, *thank you*, or *thank you very much*, and (once out of sight) make a note of their interlocutor's response to being thanked. Each student was required to carry out at least 20 such elicitations, and they were encouraged to elicit responses from speakers of diverse ages, ethnicities, etc., if possible.

Depending on the exigencies of the academic calendar, students were given between one and two weeks to collect and submit their data in order to receive credit for the assignment. Across the three semesters in which this project was assigned, a total of 1537 elicitations were conducted in this way, as shown in Table 1. For comparison, the previous quantitative studies of this variable discussed above (excluding Schneider and Sickinger 2014, to whose token counts I do not have access) collected a combined total of 791 thanking interactions between them.

In 2013, students entered their data in Excel spreadsheets and submitted them online. In 2015, students submitted their data via a Google form set up

Table 1: Total number of rapid anonymous elicitations of thanks responses conducted in the three terms in which this project was assigned

Month	Number of students	Number of elicitations
November 2013	35	734
March 2015	30	603
June 2015	10	200
Total	75	1537

for this purpose; see MacKenzie (2018) on the benefits of this methodology. The students' data was compiled, checked for errors, and recoded for clarity and consistency by teaching assistants and/or me.

3.2 Dependent variable: responses to thanks

The dependent variable in this study is the speaker's choice of response to being thanked. Students were asked to code this by selecting one from a short list of realization types, and then, if the speaker had produced something other than the canonical form of that realization type, to note exactly what they had said in a separate data-entry field (labeled 'subvariant'). For example, if a speaker said *no problem*, the student would select the realization type NO PROBLEM and leave the subvariant field blank; if a speaker said *no prob* or *no problemo*, the student would select NO PROBLEM and transcribe the exact utterance in the subvariant field. For the purposes of the current analysis, we will consider three major realization types, each with more than 100 tokens in the data: YOU'RE WELCOME, NO PROBLEM, and NO WORRIES. Their subvariants attested in the data are listed in (2).

2. YOU'RE WELCOME

   o *okay you're welcome*; *very welcome*; *welcome*; *you are very welcome*; *you're most welcome*; *you're very much welcome*; *you're very welcome*; *you're welcome, cheers*

   NO PROBLEM

   o *k, no problem*; *no pro*; *no prob*; *no problem, good luck*; *no problem, have a good day*; *no problem man*; *no problemo*; *no probs*; *not a problem*; *okay, no problem*; *yeah, no problem*; *yep, no problem*

   NO WORRIES

   o *don't worry about it*; *no worries, take care*; *oh honey, don't worry about it*; *yeah, no worries*

In each case the canonical form (*you're welcome*, *no problem*, *no worries*) accounted for more than 90 percent of the tokens of the realization type, assuming that students remembered to transcribe the subvariant whenever one was produced.

Responses other than YOU'RE WELCOME, NO PROBLEM, and NO WORRIES will be grouped into two categories: ACKNOWLEDGEMENT and OTHER. The variants included in each of these categories are listed in (3); the OTHER category also includes six tokens coded as OTHER by students but not transcribed specifically.

3. ACKNOWLEDGEMENT

   o *aight*; *alright*; *cool*; *k*; *mhmm*; *okay*; *okay, yeah*; *sure*; *uh-huh*; *yeah*; *yeah okay*; *yeah yeah*; *yep*; *yes*; *yup*; *alright, have a nice day, bye*; *alright, have a nice day*; *awesome, have a good day*; *bye*; *bye bye*; *have a good day*; *have a good night*; *have a good week*; *have a nice day*; *okay have a nice day*; *okay, bye*; *see you, bye*; *take care*; *yeah, see ya*

   OTHER

   o *absolutely*; *anytime*; *cheers*; *ciao, enjoy*; *don't mention it*; *good luck*; *it's alright*; *it's nothing*[3] ; *it's okay*; *my pleasure*; *no*; *of course*; *sorry*; *sure thing*; *thank you*; *thanks*; *yeah, enjoy*; *you'll be alright*

Although the primary pragmatic purpose of a response to thanks is to 'minimize the thanker's indebtedness' (Schneider 2005: 103), Bieswanger (2015: 530–531) notes that not all responses to thanks actually appear to have that effect. Responding to thanks with an utterance like *yeah* or *uh-huh* serves to acknowledge that the thanker has spoken, but such responses 'do not reduce the indebtedness of the thanker to "the lowest possible level" ' and would be equally appropriate in non-thanking interactions. The category of ACKNOWLEDGEMENT[4] is used to group together this class of responses. Subsumed into ACKNOWLEDGEMENT are valedictions such as *bye* and *have a nice day* that conclude the interaction but similarly do not directly resolve the thanker's social indebtedness. In some cases an acknowledgement co-occurred with another response, as in *okay you're welcome*; in such cases, the response was coded according to the type of the non-acknowledgement portion of the response.

The category OTHER groups together responses that *do* (or arguably do) overtly have the pragmatic role of thanks responses, other than YOU'RE WELCOME, NO PROBLEM, and NO WORRIES. For conciseness, we may refer to the classes of YOU'RE WELCOME, NO PROBLEM, NO WORRIES, and OTHER collectively as the 'proper' thanks responses.

I depart from Schneider (2005) and other researchers in treating *okay* and *it's okay* as members of distinct classes: *okay* is regarded as an ACKNOWLEDGEMENT because, like *uh-huh* and *yep*, the utterance *okay* can be used simply as an

acknowledgement that someone has spoken; on the other hand, *it's okay* more overtly expresses the function of minimizing the thanker's indebtedness, and is therefore coded as OTHER.

Alongside YOU'RE WELCOME, NO PROBLEM, NO WORRIES, ACKNOWLEDGEMENT, and OTHER, the sixth value of the dependent variable in this analysis will be NO RESPONSE, including all individuals who gave no spoken response at all to being thanked. Bieswanger (2015) distinguishes individuals who gave a non-verbal response such as a nod from those who made no response whatsoever; but students collecting data for this assignment were not asked to make that distinction.

3.3 Independent variables

Students were instructed to code their data for several independent variables as predictors of choice of response:

- prompt used for elicitation: *thanks*, *thank you*, or *thank you very much*;
- apparent gender of speaker;
- apparent ethnicity of speaker;
- apparent age of speaker;
- apparent native/non-native English speaker status of speaker;
- 'employee'/'passer-by' status of speaker;
- location in Toronto where elicitation was conducted.

Since this data-collection project was assigned to students in three different academic terms, we can also use the semester in which data was collected as an independent variable in analysis.

It might be desirable to include demographic characteristics of the student data collectors in the analysis. At the time of writing, the only reliable demographic information on the students that I still have access to is gender. Including student gender in analyses, independently or in interaction with speaker gender, never yielded a statistically significant result; therefore, student gender will not be included in the statistical analyses below.

The employee/passer-by variable reflects the instructions given to students for the assignment: 'you may ask passers-by on the street, or go into shops and ask employees or customers'. They were instructed to use the 'employee' label for any speaker 'who was on the job when you spoke to them'.

Students were asked to round their age estimates to the nearest five years. Most of them remembered to do this, but some gave more precise estimates. In regression analyses in this paper, with age as a continuous factor, each student's estimate will be used at face value. In binned reporting of age effects, all ages will be rounded.

Each token's location of elicitation was recorded both as a specific street intersection or address and as a general region or neighborhood ('downtown', 'Chinatown', etc.). Neither region nor precise location was ever found to be a statistically significant predictor of thanks response, and so they will be ignored from here on.

Prescriptivist critics often allude to the change toward *no problem* as an abandonment of norms of politeness or formality (e.g. Opelka 2017). We may test this through the lens of stylistic accommodation, hypothesizing that an individual thanked in more elaborate terms will accommodate to the level of formality set by the thanker and thus be more likely to produce a more polite or formal[5] response. (Cf. Okamoto and Robinson 1997 on the levels of politeness associated with the different thanking expressions.) Thus effects of the prompt used for elicitation can be used to diagnose whether NO PROBLEM really is more informal than YOU'RE WELCOME.

Due to the nature of this study, obviously the reliability of the results depends on the ability of 75 undergraduate students to approach a representative sample of speakers; to reasonably accurately guess the ethnicity, age, etc. of strangers; to remember the details of each interaction long enough to write them down; and to reliably and consistently code their results as assigned. As Labov (1984: 50) notes, in such a study, 'the relation of [the sampled speakers] to the total residential population is not known'; however, the methodology 'has proved quite effective in giving a rapid profile of a single variable'. The key results to be presented below are robust enough to support the reliability of the main conclusions as a portrait of the variable in this speech community, albeit passed through the noisy filter of a homework assignment in an introductory class.

4. RESULTS

4.1 Overall results

The overall breakdown of the response categories is shown in Table 2. YOU'RE WELCOME was the most frequently-occurring response type overall, at about one third of elicitations; the second most common was NO PROBLEM, at about one quarter. The third most common response type was NO RESPONSE at all.

Figure 1 shows the frequency of each response type broken down by age group. It is clear from Figure 1 that NO PROBLEM is increasing in apparent time. For the three youngest age groups, NO PROBLEM is the most frequent response

Table 2: Total number of elicitations of each of the six response types; total *n* = 1537

Response type	*n*	Frequency
YOU'RE WELCOME	514	33%
NO PROBLEM	385	25%
NO RESPONSE	281	18%
ACKNOWLEDGEMENT	172	11%
NO WORRIES	123	8%
OTHER	62	4%
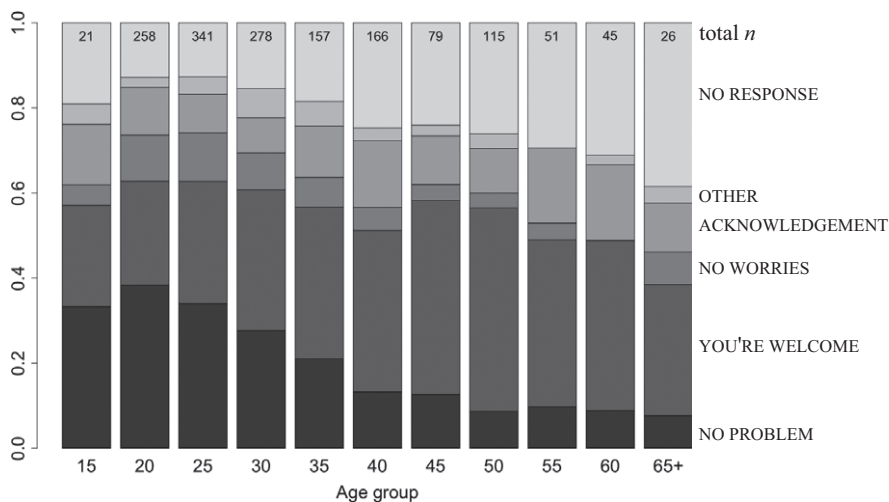
Figure 1: Distribution of the six response categories by age group

type, occurring for over 30 percent of elicitations; in the four oldest age groups, NO PROBLEM is below 10 percent; in between, the rate of NO PROBLEM increases monotonically.[6] YOU'RE WELCOME, although the most frequent response type overall, similarly shows a noticeable decrease in apparent time, diminishing to less than 25 percent in the youngest two age groups. So the basic apparent-time claim seen in popular discussion of this variable, that of change toward NO PROBLEM, is supported at least by the raw distribution of the data.

Figure 1 also demonstrates another unexpected age pattern: older speakers are more likely to give NO RESPONSE than younger speakers. The oldest age group gave NO RESPONSE fully 38 percent of the time, more than any other response type; and the rate of NO RESPONSE decreases with age down to only 13 percent in the 20- and 25-year-old groups. One possible explanation for this pattern is what Chambers (2004) refers to as the decline of 'Briticisms' in Canada. If it is true that responses to thanks are less common in British English than American English (cf. Schneider 2005: 109), an apparent-time decline in NO RESPONSE in Toronto could well be part of this long-term change away from British norms and toward American ones.

Another possibility is that this pattern represents not an apparent-time change, but an effect of the age difference between thankers and responders. The data collectors, being undergraduate students in a third-year class, were mostly in the 20–25 age range. Perhaps older speakers are less likely to feel obliged to respond politely to a thanker several decades younger than themselves, due to an apparent difference in social power. However, this would conflict with Gesuato's (2016) result that speakers in (simulated) positions of higher social power were *more* likely to provide spoken responses to thanks.

4.2 Structure of regression analyses

In order to conduct an accountable quantitative analysis of this variable, it is necessary to consider how the variation is structured. For the purposes of this analysis, we will initially assume the structure of variation shown in Figure 2. When a speaker is thanked, we hypothesize that the first choice they must make is whether or not to respond at all; if they decide to respond, we hypothesize that the next choice is between mere ACKNOWLEDGEMENT and using a proper thanks response. Thus, when considering the factors affecting the choice to give NO RESPONSE, we will perform binomial regressions on the choice between NO RESPONSE and all other response types; but when considering the factors favoring or disfavoring ACKNOWLEDGEMENT, the NO RESPONSE category will be excluded from the analysis and ACKNOWLEDGEMENT will only be considered in opposition to the other spoken responses. Analyses focusing on the proper thanks responses will compare those types against each other, but exclude ACKNOWLEDGEMENT and NO RESPONSE.

Binomial logistic regression models for this data are calculated using Rbrul (Johnson 2009). Attempts to compute mixed-effect models, including the identity of the student who conducted each elicitation as a random effect, usually failed to converge and thus failed to produce reliable results. Therefore, for the sake of consistency across analyses, results from fixed-effect models only will be reported below.

Since the possibility of change in progress is one of the key questions motivating this research, particular attention will be paid not only to the effect of age but to the interaction of age with other predictors. The regression models reported herein will include main effects of all factors, as well as any age interactions that are significant at the $p < 0.05$ level when added to the full set of main effects. Non-significant predictors will be omitted from the reported
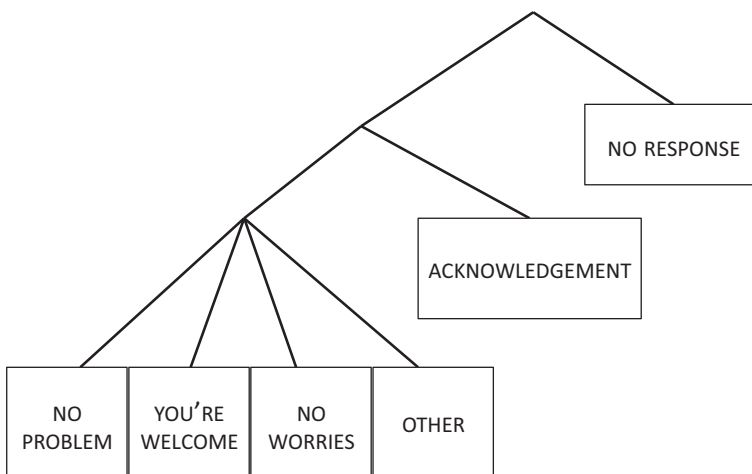
Figure 2: Hypothesized hierarchy of variation for responses to thanks

Table 3: Multiple logistic regression on NO RESPONSE vs. all spoken responses. Intercept = −1.365. Rbrul does not report p values for main effects of predictors whose interactions are part of the regression. Non-significant predictors: gender, semester

Predictor	p	Value	Log-odds	n
Native speaker?	0.008	non-native	+0.233	367
		native	−0.233	1170
Age × prompt	0.01	*thanks* × 1 year	+0.023	439
		thank you × 1 year	+0.006	796
		thank you very much × 1 year	−0.029	302
Prompt main effect		*thanks*	+0.214	439
		thank you	+0.020	796
		thank you very much	−0.234	302
Age main effect		+1 year	+0.029	1537
Ethnicity	0.01	other	+0.607	43
		Latino	+0.244	39
		East Asian	+0.226	364
		White	−0.210	786
		South Asian	−0.415	128
		Black	−0.451	177
Passer-by/employee	0.04	passer-by	+0.154	975
		employee	−0.154	562

results, but they remain part of the calculation. In order to make coefficients easier to interpret, the age variable included in the regressions is speaker age minus 33, the approximate mean age of all speakers in the data.

4.3 Predictors of NO RESPONSE

We begin with the factors affecting NO RESPONSE, in a regression model[7] shown in Table 3. We find a significant interaction between age and thanking prompt, as well as significant effects of native-speaker status, ethnicity, and passer-by/employee status. Since the topic of this paper is change in progress, the analysis here will focus on the effects of age and prompt.

The main effects of these two predictors are as expected. Older speakers are more likely to give NO RESPONSE than younger speakers, as was visible in Figure 1 above. The effect of prompt supports the hypothesis that the different prompts can be used to elicit different levels of formality: the more elaborate the thanking expression, the more likely it is to be at least acknowledged with a spoken response. However, the interaction, illustrated in Figure 3, complicates the analysis somewhat: the difference between the effects of different thanking
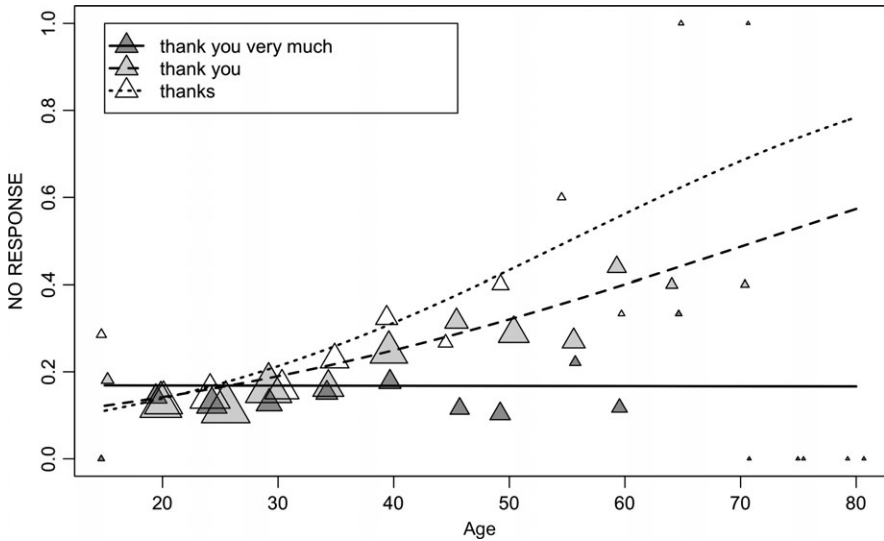
Figure 3: The interaction of age with thanking prompt as a predictor of NO RESPONSE. Lines represent the rates of NO RESPONSE predicted by the regression model in Table 3; triangles represent the actual rates of NO RESPONSE in the data by age group and prompt. Area of triangles is proportional to number of tokens; the size appearing in the legend is equivalent to 36 tokens

prompts is only present for older speakers. Young speakers give NO RESPONSE at about the same rate (around 13%) to all three thanking prompts, while older speakers match younger speakers for *thank you very much* but give NO RESPONSE more often to the less elaborate prompts.

One possible interpretation of this result – of which prescriptivists would no doubt approve – is that younger speakers are not sensitive to the difference between *thanks*, *thank you*, and *thank you very much*, and therefore do not distinguish between them in deciding how to respond; however, we will see below that this interpretation is unlikely to be right. It seems more likely that elaborateness of the thanking expression modulates the age effect. If the high rate of NO RESPONSE among older individuals is in fact the result of an apparent social-power differential between them and younger thankers, this suggests that greater effort from the thanker can compensate for whatever weakened pressure to respond comes with higher social power. If it reflects an apparent-time change toward spoken responses in general, it suggests that the change took place first in the most polite context.

4.4 Predictors of ACKNOWLEDGEMENT

Table 4 shows the regression results for the choice of ACKNOWLEDGEMENT. The effect of prompt is again as expected: a more elaborate thanks expression is

Table 4: Multiple logistic regression on ACKNOWLEDGEMENT vs. all proper thanks responses. Intercept = –2.197. Not significant: semester, passer-by/employee status

Predictor	*p*	Value	Log-odds	*n*
Prompt	0.007	*thanks*	+0.388	352
		thank you	+0.048	643
		thank you very much	–0.436	261
Gender	0.01	male	+0.215	568
		female	–0.215	688
Ethnicity	0.03	other	+1.130	28
		East Asian	+0.385	275
		White	+0.111	660
		Black	–0.128	154
		South Asian	–0.187	108
		Latino	–1.311	31
Age × native speaker	0.03	non-native × 1 year	+0.017	264
		native × 1 year	–0.017	992
Native speaker main effect		non-native	+0.071	264
		native	–0.071	992
Age main effect		+1 year	+0.030	1256

more likely to elicit a proper thanks response that fulfills the pragmatic function of resolving the social imbalance, rather than mere ACKNOWLEDGEMENT. Male speakers use ACKNOWLEDGEMENT more than women; and like NO RESPONSE, ACKNOWLEDGEMENT also shows significant differences between ethnic groups.

The main effects of age and native-speaker status on ACKNOWLEDGEMENT are the same as those for NO RESPONSE – older speakers are more likely than younger speakers to use ACKNOWLEDGEMENT, and non-native speakers are more likely than native speakers. ACKNOWLEDGEMENT resembles NO RESPONSE in that it constitutes avoidance of using a polite formula specialized for responding to thanks, so it is not unexpected that they pattern together in this regard. A significant interaction between these predictors indicates that the difference between native and non-native speakers in the use of ACKNOWLEDGEMENT is found chiefly among older age groups; younger non-native speakers match native speakers in this respect.

4.5 Predictors of proper thanks responses

The key variant of interest in this paper is NO PROBLEM, the subject of the regression model shown in Table 5. Apart from passer-by/employee status, whose significance is marginal ($p \approx 0.049$), we find that prompt and, unexpectedly, the semester in which data collection took place have

Table 5: Multiple logistic regression on NO PROBLEM vs. other proper thanks responses. Intercept = –0.793. Not significant: gender, ethnicity, native-speaker status

Predictor	*p*	Value	Log-odds	*n*
Age × semester	0.003	November 2013 × 1 year	+0.027	524
		June 2015 × 1 year	+0.001	148
		March 2015 × 1 year	–0.027	412
Semester main effect		June 2015	+0.065	148
		November 2013	–0.014	524
		March 2015	–0.051	412
Age × prompt	0.009	*thanks* × 1 year	+0.034	292
		thank you very much × 1 year	–0.013	238
		thank you × 1 year	–0.021	554
Prompt main effect		*thanks*	+0.331	292
		thank you very much	–0.088	238
		thank you	–0.242	554
Age main effect		+1 year	–0.050	1084
Passer-by/employee	0.049	passer-by	+0.137	666
		employee	–0.137	418

significant interactions with age, and no other factors are significant predictors of the selection of NO PROBLEM.

As inferred from Figure 1 above, NO PROBLEM is clearly favored by younger speakers, supporting the hypothesis of apparent-time change toward NO PROBLEM that motivated this paper. The interaction between speaker age and semester is surprising: for younger speakers, the rate of NO PROBLEM is higher in 2015 than in 2013, but for older speakers the rate is lower in 2015. It is hard to find a satisfying explanation for this; it is unlikely to be the result of methodological differences between the semesters, since the written instructions given to students were the same each term.

Figure 4 shows the interaction between age and thanking prompt. We find that, although NO PROBLEM is increasing in apparent time as a response to all three prompts, the slope of increase is much sharper for *thank you* and *thank you very much* than for *thanks*. Thus younger speakers use NO PROBLEM at similar rates with all three prompts, while older speakers use NO PROBLEM at a much higher rate in response to *thanks* than to the more elaborate thanking expressions. This supports the hypothesis that, at least for older speakers, NO PROBLEM is regarded as a less formal response, suitable for responding to a briefer and more perfunctory expression of thanks but not to a more formal or elaborate thanking prompt. The fact that *thank you very much* and *thank you* converge with *thanks* in Figure 4 for the younger speakers is evidence in favor
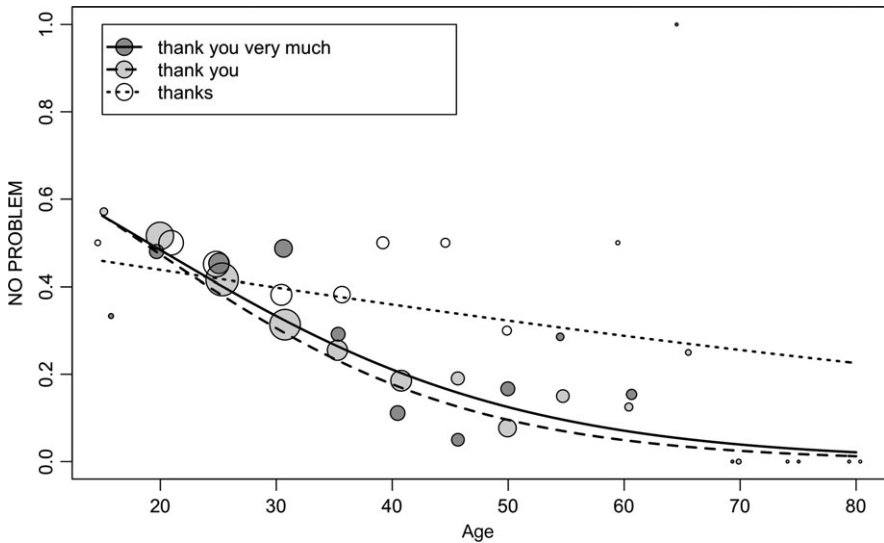
Figure 4: The interaction of age with thanking prompt as a predictor of NO PROBLEM
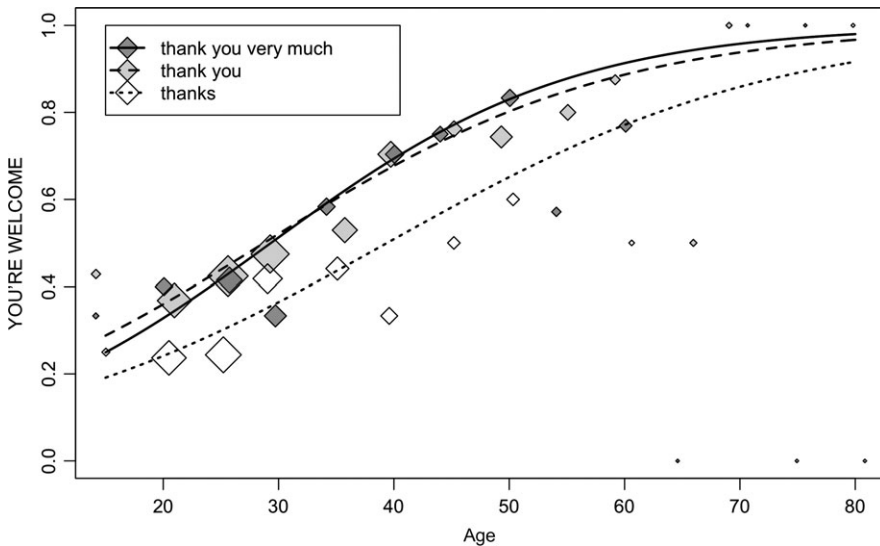
Table 6: Multiple logistic regression on YOU'RE WELCOME vs. other proper thanks responses. Intercept = +0.076. Not significant: ethnicity, native-speaker status

Predictor	*p*	Value	Log-odds	*n*
Prompt	0.0002	*thank you very much*	+0.214	238
		thank you	+0.207	554
		thanks	−0.421	292
Age main effect		+1 year	+0.067	1084
Age × semester	0.0006	March 2015 × 1 year	+0.032	412
		June 2015 × 1 year	−0.009	148
		November 2013 × 1 year	−0.023	524
Semester main effect		November 2013	+0.174	524
		March 2015	−0.020	412
		June 2015	−0.154	148
Gender	0.0007	female	+0.225	611
		male	−0.225	473
Age × passer-by/employee	0.01	employee × 1 year	+0.019	418
		passer-by × 1 year	−0.019	666
Passer-by/employee main effect		employee	+0.215	418
		passer-by	−0.215	666

of the straw-man hypothesis introduced above that younger speakers are simply not sensitive to the difference between *thanks*, *thank you*, and *thank you very much*; however, examining the other proper thanks responses will contradict this hypothesis.

Table 6 shows the logistic regression model for the choice of YOU'RE WELCOME vs. other proper thanks responses. In many respects the predictors of YOU'RE WELCOME are just the inverse of the predictors of NO PROBLEM shown in Table 5; this is expected, since YOU'RE WELCOME and NO PROBLEM together make up 83 percent of all proper thanks responses in the data. That means that it is of particular interest that YOU'RE WELCOME does *not* exhibit a significant interaction between age and prompt. While for NO PROBLEM the difference between the effects of *thanks* and the more elaborate prompts disappears among younger speakers, for YOU'RE WELCOME the difference between prompts is maintained. This is displayed in Figure 5: the youngest speakers continue to have visibly lower rates of YOU'RE WELCOME in response to *thanks* than in response to *thank you very much* and *thank you*. When the data is restricted to only the youngest four age groups, prompt remains one of the strongest predictors of YOU'RE WELCOME, with a log-odds difference of 0.59 between *thank you* and *thanks*.


Figure 5: The lack of significant interaction between age and thanking prompt as predictors of YOU'RE WELCOME; *thanks* elicits YOU'RE WELCOME less frequently than the other prompts even in the youngest age groups. Due to non-significance, this interaction is excluded from the model in Table 6; the log-odds slopes of the three curves in this figure are +0.077 (*thank you very much*), +0.066 (*thank you*), and +0.059 (*thanks*)

Table 7: Multiple logistic regression on NO WORRIES vs. other proper thanks responses. Intercept = −2.229. Not significant: semester, gender, native-speaker status, ethnicity

Predictor	p	Value	Log-odds	n
Prompt	8×10^{-5}	*thanks*	+0.614	292
		thank you	−0.245	554
		thank you very much	−0.369	238
Age × passer-by/employee	0.03	passer-by × 1 year	+0.028	666
		employee × 1 year	−0.028	418
Passer-by/employee main effect		passer-by	+0.250	666
		employee	−0.250	418
Age main effect		+1 year	−0.039	1084

Thus, unlike NO PROBLEM, YOU'RE WELCOME shows that younger speakers do differentiate between the politeness levels of different thanking expressions. We can also see this reflected in NO WORRIES, the one remaining moderately frequent realization type. Table 7 shows the logistic regression model for the choice of NO WORRIES vs. other proper thanks responses. We find that, like NO PROBLEM, NO
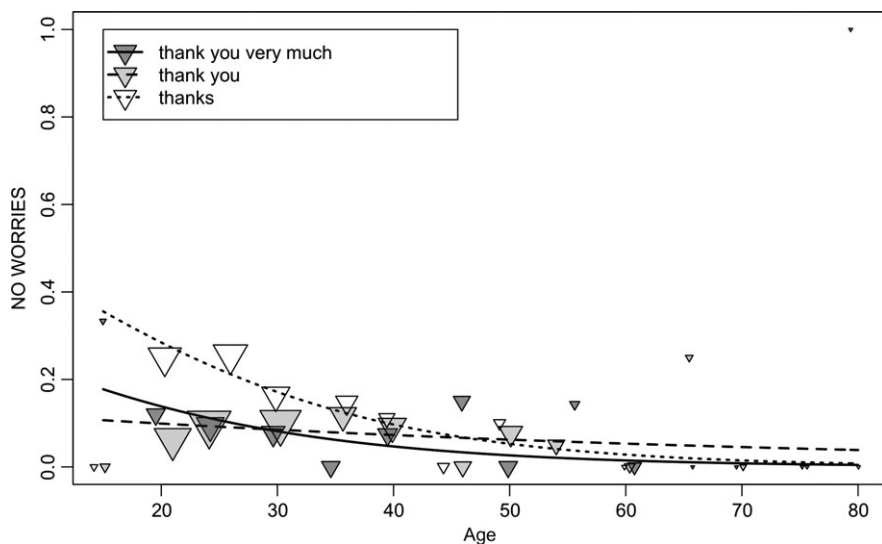
Figure 6: The relationship between age and thanking prompt as predictors of NO WORRIES. The slopes of the curves for the three prompts are not quite significantly different at the $p < 0.05$ level ($p \approx 0.075$), and so this interaction term is excluded from the regression in Table 7. The log-odds slopes of the three curves in this figure are −0.059 (*thank you very much*), −0.017 (*thank you*), and −0.065 (*thanks*)

WORRIES is increasing in apparent time and favored by *thanks*. However, unlike NO PROBLEM, the conditioning effect of prompt does not disappear for the youngest speakers. Indeed, since NO WORRIES is fairly infrequent overall, it is only among the youngest speakers that it becomes frequent enough for any systematic difference between prompts to become visible. This is shown in Figure 6. Although the interaction between age and prompt does not reach the level of statistical significance, it is clear that the significance of the main effect by which *thanks* favors NO WORRIES is due entirely to the younger age groups. When the data is restricted to the youngest four age groups, prompt is the *only* significant predictor of NO WORRIES, with a log-odds difference of 1.13 between *thanks* and *thank you*.

Therefore, despite the patterns visible in Figures 3 and 4, it is not the case that younger speakers simply do not distinguish between the politeness levels of *thanks*, *thank you*, and *thank you very much* in deciding how to respond. Younger speakers appear to regard NO WORRIES as a less formal response, more suitable for responding to *thanks* than to a more elaborate expression such as *thank you very much*, while YOU'RE WELCOME is a more formal response that receives the opposite treatment. The fact that NO PROBLEM is favored by *thanks* for older speakers but not younger speakers is therefore a fact about NO PROBLEM in particular, not about how young speakers respond to thanks in general. This suggests that NO PROBLEM specifically is undergoing a change in its level of formality. For older speakers, NO PROBLEM appears to function as a perfunctory or informal response, suitable for *thanks* but not *thank you* or *thank you very much*; but for younger speakers, it is in the process of migrating toward the category of more formal responses, appearing at similar rates in response to all three thanking expressions.

These results suggest a potential explanation for the intensity of the prescriptive condemnation of *no problem*: it is not just the frequency of use of NO PROBLEM that is increasing in apparent time, but its level of formality. This means that older speakers hear younger speakers responding frequently with NO PROBLEM to more elaborate thanks expressions, and perceive that as the use of an informal response in contexts in which a more formal response is called for; and therefore they interpret this as young people ignoring norms of politeness. From the younger speakers' perspective, however, NO PROBLEM has simply joined the category of sufficiently formal responses.

Schneider (2005) found that *thank you very much for the lift* elicited more NO PROBLEM than *thanks for the coffee* did, whereas this study finds that *thank you very much* disfavors NO PROBLEM relative to *thanks*. This suggests that the decisive factor favoring NO PROBLEM in Schneider's *lift* scenario is not the form of the thanking expression but the nature of the favor. Perhaps, as prescriptivist Flanagan (2013) suggests, *no problem* is preferred for favors that involve more inconvenience, all else being equal; or perhaps there is a difference between responses to thanks for performing a task and for giving someone an object.

An unexpected pattern visible in this subsection is the similarity of *thank you* and *thank you very much*. Within the set of proper thanks responses, *thanks* favors more informal responses than *thank you*; but in no case is there a difference between the effects of *thank you* and *thank you very much*. This is not true for NO RESPONSE and ACKNOWLEDGEMENT, which exhibit three levels of stratification between prompts. This suggests some complexity in the effect of levels of politeness on responses to thanks: elaborating out *thank you* to *thank you very much* can elicit a proper thanks response from someone who otherwise might not have produced one; but once a speaker has made the choice to produce a proper response, only the difference between *thanks* and *thank you* matters for the choice of *which* proper response is produced.

5. SUBGROUPING THE *NO*... CLASS

NO PROBLEM and NO WORRIES are simultaneously increasing in apparent time; and as NO PROBLEM loses its less-formal character for younger speakers, NO WORRIES appears to be taking on that role. This suggests there might be a closer relationship between NO PROBLEM and NO WORRIES than between either of those and YOU'RE WELCOME. There are other reasons to believe this might be the case: NO PROBLEM and NO WORRIES both embody the same pragmatic strategy for responding to thanks, namely 'minimizing the favor' (e.g. Aijmer 1996; Schneider 2005). Moreover, *no problem* and *no worries* both begin with the word *no*, meaning that the speaker need not decide which of these two variants to use until later in the utterance, after other variants have already been ruled out.[8] This suggests modifying the structure of variation proposed in Figure 2 above; we can hypothesize that NO PROBLEM and NO WORRIES form a unit within which they trade off against each other directly. Under this model, the results above suggest that there are two distinct changes in progress affecting the domain of proper thanks responses: the *class* of responses that begin with *no* is

Table 8: Multiple logistic regression on NO WORRIES vs. NO PROBLEM. Intercept $= -1.037$. Not significant: semester, ethnicity, native-speaker status, passer-by/employee status, gender

Predictor	*p*	Value	Log-odds	*n*
Age × prompt	0.007	*thank you* × 1 year	+0.043	228
		thank you very much × 1 year	−0.004	94
		thanks × 1 year	−0.039	186
Prompt main effect		*thanks*	+0.191	186
		thank you	+0.027	228
		thank you very much	−0.217	94
Age main effect		+1 year	+0.002	508
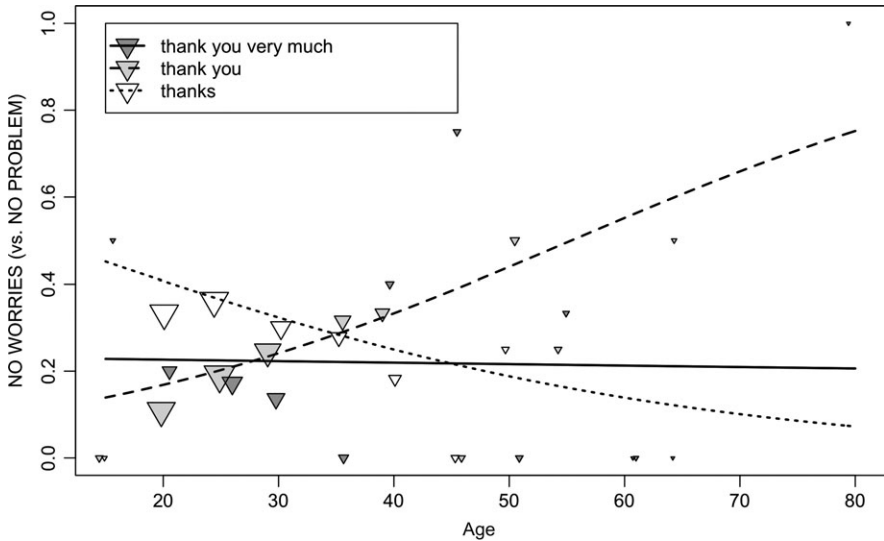
Figure 7: The interaction between age and thanking prompt as predictors of variation between NO WORRIES and NO PROBLEM within the class of NO… response types

gaining ground in apparent time at the expense of other response types; and *within* that class, the once-marginal response type NO WORRIES is establishing itself as an informal variant, allowing NO PROBLEM to increase its relative frequency in more formal contexts.

Table 8 and Figure 7 represent the latter of these two changes, the development of stylistic stratification between NO PROBLEM and NO WORRIES *within* their subclass. The main effect of age in the regression model of Table 8 is near zero, indicating that the *overall* relative frequency of NO WORRIES vs. NO PROBLEM is not changing; rather, within a more or less constant relative frequency, NO WORRIES is becoming more attached to *thanks* and NO PROBLEM to *thank you*. Although it appears in Figure 7 that among older speakers NO WORRIES is strongly favored by *thank you* (but not *thank you very much*), it seems likely that this is just an artifact of the small size of this subset of the data; if we restrict the analysis to speakers over the estimated age of 32, only 117 tokens of NO PROBLEM and NO WORRIES remain, and the apparent effect of prompt on the choice between these for older speakers alone is not statistically significant ($p > 0.3$).

Thus we can assemble the following outline of the sociolinguistic organization of YOU'RE WELCOME, NO PROBLEM, and NO WORRIES, the three most frequent proper response types in Toronto: YOU'RE WELCOME is the most formal response type, favored by *thank you (very much)* and disfavored by *thanks* relative to its chief competitor, the NO… class. The NO… class is gaining ground in apparent time at YOU'RE WELCOME's expense, but the magnitude of stylistic stratification between YOU'RE WELCOME and NO… remains constant. Meanwhile, *within* the NO… class, the

relative frequency of the two variants remains stable; but as the rate of use of this class increases, there is room for stylistic stratification to develop, with NO PROBLEM emerging as more formal than NO WORRIES.[9]

Noë (2015) comments that the use of *no problem* as a thanks response strikes him as a conflation of 'expressing gratitude and saying sorry', since *no problem* can also be used to respond to an apology. Aijmer (1996: 88) notes that apologies may be met with a 'minimizing response', and this paper finds the two most common 'minimizing'-type responses – NO PROBLEM and NO WORRIES – increasing in apparent time as a unit. This suggests that Noë's prescriptivist complaint may nevertheless be capturing a true generalization – the category of thanks responses that are gaining ground is those that can also function as apology responses.

Wallenberg (2013) hypothesizes that, in order for two variants to remain in stable variation, they must develop partial specialization along a continuous dimension such as style. The emergence of such stratification between NO PROBLEM and NO WORRIES might be an example of the origin of this situation. Although both NO PROBLEM and NO WORRIES are increasing in apparent time among the universe of (proper) thanks responses as a whole, their frequency relative to one another is stable. Now that it is the case that both variants are frequent enough for variation between them to be visible, perhaps (according to Wallenberg's model) their stratification into a more and less formal variant becomes *necessary* if they are to remain in stable variation.

6. CONCLUSION

The rapid and anonymous study is an effective pedagogical tool for introducing beginning students to sociolinguistic methodology, and responses to thanks have proven to be an ideal variable to serve as a topic for such an assignment – thanks responses are simple to elicit, easily identifiable, and robustly variable. I encourage other instructors of introductory sociolinguistics to consider reproducing this study, or expanding upon it, as an assignment in their own classes.

This paper confirms that the popular perception of change in progress toward *no problem* and away from *you're welcome* is true, at least in Toronto, and demonstrates that it is not only the frequency of use of NO PROBLEM that is undergoing change, but also its stylistic function. This is apparently the result of two simultaneous changes: the class of responses including NO PROBLEM and NO WORRIES is increasing in apparent time at the expense of its chief competitor, YOU'RE WELCOME; and within that class, stylistic stratification is developing between the two variants, so that NO WORRIES is establishing itself as a more informal response than NO PROBLEM. The fact that NO PROBLEM is not only increasing in frequency overall, but increasing its relative frequency in contexts where a more formal response seems to be called for, may be the cause of its saliency as an object of prescriptive condemnation, as older speakers perceive what to them is a less formal variant surging in polite contexts in the

speech of younger speakers. By untangling the actual linguistic phenomena which underlie a popular prescriptivist complaint, this paper contributes to our understanding of the relationship between the abstract structure of language change in progress and the overt social evaluation those changes receive.

An unexpected secondary finding is that level of politeness influences the choice of *whether* to use a proper thanks response differently than the choice of *which* proper response to use. For the choice among NO PROBLEM, NO WORRIES, and YOU'RE WELCOME, *thank you* and *thank you very much* appear to elicit the *same* level of formality. However, the more elaborate *thank you very much* is more effective than *thank you* at eliciting a proper response at all, in contrast to NO RESPONSE or mere ACKNOWLEDGEMENT. In other words, it is apparently just the choice between *thank you* and *thanks* that sets the level of formality of the thanking interaction; but the more elaborated *thank you very much* might make it more salient to the listener *that* a thanking interaction is taking place and demands a proper response. Future research will be needed to test this hypothesis.

The current study is limited to Toronto, but it seems likely that change toward NO PROBLEM is taking place in other communities as well. Prescriptivist complaints about the increase of NO PROBLEM come from writers based in many regions: for example, Noë (2015) in northern California, Flanagan (2013) in New York, and Opelka (2017) in Chicago. Moreover, Mulo Farenkia (2012) and Schneider (2005, 2017; Schneider and Sickinger 2014) discovered high rates of NO PROBLEM among young people elsewhere in North America. To discover whether multiple communities are experiencing the same change at the same time, data from other communities will be needed – perhaps via an assignment in other universities' sociolinguistics classes. A comparison between American and Canadian communities would also clarify whether the age effect associated with NO RESPONSE in the current data is due to a specifically Canadian shift from British to American norms, or just a result of the role of inter-speaker age differences in modulating expected degrees of politeness.

This paper complements the existing pragmatics literature on thanks responses by investigating change in apparent time, a phenomenon which has escaped the attention of previous researchers but turns out to be essential to the variable's social perception. At the same time, this paper also offers quantitative support to the fundamentals of the pragmatic analysis of thanks responses by finding that NO PROBLEM and NO WORRIES, grouped together by their shared pragmatic function as 'minimizers', are also grouped together in the organizational structure of the variable. The current paper also helps to clarify the relationships between some prior studies on this variable: given that Schneider's (2005) young respondents showed higher rates of NO PROBLEM than Bieswanger's (2015) middle-aged speakers, the current paper suggests that the age difference may play a role in explaining that discrepancy. Although the pragmatic literature on responses to thanks may have different concerns and ask different questions than would variationist sociolinguistics, this paper

shows that the methodologies of one subfield can still produce results that contribute to the concerns of the other.

NOTES

1. Thanks to Matt Hunt Gardner, Marisa Brook, and Paulina Łyskawa, teaching assistants for Linguistics 351 at the University of Toronto 2013–2015, who assisted in coding and organizing the data – especially to Matt Hunt Gardner, who proposed responses to thanks as a possible topic for a class assignment. Thanks also to Lex Konnelly for mapping and geocoding the geographical neighborhood data (it's not their fault it turned out to have no significant effect on the variable) and Michael Friesner for translating the abstract into French. Finally, thanks of course to the 75 undergraduate students who collected the data reported on in this paper.

   OVERLAPPING PUBLICATION:
   An earlier version of this paper appeared in abridged form in *Penn Working Papers in Linguistics*.
2. Herein I use italic text to represent specific responses to thanks, and small capitals to represent classes of related responses (called 'realization types' by Schneider). In discussing previous work, I employ the names for realization types employed by the cited authors.
3. IT'S NOTHING was coded as a separate type by students, but since it was too infrequent to be treated individually in this paper (11 tokens), it is grouped into the OTHER category here.
4. Students coded this under the realization type UH-HUH, but once the range of variants in this category became apparent, substantial recoding was necessary to ensure consistency. Some tokens that students had coded as OTHER were moved into ACKNOWLEDGEMENT on the basis of their subvariant transcription, and vice versa.
5. Speech style is a complex and multidimensional sociolinguistic property, and of course it is an oversimplification to project the potentially multifarious stylistic and social indexicalities of responses to thanks down to a one-dimensional scale from more to less formal (and even more so to equate 'formality' with 'politeness'). However, the simple nature of the study reported herein requires an analysis in simple terms; teasing apart more complex indexical properties of thanks responses will have to be left for studies with more fine-grained methodologies.
6. The difference between the 15-year-old and 20-year-old age groups even resembles the 'adolescent peak' pattern predicted for change in progress (Labov 2001; Tagliamonte and D'Arcy 2009); however, the small number of speakers in the 15-year-old age group and the likelihood of error in students' estimates of speaker ages caution us against reading too much into this.
7. Johnson (2009) explains how to interpret log-odds coefficients; in short, positive coefficients mean that the likelihood of the target variant is increased in the given situation, and negative coefficients mean it is reduced. For age, as a continuous predictor, the coefficient represents the change in log-odds predicted by an increase in age by one year; for instance, in Table 3, an additional year of age increases the log-odds of NO RESPONSE by 0.029. Interaction coefficients involving age, such as age × prompt in Table 3, indicate a further change in log-odds per year of age in specific conditions.

8. These two reasons for grouping NO PROBLEM and NO WORRIES together are not necessarily compatible, since they make different predictions about variants whose function is 'minimizing the favor' that do not begin with *no*, such as *it's nothing*. However, the current data is not sufficient for distinguishing between these sets of predictions.

9. The informal status of NO WORRIES as a thanks response in Toronto is reminiscent of its multi-functional role in Australian English, in which it has been described as indexing 'love of informality' and 'casual optimism' (Wierzbicka 2003: 56). It is not clear whether or not young Canadians are aware of its Australian indexicalities, but it may be coming to play a similar informal role in Toronto.

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