Written Communication
2022, Vol. 39(4) 531–563

DOI: 10.1177/07410883221107884
journals.sagepub.com/home/wcx

Variation in Linguistic Stance: A Person-Centered Analysis of Student Writing

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Abstract

The present study offers an alternative methodological approach to the growing body of literature on *stance*—the linguistic arrangements that construe a writer's perspective on knowledge. A number of recent studies have concluded that control over linguistic stance tends to develop through college and that preferred markers of stance differ by discipline. We know relatively little, however, about how those patterns differ within and between individuals. This study uses a person-centered method, multilevel latent profile analysis, to determine how secondary students in the United States use typical markers of stance in their writing, and to what extent that use varies across texts. The analysis focuses on 338 informal responses produced by 27 rising high school seniors during a college access program. Findings point to wide variation in how students at this level use linguistic markers in their writing, and to the role of the larger instructional context in shaping stance in the informal response genre.

Keywords

corpus linguistics, writing instruction, postsecondary writing, multilevel latent profile analysis, writing prompts, informal response

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The substantial and growing body of work on linguistic stance argues that the authority and legitimacy of academic writing—its acceptance within the larger academic conversation—hinges on precise control over relatively small units of language (Hyland, 2005; see also Aull, 2015; Biber, 2006; Lancaster, 2014; Uccelli et al., 2013). Broadly, markers of stance are considered to be non-propositional words or phrases used to express attitudes about knowledge (Barton, 1993). These features take a number of forms, including boosters (e.g., *very*, *strongly*), hedges (e.g., *in some cases*, *perhaps*), adversatives (e.g., *however*, *by contrast*), reformulations (e.g., *in other words*, *that is*), and evidential statements (e.g., *he argues*, *I think that*, *she suggests*).

Of particular interest is an apparent shift that occurs in advanced academic writing—from the emotional, generalized framing of knowledge that is typical of novice writers (Aull et al., 2017) toward the more distanced and conditional framing of *epistemic stance* (Berman et al., 2002). We know from cross-sectional research on publicly available corpora, as well as research based in classrooms, that epistemic stance contributes to perceptions of quality (Barton, 1993; Lancaster, 2014, 2016; Soliday, 2011), that it tends to be interpreted as evidence of "analytic rigor, critical thinking, complexity, and nuance" (Lancaster, 2014), and that it is a key feature of expert academic writing.

For these reasons, the work on stance carries important instructional implications for academic language development in the transition to college (Aull, 2015; Hyland & Guinda, 2012; Snow & Uccelli, 2009). But because the textual corpora on which many of these studies are based do not include information about the writers themselves, we know very little about how stance might vary within and between individuals (Gries, 2015a, 2015b)—critical information if we are to tailor instruction to meet the diverse needs of secondary and postsecondary students.

The present study addresses this gap in the literature by examining a corpus of informal response papers, an assignment that has received comparatively little attention in genre research despite its use in a wide variety of disciplines (Melzer, 2014; Nesi & Gardner, 2012; Soliday, 2011). The corpus features 338 papers written by 27 rising high school seniors in a college access program. The structure of the corpus—with multiple papers attributed to each of the students—poses a number of statistical challenges to the kind of tests used in most corpus research (Gries, 2015a, 2015b) but also offers some unique affordances for understanding variation among individuals. I draw on multilevel latent profile analysis (MLPA) to examine how students in the program used typical markers of stance in their writing, to what extent that use varied across the texts that they wrote, and how aspects of the instructional context might have shaped their linguistic choices in an informal response assignment.

Stance in Writing Development

A profusion of studies on stance in recent years has yielded a detailed landscape of how increasingly advanced academic writing operates at a linguistic level. Although this research has treated stance in a variety of ways, the current study hews most closely to the definitions from research on student populations similar to this one: Aull and Lancaster's (2014) study of placement test writing among rising college freshman and Aull's (2015) examination of writing in first-year composition.

Both studies, which compare the writing of these incoming and early college students with that of more expert writers, found that four linguistic features were particularly important in the development of stance through college: hedges, boosters, reformulation devices, and contrastive connectors. Hedges, which qualify or limit certainty about a proposition (e.g., *generally*, *might*, *suggests*), are typically considered to "open discursive space for alternatives," while boosters (e.g., *certainly*, *never*, *always*) "close discursive space" by amplifying or intensifying commitment to a proposition (Aull, 2015, pp. 88–89). In line with other large-scale corpus studies (e.g., Hyland 2005), Aull and Lancaster (2014) found that novice writers tended to use boosters about twice as often as they did hedges while expert writers tended to favor a balanced profile of slightly more hedges to boosters. These findings echo both corpus and composition research establishing that novice writers "err on the side of certainty" while experts qualify and hedge their claims (Aull, 2015, p. 117; see also Gere et al., 2013; Hyland, 2005; Hyland & Guinda, 2012).

Similarly, Aull and Lancaster (2014) noted that expert writers used contrastive connectors and reformulating code glosses about twice as often as novices. Contrastive connectors (e.g., *however*, *by contrast*, *but*) establish juxtapositions between propositions and are therefore important in establishing the writer's view of coherence relations between differing textual perspectives. Indeed, the authors noted that one reason the upper-level writers and experts drew on these devices is that they were likely "doing more work to distinguish between multiple positions" (Aull & Lancaster, 2014, p. 168). Reformulation code glosses (e.g., *in other words*, *especially*, *more specifically*) restate, further define, or otherwise reinterpret previously stated information (Hyland, 2007). Like contrastive connecters, they establish coherence by explicitly signaling the relationships between ideas; they are therefore important for making nuanced evaluations and arguments using multiple sources. In combination, these linguistic markers support a stance that is "marked by rigor and specificity" and oriented to accomplish "careful negotiation of subtle shades of meaning" (pp. 167–169).

Research involving secondary students suggests that developing this form of linguistic control is a lengthy process, and that late adolescence might represent an important period for this aspect of development (Crossley et al., 2011). In secondary assessment and college placement tasks that attempt to reproduce the argumentative genres of the university, the linguistic configurations of older high school students seem to predict assessed writing quality (Aull, 2015; Brown & Aull, 2017; Uccelli et al., 2013). By contrast, Dobbs's (2014) study of an academic language intervention for sixth-graders found no relationship between stance markers and writing quality, a result she attributed to the lack of integration of stance features into the content of the writing itself. In that sense, late adolescence also marks a change in the contextual demands of school, with more analytic genres and abstract content that requires more nuanced linguistic response (Brown & Aull, 2017).

Although true longitudinal studies of stance development are scarce, Kibler and Hardigree's (2017) 8-year case study of a young Latina writer provides some evidence for this perspective. Their qualitative analysis suggested that developing an awareness of the academic discourse community and developing the necessary linguistic control to project the authority of a community member were coterminous activities. Together these findings point to an apparent alignment of developmental readiness with contextual demands that makes linguistic stance in the transition to college a particularly valuable area for study.

Contextual Variation in Stance

There is also now substantial evidence for contextual variation in stance—by discipline (Hardy & Römer, 2013; Lancaster, 2016; Nesi & Gardner, 2012; Yoon & Römer, 2020), by genre (Aull, 2019; Hardy & Friginal, 2016; Hyland, 2008; Hyland & Guinda, 2012; Nesi & Gardner, 2018), and even by assignment type (Aull, 2015, 2017, 2019; Beck & Jeffery, 2007).

In the fields of philosophy and political theory, which bear the closest resemblance to the curriculum in this study, writing seems to be characterized by less distanced perspectives and more overt attitudinal claims than writing in fields such as history and political science—with fewer hedges but more frequent boosters, first-person relational markers (e.g., *we*, *I*), and expressions of opinion (Hardy & Römer, 2013; Hyland, 2005). Lancaster's (2016) comparative study of writing in upper-level courses found a much higher frequency of attitude markers (e.g., *surprisingly*, *interesting*) in political theory papers than in economics papers. High-graded papers also used more hedges and contrastive markers than those that were low-graded though the differences were less stark in political theory than in economics. Lancaster

noted that the stance of successful writers in the political theory course was thus "indicative of a confident guide, one who assertively orchestrates a discussion while showing appreciation of theoretical concepts" (Lancaster, 2016, p. 27). Yoon and Römer's (2020) more recent study of disciplinary variation in the Michigan Corpus of Upper-Level Student Papers (MICUSP) also found that philosophy papers tended to have the highest number of stance markers, findings that echo earlier conclusions about the highly interactional quality of written discourse in philosophy (Hyland, 2005).

We know much less about the linguistic features of the informal response paper—which forms the basis of the corpus used in the present study—because it has not yet been the subject of formal genre research. Despite the ubiquity of informal response across the curriculum (Melzer, 2014; Nesi & Gardner, 2012; Soliday, 2011), the genre constitutes just 3% (24 papers) of the MICUSP (Römer & O'Donnell, 2011). The flexibility of the informal response paper makes it applicable across a wide variety of disciplines and somewhat difficult to define, but its most basic and widespread function seems to be to convey the author's perspective on another text (Hardy & Friginal, 2016; Nowacek, 2011). It is typically less formal and less explicitly evaluative than a critique (Creme, 2008; Nesi & Gardner, 2012) but more formalized than a journal response (Elbow, 1997). To the extent that the response paper is a genre, it is a protean one, a "more pliable discursive space" (Nowacek, 2011, p. 84) than a term paper, and one that permits a wider range of activities and forms of expression.

From the few corpus perspectives on response papers that we do have, there is some evidence that, similar to writing in philosophy, the response paper accommodates more attitudinal claims, expressions of opinions, and evaluation than other genres (Hardy & Friginal, 2016; see also Biber et al., 1998). Hardy and Friginal (2016) note that in response papers, "writers are expected to convey to the readers their own interpretations and evaluations of source material and activity" (p. 123), though these findings are not consistent across all studies. Nesi and Gardner's (2012) examination of the British Academic Written English (BAWE) corpus, for instance, found that the short response paper in philosophy may support students in connecting several concepts in an explanatory framework rather than an explicitly argumentative one (p. 62). It may be the case, then, that the response paper shares more linguistic characteristics with explanation than with argumentation—with fewer contrastive markers, for example (Aull, 2019)—depending on the context and framing of the assignment.

Writing prompts, specifically, are not always available in student corpora, but studies examining high-stakes writing assessment have found that the language and framing of the prompt also carry some implications for

students' enactments of stance. Taking up Beck and Jeffery's (2007) concern with misalignment between expected genre and language of the prompt, Aull (2015) concluded that the writing of first-year university students was more likely to reflect the writing patterns of experts when prompts specifically directed students toward evidential, source-based writing. There is some evidence, too, that requests for evaluation and judgment in writing prompts may encourage students to respond in ways that are more interactional and affective (Brown & Aull, 2017; Rothery & Stenglin, 2000), modes that tend to be less effective in typical assessment genres. In general, this research has concluded that aligning the language of the prompt with the social expectations of the context it represents is critical for assessment tasks because the prompt may be the only aspect of context the student experiences (Beck & Jeffery, 2007).

But the question of how well or poorly a prompt signals a set of writing expectations is more complex within the context of a classroom, where the writing task is situated in a wider nexus of teacher talk and feedback, overlapping instructional goals, and student discourse (Beck, 2006; Soliday, 2011). The writing task may begin with the prompt (Bartholomae, 1983; Bawarshi, 2003), but students' understandings of how to proceed are located in the interaction between the assignment sheet and instruction (Soliday, 2011). It is less clear, then, to what extent more open-ended prompts might guide students' linguistic responses to source texts in nontesting contexts, particularly among secondary students who have had little exposure to the genre and discourse expectations of higher education. Student writing in this space may be more discursive or idiosyncratic than in more formal genre settings, or it may be substantially more variable than in formalized essays. As I discuss in the following section, matters of individual variation—both within and across writers—have not been fully examined in the extant literature.

Methodological Challenges of Nested Corpora

As Aull (2020) has noted, the methods typically used in corpus linguistics yield two potentially complementary views of stance: a distant view that "privileges textual patterns over textual outliers" and a close, "context-rich" view that supports pedagogical inference (p. 27). Nested or multilevel corpora—with multiple texts written by individual writers—present some statistical challenges to the more common quantitative methods in corpus linguistics. They also have some unique affordances for examining variation within and between individual writers.

Specifically, multilevel corpora feature textual data that may be highly clustered, or correlated, with other texts produced by the same person (Gries,

2015a). Gries (2015b) has argued that this covariance must be accounted for analytically, or the "idiosyncrasies of particular speakers" might be attributed incorrectly to the predictors of interest (p. 97). The nested structure also carries some implications for contextual analysis because some aspects of the context may have bearing on the writer as a whole and all of their work (e.g., their discipline of expertise, their personal background), while other aspects of context will be relevant only to particular texts (e.g., the specifics of the writing prompt or expected genre). In both cases, multilevel modeling can appropriately account for these patterns of variation in linguistic data (Henry & Muthén, 2010; Vermunt, 2008).

While increasingly common in second language research using learner corpora (e.g., Lee et al., 2019), multilevel modeling remains rare in studies of stance (see Dobbs, 2014, for an exception). The approach has the potential to offer an important and underexplored perspective on stance, one that permits some characterization of overarching patterns while also modeling variation within and between individual writers.

Current Study and Research Questions

The current study takes up these substantive and methodological questions by examining a corpus of informal response papers written in a highly regarded college access seminar. The Freedom and Citizenship program (F&C) at Columbia University serves low-income and underrepresented seniors from high schools across New York City as they prepare to apply for college. The study therefore offers a look at a small but diverse sample of student writers at a critical moment in their transition to college-level writing.

In substance and structure, as well, this corpus offers some unique perspectives. Faculty in the F&C program used an informal response assignment that has become widespread in university classrooms (Melzer, 2014) but that, as discussed, has not yet been a particular focus of composition or corpus research. Additionally, although the size of the corpus in number of tokens is consistent with other classroom-based studies (e.g., Dobbs, 2014; Lancaster, 2016), the nested structure poses precisely the statistical challenges—and opportunities for contextual analysis—outlined in the previous section.

I therefore take an analytic approach that, to my knowledge, has not been used in published corpus work: multilevel latent profile analysis (MLPA; Henry & Muthén, 2010). Latent variable modeling has a long history in corpus linguistics in the form of multidimensional analysis and factor analysis, but this work has focused almost exclusively on describing the underlying language characteristics of large classes of texts (Biber, 2006; Hardy &

Friginal, 2016; Hardy & Römer, 2013; Nesi & Gardner, 2012). By contrast, this study represents a text- and person-centered, rather than variable-centered, approach. As is true for all latent variable analysis, researchers use MLPA to identify underlying, unobserved groups that might account for patterns in the observed variables. The units of analysis in this particular study are the multiple texts attributed to each individual student, with the linguistic features serving as the observed variables. The MLPA can thus be used to model whether there are groups of texts with fundamentally different linguistic configurations than other texts, and simultaneously whether there are students whose texts are fundamentally different from those of other students. This multilevel approach also means that we can test the contribution of various aspects of context on individual texts or on the writer as a whole, as appropriate.

This form of person-centered analysis has the potential to support our understanding of how students take up the writing expectations at a linguistic level, including whether they do so in consistent ways across assignments and whether features of the instructional environment explain any differences in stance from text to text. The following research questions guided the study:

1. Are there distinct profiles of stance markers in student texts? Do students differ in the kinds of stance markers they use?
2. Does prompt type predict the configuration of linguistic features in student texts? Does the broader classroom context predict how individual students use these stance markers?

Method

Setting and Participants

Setting. This study draws on data from the 4-week Freedom & Citizenship (F&C) college access program, a partnership between Columbia University's community outreach organization and its Center for American Studies. In alignment with the federal guidelines for college outreach organizations, F&C recruits primarily first-generation and low-income students from the surrounding city. The program aims to support students' transitions from high school into college with a residential experience, application support, and a rigorous reading and writing curriculum. The data were collected in the summer of 2017 as part of a mixed methods case study on the program (Black, 2020). All data collection complied with requirements for human subjects research under the auspices of New York University's Institutional Review Board. Although a full account of the qualitative case findings is

beyond the scope of this article, interpretations for this study draw on a wide range of data about the instructional context of the F&C program, including interviews with the program leaders, faculty members, undergraduate teaching assistants, and students; classroom field notes; and comments on student papers.

The F&C reading curriculum is a condensed introduction to central concepts in political philosophy, including various definitions of individual freedom, the relationship between the state and the individual, and the responsibilities of citizenship. Each day students read and respond to one or more excerpts from canonical Western texts, beginning with Plato and concluding with James Baldwin. Although the curriculum is traditionally academic, the program leaders and faculty are most focused on using the texts to empower students as critical thinkers and engaged citizens. The program discourse surrounding the curriculum is thus oriented to applying the ideas to contemporary problems of society and governance, and to encouraging students to engage in critical and transformative ways with the material.

In 2017, the year when these data were collected, the residential component of the program meant that the curriculum was situated in a highly social community and scaffolded by an intensive schedule of activities. Each of the 27 students who volunteered for the research was enrolled in one of three seminars during the program, spending 2 hours in a morning seminar led by a faculty member, followed by a writing instruction session with a teaching assistant, library time devoted to reading the assigned text, and a guided study hall in the evening with an undergraduate mentor. Students typically completed their writing assignments during their evening tutoring session, using that time to pose additional questions about the texts or to request feedback from their mentor. The majority of students printed their completed response papers after their tutoring sessions, but some chose to continue working on them in the evening in their dorms or, occasionally, in the morning after sleeping on the ideas. All papers were submitted to the faculty member prior to the seminar.

The tone and content of the informal responses varied substantially by seminar, student, and assignment, in part because the three faculty members had strikingly different expectations for the informal response papers. One faculty member pressed students to develop incisive questions and clear definitions (Seminar 1), another requested that students make evaluative arguments about the readings (Seminar 2), and a third encouraged students to respond at a personal level in whatever way they felt moved (Seminar 3). The undergraduate TAs often provided a prompt to get students started on their writing but also emphasized that the prompt was optional and open for adjustment. In many cases, the prompts were intended to guide students' reading as

much as their writing and to draw attention to particular concepts from seminar discussion. They were not, for that reason, always explicit about the rhetorical purpose of the response. The students were generally expected to reference one or more course texts in their responses, including at least one from that particular night's reading list, but they had broad latitude in what texts they chose to bring together. Use of personal evidence was generally encouraged, as were applications of the textual content to contemporary issues. In this way, the faculty saw the informal response as an assignment that would support the range of objectives they had for students in the program: broader capacity for disciplinary reading and writing, an expanded commitment to civic engagement, and a robust identity as a college-bound student.

Participants. Fourteen students, a little more than half the sample, identified themselves as African American/Black, four as Asian/Pacific Islander (three South Asian, one East Asian, one Filipina), four as Latinx/Hispanic, and two as Afro-Caribbean/Dominican. One student in the sample identified himself as Caucasian/White, and one student identified as Mixed. Only seven young men volunteered to participate in the research (26% of the sample) though this proportion was in line with the percentage of men in the program as a whole (12 of 45, or approximately 27%). Fifteen students spoke exclusively English at home. Five spoke Spanish or Spanish and English, three spoke Bengali, two spoke Mande languages, one spoke Mandarin, and one Arabic. Only two of the students were still receiving service as English learners at the time of this study. Seventeen of the students, approximately 63%, would be the first generation in their immediate families to attend and complete college.

Measures

Corpus. The corpus comprises 338 short, informal responses—12–13 texts per student with an average of 375 words per text. I used Anthony's (2018) concordance program AntConc to precisely replicate the word lists used in recent corpus research (Aull, 2015; Aull & Lancaster, 2014) on the following types of stance devices:

- Hedges, including approximative (e.g., *generally*, *somewhat*, *perhaps*), evidential (e.g., *suggests*, *points to*), and modal hedges (e.g., *may*, *might*, *could*);
- Boosters, including approximative (e.g., *definitely*, *certainly*, *surely*), evidential (e.g., *proves*, *demonstrates*, *knows*), and modal boosters (e.g., *should*, *ought*, *must*);

- Reformulation code glosses: words and phrases that mark restatements of previous information or reframe ideas in other terms (e.g., *in other words*, *in short*, *defined as*);
- Adversative connectors: including concessive/counter-expectancy (e.g., *nevertheless*, *on the other hand*) and contrastive markers (e.g., *however*, *but*, *rather*).

I manually adjusted the concordance frequencies by removing instances of words and phrases that were used to accomplish other functions—negated boosters, for instance, and the correlative conjunction *not only, but also* that typically boosts the proposition in the second clause (Charles, 2009). I then normalized each of the frequency counts of the four linguistic categories per 1,000 words of text and centered these at their grand means. These normalized frequencies then became the observed indicators in the series of latent profile analyses.

Prompts. In line with other research that has classified writing assignments by genre or focus (Aull, 2019; Beck & Jeffery, 2007; Nesi & Gardner, 2018), I categorized the 78 writing prompts into two large macrogenres or genre families:

- Explanation/Analysis, which included prompts requesting close reading, rhetorical analysis, or comparison of ideas *as they were presented in the text*;
- Argument/Evaluation, which included prompts asking students to agree or disagree, take a position, or evaluate a key idea *from their own perspective*.

Table 1 provides a selection of prompts from the program and their classification for the purposes of this study. The prompts differed in the extent to which they explicitly signaled the requested genre. Prompt (1), for instance, makes an explicit request for "explanation" while prompt (2) signals this expectation by directing students to focus on the ideas as they were presented by Douglass in the text. Similarly, prompt (3) specifically asks the student to agree or disagree with a proposition in Plato's *Apology* while prompts (4) and (5) signal an expectation for argument by requesting the student's own perspective on social organization. Many of the prompts took the form of explanatory close readings or comparisons, with just 23 of the 78 prompts, or about 30%, classified as Argument/Evaluation.

Table 1. Selected Examples of Coding Decisions for Writing Prompts.

Prompt	Content	Classification
1.	Select 1–3 sentences from one of today's texts. Write a 1-page reflection that 1) includes an explanation of what these sentences mean and how they fit into the larger context of the work, and 2) explains why these sentences are important, both to you and/or the work as a whole.	Explanation
2.	In what ways does Douglass admire the *Declaration of Independence* and the ideas behind it? What does the 4th of July reveal about America, according to Douglass?	Explanation
3.	Socrates states, "A man who really fights for justice must lead a private, not a public, life if he is to survive for even a short time" (34). Why? Do you agree with Socrates?	Argument
4.	Are human beings naturally political (do they want to form communities naturally)? Answer with reference to Aristotle, Hobbes, and Locke.	Argument
5.	What is the purpose/goal of civil disobedience? What obligation does the younger generation have towards issues of social justice?	Argument

Seminar membership. I also tested the students' assigned seminars as additional predictors in the model to determine whether there were instructional effects associated with the kind of texts that students produced. Membership in each of the three seminars was accounted for with 0/1 indicator variables.

Multilevel Latent Profile Analysis

I conducted all profile analyses in MPlus (version 8) using full information maximum likelihood estimation with robust standard errors to manage the nonnormality and nesting of the data (Muthén & Muthén, 2005). For the multilevel LPA, I used the nonparametric approach (Asparouhov & Muthén, 2008; Vermunt, 2008), fitting a latent class model to the Level 1 units (texts) and a second latent class model to the Level 2 units (students). Single-level and multilevel LPA proceed in much the same way: a fixed number of classes is fit to the data, and the solution is then assessed for its parsimony, separation of classes, significance of the class-level means, interpretability, and conformity to theory (Henry & Muthén, 2010; Peel & McLachlan, 2000). In single-level latent profile analysis, decisions about optimal class structure are based

largely on fit indices—often the Bayesian information criterion (BIC)—with the goal of choosing the most parsimonious model (lowest BIC). Decisions about whether to use a multilevel approach rely more heavily on the statistical requirements of the data structure (Bliese et al., 2017; Van Eck et al., 2017) and significant differences in the class-level means (Henry & Muthén, 2010). The structure of this particular corpus of papers strongly recommendeds a multilevel approach, absent which student-level differences in language use might be inappropriately modeled. In line with other studies employing MLPA (Henry & Muthén, 2010; see also Fagginger Auer et al., 2016; Mäkikangas et al., 2018; Van Eck et al., 2017), I first tested single-level solutions and identified an optimal number of groupings of texts. I then tested multilevel specifications to examine how these text profiles differed by groups of students. In both stages of the process, I prioritized BIC in combination with the significance of the latent profile means to choose the appropriate number of groupings.

After identifying a preferred model, I tested the contribution of prompt type on Level 1 profiles (texts) and seminar membership on Level 2 classes (students) using the one-step approach (Henry & Muthén, 2010; Muthén & Muthén, 2005). Finally, I chose four texts whose linguistic profiles were close to the mean profiles of each of the groups to examine qualitatively. For clarity's sake, I refer throughout this article to the Level 1 groupings as *profiles of texts*, and Level 2 groupings as *classes of students*.

Results

Descriptive Statistics

Table 2 displays three sets of statistics: basic statistics and frequencies for the full corpus, normalized frequencies of each linguistic feature per 1,000 words, and mean frequencies and standard deviations across all texts. Reformulations were relatively scarce in the corpus, with the average text containing just 1.4 of these markers per 1,000 words, and a large proportion (60%) of texts displaying no reformulations at all. When reformulations were used (i.e., excluding zeros from the sample), their mean frequency was 3.7 per 1,000 words. Still, both of these statistics are higher than those reported by Aull and Lancaster (2014), who found only 0.6 reformulations per 1,000 words in their study of first-year corpora. Similarly, the ratio of boosters to hedges in the F&C corpus was not as extreme as that in Aull and Lancaster (2014), with rates closer to 1.4:1. Adversative connectors appeared at rates of about 9.8 per 1,000 words, more than twice the frequency reported in Aull and Lancaster (2014). Whether these differences are related to the density of

Table 2. Descriptive Statistics for the F&C Corpus.

	Full Corpus	Per 1,000 Words	Text-Level Mean (SD)
Basic statistics			
Number of students	27		
Texts	338		
Texts per student	12–13		
Tokens	126,834		375 (119)
Linguistic features			
Hedges	1553	12.24	4.59 (3.07)
Boosters	2140	16.87	6.33 (3.77)
Reformulations	187	1.47	0.55 (0.85)
Adversative connectors	1242	9.79	3.67 (2.54)

Note. F&C = Freedom & Citizenship college access program.

stance features in philosophy and political theory writing (Lancaster, 2016; Yoon & Römer, 2020)—even, perhaps, in this introduction to the discipline—or whether the differences are functions of the informal response task is less clear. All four types of stance markers, however, showed high levels of variation, as is evident in the standard deviations relative to the text-level means.

Class Enumeration

In line with other work relying on multilevel latent profile analysis (Henry & Muthén, 2010; see also Mäkikangas et al., 2018; Van Eck et al., 2017 for more recent applications of this process), I first tested single-level solutions (texts only) for one through five profiles, examining fit statistics and entropy, or separation, as well as likelihood ratio tests that indicate the significance of improvement from one model to the next (Table 3). Entropy in all cases was high, indicating good separation between the profiles, and the bootstrapped likelihood ratio test indicated that each successive model explained a significant additional amount of variation over the previous one. Substantial variation in the text profiles meant that the fit indices continued to decrease until the model failed with five profiles. Under these circumstances, the recommendation is to identify the optimal Level 1 model by examining an elbow plot (Figure 1) and choosing the largest number of profiles that provide substantial improvements over the previous model (Morin & Marsh, 2015; Spurk et al., 2020). Figure 1 displays the elbow plot for the single-level models, with the three-profile solution showing a slightly larger decrease in the fit

Table 3. Fit Statistics for Class Enumeration.

Student classes	Text profiles	Parameters	LL	BIC	E	BLRT	Warnings
1 (no multilevel effect)	1	8	−4211.28	8469.14	1		
	2	13	−4163.29	8402.27	0.833	0.00	
	3	18	−4069.65	8244.12	0.974	0.00	
	4	23	−4029.34	8192.6	0.961	0.00	
	5	28	−3991.80	8146.64	0.969	0.00	Too many parameters
2	1	13	−4178.75	8366.51	0.977		
	2	23	−4124.95	8265.85	0.907		
	3	33	−4026.308	8075.49	0.977		Too many parameters
3	1	18	−4155.89	8331.55	0.987		
	2	33	−4093.782	8223.82	0.934		Too many parameters

Note. For the multilevel models, calculations for BIC rely on level-2 groups for sample size, per Lukočienė & Vermunt (2009). BLRT is not available in multilevel contexts. BIC = Bayesian information criterion; BLRT = bootstrapped likelihood ratio test; E = entropy; LL = log likelihood.

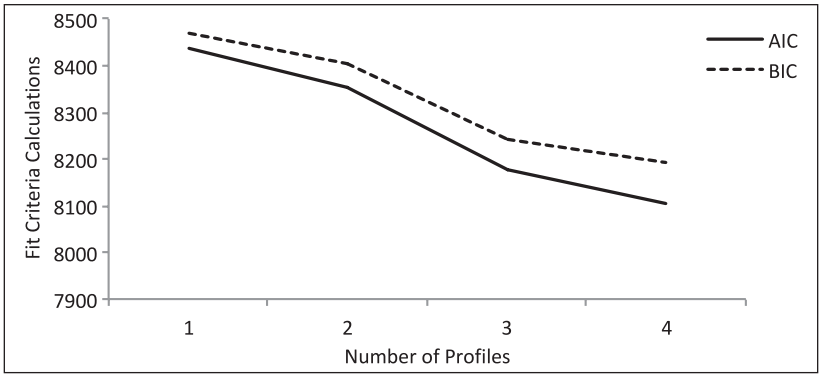

Figure 1. Elbow plot for single-level models.

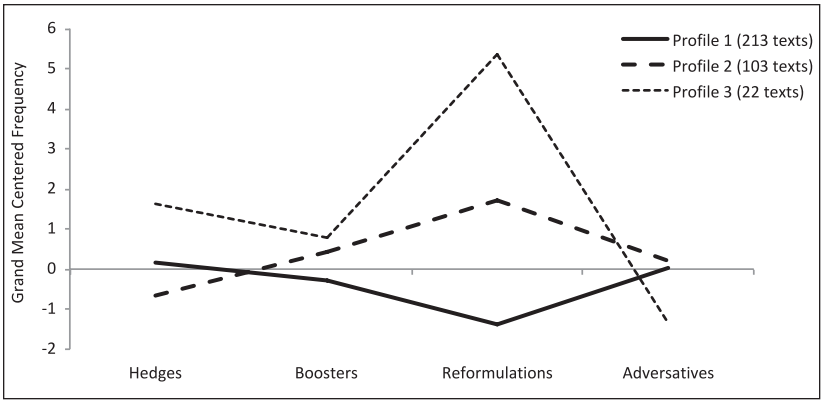

Figure 2. Class enumeration: Solution for best-fitting single-level model clustered by texts only.

criteria from the prior model before the slope of the lines levels off somewhat.

I then ran multilevel models for two classes of students, with one-, two-, and three-profile solutions, as well as a three-class model with one and two profiles. Estimation warnings for the larger models indicated that the sample size, and particularly the number of students, could not support so many parameters. I therefore chose the stable multilevel model with the lowest BIC (the two-class, two-profile solution), per Van Eck et al. (2017), and examined it in relation to the optimal single-level solution to consider what multilevel modeling added to the solution.

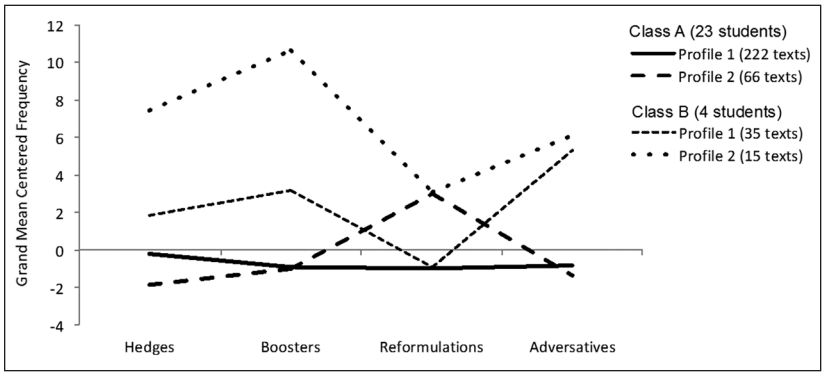

Figure 3. Class enumeration: Solution for best-fitting multilevel model clustered by students and texts.

The optimal single-level model (Figure 2: BIC = 8192.6, E = 0.974) revealed three profiles of linguistic markers in the texts: a large profile (213 texts) with average frequencies of boosters, hedges, and adversatives and below-average frequencies of reformulations; a midsize profile (103 texts) with somewhat higher frequencies of reformulations but average frequencies of the other three markers; and a much smaller profile (22 texts) with very high frequencies of reformulations and somewhat higher than average hedges. This solution suggests that the texts are distinguished from one another largely by the number of reformulations, and to a lesser extent by hedges. The two-class, two-profile solution (Figure 3: BIC = 8265.85, E = 0.907) separated students into a very large class (23 students) with two near-average text profiles distinguished solely by their number of reformulations, and a much smaller class (4 students) with congruent text profiles that displayed higher frequencies of hedges, boosters, and adversatives than the larger class of students. This multilevel solution seemed to capture an important student-level difference that was not evident in the texts-only model: namely, that some students produced texts with higher frequencies of markers associated with persuasive and argumentative writing. The two-class, two-profile solution also had significant differences in the class-level and profile-level means. In short, although it had slightly higher BIC than the best single-level solution, the multilevel model provided additional insight on the data in ways that accorded with existing theory about stance in academic writing, in addition to aligning with the fundamental structure of the data. I therefore focus on the two-class, two-profile solution for the remainder of the analysis.

Table 4. Estimates for Final Model.

	Estimate	*SE*	*p* Value	CI, *LL*	CI, *UL*
Explainers–Typical texts					
Hedges	−0.39	0.83	0.639	−2.00	1.23
Boosters	−1.00	0.82	0.221	−2.61	0.60
Reformulations	−0.99	0.27	0.000	−1.52	−0.45
Adversatives	−1.00	0.43	0.021	−1.85	−0.15
Explainers–Outlier texts					
Hedges	−1.94	1.00	0.053	−3.91	0.03
Boosters	−0.96	1.73	0.579	−4.36	2.44
Reformulations	3.09	0.66	0.000	1.80	4.38
Adversatives	−1.42	0.84	0.092	−3.06	0.23
Evaluators–Typical texts					
Hedges	1.76	1.26	0.161	−0.75	4.28
Boosters	3.16	1.03	0.002	1.10	5.21
Reformulations	−1.02	0.36	0.005	−1.75	−0.30
Adversatives	5.25	0.90	0	3.46	7.04
Evaluators–Outlier texts					
Hedges	7.16	1.60	0.000	4.01	10.30
Boosters	9.04	3.41	0.008	2.36	15.72
Reformulations	2.77	0.73	0.000	1.34	4.20
Adversatives	5.73	1.61	0.000	2.57	8.88
Latent variables					
Within—intercept	1.17	0.39	0.002	−0.41	1.93
Between—intercept	−2.83	1.03	0.006	−3.77	−0.81
Class effect on profile	−2.05	0.97	0.034	−3.05	−0.16
Seminar effect on class	2.60	1.22	0.033	1.85	4.99

Note. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

Predictor Analysis

I then used the one-step method (Muthén & Muthén, 2005) to test whether prompt type had any association with the text profiles and whether seminar membership had any association with the assigned student-level class. Prompt type was nonsignificant in predicting the text profile, indicating that the different configurations of linguistic features were not readily explained by differences in the prompts. By contrast, membership in Seminar 2 was a significant predictor of assignment in Class B, the class of students using more adversatives, hedges, and boosters. Including this predictor in the model changed the composition of this class by adding one student but did not

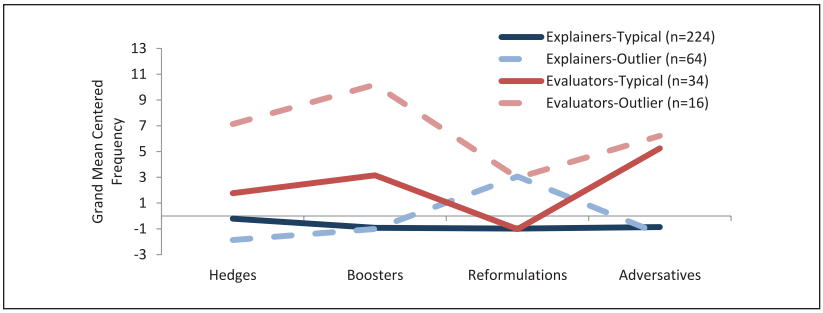

Figure 4. Mean profiles for Explainers and Evaluators–Typical and Outlier texts.

materially affect the estimates or fit statistics. Estimates for the final model are displayed in Table 4 and the graphic solution in Figure 4.

Description of the Final Class and Profile Solution

The final two-class, two-profile model (Figure 4) separated students into two uneven groups, one accounting for 22 of the students and the other for just 5. Compared with the larger class of students, the smaller class tended to use more hedges, boosters, and adversative connectors. Because these are typical linguistic markers of argument and evaluation in academic writing, I called this smaller group the *Evaluators*. The larger group of students, who used these three linguistic features but not consistently or together, I called the *Explainers.* Within each of these classes were two profiles of texts distinguished by frequency of reformulations, and these will be referred to as *Typical Texts* (infrequent use of reformulations) and *Outlier Texts* (more frequent use of reformulations). Figures 5 and 6 provide more detailed graphical summaries of the solution set with confidence intervals.

The *Typical Texts* for the *Explainers* class, accounting for 214 of the 339 texts, displayed below-average frequencies for all four linguistic features, with reformulations and adversative connectors significantly below average. Their *Outlier Texts* (63 texts) were similar in all respects to the *Typical Texts* except for significantly more frequent use of reformulations (Figure 5). In short, though the *Explainers* tended to produce texts that were generally unmarked by stance features supporting formal academic argumentation, about 19% of their texts did more clarifying, refining, and rephrasing through the use of reformulation markers.

In their typical texts, the *Evaluator* class of students is differentiated from the *Explainer* class in their use of a wider range and higher frequency of all stance features, but particularly the adversative connectors that help

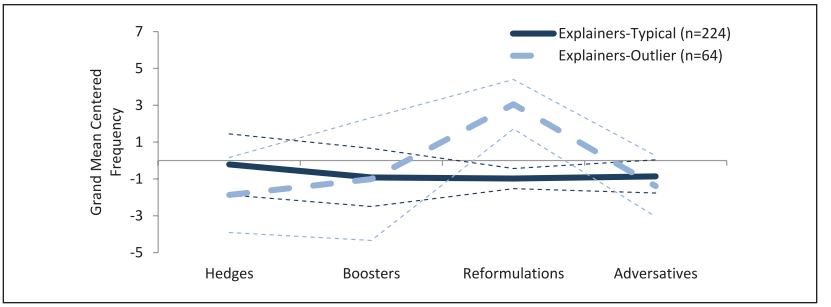

Figure 5. Means and confidence intervals for Explainers–Typical and Outlier Texts.

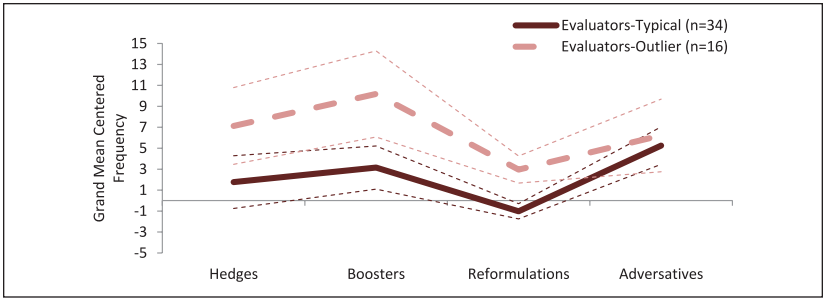

Figure 6. Means and confidence intervals for Evaluators–Typical and Outlier Texts.

to distinguish one perspective from another, and the hedges that help to qualify propositions (Figure 6). The *Outlier Text* profile for *Evaluators* differed only in level rather than shape, with reformulations significantly higher than in *Typical Texts*. Within both of the classes, however, there were large deviations from the mean, as well as large variations in the extent to which individual students produced texts in each of the profiles. Very few students produced only a single kind of text (i.e., all *Typical* or all *Outlier*). And despite the scarcity of reformulations in the corpus as a whole, only three students used no reformulations in any of their texts.

Textual Examples of Student Classes and Text Profiles

In order to understand the textual contexts for these linguistic markers, I then selected excerpts from texts that most resembled the mean profiles for their

assigned class. For clarity and ease of comparison, I report frequencies of linguistic markers per 1,000 words rather than the centered measures used in the MLPA.

In Excerpt 1, from the *Explainers–Typical Text*s group, the student structures her response to the *Crito* around a pair of narratives—a description of Socrates's embrace of execution and a memory of her aunt's death from cancer. Because the text is mostly narrative summary, markers of certainty (*know*, *known*) pertain to what history can infer about Socrates as a character. The two contrastive markers, *however* and *yet*, both make a distinction between a life that is not yet complete and a death that improves the lives of others. The interpretation and the linguistic markers thus construe the meaning of the *Crito* as a character study, rather than as an exploration of legal concepts, with, presumably, fewer opportunities to draw nuanced linguistic distinctions between the ideas.

Excerpt 1: Explainers–Typical Text (385 words)

Hedges: 10.4 Boosters: 15.5 REFORMULATIONS: 0 ***Adversatives***: 10.4

> Socrates knew not dying would create a burden for his family and friends who will live with Athens judging them for being the "laughingstock." This quote brings out the altruistic characteristic of Socrates. Not only does he think about himself and his unknown afterlife, but others will be still living after he gone.
>
> In addition, Socrates' reaction to his death sentence **can** be related to my own life. For example, my aunt was diagnosed with gastric cancer in 2010. . . During her last days she told her children to stay strong and become the best you **can** be in whatever you choose to do. In connection to both scenarios both people have left behind people who loved them dearly because of the pain they themselves were going through and the idea creating more pain for a loved one by living a life in sickness.
>
> In all things considered, without Socrates dying and not completing his mission from the gods, he would not be who he is known to be now in the present. Still today many people know Socrates for being a great Greek philosopher *yet*, his unfortunate death was led because of the judgement of others. Sadly, not everyone gets to consummate everything they had hope for ***however***, **sometimes** sacrifices are made so that other people's lives will not be as astringent as theirs. (Sarah, Seminar 2)

By contrast, Excerpt 2, from the *Explainers–Outlier Texts* group, explores the conceptual challenges of Aristotle's notion of natural slavery. While similar to Excerpt 1 in its use of hedges and boosters, Excerpt 2 features a higher

incidence of reformulation markers and contrastive markers, which are used to manipulate the more abstract, conceptual material. The writer uses the boosters *simply* and *not only, but also* to highlight Aristotle's commitment to the concept of natural slavery. She responds to each of the quotes by reinterpreting Aristotle's argument, using a hedging evidential (*implies*) in the first case, and a reformulation (*in other words*) in the second. In each case, she frames her objection in response to reformulated versions of Aristotle's quotes, which allows her to introduce two perspectives that Aristotle does not himself take—the inhumanity of slavery and the illegitimacy of any government built on slavery.

Excerpt 2: Explainers–Outlier Text (421 words)

Hedges: 9.5 Boosters: 16.6 REFORMULATIONS: 4.8 ***Adversatives***: 11.9

> According to Aristotle, "if something is capable of rational foresight, it is a natural ruler and master, whereas whatever can use its body to labor is ruled and is a natural slave" (Book l p. 2). Basically, what Aristotle is saying is that your side in the spectrum—slave or master—depends on your physical attributes. I am not too fond of this thinking from Aristotle. In fact, I don't even think slavery should have existed at all.
>
> Natural slavery diminishes all the chances for a person to find his or her inner calling or what they want to become. Instead of having the ability to make something of their lives, their fate would have already been chosen for them. Despite these consequences of natural slavery, in Aristotle's mind, having rulers and being ruled are simply requisite. He said, For ruling and being ruled are not only necessary, they are also beneficial. . . (Book 1 p. 7). This phrase **implies** that the people who have the authority to rule are not the only ones who are benefiting, ***but rather*** those who are being ruled as well. Thus, leading me to the question: what benefits do slaves receive for being slaves? In addition, Aristotle's view on natural slavery **primarily** shaped his political philosophy. He expressed, "So a piece of property is a tool for maintaining life" (Book 1 p. 6) with the "piece of property" being the slaves. IN OTHER WORDS, Aristotle believes that slaves are necessary to a government. (Bella, Seminar 3)

Excerpt 3, below, offers an interesting contrast to Excerpt 1 as it also focuses on Socrates as a character within a literary text. Here, however, the student offers a lengthy examination of the meaning of Socrates's comments in the *Crito* and the "Death Scene," opening with a conventional introduction and interpretative thesis about his constancy, even as death approaches. The response functions as an explication rather than a narrative summary, and it is distinguished from Excerpt 1 in both its length and its linguistic density.

The text contains one reformulation marker (*i.e.*) but is dominated by hedges and boosters that extend and emphasize the validity of the interpretation while contrastive features build a counterexpectancy condition (fear and inconsistency approaching death).

Excerpt 3: Evaluators–Typical Text (586 words)

Hedges: 15.2 Boosters: 21.2 REFORMULATIONS: 1.5 ***Adversatives***: 16.7

Crito and the Death scene from Phaedo allow us to examine Socrates, as well as those closest to him, in his final moments. Socrates doesn't take the expected path in the moments approaching his death and in death itself, ***but rather***, he keeps his usual attitude - uncommon of a man expecting death. The three quotes chosen give us a view into the Socrates we are accustomed to seeing ***but*** also allows us to pose the question as to whether he is genuine in his consistency or it is really just a facade for his true feelings.

What is **most** common of a man approaching his death is a sense of regret due to the wrongs committed in one's life. Socrates takes a different approach altogether and **almost** praises himself, saying that he trusts ". . .[the] reflection [that] **seems** best to me." In saying this he **seems** to allude to the fact that his reflection holds more weight than any other opinion that **could** be posed to him.. . . The third quote, similarly to the previous two, allows a look into Socrates' mind and to examine his mindset as he approaches death: "I do not expect any benefit from drinking the poison a little later, except to become ridiculous in my own eyes for clinging to life" (117a). . . [T]he perspective from which he speaks does not change, I.E. his mindset is consistent throughout. This is apparent in the third quote as his philosophy interjects with who he is as a man and, ***though*** he may not be doing so intentionally, he creates complexities from the simplest of statements—which is why a statement as simple as, "I do not wish to prolong my death" becomes an idea that So rates must delve into, provide context and explain multiple times. The point ***though*** is not that Socrates is doing this, ***but*** that he consistently does this, even in the moments before his death.

To say that Socrates, or any human being, is simple is an ill founded idea, ***but*** Socrates remains simple in this one way: his outlook on life and mindset never change, no matter the circumstance. (Ulysses, Seminar 2)

Excerpt 4, from the *Evaluators–Outlier Texts* group, is the densest of the texts examined here, with high frequencies of all four linguistic features. It also attempts a complex argumentative structure—identifying an inconsistency in Dewey's conclusions about socialist economy by reframing his earlier statements about change. In this case, the student uses boosters (*evident*, *never*) to

emphasize Dewey's commitment to never-ending cycles of change, and a reformulation (*more specifically*) plus hedging evidential (*suggests*) to refocus this idea on the concept of liberty, specifically. He then uses contrastive connectors (*while*, *but*) to exemplify the shifts in thinking that accompany social progress, and a reformulation (*to be more specific*) to apply that same contrastive structure to the new discontent under a socialist arrangement. This is an approach to philosophical argument that looks similar to what we might see in more expert writing—reformulation that can then be used as the basis for further argument.

Excerpt 4: Evaluators–Outlier Text (315 words)

Hedges: 10.5 Boosters: 14.0 REFORMULATIONS: 3.5 ***Adversatives***: 17.5

One aspect of life that habitually occurs in every era is the strive for progress. Previously women were fighting to simply be recognized as citizens, ***but*** today they are battling for equal pay. This progressive change of garnering rights **may seem** grand enough to make liberalists content, ***but*** their desire to have perfect equality shows that many will never be satisfied.

Overall, in John Dewey's Meaning and Office of Liberalism, it is evident that the process of acquiring liberation is never ending because there will constantly be a group of aggrieved citizens. MORE SPECIFICALLY this idea is eloquently expressed when Dewey states, change is also with us and demands the constant remaking of old habits and old ways of thinking, which **suggests** that there is not one definition of liberty. ***While*** a slave **can** temporarily want freedom, once they obtain this right they will then desire to be viewed as equal to white men. Therefore, this shows that one **may** never be content since society has and **might** tease the oppressed [with] freedom, ***but*** then give them a limited taste of this trait. Overall, this example negates Dewey's final argument that socialized economy is the means of free individual development as the end because if a socialist economy is acquired, then the elite will become the new discontent. TO BE MORE SPECIFIC, the rich will be angered that they worked hard to gain their wealth, ***but*** because of the ideals of a few, they are now equal to everyone else. ***Although*** they are not being oppressed, this **implies** that oppression is subjective: what is unjust to one, will be just to another. Ultimately, ***while*** this is an extreme example, this reinforces that a strive for liberation will never end since there is no definition of what liberty means. (Dwayne, Seminar 2)

Both of the *Outlier Text* excerpts attempt to explicate conceptual matter as part of a larger argument. They also disagree with the ideas they take up, and the reformulations appear to allow both writers to redefine conceptual boundaries, extending them in ways that support their own perspectives or that reveal contradictions. Brown and Aull (2017) noted a similar characteristic in

higher-scoring essays from an AP English exam—that they tended to focus on specific, abstract concepts rather than human actors (p. 394). In short, these novice writers, particularly those deploying reformulations in combination with other linguistic markers, seem to be attempting the same task as more expert writers—that is, constructing a linguistic stance that "projects precision and awareness of complexity" (Aull & Lancaster, 2014, p. 173) through typified language of academic discourse (Soliday, 2011).

What is striking in all four excerpts, however, is the blending of material from the texts and the students' own perspectives on contemporary social life. This phenomenon is most explicit in the connection Sarah (Excerpt 1) makes between Socrates's death and that of a beloved aunt, but it is also present in the students' confident articulations of their own perspectives: in Bella's understated comment in Excerpt 2 that she is "not too fond" of Aristotle's thinking about natural slavery; in Ulysses's wry note in Excerpt 3 that Socrates must "delve into, provide context and explain multiple times" even the simplest of statements; and in Dwayne's use of the progressive march of women's rights and potential responses to a socialized economy as evidence in his larger examination of Dewey. In some cases, the students are also using linguistic stance markers to frame and constrain these responses to the text, as when Bella boosts her dislike for the concept of slavery (*in fact*) or when Ulysses uses adversatives (*though*, *but*) to clarify the aspect of Socrates's behavior that he finds noteworthy. Whether these moments are features of the informal response or whether they are early examples of the engaged stance of political philosophy is less clear, but these examples do seem to suggest that when invited to do so, students will use the markers of linguistic stance to question, critique, and reimagine traditional academic texts for their contemporary lives.

Discussion

This study used a multilevel latent profile analysis (MLPA) to examine variation of linguistic stance in informal response writing in a college access seminar. The approach differs from recent literature on stance in that it is person-centered, rather than variable-centered, and is able to account for differences among students in addition to differences among texts. The analysis identified two groups of students, differentiated largely by the frequency of adversative connectors and hedges in their papers, with a large group of 22 out of 27 students using significantly fewer of these linguistic markers, particularly together. Students in both groups wrote two distinct types of texts, one that included reformulation markers and one that largely did not. I also found that membership in one particular seminar seemed to predict

likelihood of using more argumentative stance features, and that there remained wide variation within and across students even after accounting for these broad differences. Although the relatively small sample size and unusual setting limit to some extent the generalizability of the findings to other populations of writers, this study does have some important methodological and substantive implications for research on student writing, in general, and in the transition to college in particular.

Implications for Research on Writing Development and Instruction

The findings of the MLPA point to four important opportunities to extend current work on academic stance in student writing. From a substantive perspective, this study raises interesting questions about how informal response is taken up across the disciplines and the instructional conditions under which such assignments might support the development of disciplinary writing. This analysis seems to suggest that the informal response may function either as a site of early disciplinary writing or as a site of more personal reflection, depending on instructional framing.

Among students, the distinguishing linguistic characteristics in these informal responses were hedges and adversative connectors. These are features that corpus studies have identified with argumentative writing in the transition to college. Indeed, the excerpts from the *Evaluators* class seem to support the notion that this small group of students responded to the writing assignment with an argumentative stance that mirrors that of novices in early postsecondary contexts (Aull, 2015, 2020; Aull & Lancaster, 2014). The significance of Seminar 2 in predicting membership in the *Evaluator* class was noteworthy because the assignments in this seminar were often framed specifically as arguments, which may have prompted students to adopt a more formal argumentative stance in their writings than their peers in other seminars.

It was less clear from this study what might have prompted students to employ more reformulations in some texts than others. Prompt type, at least as classified here, does not appear to have played a role though it is possible that the distinction between explanation and argument was simply not precise enough to explain any variation. Regardless, the qualitative examination suggested that reformulations played a facilitating role in moving from the words of the source text to the writer's own views on the material—a linguistic blending that allowed writers to construe information in terms that supported their overarching perspective (Aull, 2015, p. 136; Soliday, 2011). Because

academic writing in philosophy is oriented toward defining, extending, and narrowing conceptual matter, reformulations may play a key role in the writing of the discipline, as the abstract conceptual content of the high-reformulation papers suggests. The complexities of this interaction between the pliability of the response genre (Nowacek, 2011), the specifics of the instructional environment, and the expectations of the discipline suggest the need for more elaborated and interactive conceptions of context in our corpus research, and for methods that will accommodate the nesting of one aspect of context within another.

A consistent finding across all students was the huge variation in linguistic profiles of their texts, as the confidence intervals around the mean profiles indicate (Figures 5 and 6). This high level of variation may be a feature of novice writing, in general, or the latitude of the response genre, specifically. We have few characterizations of individual variation in other assignment types or by writing proficiency against which to measure these findings, and this study suggests that we might have a great deal to learn about how individual students navigate the specific linguistic contexts they encounter in college. A study employing MLPA on a nested corpus of texts across multiple disciplines might be able to characterize whether and how students modify their stance use across contexts, while also accounting for individual characteristics.

Although not the focus of this particular study, the poignancy and relevance of students' comments in their informal response papers also point to some valuable directions for future research. The few studies that have examined informal response in philosophy and social science classes have indicated that this flexible genre may support students' efforts to integrate disciplinary thinking with more personal reflection. The qualitative excerpts in this study further suggest that students may be using markers of linguistic stance to frame evidence centered in their political and social lives in relation to the curricular texts. Understanding the extent to which students are able to use linguistic markers of stance to close the contextual distance between academic reading and their own lives is an important direction for future research. Given its compression and its relatively flexible parameters, the informal response genre may provide particularly rich territory for exploring these dynamics. This extension of the current work on linguistic stance would also require more robust conceptions of students' contexts and backgrounds, in addition to the conditions for writing that have been the focus of calls for more context-informed corpus linguistics.

One student-level characteristic that warrants specific attention is the English as first language (L1) and second language (L2) distinction (Crosthwaite & Jiang, 2017; Hyland & Milton, 1997; Lee & Deakin, 2016).

This study could not address this important aspect of background because of the relatively small sample size and the particular distribution of students across seminars. But this approach applied to a larger sample could facilitate more precise characterizations of how the L1/L2 distinction bears out in student writing across contexts.

Methodological Implications and Limitations

The relatively small sample size of this study posed some challenges to the statistical analysis, as well, and these technical limitations point toward larger methodological issues for context-informed corpus linguistics. Because the number of Level 2 clusters (in this case, the 27 students) forms an upper limit on the parameters in the model, I was not able to include as many parameters or test for as many classes as would have been ideal given the large amount of variation in the data. A higher number of classes may have provided more insight on important cleavages in the large *Explainers–Typical Texts* group and would have permitted more nuanced tests of student-level predictors. In general, the wider the variation in the data, the more observations we need to be able to find statistically significant differences. This is not a challenge for most corpus studies, which operate with enormous bodies of text. But studies with truly contextual corpora—particularly if the data include rich information about student background or instructional interactions—will almost certainly comprise a smaller number of texts or complex nesting, and subsequent analysis will need to reckon with variation in ways that most corpus studies have not (Gries, 2015a).

Finally, although this analysis sheds light on two sources of linguistic variation in this sample—linguistic variation within student and textual variation between students—it does not address the potentially larger question of how students' enactments of stance change over time. The literature on linguistic stance has characterized the changes in stance over the college years as a function of both linguistic development and context (Kibler & Hardigree, 2017), but the wide variation in these data suggests that changes in average linguistic profiles may happen in different ways. Writers may become more consistent in their use of academic language mainly because they are producing a narrower range of text types, or they may be sorting themselves in ways that produce changes in the averages we can observe. The longitudinal extension of latent profile analysis, latent transition analysis, could be valuable in mapping these progressions from secondary through postsecondary education.

Conclusion

Despite these challenges, MLPA has some unique and valuable descriptive capacities that offer new insights on student writing. In particular, its ability

to distinguish not solely based on what students typically do, but also on what they *can* do under certain circumstances—on outlying linguistic patterns in addition to typical ones—means a much more nuanced view of how students adapt to different writing conditions. In that sense, MLPA also offers a view of linguistic development that is midway between the "distant view" offered by large-scale corpus methods and the "context-rich view" offered by rhetorical analysis (Aull, 2020, p. 27). Understanding this variation in how individual students enact stance across contexts is an important step in grounding the work of corpus linguistics more fully in the needs of the classroom.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305B140037 to New York University. The opinions expressed are those of the author and do not represent views of the Institute or the U.S. Department of Education. Additional support for data collection was provided by the Teagle Foundation.

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