

Negative concord as a window into social perception of
morphological and syntactic variables

by

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Abstract

This dissertation is based in the idea that the study of linguistic phenomena is greatly improved by taking a holistic approach that integrates formal theory and quantitative data, *à la* Labov (1969), Guy (1991), and MacKenzie (2013), among others. Many phenomena cannot be explained by one system (e.g. phonology, syntax) alone, and working at the interfaces and across sub-fields can give us a much deeper understanding of the different factors at play. In this light, this dissertation seeks to test a long-held assumption in sociolinguistic theory, starting with a generative morphosyntactic analysis of a specific linguistic phenomenon, and using experimental methods to test hypotheses made.

The long-held assumption in the sociolinguistic literature is that syntactic variation is somehow qualitatively different than phonological or morphological variation because it takes place at a more abstract level than phonological and morphological variation do (see Labov 2001; Eckert & Labov 2017, among many others). This difference is believed to manifest itself in social awareness and perception of syntactic variation. Specially, it has been claimed that the abstractness of syn-

tactic variation makes it less salient and therefore less subject to social evaluation (Labov 2001). This dissertation tests this claim in the realm of perception.

Sociophonetic perception studies have shown that much social information (e.g. age, gender, ethnicity, geographic region) is conveyed through speech, even if the speaker only says a few words (Purnell et al. 1999). Likewise, perception studies have shown that morphophonological variables also convey social information (Labov et al. 2011), and that morphosyntactic variables can convey social information as well (Levon & Buchstaller 2015). If there is indeed a qualitative difference between phonological and morphological variation on one hand, and syntactic variation on the other hand, it should be reflected in the social perception (or lack of perception) of syntactic variables.

In the first half of the dissertation, I adopt a categorization scheme to differentiate morphological variables from syntactic variables that is based in generative morphosyntactic theory (Chomsky 2001; Halle & Marantz 1993). I then present the empirical picture of Negative Concord (NC) across varieties of English, and argue that it is not just one variable, as previous studies have assumed. Instead, I argue that NC is an umbrella term for two distinct types of variation: variation in the placement of negative items in a sentence (*Nobody didn't see him* - *Didn't nobody see him*), and variation in the realization of negative items (*I didn't see nothing* - *I didn't see anything*). I introduce a new implicational hierarchy of cross-dialectal patterns in the syntactic configurations of NC that proves useful in distinguishing between the predictions of formal syntactic analyses of NC. I adopt the Adapted Movement approach (Robinson & Thoms 2021a,b) as a formal account of NC, a theory which locates variation in the placement of negative items in the syntax and variation in the realization of negative items in the morphology.

In the second half of the dissertation, I present a perception experiment that compares how participants from dialect groups in the United States and the United Kingdom rated the social traits of NC versus non-NC speakers (the morphological variation) with the perceived ratings of different

syntactic configurations of NC (the syntactic variation). The results of the experiment indicate that both the placement and realization of negative items influence perceptions of a speaker: speakers who invert an auxiliary verb and a subject in a declarative sentence (ex: *Didn't nobody see him. / Didn't anybody see him.*) receive negative social evaluations, as do speakers who use morphological NC (*I didn't see nothing*). These results suggest that a 'true' syntactic variable such as inversion can be socially evaluated, whether it shows NC morphology or not.

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CHAPTER 1

Introduction

This dissertation is based on the idea that the study of variable linguistic phenomena is greatly improved by taking a holistic approach that integrates formal theory and quantitative data, *à la* Labov (1969), Guy (1991), and MacKenzie (2013). Many variable phenomena cannot be explained by one system (e.g. phonology, syntax) alone, and working at the interfaces and across sub-fields can give us a much deeper understanding of the different factors at play. In this light, this dissertation seeks to test a long-held assumption in sociolinguistic theory regarding syntactic variation. In doing so, I aim to establish a framework for studying sociolinguistic variation that integrates both syntactic and sociolinguistic theory in the creation of hypotheses, tests these hypotheses with experimental methods, and produces results that are relevant to both syntacticians and sociolinguists.

The long-held assumption in the sociolinguistic literature is that syntactic variation is somehow qualitatively different than phonological or morphological variation because it takes place at a

more abstract level than phonological and morphological variation do (see, for example, Winford 1996, Hudson 1996, Labov 2001, Meyerhoff & Walker 2013, and Eckert & Labov 2017, among others). This difference is believed to manifest itself in social awareness and perception of syntactic variation. Specifically, it has been claimed that the abstractness of syntactic variation makes it less salient and therefore less subject to social evaluation (Labov 2001). However, in joint work with Laurel MacKenzie that investigates this assumption, we find that very few sociolinguistic studies have explored truly syntactic variation at all, much less looked at the social evaluation of such variation (MacKenzie & Robinson 2019). This work, a case study of Negative Concord, is the beginning of a research program aimed at filling this empirical gap.

In the first half of the dissertation, I adopt a categorization scheme to differentiate morphological variables from syntactic variables that is based in generative morphosyntactic theory. I then present the empirical picture of Negative Concord (NC) cross-dialectally, and argue that it is not just one variable, as previous studies have assumed. Instead, I argue that NC is an umbrella term for two distinct types of variation: variation in the placement of negative items in a sentence (***Nobody didn't see him*** - ***Didn't nobody see him***), and variation in the realization of negative items (***I didn't see nothing*** - ***I didn't see anything***). I introduce a new implicational hierarchy of cross-dialectal patterns in the syntactic configurations of NC that proves useful in distinguishing between the predictions of formal syntactic analyses of NC. I adopt the Adapted Movement approach (Robinson & Thoms 2021a,b) as a formal account of NC, a theory which locates variation in the placement of negative items in the syntax and variation in the realization of negative items in the morphology.

This division of NC into two variables sets up the second half of the dissertation, in which I examine the differences in the social perception of syntactic NC (placement of negative items) and morphological NC (realization of negative items) in an experimental setting. I first introduce the methodology, which has the novel points of using written stimuli instead of auditory stimuli, and of asking participants to complete a grammatical acceptability survey in addition to a perception

survey. I then present the results of the grammatical acceptability study and the perception survey. The results of the perception survey indicate that both the placement and realization of negative items influence perceptions of a speaker: speakers who invert an auxiliary verb and a subject in a declarative sentence (ex: *Didn't nobody see him. / Didn't anybody see him.*) receive negative social evaluations, as do speakers who use morphological NC (*I didn't see nothing*). These results suggest that a 'true' syntactic variable such as inversion can be socially evaluated, whether it shows NC morphology or not. I conclude with the implications for both sociolinguistic and syntactic theory, and identify other variables that could benefit from a similar treatment as NC.

1.1 Can syntactic variation carry social meaning?

Even though variants of a linguistic variable are two or more ways of saying the same thing (Labov 1972a), since Labov's seminal work on the social stratification of English in New York City (1966), it has been consistently shown that social factors of speakers—including but not limited to their socio-economic status, age, gender identity—and the social setting of a conversation play a role in which linguistic variant they choose to use. There was soon a theoretical question of whether the social factors of a speaker impacted only the phonology and morphology, or if alternations in the syntax might also be conditioned by extra-linguistic factors (Sankoff 1972). In their study on the alternation between active and passive voice sentences, Weiner & Labov conclude that "social factors operate primarily upon surface patterns rather than abstract syntactic alternatives" (1983:56). This point of view solidified into an assumption that syntactic variables are rarely, if ever socially stratified in production, and that syntactic variables are not socially evaluated in perception (Labov 1993, 2001). This can be stated as the Syntactic Invisibility Principle.

- (1) **Syntactic Invisibility Principle:** Syntactic variables are invisible to social factors in a way that phonetic and lexical variables are not.

As Labov writes, however, “the evidence for this principle is largely negative” (1993:5). In joint work with Laurel MacKenzie, first presented as Robinson & MacKenzie (2017) and later written up as MacKenzie & Robinson (2019), we investigate to what extent the Syntactic Invisibility Principle holds.

The investigation in MacKenzie & Robinson (2019) is comprised of two parts: an extensive review of the literature about the social evaluation of syntactic variables, and a meta-study of syntactic variables in two journals. The literature review shows that syntactic variation is poorly understood because there is no consensus on what counts as ‘syntactic’ variation, as opposed to morphological, morpho-syntactic, or lexical variation. We establish a principled distinction between variation in the pronunciation of morphemes and variation in word order, a distinction which is based in generative syntactic theory (and discussed in detail in the next chapter). The meta-study analyzed two journals, *Language Variation and Change* and *Journal of Sociolinguistics*, from their first year of publication to 2017, comprising 845 articles in total.

We found that while a number of studies have investigated whether morphological variables carry social meaning in production, few have examined this in perception.¹ Our results are summarized in Table 1.1.

	Domain in which Production	social factors Perception	were examined Ideology
Number of morphological variables for which social factors were examined	135	9	58
Number of morphological variables for which social factors were found to affect the variation	127	9	53
%	94%	100%	91%

Table 1.1: Results from a meta-study of *Language Variation and Change* and *Journal of Sociolinguistics* articles (MacKenzie & Robinson 2019:30)

¹This distinction between production, perception, and ideology comes from Campbell-Kibler (2016) and is discussed in the next chapter.

From these results, we conclude that when researchers look for an effect of social factors on morphological variation, they are likely to find it. However, more research on perception of morphological variables will help to fill out this picture.

With respect to word order variables, the situation is vastly different. Out of the 845 articles examined, the number of word order variables studied is astonishingly low (Table 1.2). We found that only 10 word order variables had been studied in the domain of production, only 1 in perception, and 2 in ideology. Social factors were found to affect the variation for all except one of these variables.

	Domain in which Production	social factors Perception	were examined Ideology
Number of word order variables for which social factors were examined	10	1	2
Number of word order variables for which social factors were found to affect the variation	9	1	2
%	90%	100%	100%

Table 1.2: Results from a meta-study of *Language Variation and Change* and *Journal of Sociolinguistics* articles (MacKenzie & Robinson 2019:36)

With such a paucity of studies, it is impossible to compare morphological and word order variables to see if they are socially evaluated in the same way—refuting the Syntactic Invisibility Principle—or if word order variables are indeed less likely to be socially evaluated—supporting the Syntactic Invisibility Principle. We end our investigation by calling for more sociolinguistic studies of word order variation. This dissertation aims to begin to fill this large gap in the sociolinguistic literature by not only presenting a study that compares the perception of a morphological variable and a related word order variable, but also by creating a framework in which to study the perception of morphological and syntactic variation.

1.2 Research questions and hypotheses

This dissertation aims to shed light on the social evaluation of syntactic variation, as well as its relationship to the social evaluation of morphological variation, with a perception experiment. Therefore, there are two main research questions of interest. The first is: Can syntactic (here: word order) variation be socially evaluated? The Syntactic Invisibility Principle suggests that it cannot, but as we argue in MacKenzie & Robinson (2019), the absence of evidence is not the same as the evidence of absence. I take the Syntactic Invisibility Principle as the null hypothesis. In other words, the null hypothesis for the experiment in this dissertation is that there will be no significant correlation between a change in word order and the perceived social attributes of a speaker. The experimental hypothesis is that there will be a significant correlation between distinct word orders and the perceived social attributes of a speaker. Support for the experimental hypothesis should then also be considered as evidence against the Syntactic Invisibility Principle.

The second main research question is: Is syntactic variation evaluated differently than morphological variation in perception? To answer this question, the effect sizes of the morphological and syntactic experimental conditions are compared. Based on previous research (Labov et al. 2011, Levon & Buchstaller 2015), it is predicted that the morphological variable will have a larger effect on social ratings of a speaker than the syntactic variable.

1.3 Outline

This dissertation explores the meaning of syntactic variables, and their relationship to morphological variables, through a case study of Negative Concord. In Chapter 2, I give the relevant background for understanding this dissertation and its place in the sociolinguistic and syntactic literature. I review the notion of ‘syntactic variation’ from both a sociolinguistic and a syntactic point of view, and then introduce the theory from MacKenzie & Robinson (2019) for putting those notions together into a coherent socio-syntactic theory of variation. I also discuss notions of ‘so-

cial meaning’ and ‘social evaluation’ from the sociolinguistic literature, and combine this with the previous socio-syntactic theory to create a testable experimental hypothesis. I discuss previous perception experiments on syntactic variation, and outline the main methodological issues in testing whether social meaning can be correlated with syntactic variation. Finally, I introduce Negative Concord (NC) and review its history in the sociolinguistic literature. Although it has been studied extensively in production, it has never been subject to rigorous examination in perception.

Chapter 3 fills out the empirical picture of NC and the phenomena to be studied. I argue that English is a NC language, using evidence from historical linguistics, child language acquisition, and experimental studies. I then introduce my argument that NC in English is best understood as an umbrella term for two distinct kinds of variation: variation in the placement of negative items in a sentence, and variation in the realization of negative items in a sentence. I then lay out the desiderata for a formal theory of NC based on this empirical data.

In Chapter 4, I use the empirical data presented to distinguish three different formal approaches to NC: the Agreement approach (Zeijlstra 2004, 2008a, 2008b), which treats NC as syntactic agreement; the Movement approach (Blanchette 2015; Blanchette & Collins 2019), which treats NC as an instance of a single negator that is pronounced multiple times in a sentence; and the theory I adopt, the Adapted Movement approach (Robinson & Thoms 2021a, 2021b), a new instantiation of the Movement approach that makes it compatible with a wider range of data. For each of these approaches, I provide predictions for the grammatical and perception experiments presented in Chapters 6 and 7.

Chapter 5 begins the second part of the dissertation. Here, I discuss the methodology of the experiments, including experiment design and conditions, which participant groups were targeted and why, and how stimuli were constructed. I then present two pilot studies: One used to choose the social traits that would be judged in the perception experiment, and a second that tested the stimuli used as baselines for each end of the social trait scale.

In Chapter 6, I present the grammatical acceptability study. I briefly discuss the methods, where they differ from those in Chapter 5, and present the results. I then discuss the results with respect to the predictions made by the syntactic theories in Chapter 4.

Chapter 7 presents the perception experiment results. The major result is that, regardless of morphology, subject-auxiliary inversion in declarative sentences (e.g. *Didn't nobody see him/Didn't anybody see him*) is significantly correlated with lower social ratings for the traits of Intelligence, Social class, and Education level. I discuss the implications for sociolinguistic and syntactic theory.

In Chapter 8, I summarize what the dissertation has found and give directions for future research. I identify other sociolinguistic variables that could benefit from a similar treatment to the one NC has received.

CHAPTER 2

Background

It has long been clear that sociolinguistic variables can carry social meaning. However, one unresolved question in sociolinguistic theory is whether there is a limit to the kinds of variables that can carry social meaning. Researchers have long assumed and even asserted that syntactic variables are less likely to be socially evaluated than variables at other levels of the grammar (Weiner & Labov 1983, Winford 1996, Hudson 1996, Cheshire 1999, Labov 2001, Meyerhoff & Walker 2013, Levon & Buchstaller 2015).

However, this assumption has been impossible to test, due to the various ways that researchers have used the terms ‘morpho-syntactic variables’, ‘syntactic variables’, and ‘grammatical variables’, as well as different interpretations of what it means for a variable to be socially evaluated. This dissertation tests the claim that, contra previous assumptions, syntactic variation

can indeed be socially evaluated. To do this, it is first necessary to establish the theoretical context, in both sociolinguistics and syntax. In this chapter, I aim to answer the following questions:

- What is syntactic variation, from both a sociolinguistic and syntactic point of view?
- How can we meaningfully combine the notions of syntactic variation from these different points of view into a coherent socio-syntactic theory of variation?
- What is social evaluation?
- How can we test the hypothesis that syntactic variation is socially evaluated experimentally?

In Sections 2.1-2.3, I review the relevant literature to answer these questions, and establish the theoretical framework in which this dissertation should be understood. In Section 2.4, I introduce the variable which will be the test case for this hypothesis: Negative Concord (NC). As this has been a well-studied variable in the sociolinguistic literature, I review findings about NC. We will see that the social meaning that NC carries makes it a good test case for exploring the hypothesis that syntactic variation can be socially evaluated.

2.1 Syntactic variation

There has long been tension between variationist sociolinguistics and generative syntax over the existence and extent of syntactic variation in the grammar. In this section, I look at the concept of syntactic variation from a sociolinguistics perspective, and then from a syntactic perspective. I conclude this section by outlining the view of socio-syntactic theory that I have developed with Laurel MacKenzie (MacKenzie & Robinson 2019).

2.1.1 The view from sociolinguistics

Sociolinguists often define sociolinguistic variables as two or more ways of saying the same thing (Labov 1972a). This way of understanding variation applies in a straight-forward manner to lexical variation, where the same piece of living room furniture could be called a *sofa*, *couch*, *davenport*, or *chesterfield*. Likewise with phonetic variation: in American English varieties, the same lexical

item *butter* can be pronounced with an aspirated /t/, as in /bʌtʰə/, or with a flapped /t/, as in /bʌɾə/. Even in a morphological variable, such as the alternation between *runnin'* (/rʌnɪn/) and *running* (/rʌnɪŋ/), the envelope of variation is clear. That is, there is a clear division between cases where either *-in'* or *-ing* could be used, and cases where only *-ing* would be acceptable, determined by the grammatical category and phonological stress pattern of the word. For example, verbal gerunds can end with either *-in'* or *-ing*, as in *I was eating* ~ *I was eatin'*, but monosyllabic nominals that end in *-ing* do not vary with *-in'*, as in *an engagement ring* ~ **an engagement rin'*, where the symbol * indicates ungrammaticality. Importantly, speakers' choices in cases of variation like this are not random, but are part of "an orderly heterogeneous system in which the choice between linguistic alternants carries out social and stylistic functions" (Weinreich et al. 1968). In other words, one of the organizing principles of variationist sociolinguistics is that speakers' choices of linguistic form are conditioned by numerous factors, including, crucially for this study, social aspects of a speaker's background and of the speech setting.

The question, then, is how to connect this definition of a variable with alternations in syntax. Could such alternations be conditioned by social factors? Could these alternations even be considered as two ways of saying the same thing? Two lines of thinking have emerged: One which claims that syntactic variation is somehow qualitatively different than variation in other parts of language, and one which claims that syntactic variation can be studied in a similar way to lexical, phonetic, or morphological variables. I consider each of these views in turn.

As mentioned in the introduction to this dissertation, one long-standing view is that social factors do not condition syntactic variables as they do other kinds of variables, as in the following quotations:

"Social factors operate primarily upon surface patterns rather than abstract syntactic alternatives." (Weiner & Labov 1983:56)

“A very tentative hypothesis [...] emerges [...] according to which syntax is the marker of cohesion in society, with individuals trying to eliminate alternatives in syntax. In contrast, pronunciation represents the permanent social group with which the speaker identifies.” (Hudson 1996:45)

“Perhaps most of so-called ‘syntactic variation’ is motivated by pragmatic factors alone, and rarely, if ever, serves the function of distinguishing social groups in the way that ‘classic’ phonological and morphological variables do.” (Winford 1996:188)

“Variables that are fundamentally grammatical are less likely to mark social factors than lexical variables are.” (Meyerhoff & Walker 2013:407)

As these quotations show, this view is based on the idea that there is *something* sociolinguistically different about syntax, without a consensus about what that thing might be, and without any appeal to syntactic theory. In MacKenzie & Robinson (2019:3), we call this proposal the *Syntactic Invisibility Principle*.

- (2) **Syntactic Invisibility Principle:** Grammatical variables are invisible to social factors in a way that phonetic and lexical variables are not.

We will return to the discussion of this view in Section 2.1.3.

A different view of syntactic variation, one that advocates for studying it in a similar manner to other linguistic variables, is articulated by Sankoff (1972) in the following quotation.

“The extension of probabilistic considerations from phonology to syntax is not a conceptually difficult jump ... It seems clear to us that in the increasing number of situations which have been studied ... underlying probabilities are consistently and systematically patterned according to internal (linguistic) and external social and stylistic constraints. There is no reason not to expect similar patterning elsewhere in the grammar.” (Sankoff 1972: 58)

In other words, the other view asked: *Why not syntax, too?*

The notion of a linguistic variable as two ways of saying the same thing does not always extend in a straightforward manner to syntax, however (Lavandera 1978). For example, many generative syntacticians would assert that each syntactic structure is linked to a semantic meaning, or a unique Logical Form (discussed in Section 2.1.2 below), so variation in structure would inherently mean variation in meaning.¹ While this does not doom any attempts to study syntactic alternations as variants of a syntactic variable, it does require further theorizing.

One notion of how two syntactic variants could ‘mean the same thing’ comes from a study of the passive alternation in English, exemplified in (3) and (4).

- | | | |
|-----|-------------------------|------------------|
| (3) | Jen pet the cat. | Active sentence |
| (4) | The cat was pet by Jen. | Passive sentence |

Weiner and Labov (1983) justify their choice to treat active and passive sentences as syntactic variants by claiming that although the sentences have different forms, “active and passive normally have the same meaning in a truth-conditional sense” (Weiner & Labov 1983:30). In other words, whenever (3) is true, (4) must also be true, and vice versa.

Another proposal comes from Dines, who argues that if two ways of saying something serve a “common function in discourse”, they can be considered variants of the same variable (1980: 17). This influential proposal was named *functional equivalence* and further elaborated on by Romaine, who clarified that “variants must be seen to be related in terms of common function rather than in terms of conventional phonological, syntactic or semantic forms, or logical equivalence” (Romaine 1981: 426). This notion of functional equivalence is part of the theoretical framework for sociolinguistic research into syntactic variables.

Having established that a syntactic alternation can be a linguistic variable, we turn now to the issue of defining which alternations are syntactic. I argue in joint work with Laurel Mackenzie

¹But see Myler (2017) for counterarguments to this claim.

(MacKenzie & Robinson 2019) that the phrase “syntactic variable” in sociolinguistics has become an umbrella term for many alternations that are not phonological in nature. Among these are word order alternations such as active and passive constructions given in (3) and (4), preposition stranding (5), verb particle placement (6), floating quantifiers (7), the dative alternation (8), and movement for topicalization or focus (9).

- | | | |
|-----|---|---------------------------|
| (5) | a. Who were you talking to? | Preposition stranding |
| | b. To whom were you talking? | |
| (6) | a. I took the trash out. | Particle verb alternation |
| | b. I took out the trash. | |
| (7) | a. Each of the girls got an ice cream cone. | Floating quantifiers |
| | b. The girls each got an ice cream cone. | |
| | c. The girls got an ice cream cone each. | |
| (8) | a. Fiona gave Bruce a book. | Dative alternation |
| | b. Fiona gave a book to Bruce. | |
| (9) | a. I like pizza. I don't like broccoli. | Topic/focus movement |
| | b. Pizza, I like. Broccoli, I don't. | |

Although variable word orders like these may be categorized by many sociolinguists as clear examples of syntactic variation (Cheshire 1987), there are many other variables that are inconsistently called “morphological”, “morpho-syntactic”, “syntactic”, and/or “grammatical”. Cheshire notes the difficulty of an atheoretical approach to classifying variables when she says that “there are not necessarily any clear grounds for distinguishing between phonological and morpho-phonemic variables on the one hand and between morphophonemic, morphosyntactic, and ‘purer’ syntactic variables on the other” (1987: 263). We can take, for example, variable realization of

third person *-s*. In varieties of English spoken in the UK, this comes in two forms. In Norwich English, *-s* is variably realized on verbs with third person singular subjects (10) (Trudgill 1974). In Northern England and Scots, *-s* is variably realized on verbs with third person plural subjects (11) (Tagliamonte 2012).

- | | | |
|------|----------------------------------|---------------------------------|
| (10) | a. She loves. | Variable third person <i>-s</i> |
| | b. She love. | |
| (11) | a. My friends like that TV show. | Northern Subject Rule |
| | b. My friends likes that TV show | |

Cheshire calls such variables “unquestionably morphological in kind rather than syntactic” (1987:264). Tagliamonte calls *-s* variation “a tried and true morphological feature”, and a “morpho-syntactic variable”, but confusingly also categorizes agreement patterns as syntactic rather than morphological (2012:207).

As for Negative Concord, the subject of investigation in this dissertation, it has been described as “morpho-lexical” (Romaine 1984), “structural” (Labov 2001:29), “morphosyntactic” (Smith 2007), “grammatical” (Tagliamonte 2012:36), “lexical” (Meyerhoff & Walker 2013, following Labov 1993), “syntactic agreement” (Wolfram and Schilling 2016:84), and “syntactic” (Moore 2021). Such inconsistency in labeling Negative Concord is understandable, when one looks at the complete variationist picture. In the next chapter, I will argue that the term “Negative Concord” is in fact an umbrella term for multiple alternations. Under this view, none of the labels of Negative Concord are incorrect, they are just one part of a larger picture.

In MacKenzie & Robinson (2019), we argue that such inconsistency in labeling stems from the apparent commitment to a variationist sociolinguistics that is agnostic as to linguistic theory. Therefore, we attempt to answer Cheshire’s (1987:263) critique and establish clear grounds for categorizing variables as “morphological”, “syntactic”, or “morpho-syntactic” based on a formal

account of such variables. This discussion continues in Section 2.1.3, but first, in the next section, I establish the syntactic framework in which this socio-syntactic theory was created.

2.1.2 The view from syntax

The definition of syntactic variation depends entirely on the syntactic theory one adopts. In other words, to have a clear and meaningful distinction between syntactic and morphological variables, one must engage with theoretical work. In this section, I lay out the syntactic and morphological frameworks that I adopt in this work. These are also the frameworks that were used in creating the socio-syntactic theory in Section 2.1.3, and the Robinson & Thoms (2021) approach to Negative Concord introduced in Chapter 4.

I assume a Minimalist view of the syntax (Chomsky 1995; Chomsky 2001), as well as a Distributed Morphology (DM) approach to morphology (Halle & Marantz 1993). To give a very brief overview, under this view, the grammar can be modeled as an inverted Y, as illustrated in Figure 2.1. Items from the Lexicon are combined in the Narrow Syntax by the operations Merge and Move. The Narrow Syntax builds up a structure cyclically, and when it reaches the end of a phase, the structure is sent to Logical Form (LF), the semantic component of the grammar, and Phonological Form (PF), the phonological component of the grammar. At LF, the meaning of the derivation is computed. On the way to PF, the derivation goes through Spell-Out, where Vocabulary Items (VIs) are inserted into terminal syntactic nodes to spell out the abstract formal features in the derivation. At PF, phonological rules apply to make the structure pronounceable.

In the rest of this section, I unpack this overview with more detail and explanation. First, items from the Lexicon are combined in the Narrow Syntax by the operation Merge to form syntactic phrases. Those phrases are then Merged with syntactic heads (as in a verbal head Merging with its nominal complement) or other phrases (as in an adverbial phrase Merging to adjoin to a verbal phrase) to create a syntactic structure. In addition to the operation Merge, the operation Move is

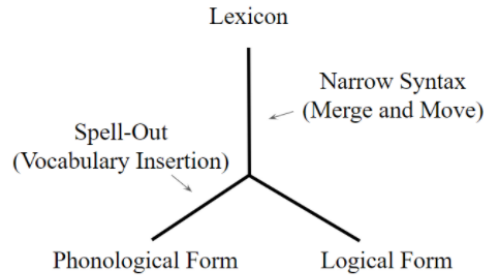


Figure 2.1: Inverted Y model of the grammar

also part of the Narrow Syntax. Move takes syntactic items that have already been Merged into the syntactic derivation and re-merges them in a higher part of the derivation. I assume that syntactic items that are Moved also leave unpronounced copies of themselves in their original position in the syntactic structure, known as the copy theory of movement (Corver & Nunes 2007).² While the highest copy of a syntactic phrase is usually the only one that is pronounced at PF and interpreted at LF, there are exceptions. Resumption, for example, is the multiple phonological pronunciation of a syntactic element that does not contribute to the semantics of the sentence. The resumptive element can be analyzed as an otherwise unpronounced copy of an element higher in the syntactic structure, as in *He's the kind of guy who I wonder if **he** will ever get married* (Collins et al. 2018). Another example is reconstruction, where a lower, unpronounced phrase is the one that is interpreted at LF.

I assume that instances of Merge and Move are driven by formal syntactic features on functional heads in the syntax. A feature *F* can be interpretable at LF [*iF*], uninterpretable at LF [*uF*], or unspecified [*F*]. Interpretable features must be checked in the Narrow Syntax by a corresponding uninterpretable feature before the structure is sent to LF, or the derivation will crash. Following Chomsky (1999/2001), I also assume that the syntactic structure is derived cyclically by phase. In other words, the complement of phase heads (classically *vP* and *CP*) is sent to PF

²Evidence in favor of the copy theory of movement comes from both LF (Chomsky 1995) and PF (Bošković and Nunes 2007).

for Spell-Out and LF for interpretation after it is Merged with the phase head, and phases that have been sent to PF and LF are no longer visible to the syntax. However, assuming the Phase Impenetrability Condition (PIC), the phase head and the left edge (or specifier) of the phase can still be manipulated by the syntax. Under these assumptions, phases that have been sent off for interpretation can still move as a unit.

Combining this view of the Narrow Syntax with the DM framework, I assume that lexical items are in fact category-less roots (e.g. $\sqrt{\text{SISTER}}$) and functional items (morphemes) are bundles of features. These primitives are placed in hierarchical relationships by the Merge and Move operations in the Narrow Syntax to form words as well as phrases. Following the principle of Late Insertion, these syntactic nodes have no pronounceable form until Vocabulary Insertion. When a phase is completed, it is sent to Spell-Out. It has been proposed that certain syntactic movements take place here, after syntax (Embick & Noyer 2001). At Spell-Out, Vocabulary Insertion takes place. Each morpheme in a terminal node of the syntax is spelled out by a Vocabulary Item (VI) (e.g. *the*, *a*, *me*, etc). These VIs compete for insertion, and the VI that wins is the one with the largest subset of features that match those of the morpheme in the terminal node. For example, the features [+singular] [+1st] [+oblique] would make up a phonologically null syntactic node in the Narrow Syntax, and at Vocabulary Insertion, would be spelled out by the pronoun *me*.

It is important to note here that even with this same set of theoretical assumptions, syntacticians may make different claims about where variability can occur in the syntactic derivation, as well as what theoretical mechanisms are involved in syntactic variation. In the next section, I present a socio-syntactic theory of variation.

2.1.3 Putting it together: A theory of socio-syntax

In MacKenzie & Robinson (2019), we identify two places within the Y model of the grammar where variation above the phonology could occur: Narrow Syntax and Spell Out. Variation in

Narrow Syntax involves the variable application of the Merge and Move operations, resulting in differences in the surface word order.³ Variation in Spell Out involves the competition for Vocabulary Insertion, resulting in differences in the pronunciation of morphemes. Under this theory, then, we identify two distinct phenomena that can fall under sociolinguists' umbrella of "syntactic variation", and we stress that any attempt to categorize a given alternation as variation in Narrow Syntax or variation in Spell Out must begin with a theoretical analysis of that alternation. In this section, I illustrate how this theory applies to cases of variation of each type.

Variation in Narrow Syntax, which can also be referred to as variation in word order, can be illustrated by the particle verb alternation in English, in which the particle of a particle verb can appear either before or after the direct object of the verb, as in (12).

(12) Particle verb ordering in English

a. Verb-Object-Particle (VOP) order: *I took the trash **out***

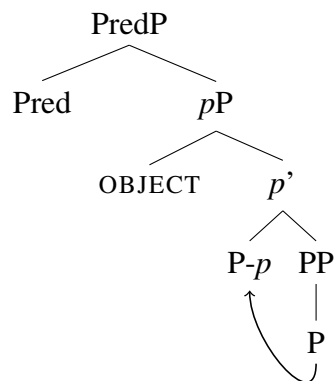
b. Verb-Particle-Object (VPO) order: *I took **out** the trash*

In the analysis of Haddican & Johnson (2014), this variation occurs as a result of head movement in the narrow syntax. In the VOP order (12a), Haddican & Johnson claim that the particle head *P* raises to head-adjoin to the *p* head, but stays in the lower Prepositional Phrase (*pP*), illustrated in (13a). However, in the VPO order (12b), the particle head *P* not only raises to head adjoin to the *p* head, but then raises further, past the object, to the head of a Predicate Phrase (PredP), as in (13b).

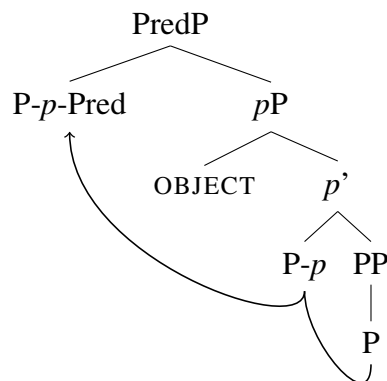
³Assuming, as stated in the previous section, that these operations are driven by formal syntactic features, variation in Narrow Syntax depends on which formal heads are Merged into the syntactic derivation. This in essence means that all syntactic variation can be considered 'lexical' in the sense that movement depends on which syntactic head is chosen from the Lexicon. If a syntactic head with a feature *F* is chosen, it may trigger a Move operation in the syntax. If that same head without the feature *F* is chosen, it would not trigger Move.

(13) Particle verb alternation in English (Haddican & Johnson 2014)

- a. Verb-Object-Particle (VOP) order: *I took the trash **out***



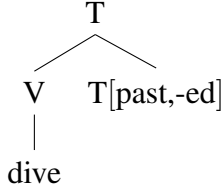
- b. Verb-Particle-Object (VPO) order: *I took **out** the trash*



We move now to the second kind of variation identified: Variation in Spell-Out, also called variation in the pronunciation of morphemes. Following MacKenzie & Robinson (2019), I argue that its basis is competition between grammars in Spell-Out. The idea of competing grammars is originally from Kroch (1989), and is implemented in Kroch (1994) with regard to doublets in the English past tense, such as *dived* and *dove*. This competition is then cast within DM by Embick (2008), which is the implementation of the competing grammars framework that I adopt in this

dissertation.⁴ This approach is illustrated here with *dived* ~ *dove* variation in English. According to this analysis, both *dived* and *dove* have the same syntactic structure, shown in (14).

- (14) Syntactic structure for both *dived* and *dove* (Embick 2008:66)



The variation between *dived* and *dove*, then, is realized as a competition between two Spell-Out grammars. In this case, ‘grammar’ means a set of Spell-Out rules that apply to a terminal node. If the *dived* grammar wins this competition, then the past tense node is filled according to the rules in (15). In this case, the *dive* root ($\sqrt{\text{DIVE}}$) does not appear on the lexical exception lists in (15a,b), so the default rule (15c) is applied and *dived* is produced Embick (2008:66-67).

- (15) *dived* grammar:

- a. $T[\text{past}] \leftrightarrow -t/_\{\sqrt{\text{LEAVE}}, \sqrt{\text{BEND}}, \dots\}$
- b. $T[\text{past}] \leftrightarrow -\emptyset/_\{\sqrt{\text{HIT}}, \sqrt{\text{SING}}, \dots\}$
- c. $T[\text{past}] \leftrightarrow -\text{ed}$

- (16) *dove* grammar:

- a. $T[\text{past}] \leftrightarrow -t/_\{\sqrt{\text{LEAVE}}, \sqrt{\text{BEND}}, \dots\}$
- b. $T[\text{past}] \leftrightarrow -\emptyset/_\{\sqrt{\text{HIT}}, \sqrt{\text{SING}}, \sqrt{\text{DIVE}}, \dots\}$
- c. $T[\text{past}] \leftrightarrow -\text{ed}$

If, however, the *dove* grammar wins the competition, then the past tense node is filled out according to the rules in (16). In this case, the *dive* root ($\sqrt{\text{DIVE}}$) does appear on the lexical exception list in (16b), so the past tense node is realized as phonologically null.

⁴Although the competing grammars framework was originally conceived with regard to language change, I follow Fruehwald (2012) in using this framework to model stable sociolinguistic variation, not only change in progress.

What determines the winner of this competition? Embick introduces the idea that there is a probability \mathcal{P} of one grammar winning over another. He notes that in principle, extra-linguistic factors could adjust the probability, but does not model this, as this would conflict with his tenet that grammar and language use are distinct modularities. In this work, I assume that this probability \mathcal{P} is calculated from the sociostylistic constraints on variant realization.⁵ I further assume that these sociostylistic constraints are acquired by children based on input from their speech community (Smith & Durham 2019). Under this approach, then, we still maintain a distinction between a speaker's *grammar* and *language use*, best illustrated in acquisition. What is *grammatical* in a child's native language is acquired on the basis of positive evidence from their linguistic input, while information about when it is appropriate to *use* one linguistic form over another is a social knowledge that becomes encoded in the probability \mathcal{P} , and can change based on the social setting. This allows social knowledge to play a role in the rates of use of different sociolinguistic variants (unlike a system such as Adger's (2006) combinatorial variability), but does not include social information directly in the rules for Vocabulary Insertion (or in the lexical entry for items, as in Bender (2001)).

One strong advantage of adopting the MacKenzie & Robinson (2019) theory is that the distinction between the types of syntactic variation stems not from any set of social or superficial characteristics of the variants. Rather, variation in word order is variation in Narrow Syntax and variation in the pronunciation of morphemes is variation in Spell-Out.⁶ A morpho-syntactic account of the variants, including a claim about where in the derivation the variation occurs, makes the distinction between these two types of variables. This means, then, that sociolinguists must first

⁵Tamminga and colleagues (2016) identify three different factors that condition variation in real time by individual speakers: sociostylistic factors, involving the social attributes of the speaker and the speech setting; internal linguistic factors, such as the phonological or syntactic structure of the utterance; and psychophysiological, involving for example speech production, memory constraints, and priming.

⁶There are, however, variations in word order that are argued to be due to post-syntactic movement. See Embick & Noyer (2001), for example, on *do*-support in English as post-syntactic movement.

start with a theory of the variable they wish to study. Formal accounts of the variants in question will make predictions that can be supported or refuted on the basis of novel empirical evidence collected as part of the variationist study. This also means that when testing the Syntactic Invisibility Principle in (2), the researcher must first make a commitment to whether the alternation is morphological or syntactic.⁷

2.2 Social evaluation

What does it mean for a sociolinguistic variable to be socially evaluated? Following Campbell-Kibler (2016), there are three distinct possibilities, rooted in the sociolinguistic abilities that individuals possess: “production of sociolinguistically meaningful forms; the comprehension (linguistic and social) of such forms; and metapragmatic behaviors which create, negotiate, and reaffirm meaning-form links” (2016:128-129). I follow MacKenzie & Robinson (2019) in categorizing social evaluation as listener perception of a speaker’s social attributes through that speaker’s choice of form. In this section, I briefly review the history of social evaluation throughout the sociolinguistic literature, and locate this dissertation within contemporary theorizing of a cognitively realistic model of sociolinguistic meaning (Campbell-Kibler 2016).

2.2.1 The sociolinguistic monitor

One particularly influential idea in the theory of social evaluation is the sociolinguistic monitor, defined at its first introduction as “the device that is responsible for evaluating the social significance of utterances” (Labov 1993: 22). In other words, it is a cognitive mechanism that interprets the social meaning of linguistic variation. For example, in a language with a split between informal and formal second person pronouns (e.g. *tu* and *vous* in French), the sociolinguistic monitor

⁷While this sounds straightforward in principle, it can often be challenging to identify the locus of variation in cases where the surface patterning of the variable is ambiguous or compatible with multiple possible interpretations. In addition to this dissertation, other works that have confronted this issue include Tamminga (2014) and MacKenzie (2012).

interprets use of the informal pronoun as more casual speech, regardless of the form of the pronoun as a subject, object, or possessive. We can see some of the assumptions from Section 2.1.1 coming into play here: It is claimed in Labov (1993) that the sociolinguistic monitor cannot access the linguistic structure because it is assumed that the linguistic structure cannot carry social meaning. Nevertheless, the sociolinguistic monitor has served as a useful theoretical tool for discussing where the social and linguistic systems meet.

While a number of experimental papers have examined different aspects of the sociolinguistic monitor, I summarize four of the most relevant studies here. Labov et al. (2011) investigated the sensitivity of the sociolinguistic monitor through experimental methods that have come to be known as the ‘newscaster paradigm’. To investigate how sensitive listeners were to *-in’* / *-ing* variation, they constructed short newscast passages that had ten sentences, each with one progressive *-ing* suffix. For the experimental conditions, they manipulated how many of the *-ing* tokens were pronounced as *-in’*, from 0% to 100%. Participants were told that the speaker was applying for a job as a newscaster, and asked to rate her speech on a 7-point scale, from “Perfectly professional” (i.e. an appropriate newscaster voice) to “Try some other line of work”. Labov and colleagues found that across different adult populations, participants were sensitive to the frequency of *-in’*, even when it occurred only 10% of the time. There was logarithmic progression to the ratings: Speakers suffered a sharp decrease in the level of perceived professionalism for the first few tokens of *-in’*, but the effect was much less dramatic for each additional *-in’* token. From this data, Labov and colleagues concluded that the sociolinguistic monitor is quite sensitive to marked sociolinguistic variants when their frequency is low, but less sensitive the higher the frequency of marked variants.

Levon and Fox (2014) replicated the newscaster experiment with British participants. They constructed a culturally appropriate newscaster passage, varied the frequency of *-in’* versus *-ing*, and asked the participants how professional the speaker seemed. Unexpectedly, none of the stimuli

were rated significantly differently in terms of perceived professionalism, whether they contained 0% *-in'* or 100% *-in'*. Levon and Fox interpreted this result to mean that the ING variable has a different and less socially salient sociolinguistic profile in the United Kingdom. In addition to their experiment on ING, they also ran a newscaster paradigm experiment investigating TH-fronting (*fink* for *think*), a variable in the UK that they predicted would be more socially salient to British participants than ING. However, this produced similar null results. The Northern participants (from Salford and Sheffield) did rate increases in the frequency of TH-fronting as less professional, although this effect did not hold for all participant groups as a whole. In addition, the effect for Northern participants followed a linear rather than a logarithmic progression. Overall then, Levon and Fox (2014) did not replicate the findings of Labov and colleagues (2011) with British participants. In the one case where there was a significant result, it was not in the logarithmic pattern that Labov and colleagues (2011) found in repeated experiments. As to the theoretical implications of these experiments, Levon and Fox chose two variables that are socially stratified in production but did not find evidence that these variables are stratified in the same way in perception. They suggest, following Campbell-Kibler (2012b), that the sociolinguistic monitor should therefore not be thought of as one cognitive mechanism, but as two distinct units, one that monitors speech production and another that monitors speech perception.

Levon and Buchstaller (2015) use the newscaster paradigm to investigate Labov's (1993) claim that linguistic structure is not visible to the sociolinguistic monitor, calling this the *Interface Principle*. They test this claim with a phonetic variable, TH-fronting, and a morpho-syntactic variable, the Northern Subject Rule (NSR, as in example (11) above). In this experiment, the newscaster passages were broken into 10 two-sentence headlines. The TH-fronting target was embedded into the first sentence in the headline, while the NSR target was embedded into the second sentence. In each experimental condition, the frequencies of each target varied from 0% to 100%. Levon and Buchstaller found that the frequency of TH-fronting significantly impacted per-

ceived professionalism ratings, such that the more frequent TH-fronting was, the less professional the speaker was rated (a linear pattern). The frequency of NSR also negatively impacted professionalism ratings, but only among Northern listeners. These effects led Levon and Buchstaller to reject the strong version of the Interface Principle. Instead, they suggest that their experiment supports a weaker version of the Interface Principle: that morpho-syntactic variables are evaluated in different, more complex ways than phonetic variables (which may be more socially salient in perception).

Sneller and Fisher (2015) investigate whether the sociolinguistic monitor operates on syntactic variables, using the newscaster paradigm. In one experiment, they compare the ‘morphophonological’ variable ING with the ‘syntactic’ variable of the GET-passive (17) versus the BE-passive (18).

(17) Michael got arrested. GET-passive

(18) Michael was arrested. BE-passive

An increase in non-standard constructions led to a decrease in perceived professionalism across both variables, although it seems the results were not significant.⁸ A second experiment tested the perception of four syntactic variables based on their social salience and whether they were in stable variation or changes in progress. The stable, non-salient variable was the dative alternation, as in (8) in Section 2.1.1; the changing non-salient variable was the GET-passive alternation, as in (17) and (18); the stable salient variable was Negative Concord, a variable discussed extensively in Section 2.4 of this chapter, and in Chapter 3; and the changing salient variable was the BE LIKE quotative, shown below in (19) and (20).

(19) Walsh said, “Wow” Standard quotative

⁸Sneller and Fisher (2015) was given as a poster presentation and unfortunately, never published as an article. There is no indication that any of the results from either experiment were significant.

Participants were asked to judge the professionalism of the speaker, and trials in each of the syntactic conditions contained between 0 and 6 instances of the non-standard variant. Sneller & Fisher found that increased frequency of the socially salient variables (Negative Concord and the BE LIKE quotative) correlated with a decrease in perceived professionalism, although it seems that these results were not statistically significant. They do note, however, that there is a direct correlation between a positive slope in the results (i.e. increased frequency of non-standard variant and decreased level of professionalism) and the amount of participants who mentioned the variable explicitly in a follow-up question: 0% of participants mentioned the dative alternation, 6% of participants mentioned the GET-passive, 46% of participants mentioned Negative Concord, and 68% of participants mentioned the BE LIKE quotative. In other words, the non-salient variables were mentioned between 0-6% of the time, while the salient variables were mentioned between 46-68% of the time. Sneller and Fisher take these results to suggest that syntactic variables are subject to social evaluation by the sociolinguistic monitor, but only when they are “sufficiently socially salient”. This study raises interesting questions for future research, such as why and how syntactic variables become socially salient.

From these four studies, we see that the sociolinguistic monitor can access variables above the phonology, specifically morphological variables such as agreement patterns (Levon & Buchstaller 2015) and possibly also syntactic variables (Sneller & Fisher 2015). However, investigating variables at different levels of the grammar using the same newscaster paradigm shows that phonological, morphological, and syntactic variables seem to be evaluated *differently*. It is still unclear which extra-linguistic factors can affect the perception of syntactic variables: Social salience emerges as a clear factor (Levon & Buchstaller 2015; Sneller & Fisher 2015), while Levon & Buchstaller (2015) also add that familiarity with the variable in question may play a role.

2.2.2 Social meaning and indexicality

From the starting point of Labov (1966), and continuing through much of contemporary variationist sociolinguistics, social evaluation is generally conceived of as a bipolar scale with positive social evaluation, or social prestige, on one end, and negative social evaluation, or social stigma, on the other. This is evident in the previous section (2.2.1), where all four studies of the sociolinguistic monitor asked participants to consider professionalism, a form of social prestige. However, subsequent sociolinguistic research, also called “second wave” and “third wave” studies, have investigated not only how speakers use their linguistic repertoire to position themselves on a scale from social prestige to social stigma, but how they also create more specific social meanings in a local context.⁹

One example of this newer conception of social meaning comes from Eckert (2000), who found that in a high school in the suburbs of Detroit, the use of phonological variables—the low and mid vowels involved in the Northern Cities Vowel Shift (NCS)—and a syntactic variable—Negative Concord—constituted distinct speaking styles that communicated the speaker’s community of practice. One of the communities of practice, the burnouts, used some of the newer NCS vowel changes. Although these changes had taken hold in Detroit at the time of the study, they had not been widely adopted in the suburbs yet. Eckert does not interpret the burnouts’ use of more urban variants as a claim that they *are* urban—rather, she sees the burnouts as identifying with their more urban peers, who were autonomous, tough, and street-smart. In this way, the burnouts are ‘indexing’ (in the sense of Silverstein 2003) an urban persona that is tough by using features from the local Detroit linguistic repertoire, the NCS. The local context is important here: using the NCS in Dallas, Texas would not necessarily communicate that the speaker is autonomous

⁹In this work, the distinction between second wave studies and third wave studies is not crucial, but see Eckert (2012) for an overview of this history of thought with categorization of the types of studies in the three different waves.

or street-smart. The burnouts use the social and linguistic tools at their disposal: They sound like someone from Detroit, which in the suburbs of Detroit carries the more abstract meaning of being tough. Although this may seem like a convoluted set of actions to take, as Eckert says, “Assertions such as ‘I’m cool’ can backfire, and others like ‘I’m tough’ or ‘I’m smart’ are unconvincing” (2019:752). Therefore, using indexical meaning to perform a persona is more of a ‘show, don’t tell’ method.

The variants of a sociolinguistic variable do not just communicate one fixed social meaning, however. Eckert (2008) proposed the theoretical concept of the *indexical field* to better capture the insight that social meanings of variants are fluid and context-dependent, yet are related to each other through ideology. She defines the indexical field as a “constellation of ideologically related meanings, any one of which can be activated in the situated use of the variable” (2008: 454).

The idea of an indexical field is illustrated in Campbell-Kibler’s (2010, 2011) work on the ING variable (*I was runnin’* - *I was running*). In one experiment (Campbell-Kibler 2010), sound clips of speakers taking an authoritative stance on a topic were used. Participants were told that these speakers were experts on the given topic, and introduced the speakers as either a professor, a political candidate, or a professional. For example, a speaker talking about juvenile crime was presented to the participants as either a Professor of Law, a candidate for District Attorney, or a social worker. The social information that the participants were given had a significant results on the perception of ING: Speakers introduced as professors were rated as more knowledgeable when they use *-ing*, but speakers introduced as professionals were rated more knowledgeable when they used *-in’*. In other words, there was not a one-to-one correspondence of *-ing* and ‘knowledgeable’, but rather what was perceived as ‘knowledgeable’ was mediated by the social information given to the participants. In another perception experiment, Campbell-Kibler (2011) compared an *-in’* condition, an *-ing* condition, and a neutral condition in which the ING variant was obscured by noise. She found that the *-ing* condition was rated as more intelligent, more educated, and more

articulate than the *-in'* or neutral conditions, which did not differ from each other significantly. In contrast, the *-in'* condition was rated as less formal than the *-ing* or neutral conditions, which did not differ from each other significantly. Therefore, while the *-ing* condition made a speaker sound more intelligent than a guise containing neither *-ing* nor *-in'*, the *-in'* condition did not make the speaker sound **less** intelligent than that neutral guise; while the *-in'* condition made a speaker sound less formal, the *-ing* condition did not make the speaker sound **more** formal. Therefore, Campbell-Kibler's studies on ING illustrate clearly that the variants of a sociolinguistic variable do not divide up social meanings in a complementary manner. In other words, just because one variant may index one social meaning, the other variant does not necessarily index the opposite meaning.

One other complicating factor is that the social meanings that a variant carries can differ in production and perception. In other words, the same variant may not index the same social meaning to the speaker and the listener. A case study from Pittsburgh on /aw/-monophthongization (as in *dahntahn* for *downtown*) illustrates this point. Johnstone & Kiesling (2008) found that Pittsburghers who consider /aw/- monophthongization to be an index of localness are unlikely to use it, while those who do monophthongize /aw/ do not associate it with localness. Therefore, it is important to distinguish the social traits that a speaker intends to index from those that a listener imposes on a speaker.

2.2.3 Social evaluation as a cognitive process

If we combine these newer ideas of social meaning with the model of the sociolinguistic monitor, then the sociolinguistic system must monitor all social meaning in both speaking and listening. As Campbell-Kibler points out, “the task of tracking both the social meaning of both incoming and outgoing language with a conscious, effortful system becomes intractable” (2016:128). She argues that what is needed is a reframing of sociolinguistic processing within the larger context of

cognitive processing of both language and social situations.¹⁰ In essence, then, Campbell-Kibler claims that what sociolinguists have referred to as the sociolinguistic monitor is in fact the result of separate but overlapping cognitive processes. She then outlines three essential elements for a model of sociolinguistic processing: a general self-regulation system, which serves among other things as a speech monitor; a person perception system, which organizes and stores information about the social and linguistic traits of others; and a socially linked grammar, containing “associative links between linguistic objects (including stored exemplars, phonological categories, lexical items, and syntactic constructions) and social cognitive constructs (including representations of individual people, social groups, personality traits, and emotions)” (Campbell Kibler 2016:144). Within a model along these lines, this dissertation is best understood as investigating the associative links between syntactic constructions and personality traits in order to contribute to the development of a socially linked, generative, minimalist grammar.

2.2.4 Social evaluation within a theory of socio-syntax

Now that we have defined what social evaluation and syntactic variation are, we have a framework in which to investigate whether syntactic variation is socially evaluated. We first categorize our chosen sociolinguistic variable as either morphological or syntactic, following a specific formal analysis of the variation. We can then show these syntactic variants to experimental participants in carefully constructed and controlled contexts. If there is a significant effect of an experimental condition along at least one scale of a social trait, then we have found evidence of the social evaluation of syntactic variation.

¹⁰Campbell-Kibler’s 2016 article in a sense theorizes the already ongoing trend of investigating the perception of sociolinguistic variation through the lens of social psychology. Specifically, there has been previous research which seeks to gain greater insights into a participant’s psychology by asking them to complete a standardized questionnaire or task. See, for example, Campbell-Kibler’s (2012a) use of the Implicit Association Test (IAT) and Levon & Buchstaller’s (2015) use of the Broad Autism Phenotype Questionnaire. More recently, Rosseel et al. (2019) use the Relational Responding Task (RRT) instead of the IAT. Where the IAT measures associative relations, such as ‘South’ with ‘classy’, for example, the RRT measures propositional relations, such as ‘Variety A is more prestigious than Variety B’.

To this end, in this dissertation I adopt two hypotheses from MacKenzie & Robinson (2019:23), the Social Spell Out Hypothesis, and the Social Word Order Hypothesis.

(21) **Social Spell Out Hypothesis:** Variation in the Spell Out of functional material will bear social significance.

(22) **Social Word Order Hypothesis:** Variation in word order will bear social significance.

Support for the Social Word Order Hypothesis in particular will refute the Syntactic Invisibility Principle introduced in (2). In the next section, I discuss how we can test these hypotheses experimentally.

2.3 Perception of syntactic variation: experimental approaches and issues

We now have two discrete hypotheses that can be tested in an experimental setting. However, testing the perception of syntactic variation (the Social Word Order Hypothesis) is not the same as testing phonological or morphological variation. In this section, I present the issues that arise from creating experiments with syntactic variants. I also summarize and critique the methodologies of previous experiments that have investigated syntactic variation.

2.3.1 Practical and methodological issues

The way to provide the clearest evidence that syntactic variation carries socio-indexical meaning is in an experimental setting, where confounding factors have been controlled for. However, there are practical, logistical, and methodological issues that make the creation of such an experiment for syntactic variables different than that for phonological and morphological variables.

To run an effective, informative experiment, we need to have an independent variable that we can manipulate, and see how those manipulations affect the dependent variable(s). Here the independent variable is the syntactic variable, and the dependent variables are the participant ratings of perceived social traits. The manipulation of the independent variable is in this case using differ-

ent syntactic variants in our target stimuli. With every manipulation of our independent variable, we then measure how our dependent variable changes. This in practice turns out to be difficult for a few reasons.

The first difficulty is that our independent variable is not as independent as we would like. Specifically, it is difficult to isolate the syntactic structure from the other elements of the sentence. In other words, it is difficult to separate the effect of the syntactic structure from the phonetics used to pronounce that structure. To find the effect we are looking for though, we need to be able to isolate and manipulate the syntactic structure and see that it is the change in syntactic structure that is indexing a social meaning.

Another practical issue is *how* we manipulate our independent variable. Given the long history of debate in sociolinguistics over what constitutes a syntactic variable (summarized in Section 2.1.1 above), as well as what counts as a variant of a variable (versus an unrelated construction), choosing which variants to use can be a thorny and not uncontroversial issue. In this vein we must also note that changes in the syntax can also condition variation in the morphology. In choosing how we manipulate our independent variable, we must be careful of the consequences for parts of the sentence we are not interested in testing.

These issues and others are discussed in more detail in Chapter 5, where I also discuss how I address them in relation to the design of the experiment presented in this dissertation. In the next section, I discuss the methods and findings of previous experimental work.

2.3.2 Previous experiments in syntactic variation

There have been some, although not many, experimental studies that have investigated a link between social evaluation and syntactic variation. In this section I review them, focusing on those that are relevant to the Social Word Order Hypothesis.

It has been claimed that Object-Subject-Verb word order in English, also called topicalization, may index Jewishness when the object is indefinite, as in (23) below.

(23) A Cadillac he drives. (Feinstein 1980: 15)

Feinstein (1980) reports preliminary research on the topic, which involved asking around 100 college-age students in New York City and Western Massachusetts if they would use, hear, or reject sentences with a topicalized indefinite. In follow-up interview data, some participants reported that the sentences “sounded Jewish”, although it is unclear how many of the participants said this, as no quantitative measures are given. Participants from outside New York are reported to have said the constructions were “New Yorkese”, but did not necessarily connect them with Jewish New Yorkers. It is therefore still unclear what the indexical field of topicalized indefinites is, and at what level (local, national, global) this social meaning operates. This purported indexical link between topicalized indefiniteness and Jewish identity may well exist, but to the best of my knowledge, no perception experiments have robustly tested this.

The other experiments in this section used the Matched-Guise Technique (MGT), or a similar technique, to test social evaluations of syntactic variation. The MGT was developed by Lambert and colleagues throughout the 1960s as a way to measure subjective evaluations of language varieties (Lambert et al. 1960; Anisfeld et al. 1962; Lambert et al. 1965; Tucker and Lambert 1969). This technique involves asking participants to give their opinions on the personality or social traits of speakers they hear. The conditions are called ‘guises’ because they are recorded by one speaker who controls multiple language varieties. For example, the original study by Lambert and colleagues (1960) included recordings of four bilingual men who read a passage in French and in English, but these recordings were presented to the participants as eight separate speakers to evaluate. They then compared the evaluations of the same speaker when talking in French versus talking in English. The MGT therefore allows the researcher to gather evaluations of two different lan-

guage varieties while controlling for the idiosyncrasies of each speaker's voice quality, intonation, and so on.

Hasty (2015) used the MGT to investigate the perception of double versus single modals in Southern United States English (SUSE). The double versus single modal variable, illustrated in (24)-(25), is treated as variation in the Narrow Syntax here based on Hasty's (2012) account of the syntactic structure of double modals as involving a Modal Phrase that Merges above Tense Phrase in the main clause.

(24) You may can see it over here. Double modal (Hasty 2015: 348)

(25) You may see it over here. Single modal

This study was based on previous research on the production of double modals, including Mishoe and Montgomery (1994), which connected the use of double modals by speakers in North and South Carolina to politeness strategies. Hasty (2015) investigates whether this connection is also found in the perception of double modals, using recordings of doctor-patient interactions with naturally occurring examples of double modals (Hasty et al. 2012). These double modal tokens were then digitally edited to create single modal tokens, as in the pair below.

(26) We may can always add the Pulmicort, which is a steroid. Double modal stimulus (Hasty 2015: 355)

(27) We may add the Pulmicort, which is a steroid. Single modal stimulus (Hasty 2015: 356)

In this way, the experiment tested reactions to single modals in contexts where double modals could have been used.¹¹

Participants listened to a recording of a doctor discussing treatment options with a patient (in either a double or single modal guise) and were asked to evaluate the doctor's bedside manner

¹¹See discussion in Hasty (2015) and Hasty (2014) on the difficulty of defining the envelope of variation for double modals, and other syntactic variables that do not have clear variants.

using a 5-point Likert scale with opposing adjectives on either end. Hasty found that there was no statistically significant difference in ratings of competence (i.e. of the adjectives *educated*, *successful*, *responsible*, and *confident*) for the double modal guise when compared to the single modal guise. He had hypothesized that competence ratings could be lower when doctors used double modals, as it is a non-standard linguistic feature. However, Hasty suggests that the reason for the lack of downgrading could be due to the experimental design. Participants were told they were evaluating doctors, and giving them the knowledge of that piece of social information about the speaker might have inflated competence ratings, even in the non-standard linguistic guise. In addition, Hasty found that the double modal guise was rated as significantly more polite than the single modal guise, reflecting what previous studies of double modals have found in production.

In Robinson (2018), I tested the perception of word order variation in *wh*-questions with floating quantifiers (FQ), which I call the *wh-all* variable.¹²

- | | | |
|------|----------------------------|-------------------|
| (28) | Who all was at the party? | <i>wh-all</i> |
| (29) | Who was all at the party? | <i>wh-AUX-all</i> |
| (30) | *Who was at the party all? | Final <i>all</i> |

As the above examples show, in many varieties of American English, the FQ *all* can appear immediately before or after the auxiliary verb, but is ungrammatical at the end of the question.¹³

To study whether the presence or placement of *all* affected social perceptions of the speaker, I ran a pseudo-MGT experiment in the newscaster paradigm of Labov et al. (2011, discussed in Section 2.2.1 above). Participants were asked to rate characters for a new television show, instead of potential newscasters. This experiment was a pseudo-MGT in that each speaker recorded multiple guises, but participants only heard each speaker once. The participants heard three speakers (or

¹²This experiment was first written up in Robinson (2017).

¹³These judgments are based on an acceptability study I conducted in American English (Robinson 2017), but do not match acceptability judgments reported for Northern Irish Englishes in McCloskey (2000) and Henry (2012).

‘characters’) in the experiment, and after each audio clip, they rated the speaker on 7-point Likert scales on the traits of Intelligence, Friendliness, Formality, Attractiveness, Age, and Likeability, and answered where they thought the character was from and why they thought so.

Participants (n=379) who grew up (ages 4-14) in the United States and were native speakers of American English were recruited to take an online survey via Amazon’s Mechanical Turk. The experiment showed no evidence that the presence or absence of *wh-all* had a significant impact on the ratings assigned to speakers for the personality traits, and the results for the perceived geographic region of the speaker were similarly null. However, a small percentage of participants (3%, n=13) did notice and explicitly comment on the presence of *wh-all* or *wh-AUX-all* in their explanations of why they thought the speaker was from a certain place. I argued that this result suggests that for some speakers, the *wh-all* variable may be above the level of conscious awareness, something that is unexpected under the view that syntactic alternatives do not distinguish social groups.

In Robinson & MacKenzie (2019), we investigated whether word order variation in particle verb constructions (as in example (6) above) had a significant effect on listener perceptions of professionalism. A study by Kroch & Small (1978) found that the hosts and guests of a call-in radio show used a significantly lower number of particle final sentences than their callers. They attributed this difference in production to the grammatical ideology of the hosts and guests, who wanted to sound professional and authoritative (though see Lee and MacKenzie forthcoming, who failed to replicate this effect in a larger corpus, and suggest that the prescription may be loosening). We tested whether the verb-particle-object word order at the end of sentences indexed professionalism in perception as well. Using the MGT and the newscaster paradigm of Labov et al. (2011), we asked participants to rate two different ‘takes’ of a potential newscaster reading a news story. In one of the guises, the speaker ended target sentences with the verb-particle-object word order, while in the other guise, the speaker ended the target sentences with the verb-object-particle word

order. We found no effect of word order on perceptions of professionalism. Although one must be cautious when discussing null results, we speculated that it could have been due to the nature of the stimuli: It seemed that participants were rating the condition just a few seconds into the auditory clip, before they heard the first target stimulus. This issue is discussed in more depth in Chapter 5, where I justify the choice to use written stimuli in a syntactic perception experiment.

2.3.3 Summary

To summarize briefly, few experimental studies have tested whether there is social evaluation of syntactic variation. This is due in part to the methodological issues inherent in this endeavor: It is difficult to isolate the syntactic structure of a sentence from its morphology and phonology. Previous studies on word order variation (Robinson 2018; Robinson & MacKenzie 2019; Sneller and Fisher 2015 [discussed in Section 2.2.1]) have used experimental methods that are common in perception experiments on phonological and morphological variables, such as the MGT and newscaster paradigm, but found that there were not any significant correlations between the linguistic variable and social traits.

Nevertheless, there are two studies that suggest that variation in Narrow Syntax indexes social traits. Feinstein (1980) reports that topicalized indefinites index a Jewish identity, and perhaps a New York identity to Americans from outside New York, although further research is needed to confirm this. Hasty (2015) found that doctors in the South were perceived as more polite when they used double modals instead of single modals. As we argue in MacKenzie & Robinson (2019), the lack of evidence of social evaluation of syntactic variation stems from a lack of research in the area, as well as underdeveloped methodologies for studying the topic.

In the next section, and the chapters to follow, I discuss the issues of social evaluation of syntactic variation in more detail through a study of the perception of Negative Concord.

2.4 The variable: Negative Concord

The morphosyntactic variable that will serve as the case study for this dissertation's in-depth exploration of the social meaning of morphology and syntax is Negative Concord (NC) in dialects of English. This variable was chosen because NC has long been of interest to sociolinguists, variationists, and syntacticians. Therefore, there is a large and richly detailed literature to draw from regarding the social evaluation, typology, variation in use, and syntactic structure of NC across varieties of English.

Negative Concord (NC), also known as "multiple negation" or "double negation", refers to sentences in which there are multiple negative morphemes, but only one semantic negation.

- (31) I **didn't** see **nothing**
'I didn't see anything'

This is contrasted with Double Negation (DN), in which each negative morpheme contributes a semantic negation. Note that the word *nothing* is in small capitals in (32), to reflect the change in intonation that is necessary to get the DN interpretation.

- (32) I **didn't** see NOTHING
'I saw something'

In this work, Negative Concord Item (NCI) refers to lexical items with negative morphology, such as *nothing* or *nobody*. NCIs can negate a sentence on their own, as in (33), or can participate in NC with other negative items, as in (34).

- (33) I saw **nothing**
(34) I **didn't** see **nothing**
'I didn't see anything'

The phrase Negative Polarity Item (NPI) refers to items that are licensed under negation, such as *anything* or *anybody*. NPIs are licensed under sentential negation as in (35), and are ungrammatical when they are not licensed, as in (36).¹⁴

(35) I **didn't** see **anything**

(36) *I saw **anything**

intended: 'I didn't see anything'

In this dissertation, I will also use the term *negative item* when I want to refer to both NCIs and NPIs.

2.4.1 Sociolinguistic variation in NC use

NC has been widely studied throughout the variationist sociolinguistic literature, although there is no consensus about its status as either a morphological or syntactic variable. This is important because as this section shows, NC use is conditioned by social attributes of the speaker and the speech setting. If NC is a syntactic variable, then this empirical evidence of social stratification of NC use is at odds with the long-held theoretical assumption discussed in Section 2.1.1, that syntactic variables do not distinguish social groups in the way that phonological and morphological variables do. NC also bears social stigma and has been prescribed against by prescriptive grammarians (Anderwald 2017, discussed in Chapter 3), something unexpected for those who assume the Syntactic Invisibility Principle. In fact, Labov (1993;2001) specifically names NC as an exception to the invisibility of linguistic structure. Rather than rejecting the Syntactic Invisibility Principle on these grounds, it is suggested that NC should instead be considered as a “fundamentally lexical” variable (Meyerhoff 2013:409, following Labov 1993). As noted in MacKenzie and Robinson (2019:11-12), and mentioned in Section 2.1.1, NC has also been described as “morpho-lexical”

¹⁴NPIs can in fact be licensed by any downward-entailing operator, although in this dissertation, we will only consider sentential negation as a licenser of NPIs.

(Romaine 1984), “structural” (Labov 2001:29), “morphosyntactic” (Smith 2007), “grammatical” (Tagliamonte 2012:36), “syntactic agreement” (Wolfram and Schilling 2016:84), and “syntactic” (Moore 2021). I will argue in the next chapter that NC has been so difficult to categorize because it in fact consists of two different variables. In this chapter, however, I show how NC production varies between and within dialect groups in some of the ‘classic’ sociolinguistic ways—that is, by socioeconomic group, gender, and social situation. In addition to these first-wave sociolinguistic ways of describing variation, more recent work has focused on the social meanings that NC use can index. This section reviews both of these sets of findings.

2.4.1.1 Geographic differences in NC production

Communities that use NC nevertheless produce NC at different rates. Table 2.1 shows some of the NC usage rates that have been previously reported in the literature.¹⁵ Although the frequency of NC production may seem at first like a straightforward statistic, reported levels for a community vary wildly depending on the purpose of the study, how narrowly the community is defined, how data is collected, and how the average is calculated.

In Table 2.1, we see, for example, that the overall rate of NC production in Scotland is given as 7.9% in Anderwald (2005), and Childs (2017a) finds a similar rate for Glasgow. However, in one Scottish community, Buckie, NC usage is reported to be as high as 69% (Smith 2001). A later study of Buckie found a rate of 49% NC usage, a figure lower than the previous study but still much higher than the reported rate for Scotland. In addition, Anderwald (2005) notes that the 0% rate of NC production for Humberside, England should be taken with a grain of salt, as there are only four Humberside speakers in the British National Corpus Spontaneous Speech Sample (BNC-SpS), and all speak fairly standardized English. Therefore, while different communities

¹⁵Many studies do not calculate an overall rate of NC, and the rates reported here are in fact averages calculated by later researchers. I use Wolfram & Christian’s (1976:115) averages for Wolfram (1969), Labov (1972b), and Labov et al. (1968). I use Smith’s (2001:115) averages for Cheshire (1982), Feagin (1979), and Wolfram & Christian (1976).

Community	Average percentage of realized NC	Source
East Harlem Puerto Rican English (NYC)	87	Labov et al. 1968
East Harlem AAL (NYC)	98	Labov et al. 1968
Jets AAL (NYC)	98	Labov 1972b
Inwood White Northern Nonstandard English (NYC)	81	Labov 1972b
Detroit AAL	78	Wolfram 1969
Detroit White Northern Nonstandard English	56	Wolfram 1969
Appalachian White English	60	Wolfram & Christian 1976
Anniston, Alabama White English	80	Feagin 1979
Toronto, Canada	1.6	Childs et al. 2018
Belleville, Canada	1	Childs et al. 2018
Reading, England	76	Cheshire 1982
Humberside, England	0	Anderwald 2005
Salford (Greater Manchester), England	11.9	Childs 2017a
York, England	1.8	Childs et al. 2018
North East England (Tyneside)	20.5	Anderwald 2005
North East England (Tyneside)	6	Beal & Corrigan 2005
North East England (Tyneside)	5.5	Childs 2017a
North East England (Tyneside)	6.6	Childs et al. 2018
Scotland	7.9	Anderwald 2005
Glasgow, Scotland	7.8	Childs 2017a
Buckie, Scotland	69	Smith 2001
Buckie, Scotland	49	Smith & Holmes-Elliott 2022

Table 2.1: Frequency of NC production by speech community

certainly produce NC at different rates, comparing the rates reported in previous literature must be done with an abundance of caution and context. This is especially true because, as the next section shows, within these communities, NC use is socially stratified.

2.4.1.2 Social stratification in NC production

NC use has been shown to be stratified by socio-economic status, gender, and age. Previous studies show that speakers more likely to use NC are those who are of lower socio-economic status and

male. While there are differences between age groups, and often younger speakers use more NC than older speakers, we do not find the same kind of sharp social stratification with age that we do with socio-economic status and gender. This is unsurprising, as NC is a stable variable within English varieties, not a change in progress.

Wolfram (1969) investigates NC use by African American Language (AAL) speakers in Detroit. Table 2.2 shows the results by socio-economic status. Table 2.3 shows the results by speaker gender, faceted by socio-economic status, and Table 2.4 shows the results by age, again faceted by socio-economic status.

Socio-economic status	Average percentage of realized NC
Upper middle class	8.2
Lower middle class	12.3
Upper working class	54.7
Lower working class	77.8

Table 2.2: NC production by socio-economic status in AAL speakers in Detroit (Wolfram 1969:156)

As Table 2.2 shows, the lower the socio-economic status, the more like a speaker is to use NC.

Socio-economic status	Average percentage of realized NC	
	Male	Female
Upper middle class	10.4	6.0
Lower middle class	22.3	2.4
Upper working class	68.2	41.2
Lower working class	81.3	74.3

Table 2.3: NC production by gender and socio-economic status in AAL speakers in Detroit (Wolfram 1969:162)

As Table 2.3 shows, across all socio-economic groups, males were more likely to use NC than females.

As Table 2.4 shows, pre-adolescents and teenagers of all socio-economic statuses produce more NC than their adult counterparts.

Socio-economic status	Average percentage of realized NC		
	Age 10-12	Age 14-17	Adult
Upper middle class	13.6	11.0	0.0
Lower middle class	34.7	1.6	0.9
Upper working class	57.8	72.7	33.7
Lower working class	90.2	77.3	65.8

Table 2.4: NC production by age and socio-economic status in AAL speakers in Detroit (Wolfram 1969:163)

This sharp social stratification can also be seen in the dramatic difference in the NC production of Southern White American English speakers in Anniston, Alabama (Feagin 1979). While the White Working Class speakers produce NC at a rate of 60-88%, the Upper Class speakers never produce NC.

Socio-economic status	Social group	Average percentage of realized NC
Working Class	Teen Girls	60
	Teen Boys	70
	Older Urban Women	84
	Older Urban Men	69
	Older Rural Women	75
	Older Rural Men	88
Upper Class	Women	0
	Men	0

Table 2.5: NC production in Anniston, Alabama by socio-economic status, age, location, and gender (Feagin 1979: 247,359)

Table 2.5 shows a rather mixed picture with respect to age: The working class teen girls use less NC than either group of working class women, while the working class teen boys use NC at almost the same rate as the older urban men, but less than the older rural men.

Findings from the United Kingdom complicate the picture on NC usage by age and gender. Childs (2017a) shows that while Glasgow and Tyneside fit the expected patterns for age (Table 2.6) and gender (Table 2.7), Salford does not.

Location	Age group	Average percentage of realized NC
Glasgow	Younger	25.7
Glasgow	Older	5.3
Tyneside	Younger	13
Tyneside	Older	0
Salford	Younger	11.1
Salford	Older	17.9

Table 2.6: NC production in three UK communities by speaker age (Childs 2017a:104)

Location	Gender	Average percentage of realized NC
Glasgow	Male	12.8
Glasgow	Female	12.7
Tyneside	Male	11
Tyneside	Female	7.9
Salford	Male	3.7
Salford	Female	18.9

Table 2.7: NC production in three UK communities by speaker gender (Childs 2017a:103)

Another UK community with unexpected patterns in NC usage is Buckie, Scotland. An earlier study on Buckie found that middle age speakers use NC less than younger or older speakers, and that women use NC less than men (Smith 2001:118). However, a more recent study found little difference among older, middle age, and younger speakers, and almost no difference in usage by speaker gender (Smith & Holmes-Elliott 2022:71-73). Tables 2.8 and 2.9 compare the two Buckie studies by age and gender, respectively.

Speaker age	Average percentage of realized NC	Study
Older	90	Smith 2001
Middle	39	Smith 2001
Younger	71	Smith 2001
Older	49	Smith & Holmes-Elliott 2022
Middle	51	Smith & Holmes-Elliott 2022
Younger	45	Smith & Holmes-Elliott 2022

Table 2.8: NC production in Buckie, Scotland by speaker age (Smith 2001:118; Smith & Holmes-Elliott 2022:71)

Speaker gender	Average percentage of realized NC	Study
Male	72	Smith 2001
Female	66	Smith 2001
Male	50	Smith & Holmes-Elliott 2022
Female	49	Smith & Holmes-Elliott 2022

Table 2.9: NC production in Buckie, Scotland by speaker gender (Smith 2001:118; Smith & Holmes-Elliott 2022:73)

NC is socially stratified in the communities where it is used. There are general patterns in the type and directions of the stratification: Often younger, working class males will be more likely to use NC than their older, higher class, or female counterparts. However, as seen in the tables above, these patterns can vary significantly between communities.

2.4.1.3 Social networks and style shifting

The general pattern found in the previous section was that younger, working class males were more likely to use NC. However, even within this group, there is variation in NC use based on the social network of the speaker.

For example, in the community of teen males in Harlem from Labov's (1972b) study, all of whom speak AAL, there is a high overall rate of NC production. However, there is still a difference in NC production rate based on the peer group to which the speakers belong. The so-called 'lames', those speakers on the fringes or outside the major peer groups, use NC less than those in the peer groups, as shown in Table 2.10.¹⁶ This table also shows that although the rate of NC use is quite high in the group members' individual styles, it is even higher when they speak together in a group.

This type of style shifting is found in other NC studies as well. For example, in Cheshire's (1982) study of Reading, England, among boys who were recorded both with friends and at school, NC is used at a rate of 90.7% in their vernacular style and 66.67% in their school style. Feagin

¹⁶ Averages were calculated for the instances of concord to a following indeterminate (Object NC, in the terminology of this dissertation) in the individual, rather than group speaking style.

Social network	Average percentage	
	Individual style	of realized NC Group style
T-Birds	98	100
Cobras	99	100
Jets	97	98
Oscar Brothers	97	96
Lames	90	-

Table 2.10: NC production by social network among young working class males in Harlem (Labov 1972b:807)

(1979:270) also highlights style shifting of one interviewee in particular, who used NC at a rate of 45% in an interview setting, 17% in a second interview setting, and 78% in an informal setting with friends.

2.4.1.4 The indexical field of NC

With the advent of second- and third-wave sociolinguistic studies, which look within and across social groups to see how speakers use linguistic variables to create social meaning, the production of NC has come to be seen in a more nuanced light. Instead of asking simply if speakers produce NC, more attention has been paid to the context in which the NC is used and the social meaning attached to its use.

Cheshire reports that ‘good’ girls in Reading, that is, those who do not “swear, steal or set fire to the playground, and [do not] not play truant from school” (1982:107) use non-standard features, including NC, less than ‘bad’ girls (1982:108). Specifically, the ‘good’ girls used NC only 12.5% of the time, whereas ‘bad’ girls used NC 58.7% of the time (1982:108).

However, even the ‘bad’ girls’ rate of NC production was low compared to every group of boys. NC production rates for boys with the highest adherence to vernacular culture was 100%, and the two intermediate groups with lower adherence to vernacular culture produced NC at rates of 85.7% and 83%, respectively. Even the ‘good’ boys, those with the lowest level of adherence to

vernacular culture, used NC at a rate of 71%, much higher than the 58.7% usage rate of the 'bad' girls. From this data, Cheshire concludes that NC is a sex marker in the adolescents studied in Reading. However, the situation is even more nuanced than that. As NC production clearly varied with both the gender and orientation of the adolescents, Cheshire concludes that NC is "a marker of vernacular loyalty for both boys and girls" (1982:111).

Eckert (2000), looking at adolescents in the suburbs of Detroit, Michigan, has similar findings to Cheshire (1982). She differentiates two major groups on opposite ends of the social spectrum: the Jocks, categorized by high levels of engagement with the corporate high school culture, and the Burnouts, characterized by non-participation in and questioning of this culture. It is unsurprising, then, that Eckert finds that the factors that determine the use of sociolinguistic variables are "jock or burnout affiliation, and engagement in the practices that constitute those categories" (2000:112). For example, social group affiliation is the main constraint on NC use, with Burnout affiliation strongly favoring NC use and Jock affiliation strongly disfavoring NC use. Gender is a secondary social constraint, with boys being more likely than girls to use NC. The interaction between these two factors is as expected: Burnout boys use more NC than Burnout girls, who use more NC than Jock boys, who in turn use more NC than Jock girls (2000:119).

Work by Moore (2021) repeats these findings. Among 12-15 year old girls at a high school in Bolton, England, there were four distinct communities of practice, which she locates along a continuum with respect to their orientation for or against school. The Townie girls were the most anti-school community of practice, distinguished by their "rebellious, anti-authority" attitude and "sporty/heavily made up style", followed by the Popular girls, who were more "independent (from adults)" and displayed a "cool/sporty/feminine style" (Moore 2021:61). On the pro-school half of the spectrum were the Geek girls, notable for their "sensible" and "practical/unisex style", while the most pro-school community of practice was the Eden Village girls, who displayed an "elitist" attitude and "trendy/'girlie' style". Moore finds that the usage of NC by the girls correlated more

with their community of practice than their social class. The Eden Village girls did not use NC, and for the most part, neither did the Geek girls. Some of the Popular girls used a moderate amount of NC, while the Townies used NC the most.

In addition to variation in usage by community of practice, Moore also finds that NC usage varies by conversation topic, with higher NC usage correlated to conversations about ‘delinquent’ behavior (2021:65). Across all the groups that used NC (the Geek girls, Popular girls, and Townies), rates of NC are higher when discussing boys or delinquency than when discussing school or nondelinquency (2021:66). Based on these quantitative findings, as well as her qualitative findings, Moore concludes that in this community, NC indexes delinquency.

In Tyneside, both Jones (1985:167) and Beal & Corrigan (2005:147) have found in the Tyneside Linguistic Survey (TLS) that NC tokens are produced by few speakers, but that those speakers produce a high frequency of NC tokens. In Beal & Corrigan’s examination of a subset of the TLS, for example, only three speakers produced NC. They note that these three NC speakers are working-class males who have “minimal schooling and [a] negative attitude to education” (2005:147). Surprisingly, NC occurs at a higher rate in North-East speech in the British National Corpus’ spoken subcorpus (Anderwald 2002) than in the TLS. Beal & Corrigan attribute this difference to the “Observer’s Paradox” (Milroy 1987), as well as the prescriptive pressures present in a semi-formal interview environment.

Building on what is known about the indexicality of NC, Smith and Holmes-Elliott (2022) investigate NC use in Buckie, a community in North East Scotland. They investigate how rates of NC usage vary with respect to the interlocutor, noting the effect of audience design in a speaker’s choice of linguistic form (Bell 1984). Their prediction is that awareness of the indexicality of NC will prompt speakers to produce higher levels of NC with a community insider, and lower levels with a community outsider. Finding the opposite, that speakers use higher rates of NC with the outsider, would indicate the lack of awareness of the indexicality of NC forms.

The speakers were interviewed twice: once by an insider, who has lived in Buckie her whole life and uses the local dialect, and once by an outsider, a woman from the South East of England who speaks in a Standard British accent. Analyzing all the NC tokens collected from the interviews, Smith and Holmes-Elliott find that Buckie speakers use significantly lower rates of NC with the community outsider than with the insider. The average rate of NC usage is 51% across all interviews, but for the interviews with the insider, the rate rises to 57%, whereas the rate drops to 40% in the outsider interviewer context (2022:72).

2.4.2 Summary: Sociolinguistic variation in NC use

NC is a particularly socially salient variable, and as such it has been widely studied throughout sociolinguistic literature. In the more ‘classic’ sense of variation, the rate of NC usage may be influenced by gender, socioeconomic status, and speaking style. For example, we have seen that men and boys generally use NC at higher rates than women and girls do, that NC usage is higher among speakers of lower socioeconomic classes, and NC is used more frequently in informal speaking styles.

Beyond this classic variation though, we have also seen that speakers use the stigmatized NC to convey a range of social meanings. Those vary by place, time, and social group, but generally convey an unfavorable attitude to rules and norms, especially those imposed by social institutions such as schools. Unsurprisingly, given the salience and history of stigmatization of this variable, NC use is also used to convey an orientation toward vernacular culture and/or solidarity toward other in-group members.

NC is also, unsurprisingly, the subject of prescriptivist rules about ‘correct’ language use. These and other meta-linguistic commentary on NC use are examined in the next chapter.

2.5 Summary

In this chapter, I first reviewed the literature on the perception of linguistic variables, which showed that syntactic variables have long been believed to be impervious to social evaluation because of some vague definition of their ‘abstractness’. I then discussed the notion of syntactic variation from both a sociolinguistic and syntactic point of view, and then put those two point of views together, adopting a framework from MacKenzie & Robinson (2019) for the categorization of morphological and syntactic variables. According to this framework, a formal analysis of a variable is first needed, and based on that analysis, a variable is either considered variation in Narrow Syntax (also called variation in word order) or variation in Spell-Out. I then detailed the methodological issues inherent in testing the proposition that syntactic variables can carry social meaning, and summarized past studies that have tried to do this very thing.

I introduced Negative Concord as a test case for the social meaning of syntactic variation. I showed that NC is clearly socially stratified, and that it carries social meaning. In the next chapter, I argue that NC is made up of a syntactic variable and a morphological variable. In the experiment to follow, I then look at the social meaning of changing the realization of the syntactic variable while the realization of the morphological variable is held constant.

CHAPTER 3

Negative Concord across varieties of English

Negative Concord (NC) is the sociolinguistic variable chosen to test the hypothesis that syntactic variation can be socially evaluated. As a brief refresher from the last chapter, NC is the linguistic term for sentences with multiple negative words that nevertheless carry only one semantic negation, such as *I didn't see nothing*, meaning 'I didn't see anything'. NC is sometimes contrasted with Double Negation (DN), in which each negative word in a sentence contributes a semantic negation, as in *I didn't see nothing*, meaning 'It is not the case that I saw nothing', or 'I saw something'. A Negative Concord Item (NCI) is a negative word that can appear on its own, such as *nobody* or *nothing*. A Negative Polarity Item (NPI) is a negative word that can only appear after a negation, such as *anybody* or *anything*. I use the term *negative item* to refer to both NCIs and NPIs.

As discussed in the previous chapter, NC has been well studied by sociolinguists for over 50 years, and its social stratification and socio-indexical meaning in production are well understood.

Its use is inversely proportional to the socio-economic status of the speaker, and it is used more by men than women. Speakers have also been shown to use NC to create an anti-establishment or rebellious persona, showing that NC has come to index, in the sense of Silverstein (2003), social meanings that are a step removed from the distributional facts. In other words, the social meaning of NC is not ‘working-class male’, which is derived from the social stratification of the variable, but may rather be closer to ‘non-conformist’, a more abstract social quality. This being said, previous work on the social meanings of NC has paid less attention to the different structural configurations in which NC can arise, and the extent to which social meaning is consistent across them. As discussed in Chapter 1, this dissertation seeks to fill this gap.

In this chapter, I move from the social aspects of NC users to the typology of NC across varieties of English. I argue, following Blanchette (2013), that English is typologically a NC language. I introduce new evidence from historical linguistics and historical prescriptivism in English (Section 3.1.1) and child first language acquisition (Section 3.1.2), and include experimental evidence from Blanchette and colleagues (Blanchette 2015, 2017; Blanchette & Lukyanenko 2019a,b) in Section 3.1.3, to support this claim.

I then present a typology of NC across a subset of US and UK English varieties (Section 3.2), updating past surveys with new evidence. This leads to the creation of an implicational hierarchy of the syntactic configurations of NC that are attested cross-dialectally in Section 3.2.5. In the following chapter, this implicational hierarchy becomes an important tool to analyze the predictions made by formal syntactic theories of NC.

In Section 3.3, I look more closely at variable realization of negative items, including a discussion of individual variation informed by recent corpora work (Robinson 2021). Taken together, Sections 3.2 and 3.3 support the argument put forth in this chapter that NC is best modeled as an umbrella term for multiple alternations, rather than as a single variable. These sections show that across and within varieties of English, there is variation in the **placement** of the negative item

(Section 3.2), and variation in the **realization** of the negative item (Section 3.3). Based on this empirical picture of NC, I argue that there are in fact two distinct loci of variation of NC in English, which is the only explanation for the rich and nuanced variation observed. I conclude that the reason that sociolinguists have struggled to classify NC as a morpho-syntactic, syntactic, or lexical variable is because it is comprised of two different variables. I then lay out, on the basis of the empirical data presented, the desiderata for a formal (morpho)syntactic analysis of variable NC in English (Section 3.4). Finally, in Section 3.5, I summarize the key points about NC presented in this chapter, and discuss how they inform the following chapters.

Although NC is widely attested, I focus on a subset of US and UK dialects here. The UK dialects under consideration in this chapter are Scots (Smith 2001; Smith et al. 2019; Smith & Holmes-Elliott forthcoming); Northeastern England/Tyneside (Beal 1993; Beal & Corrigan 2005; Childs et al. 2018); Reading, England (Cheshire 1982); and cross-UK colloquial data (Anderwald 2005; Tubau 2016). The US dialects under consideration are African-American Language [AAL] (Wolfram 1974; Labov 1972b; Weldon 1994; Martin & Wolfram 1998; Green 2014); Southern White American English [SWAE] (Feagin 1979; Foreman 2001); Appalachian English [AppE] (Wolfram & Christian 1976; Blanchette 2015); and Mid-Atlantic US English (Philadelphia Neighborhood Corpus [PNC], Labov & Rosenfelder 2011).

3.1 English is a Negative Concord language

Cross-linguistically, the terms ‘Negative Concord’ and ‘Double Negation’ are used in descriptive and typological work. That is, there is a dichotomy between NC languages and non-NC languages, or NC languages and DN languages. In this section, I follow Blanchette (2013) in arguing that English is an underlying NC language, but NC is avoided by many English speakers because of the social stigma attached.

I present both diachronic and synchronic evidence to support this claim. First, Section 3.1.1 shows that NC has historically existed in English. There is evidence to support a change in English grammar from a purely NC system to a variable NC-NPI system (where speakers vary between NCIs and NPIs in the scope of negation). However, there is not strong evidence that NC disappeared from the grammar of English. Instead, there is strong evidence that NC has continually been used, but has disappeared from formal speech and writing due to social stigmatization.

Next, in Section 3.1.2, I give a brief overview of child first language (L1) acquisition of negation. Put together, the literature suggests that there is a NC stage in the acquisition of English negation, even without NC input from parents. In Section 3.1.3, I review experimental evidence which shows that adult “Standard English” speakers have been shown to generate both NC and DN interpretations of sentences with two negations (Blanchette & Lukyanenko 2019a, 2019b). English speakers are also shown to prefer some NC sentences over DN sentences (Blanchette 2017), and learn an artificial NC language easier than a DN one (Maldonado & Culbertson 2021).

3.1.1 A brief history of NC in English, and historical prescriptivism

There have been multiple forms of NC in the English language over hundreds of years. One form of NC, where the pre-verbal sentential negation *ne* (37) could be optionally strengthened by a post-verbal negative element, is attested as far back as Old English (Jespersen 1917:9; Nevalainen 1998).

- | | | |
|------|---|---|
| (37) | ic ne funde nanne gylt on him
I NEG found no sin in him
‘I found no sin in him’ | Old English

(Wallage 2017:148) |
|------|---|---|

This pattern of multiple negation with the pre-verbal sentential negation clitic *ne* strengthened by the post-verbal negative adverbial *not* (38) was common in Middle English, especially during the 13th and 14th centuries (Jespersen 1917:9; Ingham 2013).¹

- | | |
|---|--|
| (38) I ne seye not
I NEG say not
'I do not say' | Middle English

(Jespersen 1917:9) |
|---|--|

Starting in the 14th century, the pre-verbal sentential negation clitic *ne* began to be gradually lost, leaving the post-verbal negative adverbial *not* to negate the entire clause, as in (39).

- | | |
|-----------------------|---|
| (39) I say not | Late Middle English (Jespersen 1917: 9) |
|-----------------------|---|

This pattern, in which a pre-verbal clitic (37) becomes strengthened with a post-verbal negation (38) and eventually falls out of use (39) are part of a cycle of language change that involves the strengthening and weakening of negative particles over time, and has come to be known as Jespersen's cycle.² This cycle continued throughout the Late Middle and Early Modern English period with the rise of the auxiliary verb *do* in negative sentences (40), and the consequent weakening of the pronunciation of *not* to the clitic *n't* (41) (Ingham 2013: 147).

- | | |
|--------------------------|--|
| (40) I do not say | Late Middle/Early Modern English (Jespersen 1917:11) |
| (41) I don't say | Present-day English (Jespersen 1917:11) |

During the same Late Middle English period, a new iteration of NC developed between *not* and NCIs, as well as between NCIs themselves, which became able to negate a sentence on their own (Ingham 2013: 144-145).

¹More recent studies call into question whether the secondary negation in Old English was in fact the predecessor of the *ne...not* construction in Middle English. Such matters are out of the scope of this dissertation, but see van Kemenade (2011) for discussion.

²The term *Jespersen's cycle* is due to Dahl (1979).

- (42) He should **never** come into **non** other woman's bedde. Late Middle English
 'He should never have entered another woman's bed.' (Ingham 2013: 145)

This NC system, in which *not* or *n't* undergo concord with NCIs (43), and in which NCIs undergo concord with other NCIs (44), is still present in English today.

- (43) I **don't** eat **no** biscuit SWAE (Feagin 1979: 229)
 (44) **Nobody** said **nothing** to him Southern England (Tubau 2016: 145)

However, the empirical picture is not this simple. Over the course of the Late Middle and Early Modern English periods, the NCIs that participated in this NC system were slowly replaced with their NPI counterparts. Nevalainen (1998, 2006) finds that NPIs (what she calls *non-assertive indefinites*) begin to appear in English in the 14th century, and attributes the rise of NPIs in the Early Modern English period, and the concurrent decline of multiple negation, to social forces. Analyzing a historical corpus of letters, Nevalainen shows that rates of multiple negation dropped steeply in the late 15th and 16th centuries, with upwardly mobile professional men leading the change from above (Nevalainen 1998: 277; 2006: 580).

In the century that followed, rates of multiple negation fell further among literate English speakers. In letters from 1660-1681, Nevalainen finds that the middle and upper ranks of men use multiple negation less than 10% of the time, the upper ranks of women use multiple negation around 12% of the time, and the lower ranks of men, who use the highest rate of multiple negation, nevertheless use it less than 20% of the time (1999:523). In addition, Knorrek (1938, as cited in Görlach 1991:102) finds evidence for overt stigmatization of double negation in the later 17th century.

With the publication of English grammars in the 18th and 19th centuries, NC was prescribed against, and its social stigmatization became explicit. Although the prescriptive rule against double negatives is generally attributed to Robert Lowth's *A Short Introduction to English Grammar*, first

published in 1762, Tieken-Boon van Ostade (2011) shows that this is mistaken. In fact, the first condemnation of so-called ‘double negatives’ comes from James Greenwood’s *An Essay Towards a Practical English Grammar*, in which he instructs his audience to note well that “Two *Negatives*, or two *Adverbs* of *Denying*, do in *English* affirm” (1711:182).

The prescriptive rule against double negatives seems to come from Lindley Murray’s 1795 *English Grammar*, which reproduced some of Lowth’s grammar with additional commentary (Vorlat 1959). For example, Murray added the commentary that ‘**But it is better** to express an affirmation by a regular affirmative than by two negatives’ (1795: 121, as cited in Tieken-Boon van Ostade 2012:2; emphasis comes from Tieken-Boon van Ostade). In this quotation, the DN reading of two negatives is assumed, reinforcing the prescriptivist idea that it was ‘illogical’ to use two negative words to create a negative meaning. Murray also notes that two negatives should not be used together, even if they are used ‘correctly’, i.e. to convey a positive meaning. Tieken-Boon van Ostade points out that this commentary had the effect of making Lowth’s grammar rules more prescriptive, and it was these more prescriptive rules that were passed down to 19th century grammar writers (2011:3).

Anderwald (2017) performed a corpus study of these 19th century grammars. Overall, American grammars mentioned multiple negation more often than British ones did. Although mentioning multiple negation is not the same as prescribing against it, Anderwald notes that the American grammars are more prescriptive in their attitudes overall (2017:279). Interestingly, British grammars mention multiple negation less often as the century progresses, with none mentioning it in the 1890s. However, American grammars continue to prescribe against multiple negation throughout the century, which Anderwald suggests might be part of the reason multiple negation is so salient as a non-standard feature in the United States to the present day (2017:280). To that end, Table 3.1 (adapted from Anderwald 2017:291) summarizes the frequency and type of epithets applied to multiple negation.

	Type of epithet			
Frequency	(Lack of) Education	Mistake	(Lack of) Logic	Social/Moral Evaluation
Most frequent		Incorrect		Improper
Frequent		Error		
		False syntax		
Less frequent	Uneducated	False grammar	Illogical	
Occasional	Illiterate Not learned	Mistake Faulty	Inconsistent	Careless Inelegant Gross

Table 3.1: Epithets applied to multiple negation in 19th century British and American grammars, by frequency and type (adapted from Anderwald 2017:291)

To summarize then, there is evidence that NC has existed in English for hundreds of years, and been proscribed against for hundreds of years as well. It is not surprising, then, that NC is attested in 80% of the English varieties present in The Electronic World Atlas of Varieties of English (Kortmann & Lunkenheimer 2013), and has been called a ‘vernacular universal’ of English (Chambers 2003). However, the sustained pressure of standardizing prescriptivism has resulted in the elimination of NC from the standardized and prestige varieties of English, and a strong social stigma against NC.

This history has led to English being characterized as a DN language by some researchers up to the present day. However, as the next two sections will show, there is evidence that NC is present in the grammars of English speakers who do not use NC.

3.1.2 Negative Concord and language acquisition

Despite over 50 years of research on child first language acquisition of negation in English, the process is not yet fully understood. Children begin to produce negation early, but do not use it in an adult like manner until much later (Bellugi 1967). In addition, their production and comprehension are not shown to match each other, meaning that corpus-based (production) studies and experimental (comprehension) studies give different results (Jasbi et al. 2021). In this section,

I briefly outline the evidence from first language acquisition research that suggests that English-learning children hypothesize that their input is a NC language.

Bellugi (1967) hypothesizes three stages in the acquisition of negation in English based on longitudinal corpus studies of three children in the Brown (1973) corpus. The first is what she calls ‘primitive’ negation, where negation is produced outside the sentence, as in this example from Eve, aged 19 months (1;7).

(45) **No** Mommy read

Stage 1: Eve (Bellugi 1967:219)

The other two children in the study, Adam and Sarah, produced negation in this way at 28 months (2;4) and 29 months (2;5), respectively.

In the second stage, children produce negation between the subject and verb, and use *can’t* and *don’t*, although errors in usage indicate they do not have adult-like control over these forms yet.

(46) There **no** more these

Stage 2: Eve (Bellugi 1967:225)

(47) I **can’t** see you

Eve produced the sentences above at 23 months (1;11), while Adam reached Stage 2 at 35 months (2;11) and Sarah reached Stage 2 at 36 months (3;0).

In the third stage, children use *n’t* with auxiliary verbs in a productive manner, suggesting they have re-analyzed *don’t* as *do* plus *n’t*, and generally are producing adult-like forms of basic sentence negation.

(48) He **doesn’t** have eyes

Stage 3: Eve (Bellugi 1967:234)

Eve reached Stage 3 at 26 months (2;2), while Adam reached Stage 3 at 38 months (3;3) and Sarah reached Stage 3 at 44 months (3;8).

Although Eve left the study at 26 months (2;2), data from Adam and Sarah is still available until 54 months (4;6) and 58 months (4;10), respectively, and both use NC. Adam uses NPIs at 42 months (3;6) as in (49), but at 47 months (3;11) (50) and 54 months (4;6) (51), he uses NC exclusively.

(49) I **don't** have **any** toys in here Adam (3;6) (Bellugi 1967:144)

(50) He **can't** have **nothing** Adam (3;11) (Bellugi 1967:141)

(51) **Nothing** **won't** scare me Adam (4;6) (Bellugi 1967:138)

Sarah begins using NC earlier than Adam does, at 44 months (3;8), but varies in her use more than Adam does. She uses both NCIs and NPIs for the rest of the recorded time, as examples (52)-(55) show. In addition, she also mixes NCIs and NPIs, as shown in (56).

(52) Sarah's negative utterances at 3;8 (Bellugi 1967:135-136)

a. She **didn't** have **no** clothes

b. She **didn't** have **any** brother

(53) Sarah's negative utterances at 4;2 (Bellugi 1967:239-244)

a. We **didn't** have **no** milk

b. She's **not** cooking **any**

(54) Sarah's negative utterances at 4;6 (Bellugi 1967:146)

a. He **don't** have **no** horse

b. We **don't** have **any** green

(55) Sarah's negative utterances at 4;10 (Bellugi 1967:148)

a. I **don't** got **no** brothers and sisters

b. **Can't** get this elastic **anywhere** on me

(56) Sarah mixing NCIs and NPIs

- a. I **can't** ever find it **no** more Sarah, 3;8 (Bellugi 1967:86)
- b. I **don't** got **no** underpants on either and **no** shoes and **no** socks Sarah, 4;10 (Bellugi 1967:148)

Bellugi claims that in the creation of the Brown corpus, the researchers “picked children who had heard only standard English and no other language” (1967:3), implying that these children did not have NC in their linguistic input. Therefore, it appears that English-learning children may in fact hypothesize NC even when it is not in their input.³ Davidson (2020) in fact argues for a NC stage in negative polarity acquisition. She hypothesizes that children treat the relationship between a negative item such as *not* or *n't* and the NPI it licenses (e.g. *any*) as a form of negative concord, instead of a relationship where NPI *any* is only licensed within the scope of negation. If that were true, it would make the following predictions:

(57) Predictions for a NC stage of in the acquisition of negation (Davidson 2020)

- a. English-learning children treat both *no* and *any* as negative items.
- b. English-learning children interpret sentences with multiple negative words as containing only one semantic negation.

Existing studies indicate that these predictions are borne out. Bellugi reports that Sarah “had the form *any* as a negative indicator in the early periods” (1967:135). An example of this is given below (Brown 1973, as cited in Tieu 2013:49).

³The picture is unfortunately a little more complicated than this in practice. A study on sociolinguistic variation in Sarah's data shows that her parents did on occasion produce NC tokens in their child-directed speech (Miller 2012). As for Adam, there is no evidence in the corpus to suggest that his parents produced NC tokens in their child-directed speech. However, as Adam is African-American, it is possible he heard NC tokens from his extended family or from African-American peers. While it is plausible that English-learning children hypothesize NC even when it is not in their input, and anecdotal evidence from parents of English-learning children suggest this is the case, more empirical evidence is needed to support this hypothesis. For example, a large-scale corpus study of the correlation between NC in a child's input and that child's production of NC would be valuable in this regard.

(58) Sarah (Brown corpus), age 2;10

MOT: that's to make orange juice (.) squeeze the oranges for orange juice for babies .

CHI: me ?

MOT: yeah .

CHI: I want **any** .

%com: negative meaning

MOT: you don't want any !

%par: laughs

CHI: no .

CHI: xxx baby .

%alt: I not baby .

This example is not an anomaly: A large corpus study by Tieu shows that while the rate is low, English-speaking children across the US and UK use *any* in negative contexts without a negative item to license the NPI (2013:49-51).

The prediction in (57b) is supported by experimental evidence from Thornton and colleagues (2016). In a Truth Value Judgment Task, children aged 3-5, and a control group of adults, watched a story being acted out, then judged whether a puppet had understood the story correctly. The puppet used sentences with two negatives, as in the example below.

(59) Truth Value Judgment Task stimulus (Thornton et al. 2016:15)

Experimenter: In that story, did the mouse who dressed up cook nothing?

Puppet: The mouse who dressed up didn't cook nothing.

In this condition, the puppet's sentence was true under a NC reading of the sentence, but false under a DN reading. Thornton and colleagues found that while children's answers largely

matched those of the adults for the control conditions, in the test sentences children and adults differed quite significantly. In the cases where a DN reading of the puppet's sentence was true, adults said the puppet was correct 80% of the time, while the children said the puppet was correct only 26% of the time. When a NC reading of the puppet's sentence was true, adults said the puppet was correct only 16% of the time, while children said the puppet was correct 75% of the time. These results support the hypothesis that the children treated multiple negative items in a sentence as being in a negative concord relationship.

3.1.3 English is a NC language: Experimental evidence

The last section provided evidence that English speaking children hypothesize a NC grammar. In this section, I present evidence from experimental studies on adult English speakers that suggests that they still command a grammatical knowledge of NC, even if they do not use NC.

Blanchette (2017) presents a series of grammatical acceptability studies aimed at uncovering the knowledge that adult English speakers have about NC and DN. The first study found that sentences with two negatives were rated unacceptable overall, whether they were in a NC context or DN context. However, participants did show a preference for NC sentences with a negative object over all DN sentences, and preferred both Object NC and DN sentences over NC sentences with a negative subject.

(60) Acceptability hierarchy for sentences with two negatives (Blanchette 2017:15)

Object NC > (Subject DN \geq Object DN) > Subject NC

A follow-up study of sentences with one negative showed a preference for negative subjects over negative objects. Putting these results together, Blanchette takes this to mean that the results in (60) are in fact a preference for Object NC over Subject NC, rather than a dispreference for sentence-initial negative words. A further study confirmed the finding that participants found DN sentences to be unacceptable overall.

This finding is confirmed by an eye-tracking study by Blanchette and Lukyanenko (2019a), in which participants read a sentence with two negatives in a stimulus that provided either a NC or DN context, and were then asked if the sentence with two negatives was true or false.

- (61) Negative Concord context and target sentence (Blanchette & Lukyanenko 2019a:9)

Greg had terrible luck at the casino last night.

He **didn't** beat **nobody** at poker. (= he beat no one)

- (62) Double Negation context and target sentence (Blanchette & Lukyanenko 2019a:9)

Greg lost most of his blackjack games, but he did great at the poker table.

He **didn't** beat NOBODY at poker. (= he beat somebody)

Blanchette and Lukyanenko found that participants responded slower and less accurately when they were given a DN context and a sentence with a negative object, compared with a NC sentence with a negative object. They take this as evidence that English speakers expect a NC interpretation of a sentence with a negated auxiliary and a negative object, and must go back and reinterpret the sentence if that expectation is not met.

In another study, Blanchette and Lukyanenko (2019b) compared the ratings of grammatical acceptability of NC with felicity ratings for NC sentences. This involved a particularly ingenious experimental design, with stimuli such as the following.

- (63) My older sister didn't leave nothing in her locker, *so her backpack is gonna be super heavy during her walk home.*

Participants were asked to judge the acceptability of the NC clause on a 1-7 Likert scale, and then judge the felicity of the consequent (indicated in italics in (63)) on a 1-7 scale from “consequence makes zero sense” (1) to “consequence makes total sense” (7) (2019b:11). Although participants rated the NC clause as unacceptable (median rating of 3), they consistently rated the consequent as felicitous (median rating of 7). Blanchette and Lukyanenko take this as evidence that English

speakers understand and can make felicity judgments about NC sentences, even if they do not accept them or report using them.

In an artificial language learning experiment, Maldonado and Culbertson (2021) assigned one group of participants to a NC condition, in which a sentence with a sentential negation and a negated quantifier in the artificial language received a NC interpretation, and one group to a DN condition, in which a sentence with a sentential negation and a negated quantifier in the artificial language received a DN interpretation. The participants in the DN condition were significantly slower and less accurate in their comprehension of the artificial language when compared to the NC condition. In addition, participants in the DN condition were significantly less likely to enter correct answers in a production task, compared to the NC condition. As Maldonado and Culbertson remark, “participants found it easier to produce a sentence with two negative elements when describing a picture where no one is running than when describing a picture where everyone is running” (2021:1411). As a whole, this experiment suggests that learning a NC language is an easier task for English native speakers than learning a DN language is.

3.1.4 Summary

In this section, I have provided additional evidence to support the claim made in Blanchette (2013) that English is a NC language. In the realm of historical linguistics, a study of historical prescriptivist grammar texts (Anderwald 2017) shows that there were strong standardizing forces that discouraged English speakers from using NC. A new proposal by Davidson (2020) in the realm of child first language acquisition supports the claim that English learning children hypothesize a NC grammar in which sentential negation is in a concord relationship with both NCIs and NPIs. Experimental studies from Blanchette (2017), Blanchette and Lukyanenko (2019a, 2019b), and Maldonado and Culbertson (2021) show that adult English speakers understand NC, can use NC to calculate felicity conditions in sentences, and may even prefer NC over DN. Overall, then, we

have evidence that NC has been a part of English since Old English, and that it has never left. It appears now to be passed down to each new generation of English speakers, who may choose not to use it based on social pressures.

3.2 Dialectal variation in the placement of NCIs

In this section, I present the empirical data of how dialects vary in the placement of NCIs. Cross-dialectal comparisons of NC constructions have been undertaken previously by Labov (1972b), Feagin (1979), and Smith (2001), among others. In this work, I include additional cross-UK data originally discussed in Anderwald (2005) and Tubau (2016), and show that this addition in fact reveals a cross-dialectal implicational hierarchy of syntactic configurations of NC which has implications for the syntactic theories presented in the next chapter.

English has been described as a DN language with some NC dialects. However, dialectal data shows that this dichotomy is too simple. In this section, I focus on how dialects vary with respect to the placement of NCIs in a NC relationship. In other words, within the so-called NC dialects of English, which syntactic configurations of NC are grammatically possible?

I focus here on four different syntactic configurations of NC, which I call Object NC, Subject NC, Negative Auxiliary Inversion (NAI), and long distance NC.

(64) Object NC (ex: *I **didn't** do **nothing***)

(65) Subject NC (ex: ***Nobody** **couldn't** catch him*)

(66) Negative Auxiliary Inversion (ex: ***Couldn't** **nobody** catch him*)

(67) Long distance NC (ex: *I **ain't** know [he had **no** curl]* (Weldon 1994:386))

In the following subsections, I introduce and define these four configurations, and present examples from dialects where they have been attested.

After these have been presented, I add to this descriptive picture by presenting an implicational hierarchy that shows the relationship between these four types. I state it as an empirical generalization, although one that may help in the formulation of formal accounts of the dialectal ingredients that produce these configurations. I also present some original corpus work that shows that although speakers of different dialects may have the same syntactic configurations of NC available to them, they nevertheless use these configurations at different rates.

3.2.1 Object NC

The most widely attested NC configuration is Object NC, which involves concord between sentential negation and a post-verbal negative indefinite. The post-verbal indefinite does not need to be the grammatical object of the verb, but in all cases of concord with a post-verbal indefinite, I use ‘Object NC’ as a convenient term. All of the dialects under consideration, with the exception of standardized US and UK English, allow Object NC.

- | | | |
|------|--|---|
| (68) | They’ve nae got nae choice | Buckie, Scotland (Smith 2001:110) ⁴ |
| (69) | You couldn’t say nothing bad about it. | Northern England (McDonald 1980:13) |
| (70) | You couldn’t do no papers nor nothing | Midlands, England (Tubau 2016:145) |
| (71) | Give us that book, else I won’t give you none , | Alec Reading, England (Cheshire 1982:64) |
| (72) | You didn’t have nobody to learn you in they days | Southern England (Tubau 2016:145) |
| (73) | I don’t want to know nothin’ | Mid-Atlantic US (PNC, Labov & Rosenfelder 2011) |
| (74) | I don’t know nothing about that | AppE (Blanchette 2015:15) |
| (75) | I don’t eat no biscuit | SWAE (Feagin 1979:229) |
| (76) | He ain’t got no car | AAL (Martin & Wolfram 1998:18) |

⁴In Buckie, *nae* is used for both *not* and *no*.

3.2.2 Subject NC

The second configuration of interest is Subject NC, defined as concord between sentential negation and a local pre-verbal negative indefinite. Subject NC is attested in a lower number of US and UK dialects than Object NC is. Cheshire in fact notes that Subject NC is not found in Reading, England (1982: 64), and Smith (2001:123) notes the same for Scots. However, Tubau (2016: 168-175) notes that Subject NC is attested in the FRED corpus.

- (77) **Nobody don't** bother with them do they? Northern England (Anderwald 2005:121)
- (78) I know this sounds funny, but **nobody didn't** notice it Midlands, England (Tubau 2016:148)
- (79) He was seasick all trip and **no one didn't** see after him Southern England (Tubau 2016:148)
- (80) **Nobody didn't** touch that but her AppE (Blanchette 2015:105)
- (81) And **neither** of the boys **can't** play a lick of it SWAE (Feagin 1979:242)
- (82) **None** of 'em **can't** fight AAL (Labov 1972b:786)

In joint work with Gary Thoms (Thoms & Robinson 2021), we argue that there are in fact a non-negligible number of examples of Subject NC in the FRED corpus. We search a number of corpora, including FRED, and find that Subject NC is absent from the FRED corpus for Northern England, the DECTE corpus for North East England, and the Scots Syntax Atlas for Scotland, but is well attested in the Southeast and Southwest of England. In fact, the rate of Subject NC tokens as a percentage of total tokens with negative subjects is surprisingly high in the Southeast (18%) and the Southwest (26%), considering that the nearby area of Reading has no tokens of Subject NC (Cheshire 1982).

3.2.3 Negative Auxiliary Inversion

Negative Auxiliary Inversion, or NAI, is defined as concord between fronted sentential negation and a negative indefinite subject, usually in a declarative sentence. It is unattested in UK Englishes, but has been widely attested in Appalachian English, Southern White American English and African American Language.

(83) **Wasn't nothing** much she could say AppE (Blanchette 2015:103)

(84) **Won't nobody** help her SWAE (Feagin 1979:347)

(85) **Didn't nobody** laugh AAL (Martin & Wolfram 1998:26)

Although it may appear at first glance that Subject NC and NAI sentences differ only in the order of the subject and the auxiliary, Green (2014) shows that there are differences in interpretation as well. Both Subject NC and NAI can be used in cases of absolute negation, but Subject NC can also be used in cases where there are exceptions. Compare the Subject NC and NAI sentences below, for example.

(86) Subject NC allows exceptions (Green 2014:127)

Nobody don't ride Bus number 201—just the three people who live in the country. Most of the students in this class ride Bus number 99.

(87) NAI is infelicitous with exceptions (Green 2014:127)

#Don't nobody ride bus number 201—just the three people who live in the country. Most of the students in this class ride bus number 99.

3.2.4 Long distance NC

The final syntactic configuration under consideration is long distance NC, which has a number of subtypes. This data is important to highlight, as it shows that the clause-boundedness of NC does

not hold for some varieties of English. This will become important in the next chapter, as one of the most popular theories of NC comes from Zeijlstra (2004), who takes the clause-boundedness of NC to be a strong and correct prediction of his theory. Although the clause-boundedness of NC is true for many of the languages included in Zeijlstra's wide-ranging typological survey, it is not true for some varieties of English.

This observation comes from Blanchette (2015), and concerns Long distance NC across NEG-Raising predicates. NEG-Raising predicates are those in which a negation can appear in either the embedded or matrix clause of a sentence. A sentence like (88b) can have the same reading that a sentence like (88a) can, where the negation applies to the embedded predicate rather than the matrix one.

(88) NEG-Raising predicate *think*

- a. I *think* it **isn't** raining.
- b. I **don't** *think* it's raining.

This is contrasted with non-NEG-Raising predicates, in which the negation can be pronounced in either the embedded or matrix clause, but the semantic interpretation is affected. In this case, the truth of (89a) does not entail the truth of (89b).

(89) Non-NEG-Raising predicate *say*

- a. I **didn't** *say* he is a fool.
- b. I *said* he is **not** a fool.

Collins & Postal (2014) [CP14], building on older proposals, argue that in NEG-Raising constructions, there is only one negation, NEG, that can move from the lower clause to the higher one, and can be pronounced in either one. Blanchette (2015) extends that account to NC and claims that NC also has only one negation, and in NC constructions, that negation is just pronounced

twice.⁵ She introduces these examples to show that not only can NC cross clauses, but it looks like what we would expect if NEG does indeed have a place in the lower clause and higher clause, and is pronounced in both. For example, she shows that long distance NC is grammatical across the NR predicate *reckon*.

- (90) I **don't** *reckon* there was **no federal men** back then AppE (Blanchette 2015:82)
'I don't reckon there were any federal men back then'

Importantly, she shows that NC is possible only with NEG-Raising predicates, not with non-NEG-Raising predicates, like *know*. She gives the following example, in which only a DN interpretation is possible.

- (91) Never did get in touch. I **don't** *know* why she **never** did. AppE (Blanchette 2015:88)

If NC does work like NEG-Raising, as Blanchette (2015) proposes, then this analysis makes the correct prediction here.

Long distance NC across NEG-Raising predicates like *feel* and *believe* has also been attested in SWAE and AAL.

- (92) I **don't** *feel* like **nobody** pets me SWAE (Feagin 1979:229)
'I don't feel like anybody pets me'

- (93) I told you, I **don't** *believe* there's **no God** AAL (Labov 1972b:814)
'I told you, I don't believe there's any God'

Therefore, we have three dialects in which long distance NC across NEG-Raising predicates is attested: Appalachian English, Southern White American English, and African American Language.

⁵This analysis is discussed in more detail in the next chapter.

However, data from other sources contradicts this view. In fact, long distance NC is possible in AppE, as well as in SWAE and AAL, across non-NEG-Raising predicates such as *be sure*, *know*, and *say*.

- (94) I **wasn't** *sure* that **nothin'** **wasn't** gonna come up a'tall AppE
 'I wasn't sure that anything was going to come up at all' (Wolfram & Christian 1976:113)
- (95) I **don't** *know* it's **nothin'** different SWAE (Feagin 1979:229)
 'I don't know it's anything different'
- (96) I **ain't** *know* he had **no curl** AAL (Weldon 1994:386)
 'I didn't know he had any curl'
- (97) He **ain't** say **nobody** was eating with **no college president** AAL
 'He didn't say anybody was eating with any college president' (Martin & Wolfram 1998:20)

With regard to the interpretation of (94), Wolfram & Christian state, "The meaning of this sentence, as indicated by the context in which it was uttered, is that the speaker wasn't sure that anything was going to come up" (1976:113). They also note that sentences of this type are rare even in the dialects in which they are grammatical (Wolfram & Christian 1976:113). Thus, it is unsurprising that this type of data did not appear in the AppE corpus that Blanchette (2015) used.

Therefore, not only is NC in English not clause-bound, it is not limited to NEG-Raising predicates, either. The dialects in which long distance NC crosses Non-NEG-Raising predicates are Appalachian English, Southern White American English and African American Language.

3.2.5 Syntactic configurations of NC in English

The following table summarizes the distribution of these syntactic configurations across the dialects examined, where the ✓ symbol means that the construction has been attested in that variety, and the X means that the construction has not been attested in that variety.

	Object NC	Subject NC	Negative Auxiliary Inversion	Long distance NC
Standardized Eng (US & UK)	X	X	X	X
Buckie, Scotland	✓	X	X	X
Reading, England	✓	X	X	X
Mid-Atlantic US	✓	X	X	X
Northern England	✓	✓	X	X
Midlands, England	✓	✓	X	X
Southern England	✓	✓	X	X
AppE	✓	✓	✓	✓
SWAE	✓	✓	✓	✓
AAL	✓	✓	✓	✓

Table 3.2: Syntactic configurations across dialects of US and UK English

As Table 3.2 shows, there is in fact an implicational hierarchy of syntactic configurations across dialects, where the presence of one configuration implies the presence of all those to the right of it.

(98) Implicational hierarchy of NC syntactic configurations:

Long distance NC / Negative Auxiliary Inversion > Subject NC > Object NC

Comparing the US and UK dialects, then, we can see that the grammaticality of NAI in a dialect implies the grammaticality of Subject NC. However, the reverse is not true. This will be important in the next chapter, which uses this empirical data to compare syntactic analyses of NC.

However, there is more to this story than the NC configurations that are grammatical in a given dialect. There is also variability in how NCIs are realized. In the next section, I lay out the data that shows variation between NCI and NPIs.

3.3 Variable realization of negative items

Although multiple syntactic configurations of NC may be grammatically available to speakers of a speech community, they vary in their production at an individual level. Most strikingly, individual speakers seem to use NCIs and NPIs interchangeably, most frequently seen in the alternation of *any* and *no*.

Blanchette (2015), for example, shows that speakers of AppE use *any* and *no* in parallel syntactic and semantic conditions and within the same utterance, as (99) illustrates.

- (99) I didn't have **no** lice, and I didn't have **any** itch (Blanchette 2015:10)

This example is not an outlier. There are in fact many attested examples of speakers using *any* and *no* interchangeably.

- (100) SWAE speaker Myrtice J. (Feagin 1979: 347)

- a. And **won't anybody** know who you are until I tell 'em
- b. An' **won't nobody** know

- (101) AAL Speaker DCB-se1-ag2-f-01 (CORAAL:DCB [Kendall et al. 2018])

- a. They **didn't** have **anything**
- b. and he really **doesn't** feel like he can go **anywhere** or do **anything**
- c. you're **not** doing **nothing** with this city
- d. I **don't** like **nothing** sweet on my chicken or my french fries

More interesting still, individuals mix NCIs and NPIs, sometimes even 'skipping' possible targets of concord, as in the following examples.

- (102) She **don't ever** do **no** work (DCA-se1-ag1-f-03, CORAAL:DCA [Fasold 1972; Kendall et al. 2018])

(103) I **don't** want **anything no more**. (DCB-se2-ag4-m-01, CORAAL:DCB [Kendall et al. 2018])

(104) But my education, I **didn't ever** get **none** of that. (PRV-se0-ag3-m-02, CORAAL:PRV [Rowe 2005; Rowe et al. 2018])

(105) Way back yonder **didn't anybody** have **nothin'** then (Feagin 1979:235)

This variation appears constrained by syntactic position. For example, negative items are invariably realized as NCIs in subject position in declaratives across the dialects under investigation in this chapter.

(106) **Nobody didn't** take the bus.

(107) ***Anybody didn't** take the bus.

However, the empirical picture is not that simple. Some dialects can have *any* and *no* vary in subject position in the NAI configuration. This is shown in the examples of Myrtice J.'s individual variation above in (100), and is shown as a more general pattern in the SWAE dialect below.

(108) An' he kept tellin' her tha', y'know, it was all in her mind, (Feagin 1979:346)
that **wadn't anything** wrong with her

(109) But the doctor said it **wadn't nothin'** the matter with his heart, (Feagin 1979: 241)
it was all right.

Foreman (2001:12) confirms that NAI with an NPI subject is also grammatical in West Texas English. Therefore, some NC varieties do in fact show an *any-no* alternation in subject position, albeit only when the negative auxiliary has been inverted.

In addition, I would like to draw attention to the fact that some varieties of Irish English do show alternations in NCIs and NPIs in subject position (Lunny 1981; Duffield 1993, 1995; Hickey 2007). Take, for example, the following parallel examples.

- (110) **Anyone doesn't go** to mass there Ballyvourney English (Lunny 1981: 140)
- (111) **No one goes** without a job who wants one at a basic wage. Ireland data set, GloWbE
(Davies 2013)

Thus, in building an analysis of NC that is flexible enough to work for many dialects of English, it is in fact desirable to build in the capacity for failure of negative attraction, up to and including subject NPIs. However, the theory must also explain why we do not see subject NPIs in most varieties of English, and what about these varieties of Irish English makes these examples acceptable.

To summarize, then, speakers of different dialects vary in their realization of negative items as either NCIs or NPIs. This variation has been attested by individual speakers in parallel syntactic and semantic conditions within the same utterance. Therefore, variable realization of negative items is not solely the result of style shifting or inter-person variation. In addition, there are dialect-specific constraints on where NCIs and NPIs can occur. SWAE allows variable negative item realization in subject position in NAI constructions, while some varieties of Irish English allow variable negative item realization in non-inverted declarative sentences.

This further complicates the empirical picture of variable NC in English, but, as the next chapter will show, provides a valuable testing ground for formal theories of these phenomena.

3.4 Dialectal differences in the use of NC

Even when English dialects allow the same syntactic configurations of NC, speakers do not produce them at the same rate. In Robinson (2021), I performed a corpus study of the use of NC and NPIs in AAL and AppE. The study involved searching the Corpus of Regional African American Language (CORAAL, Kendall & Farrington 2021) and the Audio-Aligned and Parsed Corpus of Appalachian English (AAPCAppE, Tortora et al. 2017).

Within CORAAL, I searched five subcorpora, which together contained over a million words. The subcorpora included in this study were those from Atlanta, with data collected in 2018

(ATL; Farrington et al. 2020); Washington D.C., with data collected in 1968 (DCA; Fasold 1972, Kendall et al. 2018), and a second D.C. subcorpus with data collected in 2016 (DCB; Kendall et al. 2018); Princeville, North Carolina, with data collected in 2004 (PRV; Rowe 2005, Rowe et al. 2018); and Rochester, New York, with data collected in 2016 and 2017 (ROC; King 2018, King et al. 2020).⁶ To search this corpus, I used a regular expression search for *n't* followed by at least two words. I then read through the results (~10,600 tokens) for tokens of NC with *n't*, as well as the NPIs *any*, *ever*, and *either* licensed under negation. The tokens (n=1352) were then coded for syntactic configuration, morphology, and lexical item. Where possible, tokens from the interviewer were excluded.

In APPCAppE, I searched two of the subcorpora: The Appalachian Oral History Project at Alice Lloyd College (ALC), in Pippa Passes, KY, which was collected from 1971-85 and contains approximately 115,000 words; and the Joseph Hall Collection (JHC), which contains interviews with residents of the Great Smoky Mountains in Tennessee and North Carolina, with data collection in 1939 and approximately 60,000 words. In each interview in each of these subcorpora, I searched for *n't*, *no*, and *any*, and collected all NC and NPI tokens. These tokens (n=545) were then coded for syntactic configuration, morphology, and lexical item. Again, where possible, I excluded tokens from interviewers.

The results presented here compare the rate at which AAL speakers and AppE speakers use the different syntactic configurations of NC. I did not examine the overall rate of NC, but rather asked, when this group uses NC, what syntactic configuration do they use and at what rates? For this study, I differentiated only Object NC, Subject NC, and NAI, with every token that did not clearly fit into one of these categories counted as Other.

⁶Although other subcorpora have been added since, CORAAL contained only these five subcorpora at the time the study was conducted.

Corpus	Object NC	Subject NC	NAI	Other	Total NC tokens
CORAAL (AAL) average	67%	1.08%	8.58%	23.34%	1140
ATL	67.27%	0.91%	11.82%	20%	110
DCA	71.98%	1.95%	7%	19.07%	257
DBC	62.32%	1.45%	9.78%	26.45%	552
PRV	59.14%	1.08%	8.60%	31.18%	186
ROC	74.29%	0.00%	5.71%	20%	35
APPCAppE (AppE) average	76.33%	2.59%	2.27%	18.82%	434
ALC	74.64%	4.08%	2.33%	18.95%	343
JHC	78.02%	1.10%	2.20%	18.68%	91

Table 3.3: Rates of syntactic configurations of NC with sentential negation *n't* in AAL and AppE (Robinson 2021)

As we see in Table 3.3, Object NC is the most used syntactic configuration by far across both varieties. Across AAL varieties, NAI is used considerably more than Subject NC, but the picture is more mixed with respect to Subject NC and NAI in AppE varieties. The AAL varieties use NAI overall more than the AppE varieties, and the AppE varieties, on average, use Subject NC more than the AAL varieties do.

One striking aspect of these results is how similar the rates of each type of NC are within each dialect. For example, the rates for Subject NC in AAL are between 0-2%, even though the tokens come from different geographic areas and different time periods.

3.5 Accounting for variable NC in English

The evidence presented Sections 3.2-3.4 shows that NC in English varieties can vary in two distinct ways: in the placement and in the realization of negative items. In other words, we can distinguish varieties of English by which syntactic configurations of NC they allow, as well as where they allow variation between NCIs and NPIs. As I argue in Robinson (2020), this range of variation cannot be accounted for by a single variable, but instead indicates that there are two distinct points of variation, which must be incorporated into a formal analysis of NC.

To briefly review, a formal analysis of NC in English must account for the cross-dialectal differences in the syntactic configurations of NC that are grammatical, and the parametric differences between dialects should predict the same implicational hierarchy that we find in Section 3.2.5. This analysis must also be able to account for the variability of negative items with respect to their syntactic position: Individual speakers produce both NCIs and NPIs in object position, but not in subject position. For example, NAI with an NPI subject is attested in SWAE but not in other varieties, and true subject NPIs are attested in Irish English but not other varieties. Ideally, this theory would also be able to speak to the mechanisms by which external factors can condition variation in the ways observed in Chapter 2 (Section 2.4).

In the next chapter, I examine NC from a formal perspective and use the data presented in this chapter to judge how well each theory handles this empirical data. In addition, I give the predictions that each theory would make for a grammatical acceptability study of NC, which will be revisited in Chapter 6. As the primary purpose of the next chapter is to choose a formal analysis that will inform a perception experiment on the social evaluation of syntax, I also give each theory's claim of where in the grammar optionality is located.

CHAPTER 4

Accounting for variable Negative Concord in a formal syntactic analysis

4.1 Introduction

The evidence presented in Chapter 3 points us to the conclusion that there are two distinct ways that Negative Concord (NC) can vary in English: in the syntactic constructions that allow NC, and in whether the negative items are realized as Negative Concord Items (NCIs), such as *nothing*, or as Negative Polarity Items (NPIs), such as *anything*. To the first point, the previous chapter established that there is a clear implicational hierarchy between the attested syntactic constructions across varieties of English.

(112) Implicational hierarchy of NC syntactic configurations:

Long distance NC / Negative Auxiliary Inversion > Subject NC > Object NC

As illustrated in (112), if one of the syntactic configurations of NC is attested in an English dialect, all the constructions to the right of it on the hierarchy are attested as well.

As for the second point of variation, *no* and *any* as negative markers in English really do seem to be two sides of the same coin. They can appear in parallel syntactic and semantic contexts, as illustrated by Blanchette's (2015) investigation of Appalachian English (AppE).

(113) I didn't have **no** lice, and I didn't have **any** itch (Blanchette 2015:10)

As detailed in Chapter 3, First language (L1) acquisition studies give additional empirical evidence to support this claim. English-learning children produce NC, even when it does not appear to be in their input (Bellugi 1967). They also prefer a NC interpretation over a Double Negation interpretation (DN, when each negative word contributes a semantic negation) of sentences with two negations (Thornton et al. 2016). In addition, English-speaking children sometimes use *any* as a negative item (Tieu 2013).

In this chapter, I present three different syntactic analyses of NC. The following questions will be asked of each theory: What is the relationship between the syntactic configurations of NC within one dialect and between dialects? What is the relationship between parallel NC and NPI sentences? How can we derive or explain variable NC in English using this analysis? To keep this discussion of a manageable size and scope, we will abstract away from theoretical details that do not help us answer these questions.

To return to the discussion of the previous chapter about the division between syntactic variation and morphological variation, we will also ask of each analysis: what are the author's assumptions about what is syntactic and what is morphological?

This chapter is organized as follows. In Section 4.2, I review the syntactic configurations of NC that variably appear across dialects of English. In Section 4.3, I present an analysis of NC as syntactic agreement, based on work by Zeijlstra (2004, 2008a, 2008b), which I will call the

Agreement approach. In Section 4.4, I present an analysis of NC as syntactic movement, based on the work of Blanchette (2015) and Blanchette & Collins (2019), which I will call the Movement approach. Finally, in Section 4.5, I present the analysis of NC that I will adopt in this dissertation, the Robinson & Thoms (2021) approach (RT21), an adapted version of the Movement approach of Blanchette (2015).

4.2 Variable NC in English

In this section, I review the key data presented in Chapter 2. This includes four syntactic constructions of NC and their NPI counterparts. Examples are taken from African American Language (AAL), Appalachian English (AppE), and Southern White American English (SWAE), as those are the varieties of English in which these constructions variably appear.

Object NC involves concord between sentential negation and a post-verbal negative indefinite. All dialects that allow Object NC also allow Object NPIs.

(114) Object NC

I **didn't** see **nothing**.

(115) Object NPI

I **didn't** see **anything**.

Subject NC is defined here as concord between sentential negation and pre-verbal negative indefinite. NCIs and NPIs do not vary in subject position, as they do in object position, so a theory of variable NC in English has the task of explaining this asymmetry and ruling out **Anybody didn't see him*.¹

(116) Subject NC

Nobody didn't see him.

¹In fact, the empirical picture is even more complicated. Some Irish English varieties do show this alternation (Lunny 1981; Duffield 1993; Hickey 2007), and a theory of NPIs in English must explain why this variation is available in some varieties and not others.

(117) Subject non-NC

Nobody saw him.

(118) Subject NPI

***Anybody didn't** see him.

Negative Auxiliary Inversion (NAI) is defined as concord between fronted sentential negation and negative indefinite subject. NAI with an NPI subject has been attested in SWAE (Feagin 1979; Foreman 2001).

(119) NAI NC

Didn't nobody see him.

(120) NAI NPI

Didn't anybody see him.

Long distance NC is defined here as NC across a clause boundary. Although this is typologically the most rare type of NC, this same dependency can be realized with an NPI in any dialect of English. Examples of long distance NC from the previous chapter are repeated here for convenience.

(121) I **wasn't** *sure* that **nothin'** **wasn't** gonna come up a'tall AppE

'I wasn't sure that anything was going to come up at all' (Wolfram & Christian 1976:113)

(122) I **don't** *know* it's **nothin'** different SWAE (Feagin 1979:229)

'I don't know it's anything different'

(123) I **ain't** *know* he had **no curl** AAL (Weldon 1994:386)

'I didn't know he had any curl'

- (124) He **ain't** say **nobody** was eating with **no college president** AAL
 'He didn't say anybody was eating with any college president' (Martin & Wolfram 1998:20)

For each of the following three syntactic analyses of NC, we will focus only on how they derive these four syntactic constructions.

4.3 Agreement approach (Zeijlstra 2004, 2008a, 2008b)

In an Agreement approach, Negative Concord is the result of an Agree operation between the negative elements of the sentence. The Agreement approach presented here is an analysis proposed by Zeijlstra (2004), with further elaboration in Zeijlstra (2008a, 2008b). This approach is based on cross-linguistic typological data, which divides languages into NC and Double Negation (DN) languages. A DN language is one in which each negative word contributes a semantic negation, as in Dutch. In the example below, each negative word contributes a semantic negation, and the sentence has a positive meaning.

- (125) Jan belt **niet** **niemand** Dutch
 Jan calls NEG nobody
 'Jan doesn't call nobody' (= 'Jan calls somebody') (Zeijlstra 2008b: 2)

In NC languages, in contrast, multiple negative morphemes are present in a sentence, but only one negation is interpreted. The NC languages in Zeijlstra's typology are further divided into two sub-types: Non-Strict NC, and Strict NC.

In a Non-Strict NC language, the sentential negation must co-occur with postverbal negative indefinites, as in (126a), but cannot co-occur with pre-verbal negative indefinites, as in (127c), as illustrated with Spanish below. In other words, we see that (126b) is ungrammatical because it lacks the sentential negator *no*. This is in contrast to (127c), which is ungrammatical because the sentential negation is present.

- (126) a. Juan **no** ha visto a **nadie** Spanish
 Juan not have.3sg seen to nobody
 ‘Juan hasn’t seen anybody.’
- b. *Juan ha visto a **nadie**
 Juan have.3sg seen to nobody
 Intended: ‘Juan hasn’t seen anybody.’
- (127) a. **Nadie** vino
 Nobody come.3.SG.Past
 ‘Nobody came.’
- b. **No** vino **nadie**
 Not come.3.SG.Past nobody
 ‘Nobody came.’
- c. ***Nadie no** vino
 Nobody not come.3.SG.Past
 Intended: ‘Nobody came.’

A Strict NC language, in contrast, is one in which NCIs obligatorily appear with sentential negation. In the example below, we see that both the negative indefinite pronoun and the verb are marked with negative morphemes. In fact, as (128b) shows, the double marking of negation is obligatory in Polish: The sentence is ungrammatical without the sentential negator *nie*.

- (128) a. Jan **nikogo nie** widział Polish
 Jan **nobody not** see.3.SG.Past
 ‘Jan didn’t see anybody.’
- b. *Jan **nikogo** widział
 Jan **nobody** see.3.SG.Past
 Intended: ‘Jan didn’t see anybody.’

What distinguishes Strict NC languages like Polish from Non-Strict NC languages like Spanish is that in Polish, the sentential negation always co-occurs with negative indefinites, which explains

the ungrammaticality of (129a), in which *nie* is absent, and the grammaticality of (129c), in which *nie* is present. This distinction is clear if we compare the examples in (127) with those in (129).

- (129) a. ***Nikt** przyjechał
Nobody come.3.SG.Past
 Polish
 Intended: ‘Nobody came.’
- b. **Nie** przyjechał **nikt**
Not come.3.SG.Past **nobody**
 ‘Nobody came.’
- c. **Nikt** **nie** przyjechał
Nobody not come.3.SG.Past
 ‘Nobody came.’

Zeijlstra analyzes the difference between DN and NC languages as one between the kinds of features that negative words carry in each type of language. In DN languages, negative words have the semantic feature [NEG], so each negative word contributes one semantic negation to the interpretation of the sentence. In contrast, NC is a consequence of an agreement relationship between a single negation that is interpretable to the semantics [iNeg], and one or more negative features that are not interpretable [uNeg]. In the next sections, we will see how Zeijlstra articulates the differences in the derivations for Object NC and Subject NC in both Non-Strict NC and Strict NC languages.

4.3.1 Deriving Object NC in the Agreement approach

In deriving Object NC (e.g. *I didn’t see nothing*), the differences between Non-Strict and Strict NC languages are minimal. In both cases, a higher element with the [iNeg] feature probes for a lower goal with a [uNeg] feature and Agrees with that goal. Strict NC languages have the silent

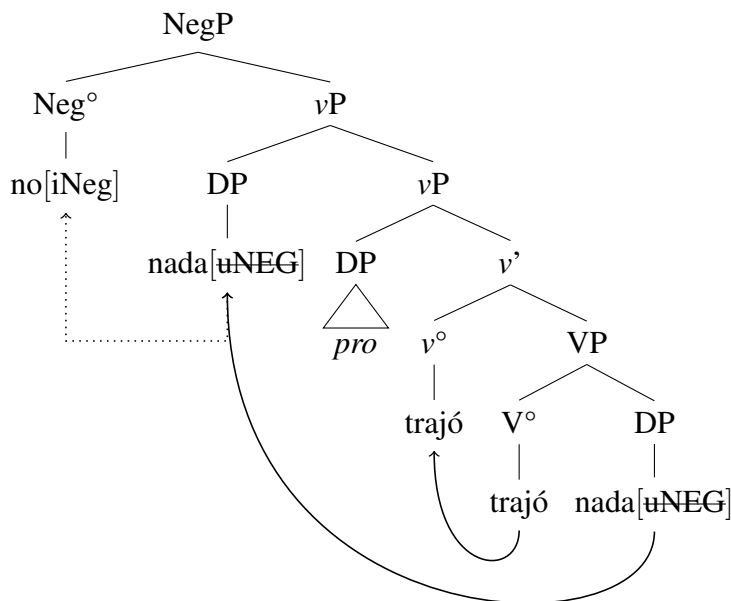
operator *Op* in the specifier of NegP as the higher element, while Non-Strict NC languages have the negative marker in the head of the NegP.

The derivation of Object NC in the Non-Strict NC language Spanish is shown in (130) and is based on Zeijlstra (2004: 258-259).² The Object NCI *nada* is first merged in the VP. The verb raises from V° to v° , and the external argument merges in the specifier of vP . Assuming, as Zeijlstra (2004) does, that vP is a phase, there is now a problem: The NCI object *nada* is in the complement of the phase head v , and will be shipped off to LF without its [uNeg] feature being checked, which will cause the derivation to crash at LF. The NCI raises to adjoin to the vP , putting it at the edge of the vP phase and making it available to be checked by an interpretable feature in a higher phase.³ The [uNEG] feature projects NegP, and the negative marker *no* with an interpretable negation feature [iNeg] merges as the Neg° . It probes for goals and finds the Object NCI *nada*, as indicated with dotted lines, then checks and deletes the [uNeg] feature (indicated by strikethrough text).

²Zeijlstra illustrates this analysis with Italian data, although throughout the work he categorizes both Italian and Spanish as prototypical Non-Strict NC languages. Therefore, the analysis is assumed to hold for Spanish as well.

³This movement seems to be entirely driven by the need to check the uninterpretable feature. This is not Quantifier Raising (QR), as Zeijlstra states that he considers NCIs as “non-negative indefinites that are syntactically marked for negation by means of a [uNEG] feature” (2004:241), meaning they are without quantificational properties. Zeijlstra states that the syntactic object must raise to the edge of the vP phase, but does not discuss whether this movement is overt or covert (2004:250). We may assume that it is covert movement, due to the derivation of ungrammatical word orders that might occur if the movement is overt.

- (130) Derivation of Object NC in Non-Strict NC language Spanish: *No trajo nada* ‘He didn’t bring anything’ (based on Zeijlstra 2004:258-259)



Object NC is derived in almost the same way in the Strict NC language Polish.⁴ As shown in (131), based on Zeijlstra (2004: 249-252), the NCI object *nic* is first merged in the VP. The negated verb *nie widział* raises from the V head to the *v* head, and the external argument *Jan* is merged as a specifier to vP.⁵ As in the Strict NC derivation above, the Object NCI must raise to the edge of the vP phase to prevent the derivation from crashing when the complement of *v*° is shipped to LF.

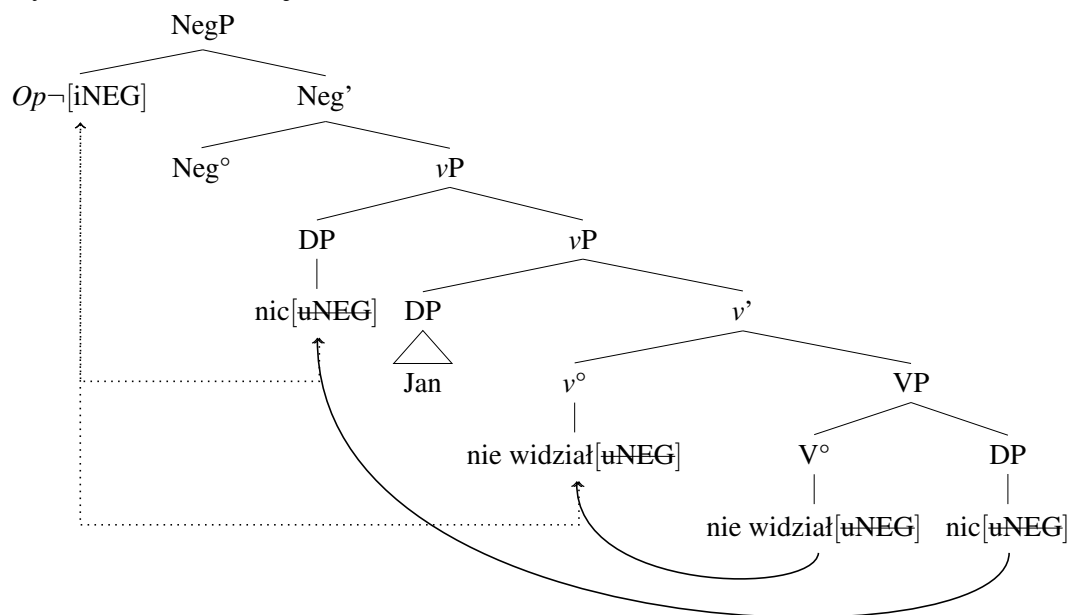
The [uNeg] feature projects the Neg°, and the silent operator *Op*_¬ with the [iNeg] feature merges in the specifier of NegP. The *Op* in NegP probes for goals in its c-command domain, and finds two, indicated in (131) as dotted lines. One of the two [uNeg] features is in the phase

⁴Zeijlstra illustrates the analysis for Strict NC languages with Czech, although as Czech and Polish as categorized in the same way (Zeijlstra 2004: 147), the analysis is assumed to hold for Polish as well.

⁵Zeijlstra places sentential negation markers in Slavic languages such as Polish and Czech in the category of “languages with a negative marker X°” (2008b:13-15). It is unclear then why sentential markers in Czech are analyzed as part of a negated verb in Zeijlstra (2004:249-252).

head v . The other, in the NCI, is at the edge of the vP phase. Since the goals are in the same domain and neither has been checked, they are both available to undergo Multiple Agree with the $[iNeg]$ feature. These features are checked and deleted, as indicated in (131) by the strikethrough formatting.

- (131) Derivation of Object NC in Strict NC language Polish: *Jan nic nie widział* ‘Jan didn’t see anyone’ (based on Zeijlstra 2004: 249-252)



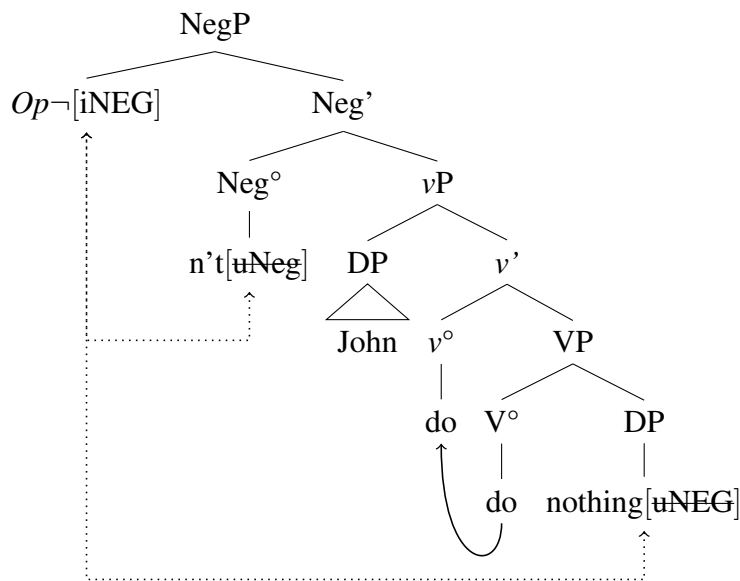
As in the Non-Strict NC derivation, the object DP raises to SpecvP to move to the edge of the vP phase and undergo Agree with the negative operator. In (131), the movement seems to be overt, as it derives the surface word order. However, in (130), this movement cannot be overt, as it would derive the ungrammatical **No nada trajó*. Zeijlstra does not discuss the nature of this movement or how it might differ in Non-Strict versus Strict NC languages.

Where does English fit into this picture? Zeijlstra includes English as a DN language, but notes that there are non-standardized varieties of English that allow NC, and states that these varieties can be either Strict NC or Non-Strict NC varieties (2004:257-258). Zeijlstra analyzes the

English sentential negation *n't* as a Neg° with a $[\text{uNeg}]$ feature, and derives NC in English through a silent negative operator that Agrees with at least one negative item.

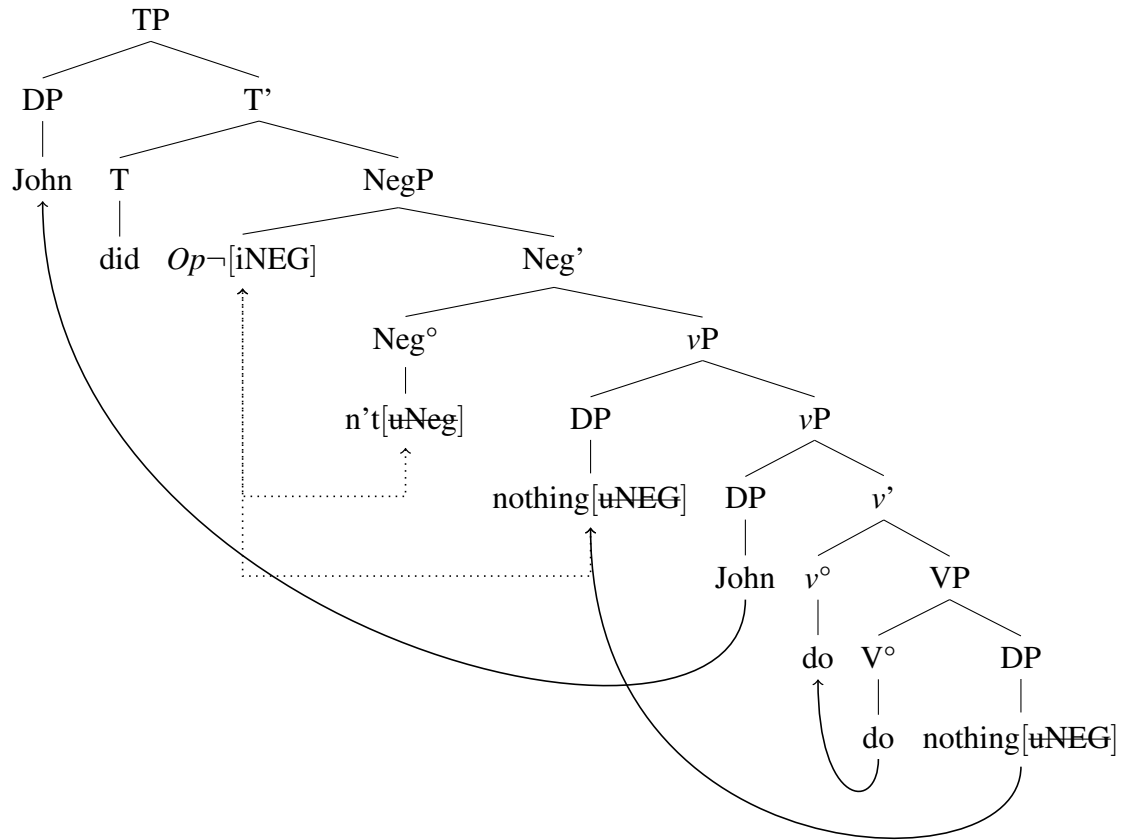
The following incomplete derivation is given by Zeijlstra (2004:257-258) as the structure of Object NC in a Strict NC English variety.

(132) Derivation of Object NC in English varieties (Strict NC): *John didn't do nothing* (Zeijlstra 2004:257-258)



Although this tree is taken from Zeijlstra (2004:258), it is important to note that under this analysis' assumptions, this derivation would crash. Zeijlstra does not state this, but it is assumed that the object DP *nothing* would raise to SpecvP to prevent the derivation from crashing and to undergo Agree with the negative operator. The following example is a full derivation of Object NC in English, assuming the Agreement approach.

- (133) Full derivation of Object NC in English varieties (Strict NC): *John didn't do nothing* (based on Zeijlstra 2004:257-258)



Note that in the Polish example (131), the raising of the object NCI *nic* to the edge of the vP phase is reflected in the surface word order—the object precedes the negated verb. However in English, an ungrammatical word order is produced if the movement of the object NCI is overt: **John didn't nothing do*. Zeijlstra does not discuss whether this movement is covert or overt, and it seems that whether this movement is covert or overt, it will make incorrect predictions of surface word order for at least some languages.⁶

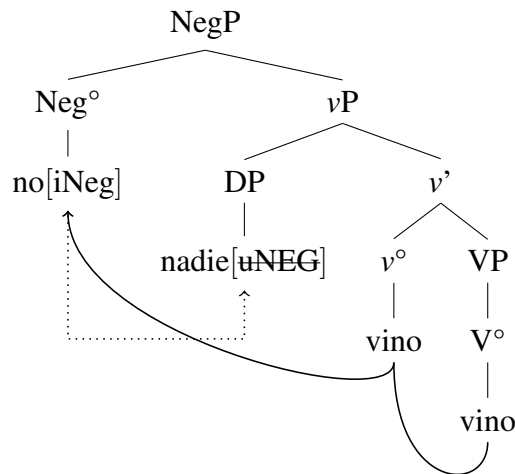
⁶Zeijlstra considers both Slavic languages such as Polish and English Strict NC varieties as Jespersen Phase I languages (2004:146), so there is reason to assume a unified analysis for these two language types.

4.3.2 Deriving Subject NC in the Agreement approach

Non-Strict NC and Strict NC languages differ most sharply in the availability and derivation of Subject NC. Non-Strict NC languages allow post-verbal Subject NC only, and do not allow both a NCI and a negative marker to appear pre-verbally, as in (127). Strict NC languages, however, allow both post-verbal and pre-verbal Subject NC, as shown in (129) above.

A derivation of post-verbal Subject NC in Spanish is shown in (134). First the verb is merged in the VP, then head-raised to v° . Next, the subject NCI is merged in Spec v P. The uNeg feature projects the NegP. The negative marker *no* is merged in the Neg $^\circ$ with its iNeg feature. The Neg $^\circ$ Agrees with the NCI, checking the uNeg feature, and stopping the derivation from crashing at LF.

- (134) Derivation of postverbal subject NC in Non-Strict NC language Spanish: *No vino nadie*
 ‘Nobody came’ (based on Zeijlstra 2004: 258-261)



Zeijlstra proposes that, as in Strict NC languages, the verb raises to Neg $^\circ$, creating the negated verb *no vino*.⁷ Although this proposal is not crucial for Strict NC languages, it is crucial

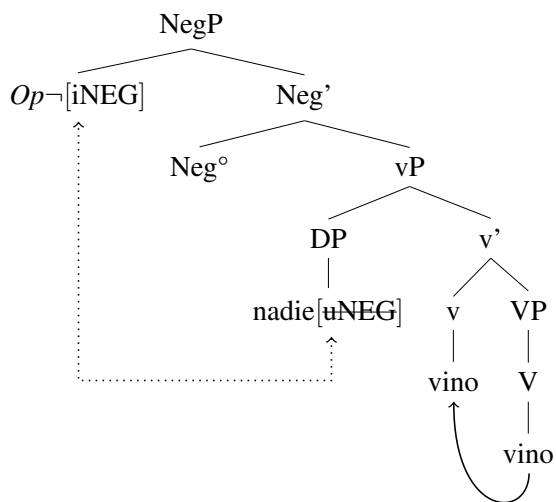
⁷This comes from a larger assumption that Non-Strict NC languages also have v to T movement, so the v° would need to move through the intervening head Neg $^\circ$.

in the derivation of Subject NC in Non-Strict NC languages, as the surface word order *No nadie vino* is ungrammatical.

Under this analysis, the ungrammatical *Nadie no vino* is not derived, as it would cause an issue with the semantic calculation of the sentence and cause the derivation to fail at LF.⁸ In essence, the NCI *nadie* cannot raise out of the c-command domain of the sentential negation *no* (2004: 259).

How then do we derive grammatical sentences with negative pre-verbal subjects in Non-Strict NC languages? Under this approach, negative pre-verbal subjects are in an Agree relationship with a silent negative operator, as in Strict NC languages. As shown in the derivation in (135), for the sentence *Nadie vino* ('Nobody came'), the external argument *nadie* merges in the specifier of vP and Agrees with the silent negative operator. This analysis also allows for multiple NCIs with a negated subject, such as *Nadie dijo nada* ('Nobody said anything').

- (135) Derivation of preverbal subject negation in Non-Strict NC language Spanish: *Nadie vino* 'Nobody came' (based on Zeijlstra 2004: 258-261)

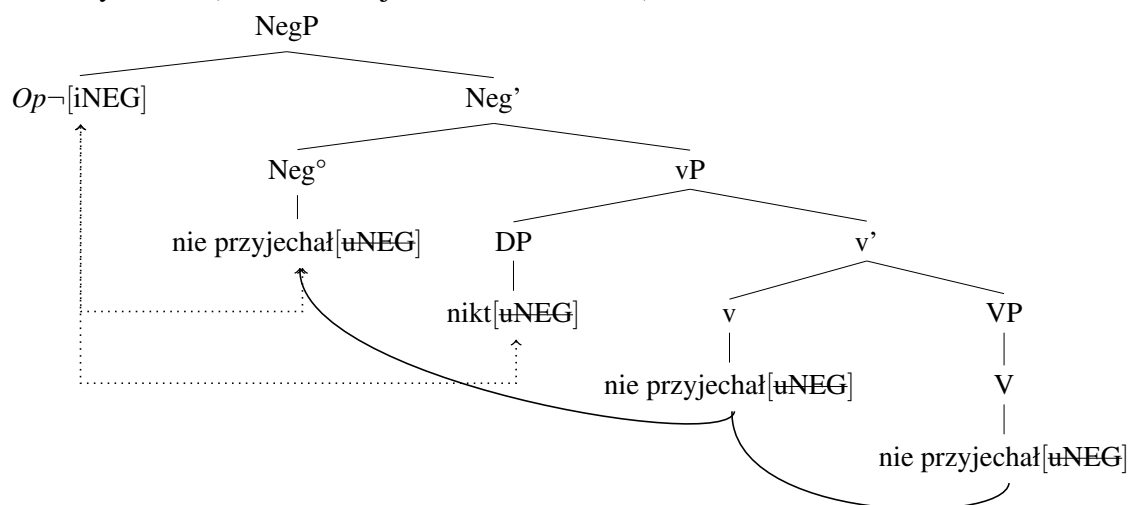


⁸In this analysis, the sentential negation *no* introduces an existential quantifier that binds the free variable introduced by the subject *nadie*. If the subject (*nadie*) raises move out of the c-command domain of the quantifier by which it is bound (*no*), the subject (*nadie*) would have a variable bound by a lower quantifier (*no*), which would crash the derivation at LF (Zeijlstra 2004:259).

Turning to English, Zeijlstra claims that there are two varieties of non-standardized English that allow NC: Strict NC varieties and Non-Strict NC varieties. We can see here that the Non-Strict NC varieties of English, under the Agreement approach, are those that allow Object NC but not Subject NC. As stated in Chapter 2, those varieties are, for example, Scottish English (Smith 2001), and Reading, England English (Cheshire 1982). The other dialects discussed in Chapter 2, those that allow Subject NC, would be Strict NC varieties. We turn to their analysis now.

Subject NC is derived in Strict NC languages in a way similar to Object NC: a silent operator *Op* in SpecNegP undergoes Multiple Agree with both the negated verb and the NCI, as shown in (136).

- (136) Derivation of postverbal subject NC in Strict NC language Polish: *Nie przyjechał nikt* ‘Nobody came’ (based on Zeijlstra 2004: 251-252)

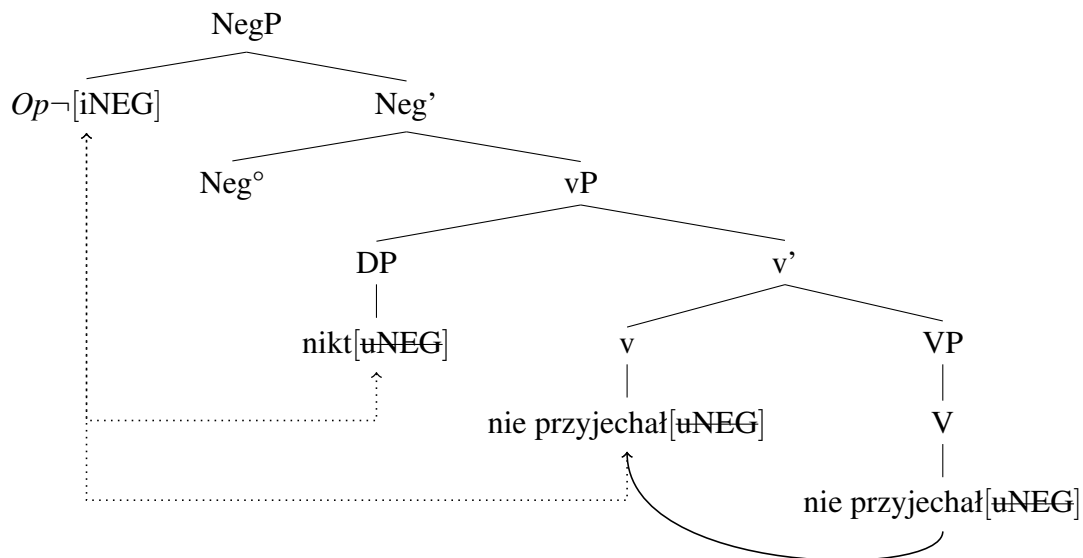


The negated verb with an uninterpretable *uNeg* feature merges in the VP and then raises to *v*[°]. The subject, in this case *nikt* ‘nobody’, also carrying a *uNeg* feature, merges in the specifier of *vP*. The *uNeg* feature projects NegP above *vP*. In the case of post-verbal Subject NC, the *v*[°] raises to adjoin to the Neg°. As in the Object NC derivation, the silent operator *Op* carrying the *iNeg* feature merges in SpecNegP. *Op* then Agrees with both the negated verb and the NCI subject. In

the Object NC derivation, the NCI had to raise to adjoin to vP to be at the edge of the vP phase and available for agreement with Op . This is not the case in the Subject NC derivation above. Here, because the NCI first merges as the specifier of vP , it is already at the vP phase edge and available as a goal for Op without any further movement.

In (136) we also see the negated verb raising to Neg° , which gives us the surface word order *Nie przyjechał nikt*. Zeijlstra claims that in this case, the V “moves along with the verb to Neg° ” (2004: 251-252). It is also possible for the verb to remain in the v° position, as in (137).

(137) Derivation of preverbal subject in NC Strict NC language Polish: *Nikt nie przyjechał* ‘No-body came’ (based on Zeijlstra 2004: 251-252)

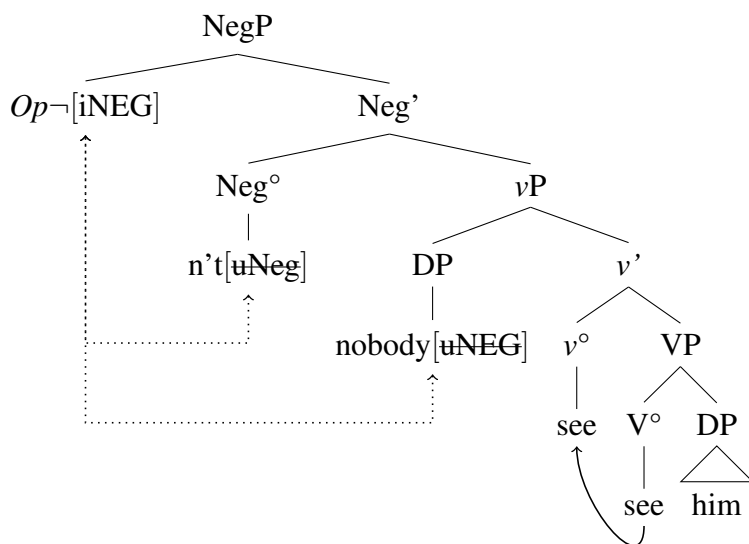


In this derivation, the verb does not raise to Neg° , but in every other way the derivation is the same as in (136) above. Both the Neg° and the v° positions are available to Agree with Op . This derivation does produce a different surface word order, *Nikt nie przyjechał*. Both surface word orders are grammatical in Polish.

Turning again to English, Zeijlstra claims that Strict NC varieties of English are becoming NC languages, and puts them in the same group as Slavic languages (2004:146). However, if

we analyze English Subject NC the same as Polish Subject NC, we get the following incomplete derivation.

- (138) Derivation of Subject NC in English varieties (Strict NC): *Nobody didn't see him* (based on Zeijlstra 2004:257-258)

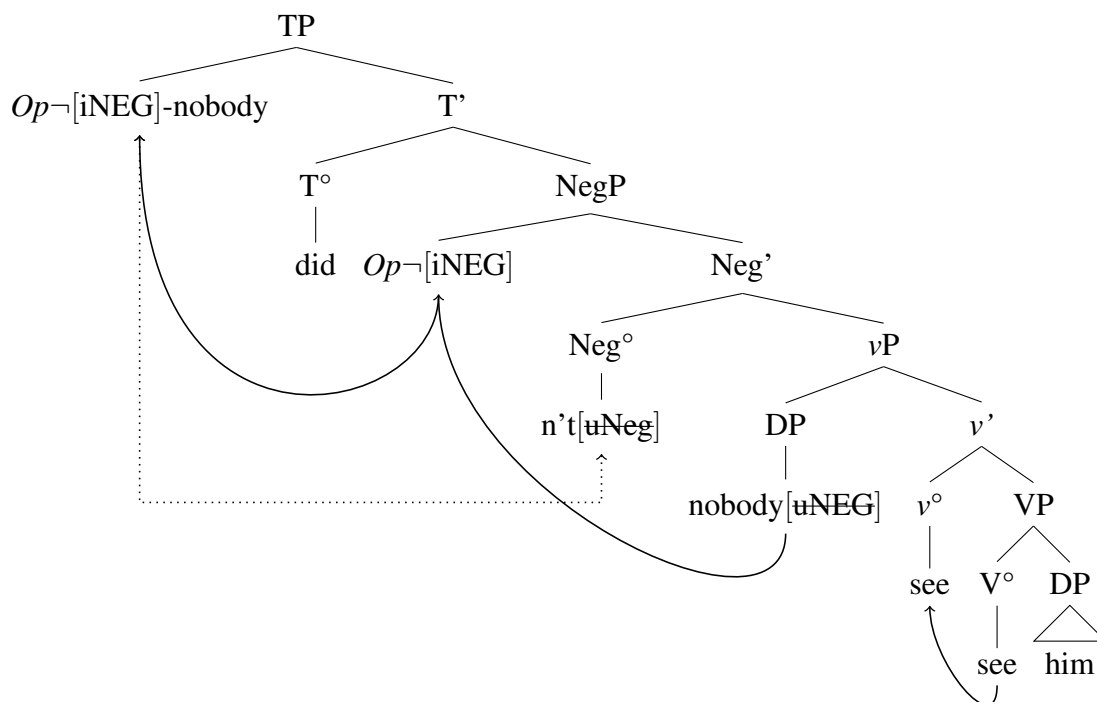


In (138), both the external argument *nobody* and the Neg° *n't* undergo Agree with the negative operator in SpecNegP. However, unlike the Polish derivations above, this tree yields the ungrammatical word order **n't nobody see him*. English requires that the subject *nobody* raise to SpecTP, and that the auxiliary verb *did* merges in T to yield the linear order *Nobody didn't see him*. However, as discussed above in relation to (134), the subject *nobody* cannot raise out of the c-command domain of the negative operator, or the derivation will crash at LF.

Therefore, I will assume that Zeijlstra would analyze English Subject NC in the same way he analyzes French Subject NC, as both languages involve the obligatory movement of the subject to SpecTP. In the French sentence *Personne ne mange* ('Nobody doesn't eat'/'Nobody eats'), Zeijlstra argues that the subject forms a compound with the negative operator, and that the

entire compound raises to SpecTP (2004:254). This then derives the correct surface word order, while the derivation remains licit at LF.⁹

- (139) Full derivation of Subject NC in English varieties (Strict NC): *Nobody didn't see him*
(based on Zeijlstra 2004:254)



4.3.3 Deriving Negative Auxiliary Inversion NC in the Agreement approach

Zeijlstra does not discuss NAI, only mentioning that negation can trigger inversion in Standardized English (2004:196-197). In addition, if there are cases of NAI NC in other languages that he surveys, these constructions are not mentioned or analyzed.

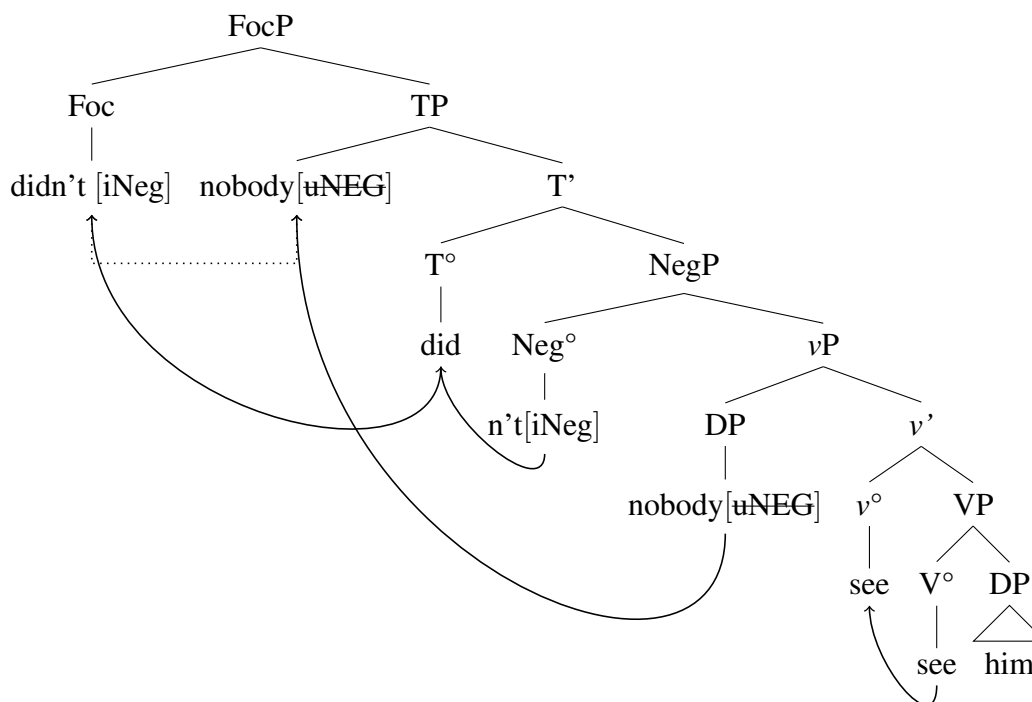
⁹One difference between the analysis of French and English is that in French, there is obligatory v to T movement, which moves the v through the Neg°, while in English there is not, making the exact relationship between *did* and *n't* opaque. Zeijlstra does not explicitly state in his analysis of English whether Neg° raises to T° , T° lowers to Neg°, or the two heads stay in situ. As the Neg° can still Agree with the negative operator in its base position, I have left both heads in situ in (139).

The correct surface word order could be derived under the Agreement approach in a derivation such as (139), if the subject DP stayed in situ in the specifier of vP . However, previous approaches to NAI NC involve raising the auxiliary verb over the subject to a projection in the left periphery, usually a FinP (Blanchette 2015; Blanchette & Collins 2019) or a FocP (Tubau 2008; Green 2014). It does not appear possible to derive NAI NC this way under the Agreement approach. The issue, in essence, is that none of the NCIs with the [uNeg] feature can raise out of the c-command domain of the negative operator. In order to get the subject *nobody* to the canonical English subject position of SpecTP in (139), we assume that Zeijlstra would say that the subject *nobody* raises to SpecNegP, forms a compound with the negative operator, and that this compound raises to SpecTP. If the auxiliary verb were then to raise above the negative subject, it would raise out of the c-command domain of the negative operator.

A different way to derive NAI NC under the Agreement approach would be to locate the [iNeg] feature on the Neg° *n't*, then to motivate the raising of the Neg° through the T° to a head in the left periphery—focus, for example—and raise the subject to SpecTP. This is, in essence, how Tubau (2008) conceives of NAI NC under an Agreement approach, illustrated in the tree below.¹⁰

¹⁰Tubau avoids the issue of moving the subject out of the c-command domain of negation by using parallel probing that attracts the negated auxiliary verb and the negative subject at the same time (2008:200-201).

(140) Possible derivation of NAI NC under an Agreement approach (adapted from Tubau 2008:205)



The issue with an analysis like that in (140) is that by locating the [iNeg] feature on the sentential negation *n't*, we classify the English variety as a Non-Strict NC language. Recall that Non-Strict NC languages are those that allow Object NC but do not allow Subject NC, defined here as concord between a negative pre-verbal subject and the negated verb. In other words, this analysis makes the prediction that we will find English varieties that allow Object NC and NAI NC, but do not allow Subject NC. As Chapter 3 shows, this is an incorrect prediction. Every English variety examined in Chapter 3 that allows NAI NC also allows Subject NC. Therefore, the Agreement approach cannot analyze NAI NC in a way that makes a correct typological prediction about the types of NC and the syntactic configurations in which they occur.

4.3.4 Deriving Long Distance NC in the Agreement approach

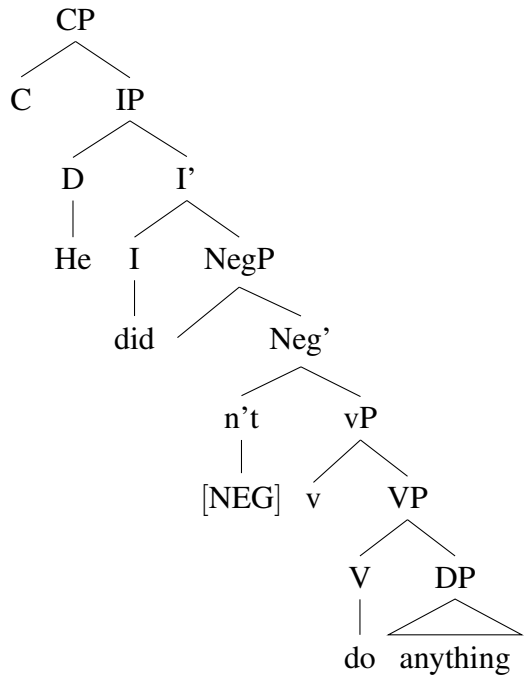
The Agreement approach does not derive long distance NC, and in fact purposefully rules it out. Zeijlstra argues for the clause-boundedness of NC based on empirical data from NC languages such as Czech (Strict NC) and Italian (Non-Strict NC), in which concord cannot exist between a negative element in a matrix clause and one in a subordinate clause (2004:64-65). Therefore, one strong prediction of the Agreement approach is that two elements must be in the same phase to undergo agreement, and a phase boundary can block agreement. This rules out long-distance NC, as this is not clause-bound. We know from Chapter 2 that long distance NC is attested in varieties of English, and therefore can say that this approach makes an incorrect prediction.

4.3.5 Relationship between NCIs and NPIs in the Agreement approach

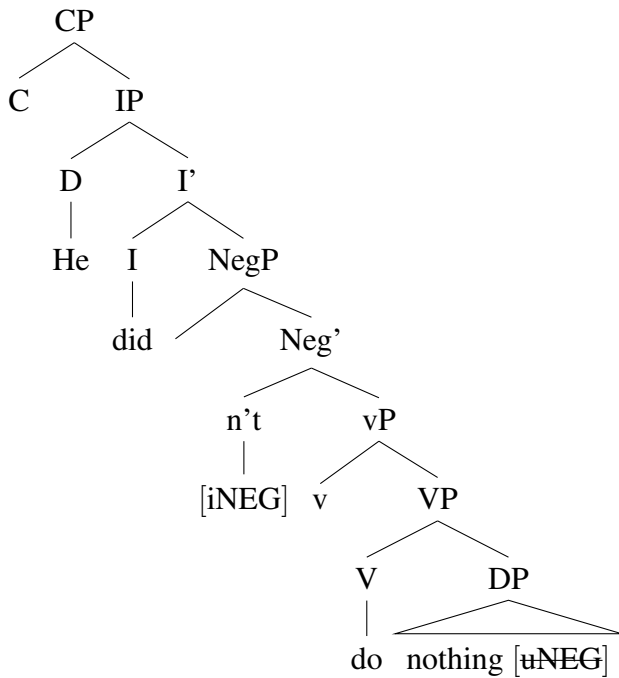
Zeijlstra considers NCIs as licensed by syntactic agreement, but argues that NPIs are licensed by semantics, not syntax (2004:271). In this way, *any* and *no* cannot be considered two sides of the same coin under the Agreement approach, as argued for in Chapter 3 and in the introduction to this chapter.

For an exact formulation of the difference in structure between NCIs and NPIs under the Agreement approach, I present the trees below, adapted from Childs (2017b:5).

(141) NPI negation in English under the Agreement approach (adapted from Childs 2017b: 5)



(142) Object NC in English under the Agreement approach (Childs 2017b: 5)



Under the Agreement approach, NPI negation (141) has the same syntactic structure as NC (142), with the difference that in NPI negation, *anything* does not Agree with the Neg head *n't* with a semantic [NEG] feature. Instead, *anything* surfaces as a default spell-out of the indefinite DP. In NC, the agreement between the Neg head and the object NCI causes *nothing* to surface.

4.3.6 Experimental predictions under the Agreement approach

If we adopt the Agreement approach, what predictions does this make for the grammatical acceptability study and perception study presented in the second half of this dissertation? An immediate problem is that the Agreement approach treats NC and DN typologically: There are Non-Strict NC languages, Strict NC languages, and DN languages. Based on the evidence presented in Chapters 2 and 3, it is not clear that any English variety described fits into these categories, as NC in English is always variable. Setting this issue aside, these are the predictions that this approach would make for a grammatical acceptability survey.

Non-Strict NC English varieties allow Object NC by having the Neg^o *n't* Agree with the negative object. They do not allow Subject NC, as that would involve raising the negative subject over the Neg^o *n't*, and out of its c-command domain. They are also predicted to allow NAI NC, as the subject and Neg^o *n't* raise to SpecTP and Foc^o, respectively, and the subject stays in the c-command domain of the Neg^o. This analysis predicts that speakers of Non-Strict NC English varieties would accept Object NC and NAI NC, but reject Subject NC.

Strict NC English varieties allow Object NC by having the silent negative operator Agree with the negative object, which it c-commands and shares a phase with. These varieties allow Subject NC, presumably by having the negative subject raise and form a compound with the negative operator, and then raise to SpecTP as part of the compound. However, these varieties cannot derive NAI NC, as it would involve moving a negative item *n't* marked with [uNeg] out of the c-command domain of the operator-negative subject compound which carries the [iNeg] feature.

This analysis would lead us to predict that speakers of Strict NC English varieties would reject NAI NC, compared to Object NC and Subject NC.

As for the perception survey, this approach makes no direct predictions about the social evaluation of NC. However, it will be helpful to make note of what this approach considers to be in the syntax versus in the morphology. According to this theory, NC is syntax, as syntax is what relates interpretable and uninterpretable features.

This theory would not consider *any-no* variation as a morphological variable, nor would it consider the alternation as variation. Under the Agreement approach, the *any-no* variation laid out in Chapter 3 would be considered code-switching between different English varieties.¹¹ Each of those varieties has a different catalog of syntactic and semantic features: Standardized English has the semantic [NEG] feature, which does not undergo syntactic Agreement; Non-Strict NC English varieties have the Neg^o *n't* which carries the [iNeg] feature, and which undergoes Agree with [uNeg] features in the same phase that it c-commands; and Strict NC English varieties have a silent negative operator that carries the [iNeg] feature and Agrees with [uNeg] features in their phase and c-command domain. This account crucially decouples NPIs from NCIs, since NPIs are not licensed by Agree, but rather licensed only by semantics, and NCIs are licensed by Agree in the syntax.

In Chapters 6 and 7, I revisit these predictions and discuss them in light of the results of a grammatical acceptability survey (Chapter 6) and a perception experiment (Chapter 7). For now, we will reject this approach on the basis that it cannot simply account for the variability inherent in English NC described in Chapter 3. In the next section, I consider an approach that treats the NC relationship as one of movement, not agreement.

¹¹I present evidence in Chapter 3 that English is in fact an underlying NC language with variable realization of NC. While there may be instances of *any-no* variation that are the result of code-switching by bidialectal English speakers, I argue that it is not the case that every instance of *any-no* variation is necessarily code-switching.

4.4 Movement approach (Blanchette 2015, Blanchette & Collins 2019)

Blanchette (2015) extends the NEG-raising analysis of Collins & Postal (2014) to variable NC in Appalachian English (AppE), using data from The Audio-Aligned and Parsed Corpus of Appalachian English (AAPCAppE) (Tortora et al. 2017). As examples (143)–(145) show, one interviewee *EA* uses NCIs and NPIs interchangeably (Blanchette 2015:10).

(143) I **didn't** have **no** lice, and I **didn't** have **any** itch. (AAPCAppE: SKCTC-EA)

(144) Or at least they **never** said **nothing**. (AAPCAppE: SKCTC-EA)

(145) But we **never** did take **any** milk and butter to town. (AAPCAppE: SKCTC-EA)

In this section, I first introduce the syntactic background of the Collins & Postal (2014) approach to NEG-raising, then show how Blanchette (2015) and Blanchette & Collins (2019) have extended this analysis to account for variable NC in English.

4.4.1 Background: Collins & Postal 2014

Collins & Postal 2014 (henceforth CP14) argue that NEG-raising—the phenomenon by which negation can be pronounced in a matrix or embedded clause without a significant change in meaning, as in *I don't think it's raining* and *I think it isn't raining*—is syntactic in nature. While not the first claim of this type (see Fillmore 1963, Horn 1971, 1975, among others), this is significant work for clearly articulating a strong syntactic account of empirical facts that have often received an explanation in semantics and/or pragmatics (e.g. Jackendoff 1971, Pollock 1974, among others).

There are predicates that participate in the empirical phenomenon of NEG-raising, and those that do not, regardless of the theoretical analysis of those predicates. In NEG-raising predicates, such as *think*, *believe*, *appear*, or *recommend*, a negative marker can be pronounced in either

the embedded or matrix clause without a change in the sentence's interpretation. In other words, (146a) and (146b) below are interchangeable in informal speech.

- (146) a. I *think* that Angelica **won't** be upset about the party.
b. I **don't** *think* that Angelica will be upset about the party.

These NEG-raising predicates are contrasted with non-NEG-raising predicates, such as *claim*, *agree*, *concede*, and *know*, in which the occurrence of the negation in the matrix or embedded clause matches the scope of the negation. Contrast, for example, (146) above with (147) below.

- (147) a. I *claimed* that Angelica **wouldn't** be upset about the party.
b. I **didn't** *claim* that Angelica would be upset about the party.

In other words, (147a) and (147b) have different meanings and one cannot be substituted for the other.

CP14 claim that the difference between NEG-raising predicates and non-NEG-raising predicates is syntactic, not semantic.¹² Essentially, they claim that in examples like (146b), the sentential negation originates in the embedded clause (*won't be upset*) and then raises from the embedded clause to the matrix clause (*I don't think*). In contrast, in examples like (147a), the negation also originates in the embedded clause (*wouldn't be upset*), but is blocked from raising into the matrix clause (*I claimed*). Because the negation in (147a) cannot raise to the matrix clause, the negation cannot scope over the matrix verb *claim*. In examples like (147b), however, the negation merges in the higher clause. Therefore, the negation cannot reconstruct into the embedded clause, the negation **must** scope over the matrix verb *claim*, and thus (147a) and (147b) are not equivalent in meaning.

¹²One diagnostic for syntactic movement is whether the phenomenon in question obeys island constraints. Syntactic islands are parts of syntactic structure whose constituents cannot be extracted. CP14 show that NEG-raising predicates are indeed subject to island constraints with the relevant data in CP14 chapters 11 and 12 (p. 103-123). In addition, CP14 give other arguments about the syntactic nature of NEG-raising, including evidence from Horn clauses (chapter 14) and parentheticals (chapter 17).

What is most relevant for our purposes is the discussion of NEG-raising with NPIs in the embedded clause, as in (148).

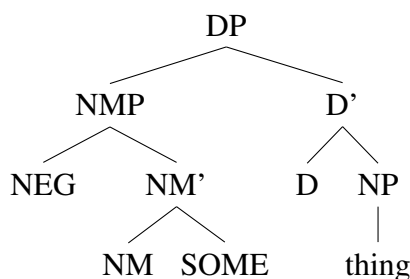
- (148) a. I **don't** *think* Lois saw **any** ghosts.
 b. I *think* Lois **didn't** see **any** ghosts.

CP14 assume, following Postal 2005, that NPIs contain at least one negative element, NEG. They divide NPIs into two categories: unary-NEG NPIs, which contain only one NEG element, and binary-NEG NPIs, which contain two NEG elements. The structures of each of these types of NPIs are given in (149), taken from CP14:31.¹³

- (149) a. [_α NEG X] unary-NEG NPI
 b. [_α NEG [NEG X]] binary-NEG NPI

The unary-NEG NPI will be the more important of the two for this discussion. The tree below gives a more articulated structure for the nominal NPI *anything*, which CP14 analyze as an underlying negative quantificational DP (CP14:27).

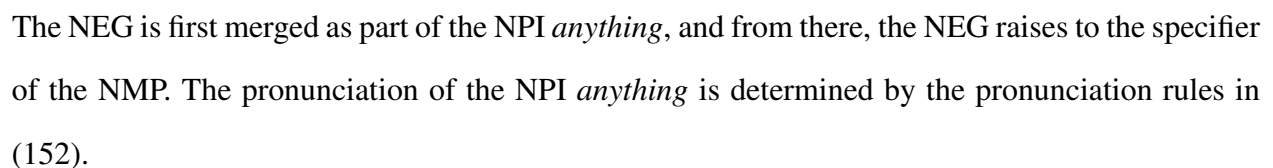
- (150) Structure of the unary-NEG NPI *anything* (CP14:27)



In a negative quantificational DP, the Negative Merge Phrase (NMP) is first merged in the specifier of DP, and the D head remains empty.

¹³This distinction is crucial for the CP14 approach, as they use it to analyze scopal differences in NPIs. For a discussion, including how these structures map onto more common theoretical terms such as (Non-)Strict NPIs and strong/weak NPIs, see CP14, ch. 9 (p. 79-91).

(151) Structure for *John didn't see anything* (based on CP14: 26-27)



- SOME \rightarrow *any*, in the context [\langle NEG \rangle __] (NEG unpronounced)
- SOME \rightarrow null, in the context [NEG__] (NEG pronounced)
- SOME \rightarrow *some*, otherwise

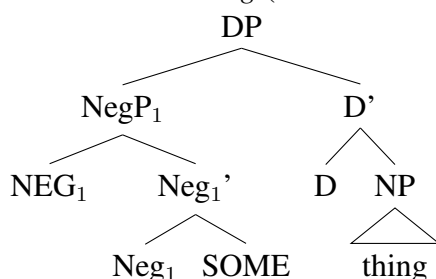
When the NEG has moved out of the NMP, SOME is pronounced as *any*, insuring that the NPI is always licensed, as the negation that licenses it has moved higher in the structure and will c-command the NPI. When the NEG stays in the NMP, in the sentence *John saw nothing*, for example, SOME is not pronounced. Otherwise, SOME is pronounced as *some*.

Under this system, *John didn't see anything* and *John saw nothing* have a similar underlying structure, but are distinguished by the NEG raising to SpecNMP, in the case of *John didn't see anything*, and the NEG staying in situ in *John saw nothing*, which in turn condition pronunciation rules at Spell Out. CP14 note that a NC sentence such as *John didn't see nothing* would also have this underlying structure (CP14:49), although the mapping rules in (152) do not derive it. This is, in essence, the jumping off point for Blanchette's (2015) analysis, who adapts the insights and mechanics of CP14 to account for variable NC in English.

4.4.2 Deriving Object NC in the Movement approach

Blanchette proposes that the NEG-raising analysis for unary NPI can be straight-forwardly applied to Object NC constructions. She follows CP14 in claiming that all NPIs and NCIs contain a NEG element, and keeps the structure of negative items from CP14, with a slight change in terminology of Negative Merge Phrase to NegP.

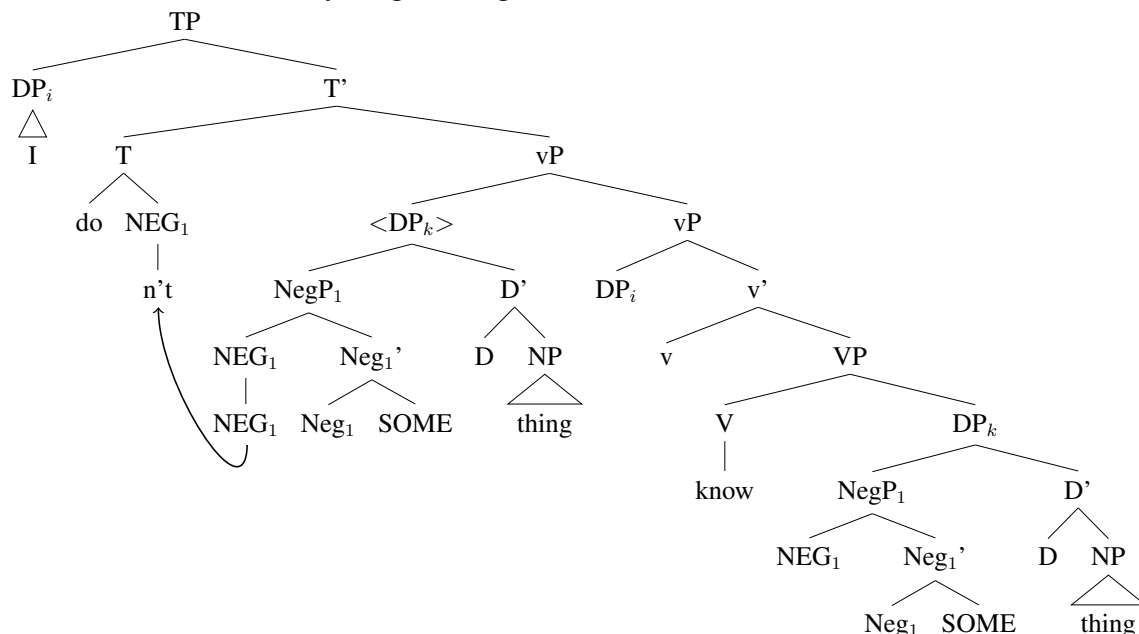
(153) Structure of *nothing* (Blanchette 2015: 54)



When a sentence has a negative object, as in (154), the DP *nothing* merges as the object of *know*. DP_k then raises to the edge of vP so that the negation can scope over the proposition,

although the NCI will be not be pronounced in its scope position (as indicated by $\langle \rangle$). From the higher scope-taking position, the NEG_1 head will raise to adjoin to the T head and spell out as *n't*.

(154) Tree for 'I don't know anything/nothing' (Blanchette 2015: 56)



Where this account diverges from CP14 is in the NEG_1 's status as a head which adjoins to T. CP14 instead cast NEG as an operator that moves from the specifier of the negative DP to the specifier of the Negative Merge Phrase (151). Blanchette notes that this does not capture the distinct syntactic behaviors of *n't* and *not* shown in previous literature (Zwicky & Pullum 1983; Pollock 1989; Zanuttini 2001). To capture the differences between *n't* and *not*, then, Blanchette assumes that the NEG_1 head spells out as *n't*, while a *not* is the spell out of a specifier XP (2015:57).

Another difference between the accounts of CP14 and Blanchette (2015) is in the ability of Blanchette's account to generate the pronunciation *I don't know nothing* for the structure in (154). To get the NC pronunciation, the NEG_1 head is pronounced both as part of the T+ NEG_1 and as

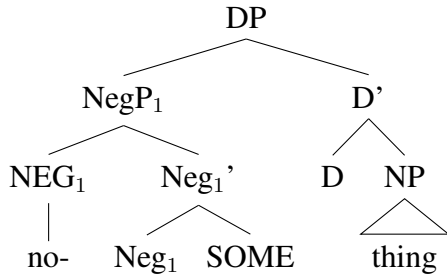
part of DP_k . Blanchette appeals to resumption as a way that the same element could be pronounced twice in a sentence and have a different pronunciation each time.¹⁴

(155) *The NC as Resumption Hypothesis* (Blanchette 2015: 59)

In English NC constructions with the forms *n't/not* and *no-*, the two negative elements are morphological reflexes of the same underlying negation, merged within $NegP_1$, and the *no* form resumes *n't/not*.

To be clear, then, under Blanchette's analysis, the lower copy of DP_k in (154) would have the resumptive *no-* spell out in the specifier of $NegP_1$, as shown below.

(156) Refined structure of *nothing/anything* (Blanchette 2015:60)



To ensure that the structure in (154) can also be pronounced as *I don't know anything*, Blanchette needs to make another change to CP14's analysis. Recall that the $SOME \rightarrow any$ mapping rules in (152) state that *SOME* is pronounced as *any* only when the NEG_1 is deleted. Therefore, in order for the tree in (154) to be pronounced as *I don't know anything*, the lower copy of NEG_1 must be deleted. Blanchette casts this as optional post-syntactic NEG_1 deletion, given as a PF constraint on the spell out of NEG_1 .

¹⁴Resumption is the multiple phonological pronunciation of a syntactic element that does not contribute to the semantics of the sentence. This analysis is based on Collins et al. (2018), which examines NPI constructions in Ewe and finds this kind of resumptive negation. Collins et al. (2018) also note that this sort of resumption is not unknown in English, as in the case of resumptive pronouns, such as "He is the kind of guy who I wonder if *he* will ever get married" (Collins et al. 2018:17)

(157) Constraint on the Spell Out of NEG_s (Blanchette 2015:66)

If a NEG₁ has multiple occurrences, only one is spelled out.

Under the Movement approach, this constraint, and therefore the variation between NC and NPI-negation, is not syntactic but post-syntactic. This constraint can switch on and off, and that is the mechanism that is used to derive variable Object NC in this analysis. Blanchette also proposes that it is this post-syntactic constraint that led to the sociolinguistically motivated rise of NPIs in the history of English (2015:66).

This system runs into a problem when we return to the variable NC presented in the previous chapter. Specifically, examples of mixed NCI-NPI chains like the one below present issues for this analysis (repeated from Chapter 3 for convenience).

(158) She **don't ever** do **no** work (DCA-se1-ag1-f-03-1, CORAAL:DCA [Fasold 1972; Kendall et al. 2018])

It is unclear how the realization of *never-any-neither* could be realized under this analysis. As we point out in Robinson & Thoms (2021a), multiple resumption of the kind that would be required for examples like (158) is virtually unattested, not to mention that such examples could not be simply recast as multiple copy Spell-Out (Nunes 2004), as all of the copies of NEG appear to have distinct morphological realizations in (158). It would appear that under the Movement approach, the constraint in (157) would need to be turned off and on within one sentence, which seems unlikely to be the case.

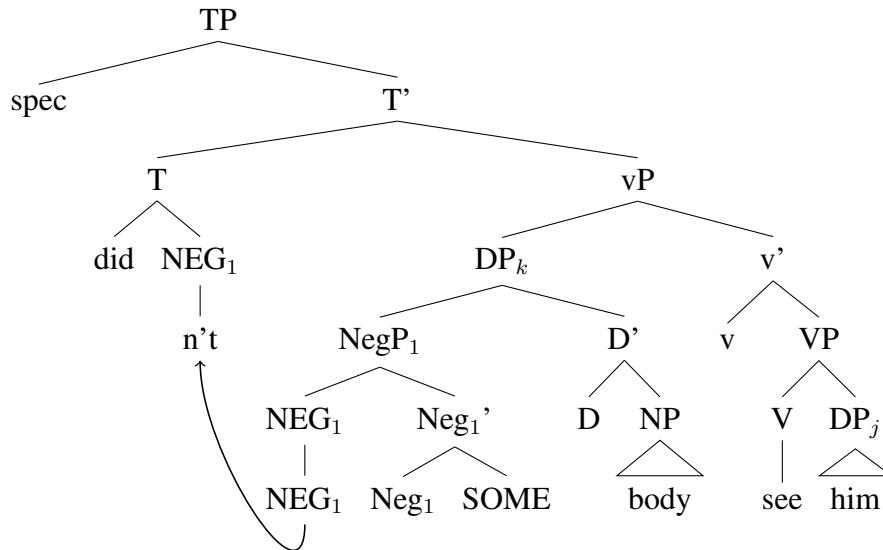
Putting these issues aside for now, we continue to explore the Movement approach and how it might derive NAI and Subject NC.

4.4.3 Deriving Negative Auxiliary Inversion in the Movement approach

This section precedes the Subject NC section, as Blanchette (2015) bases her Subject NC analysis on her analysis of NAI NC. To derive NAI NC, the negative subject is first merged in the external

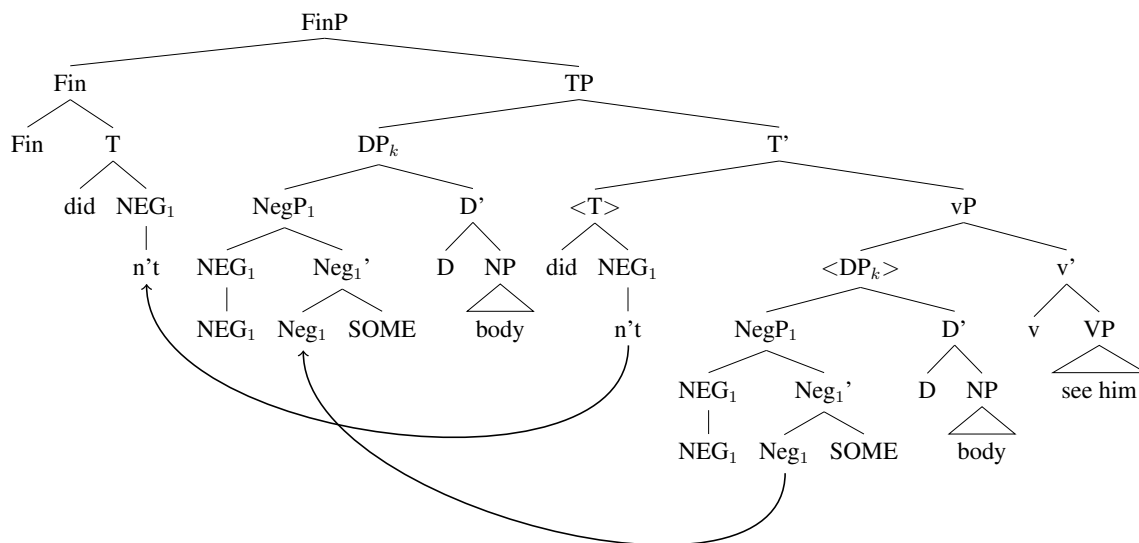
subject position at the edge of vP, and, just as in the derivation for Object NC, the NEG₁ head raises and adjoins to the T head.

- (159) First half of derivation of NAI NC sentence ‘Didn’t nobody see him’: Merging the negative subject and raising the NEG₁ head (based on Blanchette 2015: 125-126)



Then, the negative raises to SpecTP to satisfy the EPP feature on T, and the complex head in T raises over the negative subject to the head of FinP.

- (160) Second half of derivation of NAI NC sentence ‘Didn’t nobody see him’: Raising the subject and inverting the auxiliary verb (based on Blanchette 2015: 127-128)

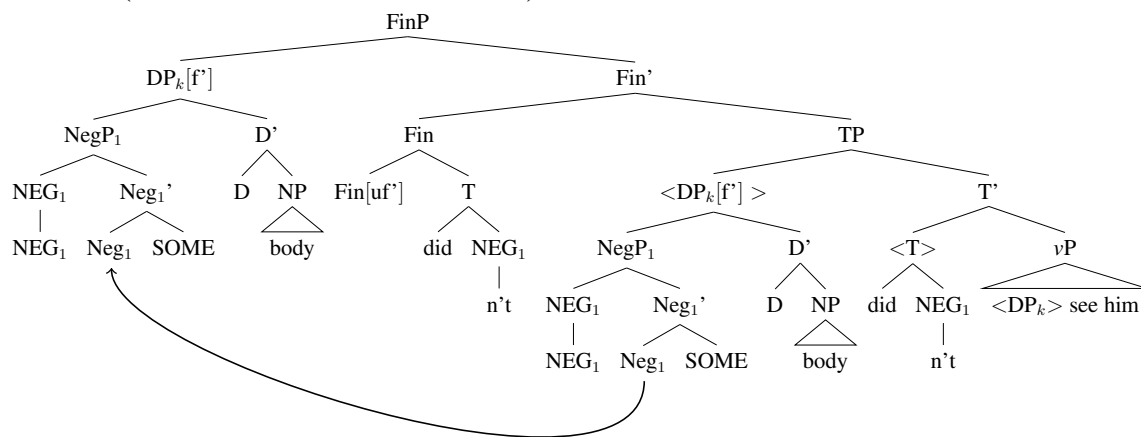


Under the Movement approach, NAI NC is realized in the same way as Object NC is: NEG_1 is pronounced *n't*, and the *no-* form resumes *n't*. Blanchette notes that the constraint on the Spell Out of NEG₁s (157) can also be switched on or off for NAI, just as in Object NC. This means that the Movement approach correctly predicts that NPIs can also appear in NAI sentences (Blanchette 2015:129; Blanchette & Collins 2019:50).

4.4.4 Deriving Subject NC in the Movement approach

Under the Movement approach, Subject NC is derived from NAI NC. Just as in the derivation in the above section, the negative subject *nobody* merges as the specifier to vP , the NEG_1 head raises from the negative subject to adjoin to the T head, the negative subject raises to SpecTP, and the $T+NEG$ head raises to the Fin head. Then, as shown in the structure below, the negative subject raises to SpecFinP.

- (161) Derivation of Subject NC sentence ‘Nobody didn’t see him’, based on the derivation of NAI NC (based on Blanchette 2015: 135)



Under this analysis, Subject NC is distinct from Object NC and NAI NC in two ways. First, it is derived via A-bar movement: unary NEG_1 constituents carry an interpretable $[f']$ feature, and the movement of DP_k from SpecTP to SpecFinP is driven by an uninterpretable f -bar feature $[uf']$ on the Fin head (Blanchette 2015: 135). Second, the pronunciation of two negatives is not cast in terms of resumption, but rather a PF rule.

- (162) PF rule for Subject NC (Blanchette 2015:142)

$$NEG_1 \rightarrow no- / [_{FINP} \text{ —}]$$

This rule states that NEG_1 will always be pronounced as *no-* when it is immediately dominated by FinP, or in other words, when it is in the specifier of FinP. Such a rule ensures that subject NPIs are not realized in canonical subject position.

Given the analysis of NAI in the previous section, it is reasonable to ask why Subject NC is not derived in a simpler manner, by leaving the negative subject in SpecTP and the negated auxiliary in the T head. Blanchette notes that previous work on NC in English dialects (Smith 2001; Tortora 2007) has established that varieties that allow NAI NC and Subject NC will also

allow Object NC, but not vice-versa, so she ties the syntax of Subject NC to NAI NC (2015:136). However, Tubau (2016) and Thoms & Robinson (2021) present evidence of British dialects which allow Subject NC but not NAI NC. As established in Chapter 3, the implicational hierarchy of NC configurations that a variety of English will allow is more fine-grained than Blanchette assumes, and thus this approach makes an incorrect prediction that NAI NC is a pre-condition for Subject NC.

An amended version of Blanchette’s analysis could decouple NAI NC from Subject NC and again, leave the negative subject in SpecTP and the negated auxiliary in the T head. However, given the constraint on the Spell Out of NEG_s in (157), this would predict that varieties with Subject NC also allow NPIs in subject position, for example *Anybody didn’t see him*. As discussed in Chapter 2, the only varieties where subject NPIs are attested, Irish Englishes, do not allow Subject NC, so this is an incorrect prediction.¹⁵

4.4.5 Deriving Long Distance NC in the Movement approach

Since NC is tied to NEG-raising under the movement approach, long distance NC across NEG-Raising predicates is expected under this analysis, and is indeed attested in Blanchette’s data.

- (163) I **don’t** reckon there was **no federal men** back then AppE (Blanchette 2015:82)
 ‘I don’t reckon there were any federal men back then’

She gives the following structure for the long distance NC, where the negative DP_k *no federal men* raises to its scope position at the edge of the embedded clause and the sentential negation NEG₁ raises into the matrix clause.

- (164) Structure of long distance NC sentence in (163) (Blanchette 2015: 83)

I do NEG₁ reckon [_{CP} <[NEG₁ SOME₁ federal men]_k > [_{TP} there [_{VP} was DP_k]]]

¹⁵Hickey (2007) notes that Subject NPIs are used in both northern and southern varieties of Irish English, and explicitly excludes Subject NC from his discussion of negative concord in Irish English. Henry (1997) notes that Subject NC is ungrammatical in Belfast English.

With this structure, the NEG₁ in the matrix clause is pronounced *n't*, and the *no* form resumes *n't* in the embedded clause. Therefore, the analysis of NC as resumption extends to long distance NC across NEG-raising predicates in a straightforward manner.

Blanchette also claims that NC is always possible across non-finite clause boundaries, with NEG-raising predicates and non-NEG-raising predicates alike. Take for example, the sentence in (165), which has a NC reading across the non-NEG-raising predicate *know*.

- (165) Well people back then **didn't** *know* how to have **nothing**. AppE (Blanchette 2015:94)
 'Well people back then didn't know how to have anything'

The structure for (165) is given below. Note that in this case, the negative DP raises across the clause boundary and over the matrix verb *know*, so that it scopes over the matrix proposition.

- (166) Structure of long distance NC sentence in (165) (Blanchette 2015:95)
 Well people back then did NEG₁ [_{VP} <[NEG₁ SOME thing]> know [_{CP} how to have [NEG₁ SOME thing]]

In short, under this approach, long distance NC can occur across NEG-raising and non-NEG-raising predicates, as long as those predicates embed a non-finite clause. Long distance NC can only occur across NEG-raising predicates that embed a finite clause, and cannot occur across non-NEG-raising predicates that embed a finite clause. Blanchette proposes the following constraint to capture this generalization:

- (167) NC Clause Boundary Constraint (Blanchette 2015:91):

Finite embedded clauses under non-NEG-raising verbs block NC. Unless a finite clause is embedded under a NEG-raising verb, NC cannot occur across its highest edge.

Further empirical data shows, however, that this constraint does not always hold. As the following examples show, repeated from Section 4.1 for convenience, NC across non-NEG-Raising predicates such as *be sure*, *know*, and *say* are in fact attested in AppE, SWAE, and AAL.

- (168) I **wasn't** *sure* that **nothin'** **wasn't** gonna come up a'tall AppE
 'I wasn't sure that anything was going to come up at all' (Wolfram & Christian 1976:113)
- (169) I **don't** *know* it's **nothin'** different SWAE (Feagin 1979:229)
 'I don't know it's anything different'
- (170) I **ain't** *know* he had **no curl** AAL (Weldon 1994:386)
 'I didn't know he had any curl'
- (171) He **ain't** say **nobody** was eating with **no college president** AAL
 'He didn't say anybody was eating with any college president' (Martin & Wolfram
 1998:20)

The Movement approach could account for these examples by getting rid of the NC Clause Boundary Constraint, which is an extra stipulation. However, if long distance NC can proceed across NEG-raising and non-NEG-raising predicates, it is unclear what this approach gains from linking NC so closely to NEG-raising.

4.4.6 Experimental predictions under the Movement approach

In terms of the different syntactic configurations of NC, this approach predicts that all English speakers can generate Object NC in their grammars, leading to a prediction for the grammatical acceptability study that Object NC will be accepted by more speakers than Subject NC or NAI NC will. In addition, this approach predicts that there will be a sharp divide between varieties that allow Object NC on one hand, and those that allow NAI NC and Subject NC on the other

hand. This prediction is formalized in the Remnant Raising Condition, adapted from Collins et al. (2018).

(172) The Remnant Raising Condition (Blanchette 2015:140)

If $M = [_{DP} [NEG\ SOME] NP]$, then no occurrence of M c-commands an occurrence of NEG.

Therefore, in varieties that have this condition, there should be a strong dispreference for both Subject NC and NAI NC. However, English-learning children would have to learn this condition on the basis of negative evidence, so this is not an altogether plausible proposal.

This approach further claims that Subject NC should be the most marked configuration, predicting that grammatical acceptability ratings both within and between speakers will be lower for Subject NC than for NAI NC. Subject NC is marked in that its derivation requires an extra f -bar feature on the Fin head, and it is unclear whether this feature is included in the feature inventory of all English speakers, only those English speakers who do not have the Remnant Raising Condition, or a subset of English speakers who do not have the Remnant Raising Condition and accept Subject NC.

Under this approach, the variation between *any* and *no* is treated syntactically, in that NC is analyzed as resumption, in which the resumptive elements are related by syntactic movement. However, this approach is readily compatible with a non-syntactic treatment of this variation, and in fact appeals to the morphology component of the grammar in two cases. In the case of Subject NC, Blanchette states the restriction on NPI subjects in terms of a PF rule (162), instead of resumption (2015:142). In another case, Blanchette notes that the Constraint on the Spell Out of NEGs in (157) is a PF constraint that can be switched on or off based on social factors (2015:66), and in fact has proposed that speakers of all English varieties generate Object NC in their grammars but do not realize NC because of social factors (Blanchette 2013). Therefore, the Movement ap-

proach categorizes *any* - *no* variation as variation in Spell Out (under the categorization scheme of MacKenzie & Robinson 2019, as detailed in Chapter 2), even though it does not treat the variation as strictly morphological.

4.5 Adapted Movement approach (Robinson & Thoms 2021a, 2021b)

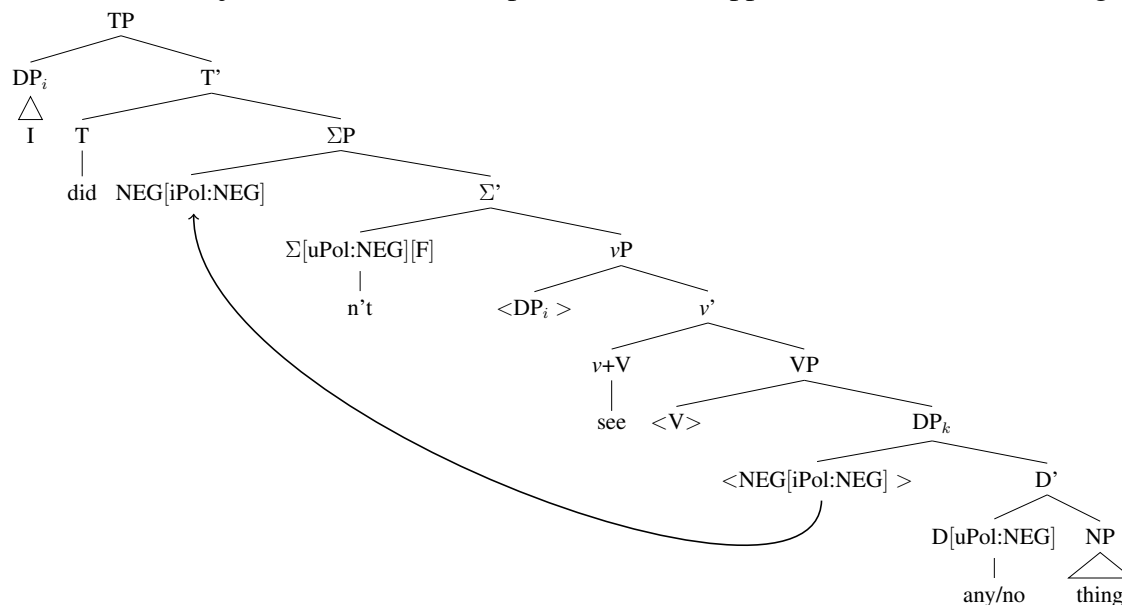
The Adapted Movement approach from Robinson & Thoms (2021a, 2021b; hereafter RT21) adapts the Movement approach presented in the previous section and makes it compatible with a wider range of variable NC data in English. It inherits from the Movement approach the key insights that NC dependencies are derived by movement, and more specifically that NCIs are licensed by a NEG element that raises from the NCI to its surface scope position. Where it differs from the Movement approach is that we do not assume that every NCI and NPI enters the derivation with a NEG. Instead, the first merged NCI or NPI merges a silent negative operator NEG in its specifier. In addition, we propose that there is a polarity projection ΣP in the clausal spine that, when the Σ head carries a syntactic feature F, will drive the movement of the NegP. As we will see, this change will crucially cause the Adapted Movement approach to make different predictions than the Movement approach. The other adaptation to the Movement approach is in creating a concrete implementation of the Spell Out of negative items with the framework of Distributed Morphology (DM; Halle & Marantz 1993). Therefore, in the Adapted Movement approach, the same syntactic structure will produce NC and NPI negation, but the realization of the items as NCIs or NPIs is entirely morphological.

4.5.1 Deriving Object NC in the Adapted Movement approach

Under this analysis, the negative operator NEG first merges in the structure as the specifier of the negative DP. The operator NEG carries an interpretable Polarity feature with the value NEG, and values the uninterpretable Polarity feature on the D head, which can then be pronounced as *any* or *no*.

In the Object NC derivation, the polarity head Σ carries a syntactic feature F that attracts the NEG operator to Spec Σ P.

(173) Derivation of Object NC under the Adapted Movement approach: ‘I didn’t see nothing’



The pronunciation of the Σ head is then conditioned by whether it carries the feature [F] and attracts the NEG to its specifier, or does not.

(174) Realization rules for Σ :

$\Sigma[uPol:NEG][F] \leftrightarrow /nt/$

$\Sigma[uPol:NEG] \leftrightarrow \emptyset$

As for *anything* and *nothing*, this analysis takes variation between NPIs and their NCI counterparts to be strictly morphological. Each item has two competing Spell Out grammars: the NPI grammar that produces the NPI and NCI (175a), and the NC grammar that only produces the NCI (175b). The NPI grammar generates ‘I didn’t see anything’ by limiting the realization /eni/ to those cases where the NEG has raised out of the DP, and having [no] realized when the NEG stays in the DP. The NC grammar generates ‘I didn’t see nothing’ by having [no] realized in all contexts.

(175) Realization rules for D:

a. NPI grammar:

$D[uPol:NEG] \leftrightarrow /eni/ \text{ / } [_{DP} <NEG> \text{ } ___]$

$D[uPol:NEG] \leftrightarrow /no/ \text{ / } [_{DP} NEG \text{ } ___]$

b. NC grammar:

$D[uPol:NEG] \leftrightarrow /no/$

The realization rules in (175a) are subject to different syntactic conditioning environments. I assume that there are locality restrictions on possible conditioning environments, whereby realization rules can only be triggered by syntactic elements that immediately dominate the syntactic node in question.

(176) A syntactic element Y immediately dominates a syntactic element X iff:

- i. Y c-commands X, and
- ii. Y and X are both dominated by XP.

Under this definition, the NEG element in (173) immediately dominates the D head, as the NEG element c-commands the D-head, and both the NEG element and the D head are dominated by DP. Note that while the NEG raises out of the DP in (173), the realization rules in (175a) refer only to the syntactic node that is in the local relationship with D, not any other syntactic positions that NEG may move to.

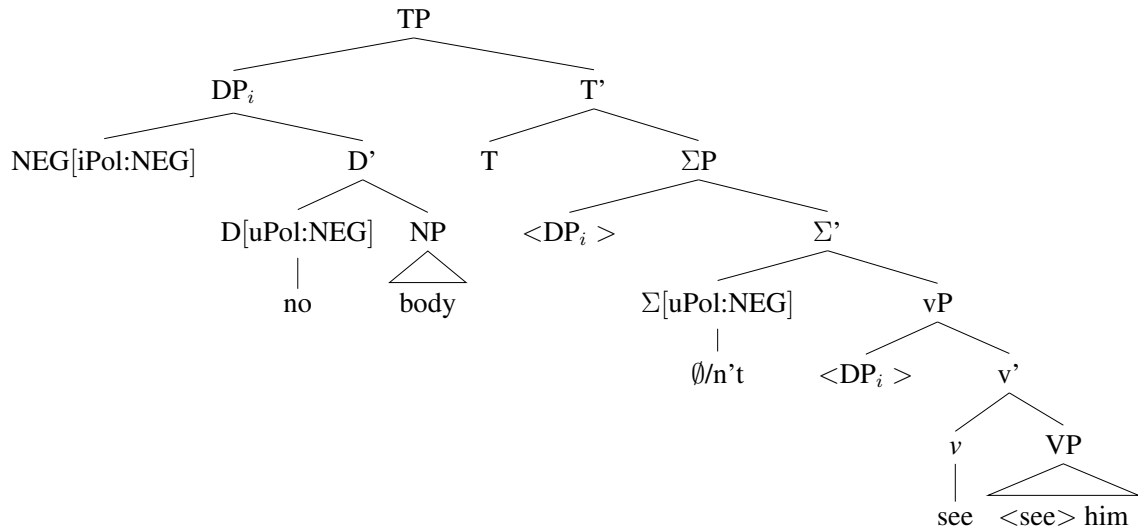
These Spell Out grammars compete with each other to be realized, in the sense of Kroch (1994) and Embick (2008). The probability *P* with which one of these grammars wins the competition varies by sociostylistic factors, and may also vary by internal linguistic factors and psychophysiological as well (i.e. the three types of conditioning factors identified by Tamminga et al. 2016—see Chapter 2 for more discussion). More specifically, for speakers who do not produce

NC, the probability P of (175a) winning the grammar competition is 1. In variable NC speakers, however, P of (175a) winning versus (175b) winning is learned from rates of community-wide usage, and P changes depending on the social context. For example, P of (175b) might be .7 in informal contexts and .3 in more formal settings. In non-variable NC speakers, then, the P of (175b) winning the competition would be 1.

4.5.2 Deriving Subject NC in the Adapted Movement approach

The main difference between the derivation of Object NC and Subject NC under this approach is that in the Subject NC derivation, the Σ head does not carry the F feature, so the NEG does not raise out of the negative DP. Instead, the entire negative DP raises through ΣP to SpecTP, the canonical subject position in English.

(177) Derivation of Subject NC under the Adapted Movement approach: ‘Nobody didn’t see him’



One note to make about this derivation is that the Σ head is valued by NEG while still in the specifier of the negative DP. We assume, following Kayne's (1994) analysis of quantificational

possessors, that NEG in the specifier of DP can scope out of the DP to c-command the same domain as the DP does.

The realization rules for D do not change for this derivation, making this parallel with Object NC.

(178) Realization rules for D:

a. NPI grammar:

$D[uPol:NEG] \leftrightarrow /eni/ \text{ } [_{DP} \langle NEG \rangle \text{ } __]$

$D[uPol:NEG] \leftrightarrow /no/ \text{ } [_{DP} NEG \text{ } __]$

b. NC grammar:

$D[uPol:NEG] \leftrightarrow /no/$

However, there is a difference between Object NC and Subject NC in that competing grammars come into play for the realization of Σ .¹⁶ Without the feature F, the NPI grammar will always realize Σ as \emptyset , producing ‘Nobody saw him’. The NC grammar will invariably realize Σ as /nt/, with or without the feature F, producing ‘Nobody didn’t see him’.

(179) Realization rules for Σ :

a. NPI grammar:

$\Sigma[uPol:NEG][F] \leftrightarrow /nt/$

$\Sigma[uPol:NEG] \leftrightarrow \emptyset$

b. NC grammar:

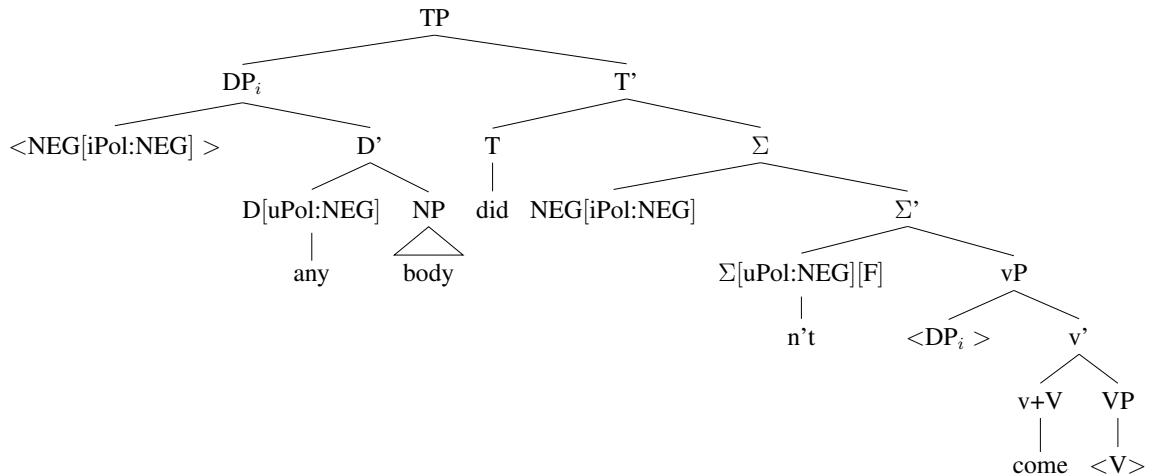
$\Sigma[uPol:NEG] \leftrightarrow /nt/$

¹⁶The competing grammars are at play in the derivation of Object NC as well, but trivially so, as they both produce /nt/.

This is how this approach distinguishes varieties that allow Object NC from varieties that allow Object NC and Subject NC: all English varieties have competing NPI and NC grammars for the realization of D, even if the probability of choosing one grammar might be 1. On the contrary, the NC grammar for the realization of the Σ head, which produces Subject NC, would have to be acquired via positive evidence. In other words, a child acquiring English would have to hear Subject NC to be able to hypothesize a realization rule to create Subject NC.

Under this analysis, it is logically possible for the Σ to have the feature F when there is a negative subject. That would attract NEG to Spec Σ P, and the remnant negative subject would raise to SpecTP to produce ‘Anybody didn’t come’, as in the derivation below.

(180) Derivation of ‘Anybody didn’t come’ under the Adapted Movement approach



We argue that this is not in fact a problem for the Adapted Movement approach, as these types of sentences are in fact attested in some Irish Englishes (Lunny 1981; Duffield 1993; Hickey 2007). Under this analysis, we argue that if a child acquiring English hears sentences like ‘Anybody didn’t come’, they will posit that the F feature can appear on the Σ head in sentences with negative objects and subjects alike. If a child doesn’t hear these sentences, then they will have no evidence for the F feature on the Σ head in sentences with negative subjects, and will posit that the F feature only appears on the Σ head when the negative DP is an object. To be clear, then, we follow Davidson

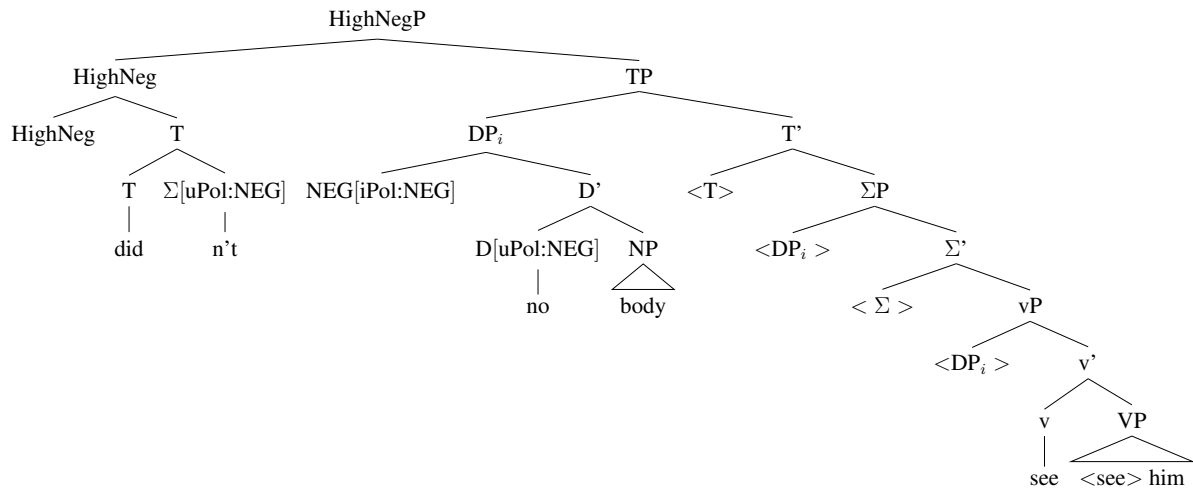
(2020) in expecting English learning children to hypothesize Object NC on the basis of sentential negations with NPIs that the child interprets as a form of concord. We do not expect the child to acquire Subject NC or Subject NPIs on this basis. We claim that the child would need to hear Subject NC or Subject NPIs to hypothesize that they are grammatical.

4.5.3 Deriving Negative Auxiliary Inversion in the Adapted Movement approach

Under this analysis, the derivation for Subject NC is the jumping off point for the derivation of NAI NC, which is based on the empirical observation that the English varieties in which NAI NC is attested are a subset of those in which Subject NC is attested.

We argue that what distinguishes the NAI NC varieties is the presence of a NegP projection in the C layer, which we call HighNegP. In NAI NC, the Σ head raises and adjoins to T, moving again to HighNeg as the complex head T+ Σ .

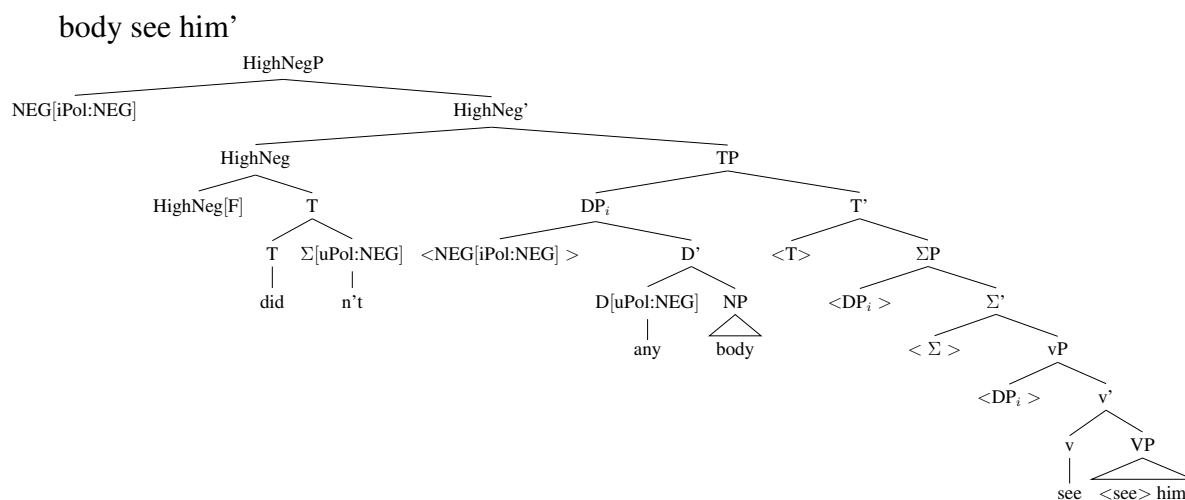
(181) Negative Auxiliary Inversion NC under the Adapted Movement approach: ‘Didn’t nobody see him’



The realization rules for NAI NC are the same as for Object NC and Subject NC. No modifications are needed for this configuration.

One note to add about NAI is that this configuration is attested with NPI subjects (e.g. *Didn't anybody see him*) in SWAE. This could be derived in one of two ways under this approach: either a Subject NPI could be derived as in (180), and then the auxiliary could be inverted, or NAI NC could be derived as in (181), and the NEG could raise into the HighNegP, creating the environment for the subject to be pronounced as *anybody*. As shown in the derivation below, I opt for the latter. This is because SWAE does not have attested examples of Subject NPIs of the form 'Anybody doesn't come', so there is neither an empirical nor theory-internal reason to assume that Subject NPIs underlie NAI with NPI subjects. As we will see in the next section, HighNegP is also the C layer projection that NEG will move through to raise into a higher clause for long distance NC. SWAE does allow long distance NC, so I assume that the HighNeg head carries a syntactic feature F that attracts the NEG to its specifier, and that this is what conditions the pronunciation 'Didn't anybody see him' in the derivation below. Again, the pronunciation rules for the D head and Σ head extend to this derivation with no changes.

(182) Negative Auxiliary Inversion NPI under the Adapted Movement approach: 'Didn't anybody see him'



As the derivation of NAI with a NPI subject involves HighNegP, this makes the prediction that NAI NPI will only be possible in dialects that have NAI NC. As shown in Chapter 3, this appear to

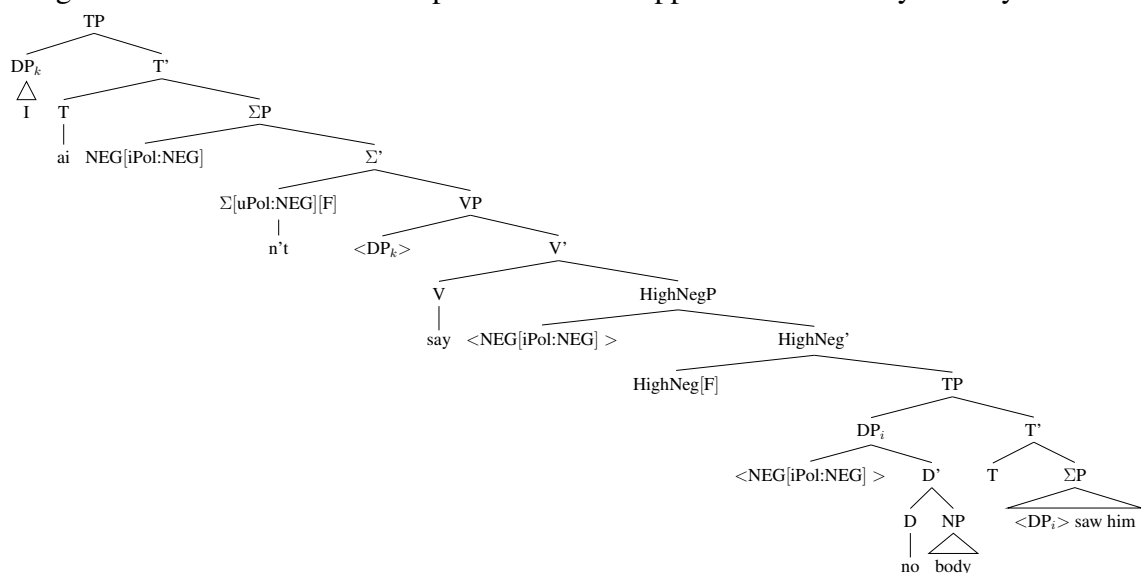
be borne out, as NAI NPI sentences are attested in Southern White American English, where NAI NC sentences are also attested.

4.5.4 Deriving Long Distance NC in the Adapted Movement approach

The long distance NC described in this section is also called *fully long distance NC* in RT21, and refers to long distance across non-NEG-raising predicates. In RT21, and in Chapter 3 of this work, we observe that the English varieties that allow long distance NC across non-NEG-raising predicates are the same varieties that allow NAI NC. Therefore, long distance NC is derived using the same negative projection in the C layer that allowed NAI in the last section, called HighNegP.

In the derivation of long distance NC in (183), the NEG first merges in the specifier of the negative subject of the embedded clause, and raises with the subject to SpecTP. The HighNeg head in this derivation carries a syntactic feature F which attracts the NEG to its specifier. As the HighNegP is a projection in the CP layer, the NEG moves out of the embedded clause and into the matrix clause, also raising out of the CP phase. NEG is then attracted to Spec Σ P of the matrix clause, where it then scopes over the matrix verb *say*.

(183) Long Distance NC under the Adapted Movement approach: ‘I ain’t say nobody saw him’



With the addition of the HighNegP, then, this approach offers an explanation for why some English varieties allow both NAI NC and long distance NC across non-NEG-raising predicates, without the need for any other additional mechanisms or pronunciation rules. Importantly, under this approach we tie cross-clausal NEG movement to some features of the CP-domain, which will need to be acquired on the basis of positive evidence. Many varieties of English lack long distance NC (as shown in Chapter 3), so it is a desirable consequence of this analysis that while HighNegP can be learned, it is not built into the system for all English language learners.

The Adapted Movement approach does the best job of the three theories presented in this chapter of capturing the range of NC systems we find across varieties of English: Each NC system introduced in Chapter 3 should be learnable on the basis of positive evidence, and the predictions in terms of correlations between features are correct. In short, this system works so well because it is built with variation in mind.

4.5.5 Experimental predictions under the Adapted Movement approach

The Adapted Movement approach is like the Movement approach in that it is built under the assumption, detailed in Chapter 3, that all English speakers can generate Object NC in their grammars. It is also built so that Subject NC can only be acquired by English-learning children on the basis of positive evidence. Therefore, it predicts that a larger number of participants in the grammatical acceptability study in Chapter 6 will accept Object NC over Subject NC. This approach also predicts that both Object NC items and Subject NC items will receive higher grammatical acceptability ratings than NAI NC items on the basis of economy. The derivation of NAI NC (181) involves more syntactic operations (i.e. more instances of Move and Merge) than Object NC or Subject NC, and the NAI NC derivation involves an additional syntactic element, HighNegP, that not all English speakers are predicted to have. Therefore, not only are individuals predicted to favor Object NC and Subject NC over NAI NC, but it is predicted that a larger number of participants will accept Object NC and Subject NC over NAI NC.

With respect to the perception experiment in Chapter 7, this approach serves as a good testing ground for theories about differences in social evaluation between syntactic versus morphological alternations. Under this approach, there is a clear difference in locus between the syntactic configurations of NC, on the one hand, and NC and non-NC structures, on the other hand: One is syntactic and one is morphological. For example, the syntactic difference between Object NC and Subject NC is whether the Σ head carries the feature F which attracts the NEG from the negative DP (Object NC), or not (Subject NC). In other words, a formal syntactic feature that triggers movement in the Narrow Syntax distinguishes Object NC from Subject NC. This means that comparisons of the perception of Object NC and Subject NC can give us insight into how small, specifically defined differences in the Narrow Syntax alter perception. It is important to note here that not every variety with Object NC also allows Subject NC (as shown in Chapter 3). Therefore,

the effect of Object NC versus Subject NC in perception may be mediated by the variety of English that the participant controls.

In the Adapted Movement approach, NAI NC is distinct from Object NC and Subject NC because it includes the HighNeg Phrase, where Object NC and Subject NC do not. As described in Section 4.5.4, this is both a typological and derivational distinction: It is typological in the sense that not all English speakers will have HighNegP in their syntactic inventory (see Table 3.2 in Chapter 3), and derivational in the sense that for speakers who have HighNegP, it may be Merged into the syntactic derivation to produce NAI NC, or not Merged into the derivation, producing Subject NC. This distinction between Object NC/Subject NC and NAI NC is considered syntactic either way, but again, the perception of this distinction may be mediated by the grammar of the participant.

This analysis claims that the realization of *any* and *no* is due to competing Spell Out grammars. There is, under this analysis, a clear distinction between the syntactic structure that produces both *I don't know anything* and *I don't know nothing*, and the realization of the same morpheme as either *any* or *no*. In this way, we assume no difference in the structure of sentences with NPIs and those with NCIs. We argue that NC - NPI variation is purely morphological and conditioned at least partly by social factors.

Under this analysis, there is a clear distinction between the alternations which take place in the narrow syntax (i.e. the different syntactic configurations of NC) and the alternations which happen at PF, i.e. the surface morphology of *any* versus *no*. Therefore, if we do find difference in the perception of these variables, we can locate that difference as in either the syntax or the morphology, without ad hoc placement of the variables into one of the groups after seeing the effect of perception.

4.6 Summary

In this chapter, I first reviewed the empirical data of variable NC in English that a formal syntactic account should be able to capture. This data consists of: Object NC, Subject NC, NAI NC, long distance NC, and NCI-NPI variation. In addition, the theory should predict the implicational hierarchy of NC syntactic configurations introduced in Chapter 3 and repeated here for convenience.

(184) Implicational hierarchy of NC syntactic configurations:

Long distance NC / Negative Auxiliary Inversion > Subject NC > Object NC

Ideally, the analysis would also indicate how variation could be conditioned by extra-linguistic factors.

I presented two previous approaches to NC: the Agreement approach of Zeijlstra (2004, 2008a, 2008b), and the Movement approach of Blanchette (2015), and Blanchette & Collins (2019), which is in turn based on the syntactic NEG-raising account of Collins & Postal (2014). The Agreement approach analyzes NC in terms of the syntactic operation Agree, which establishes an Agree relation between one interpretable Neg feature, and one or more uninterpretable Neg features. The Movement approach analyzes NC resumption of a single NEG that merges within a negative DP and raises to the sentential negation. The approach adopted here is an adapted version of the Movement approach, which treats NC - NPI variation as a matter of morphological Spell Out variation, in which the NEG conditions the forms of different heads throughout the derivation as it moves through their specifiers.

Table 4.1 compares how these three approaches fare on the desiderata laid out in Section 4.1, where a ✓ indicates that the approach meets the desired criterion, and an X indicates that it does not.

We see that the Agreement approach fails to model long distance NC (see Section 4.3.4), cannot model NCI-NPI variation (see Sections 4.3.5 and 4.3.6), and does not predict the implica-

Approach	Can model Object NC	Can model Subject NC	Can model NAI NC	Can model LD LNC	Can model NCI-NPI variation	Predicts Implicational hierarchy
Agreement	✓	✓	✓	X	X	X
Movement	✓	✓	✓	X	some	X
Adapted Movement	✓	✓	✓	✓	✓	✓

Table 4.1: Comparison of the three syntactic approaches to NC discussed in this chapter

tional heirarchy in (184) (see Section 4.3.6). The Movement approach fails to model long distance NC across non-NEG-raising predicates (see Section 4.4.5), and does not correctly predict the implicational hierarchy in (184) (see Section 4.4.6). Additionally, as discussed in Section 4.4.2, the Movement approach can model some NCI-NPI variation, such as *I didn't see nothing ~ I didn't see anything*. However, in cases of mixed NCIs and NPIs, such as *we never had any luck there neither*, the Movement approach falls short.

The Adapted Movement approach is the only one of these three that can adequately model the data from Chapter 3 and predict the implicational hierarchy established from that empirical data. In addition, this approach also builds in the possibility that *any - no* variation can be conditioned by extra-linguistic factors such as the social attributes of the speakers and the speech setting (see Section 4.5.1). Therefore, the Adapted Movement approach is the analysis that is chosen as we move into the second part of the dissertation and the experimental study of NC.

One of the key points made in Chapters 1 and 2 was that to determine the social evaluation of syntactic variation, a principled distinction between morphological and syntactic variation must be made. With this in mind, Table 4.2 summarizes where each approach places the variation in the placement and realization of negative items shown in Chapter 3.

Under the Agreement approach, both types of variation would be considered syntactic in nature (see Section 4.3.6). Under the Movement approach, variation in the placement of negative items is considered syntactic, while variation in the realization of negative items is more compli-

Approach	Variation in placement of negative items	Variation in realization of negative items
Agreement	Syntax	Syntax
Movement	Syntax	Syntax/Post-syntax
Adapted Movement	Syntax	Morphology

Table 4.2: Grammatical locus of variation in NC in the three syntactic approaches discussed in this chapter

cated. NC is conceived of as resumption, as in (155), in which the negative elements are related by syntactic movement, but the pronunciation of *any* versus *no* is due to a post-syntactic rule (see Section 4.4.2 for more details). As mentioned in the introduction to Section 4.5, one of the ways that the Adapted Movement approach differs from the Movement approach is in locating the variation in the realization of negative items wholly in the morphology, and providing a concrete implementation of the mechanisms required to derive the variation observed in Chapter 3.

Finally, it is worth reviewing the predictions that each approach makes for the grammatical acceptability survey presented in the Chapter 6, summarized in Table 4.3. Under the Agreement approach, speakers are predicted to reject the configurations that cannot be derived in their variety of English. For Non-Strict NC English this is Subject NC, and for Strict NC English this is NAI NC. Under the Movement and Adapted Movement approaches, a higher number of speakers are expected to accept Object NC over Subject NC and NAI NC, as both approaches are built on the assumption that English is an underlying NC language, in which all English speakers have some grammatical knowledge of Object NC. As discussed in the prediction sections for the Movement approach (Section 4.4.6) and the Adapted Movement approach (Section 4.5.5), these approaches differ on which syntactic configuration is more marked, based on economy considerations. Under the Movement approach, Subject NC is more marked than NAI NC or Object NC, and so is predicted to be rated as less acceptable than those constructions. Under the Adapted Movement

approach, NAI NC is more marked than Subject NC or Object NC, and so is predicted to be the lowest rated syntactic configuration.

Approach	Predictions for grammatical acceptability study
Agreement	Non-Strict NC English speakers accept Object NC and NAI NC, reject Subject NC
	Strict NC English speakers accept Object NC and Subject NC, reject NAI NC
Movement	Higher acceptability ratings for Object NC than Subject NC or NAI NC
	Lower acceptability ratings for Subject NC than Object NC or NAI NC
	In sum: Object NC > NAI NC > Subject NC
Adapted Movement	Higher acceptability ratings for Object NC than Subject NC or NAI NC
	Lower acceptability ratings for NAI NC than Object NC or Subject NC
	In sum: Object NC > Subject NC > NAI NC

Table 4.3: Experimental predictions made by each of the syntactic approaches discussed in this chapter

In the next chapter, I discuss the design and method for an experiment to test these theories, as well as the theories of social evaluation of different linguistic elements laid out in Chapter 2. In Chapter 6, I present the results of the grammatical acceptability study and return to the predictions presented here to see which are borne out.

CHAPTER 5

Experimental design, methods, and pilot studies

5.1 Introduction

This chapter reports the design and method of the experiment that was conducted to test the effects of syntactic and morphological variation in NC on social perceptions of the speaker. This experiment was conducted in four parts: a demographic screening questionnaire, to determine participants' eligibility for the experiment; a grammatical acceptability study, to determine which of the NC/NPI target variants were in the participants' grammar; a perception study, to see if a change in the NC/NPI variant was significantly correlated with a change in the ratings of a speaker on the scales of Intelligence, Perceived class, Education, or Friendliness; and a language attitudes questionnaire, where participants were asked to comment on the target stimuli from the previous surveys.

This chapter aims to outline and justify the decisions made in the process of designing, piloting, and implementing this complex four-part experiment, in the hopes that this will be useful to future researchers who wish to replicate or extend this experiment or design similar ones. This chapter discusses the aims and design of the experiment (Section 5.2), the participant groups targeted to take part (Section 5.3), as well as the considerations and methods of creating the stimuli (Section 5.4). Section 5.5 presents the pilot studies. Section 5.6 concludes.

5.2 Experimental design and hypotheses

The perception experiment that is the focus of this dissertation was designed to test the following hypothesis.

(185) Experimental hypothesis:

Changing the syntactic configuration in which NC appears will have a significant effect on the ratings of perceived social attributes of the speaker.

This hypothesis is framed in a positive way, so there can be demonstrable support for it. This hypothesis stands in opposition to the null hypothesis in (186) below, which is based on the Syntactic Invisibility Principle introduced in Chapter 2.

(186) Null hypothesis:

Changing the syntactic configuration in which NC appears will have no (significant) effect on the ratings of perceived social attributes of the speaker.

There is not a robust body of literature showing that syntactic variants elicit distinct social evaluations (see, for example, the literature on previous experiments in Chapter 2). Therefore, the proposition that this dissertation aims to test is that syntactic variation can indeed influence social evaluation, so stating the broad experimental hypothesis as looking for a significant correlation between syntactic condition and social attributes addresses the primary, broad research question.

Even if there is empirical support for the hypothesis in (185), there is still the issue of interpreting these results. In other words, what will significant differences in the perception of these variants tell us? To that end, additional surveys were included in the experimental design to put the perception results into the participant's grammatical and ideological context.

First, participants were asked to complete a demographic questionnaire to assess whether they fit in the demographic groups of interest. This questionnaire is described in Section 5.3.1 below.

If the participants fit the demographic profile needed for the experiment, they were passed onto the grammatical acceptability survey. In this survey, participants were asked to rate 72 sentences (36 target and 36 filler) on a Likert scale from 1 to 7, with 1 indicating that the sentence was completely unacceptable, and 7 indicating that the sentence was completely acceptable. This survey is presented in Chapter 5. If participants passed the attention checks on this survey, they were passed onto the perception experiment.

In the perception experiment, participants were asked to read short "excerpts from spoken interviews" of 3 or 4 sentences, and were then asked to rate the speaker on 7-point semantic differential scales for four social attributes. If participants passed the attention checks, they were passed on to the final part of the experiment, a language attitudes and ideologies survey.

In the final survey, participants were asked about their own language use and attitudes in an explicit way. They were asked which speech community they felt they belong to, how they felt about their language variety, and if they had encountered negative reactions to how they speak. After this, they were asked to rate one item from each of the NC target conditions on a 5 point usage scale, from "I would say this" to "No native English speaker would say this", so that in a follow-up study, correlations can be made between an individual participant's rating of the acceptability of NC and their judgment as to whether or not they would say NC. After each target item rating, the participant would be asked an open-ended question based on how they rated the target item, in

an attempt to get the participants to make meta-linguistic comments about who would use the NC sentences, or when such NC sentences would be socially acceptable.

In the next section, I discuss the experimental conditions for the grammatical acceptability study and the perception experiment. I also discuss, where applicable, predictions for the results made by the syntactic theories presented in Chapter 4.

5.2.1 Experimental conditions

To test the hypothesis in (185), that different syntactic configurations of NC will have a significant effect on the perceptions of a speaker, we must start with a theory of the syntax of NC. In Chapter 3, I established that NC in English varies in the placement and the realization of negative items. In Chapter 4, I introduced three syntactic approaches to NC and categorized where they placed the grammatical locus of variation. This is summarized in Table 5.1, repeated from Chapter 4 for convenience.

Approach	Variation in placement of negative items	Variation in realization of negative items
Agreement	Syntax	Syntax
Movement	Syntax	Syntax/Post-syntax
Adapted Movement	Syntax	Morphology

Table 5.1: Grammatical locus of variation in NC in the three syntactic approaches discussed in this chapter

In Chapter 4, I adopted the Adapted Movement approach (Robinson & Thoms 2021a, 2021b), which locates the variation in the placement of negative items in the syntax, and variation in the realization of negative items in the morphology.

Combining the variation in NC presented in Chapter 3, which identifies variation in placement of negative items and variation in the realization of negative items, with the syntactic approach from Chapter 4, which categorizes variation in the placement of negative items as syntactic variation and variation in the realization of negative items in the morphology, we can now estab-

lish our 6 experimental conditions. These conditions are briefly outlined in Table 5.2; they are described further in the text below.

Syntactic condition	Morphological condition	
	NPI	NC
Object	Object NPI <i>I didn't see anything</i>	Object NC <i>I didn't see nothing</i>
Subject	Subject NPI* <i>Nobody saw him.</i>	Subject NC <i>Nobody didn't see him.</i>
Negative Auxiliary Inversion (NAI)	NAI NPI <i>Didn't anybody see him</i>	NAI NC <i>Didn't nobody see him</i>

Table 5.2: Experimental conditions for the grammatical acceptability study and the perception experiment

The conditions in 5.2 represent a within-subject 2x3 design, for a total of 6 conditions. The morphological condition has two levels, NPI and NC. I have chosen to call the non-NC condition “NPI” even though not every condition contains a NPI. The asterisk indicates that a this label does not mean ‘Subject NPI’ as it is traditionally understood, i.e. *Anybody didn't see him*, but rather is a convenient way to indicate that the syntactic condition is Subject and the morphological condition is non-NC.¹ This is because I am comparing NC sentences with their NPI counterparts so that the sentences are as parallel as possible.

The syntactic condition has three levels: Object, Subject, and NAI. These labels aim to identify the variants in the clearest and most theory-neutral way possible. As discussed in Chapters 2 and 3, NC can appear outside of these syntactic configurations in some varieties of English. Nevertheless, limiting this experiment to these three syntactic conditions allowed me to compare the three most common types of NC, and kept the length of each questionnaire manageable from the viewpoint of participant attention span and fatigue.

¹True Subject NPI sentences such as *Anybody didn't see him* were excluded from this experiment as they are not robustly attested in any of the US or UK dialects reviewed in Chapter 2.

Perhaps notable by its absence is bare indefinite negation, such as *I saw nothing*. This has been excluded, as I wanted to keep the conditions as parallel as possible, and I wanted to keep the number of conditions down so that the experiments were not too taxing on the participants. In addition, what was of greatest interest to the question of the social evaluation of word order variation was comparing conditions where there is only a difference in the linear order of the words in the sentence, not in the morphology of the words. Bare indefinite negation does not always include auxiliary verbs, and when it does it changes the pragmatics of the sentence, which we can see if we compare *Nobody saw him* to *Nobody did see him*. Finally, by including bare indefinite negation, we would have had three morphological conditions, but not 9 conditions total. There are no bare indefinite sentences that can also undergo NAI, as it by definition requires a negative auxiliary verb. For example, the sentence *I saw nothing* does not have an auxiliary verb, so it cannot undergo NAI. Therefore, bare indefinite negation was left out of the envelope of morphological and syntactic conditions for this experiment.

5.2.2 Syntactic variation and syntactic variants

As the aim of the social perception portion of this experiment is to compare how a given participant rates a morphological variable versus a syntactic variable, a point of clarification is in order. Under the Adapted Movement approach to NC presented in the previous chapter, Object NC is distinguished from Subject NC by a formal syntactic feature that triggers movement in the Narrow Syntax. This would classify this type of variation as variation in Narrow Syntax under the categorization scheme introduced by MacKenzie & Robinson (2019, discussed in Chapter 2). However, to be clear, in the experimental conditions for the perception experiment given in Table 5.2, Object NC and Subject NC are not true *sociolinguistic* variants of each other because they are not functionally equivalent in the sense of Dines 1980 (discussed in Chapter 2). For example, (187a) and (187b) below could not be used interchangeably.

(187) Object NC and Subject NC that are not sociolinguistic variants because of lack of functional equivalence

a. He **didn't** see **nobody**. Object NC

b. **Nobody didn't** see him. Subject NC

In this chapter and those that follow, I will be using 'syntactic variation' with reference to NC to mean syntactic configurations like those in Table 5.2, which are related by a common morphological condition and that are derived similarly in the syntax (assuming the Adapted Movement approach). Although Object NC and Subject NC are not true syntactic variants in the sociolinguistic sense that they are not functionally equivalent, studying how they are perceived socially can still give us insight into how small, specifically defined differences in the Narrow Syntax alter social perception.

5.2.3 Predictions for the grammatical acceptability study

As the experimental hypothesis presented in (185) is about the perception experiment, in this section I lay out the predictions for the grammatical acceptability study. In Chapter 4, we saw that the different syntactic approaches to NC made different predictions about what we would find in the grammatical acceptability study. I repeat those predictions here as Table 5.3 for convenience.

As I have adopted the Adapted Movement approach, I now have a specific prediction for the grammatical acceptability study.

(188) Grammatical acceptability hypotheses:

The Object NC condition will receive significantly higher acceptability ratings than the Subject NC or NAI NC conditions. The NAI NC condition will receive significantly lower acceptability ratings than the Subject NC or Object NC conditions.

Approach	Predictions for grammatical acceptability study
Agreement	Non-Strict NC English speakers accept Object NC and NAI NC, reject Subject NC
	Strict NC English speakers accept Object NC and Subject NC, reject NAI NC
Movement	Higher acceptability ratings for Object NC than Subject NC or NAI NC
	Lower acceptability ratings for Subject NC than Object NC or NAI NC In sum: Object NC > NAI NC > Subject NC
Adapted Movement	Higher acceptability ratings for Object NC than Subject NC or NAI NC
	Lower acceptability ratings for NAI NC than Object NC or Subject NC In sum: Object NC > Subject NC > NAI NC

Table 5.3: Experimental predictions made by the syntactic approaches discussed in Chapter 4

In other words, based on the predictions made by the Adapted Movement approach, we expect Object NC to be rated as more acceptable than Subject NC, which in turn will be rated as more acceptable than NAI NC.

5.2.4 Design

As mentioned above, this study has a within-subject design, meaning that all participants were shown all 6 conditions. This allowed me to compare how the same participant rated each of the syntactic conditions, as well as to compare participants to each other, as they all rated the same set of target items. Of particular interest was how individuals from different dialect groups perceive variation in the syntax of NC: As we saw in Chapter 3, varieties vary with respect to the syntactic configurations of NC they allow, as well as where NPIs can appear. Therefore, I ran the same 2x3 within-subject experiment five times, in each of the five dialect groups of interest. Discussion of the dialect groups appears in section 5.3 below.

In designing this study, I wanted to include enough target items for each condition that we could see the trend for each participant. I chose to include 6 target items per condition per participant. This meant that each participant rated 36 target items, along with an equal number of fillers and distractors, for a total of 72 items total in each of the perception and grammatical acceptability

surveys. Within each participant group, then, this experiment collected 90 (15 participants * 6 target items) observations of each condition. Across all participant groups, this yielded a total of 450 (75 participants * 6 target items) observations for each experimental condition.

Participants for the study completed written surveys online on the platform Qualtrics. All participants were recruited through Prolific, an online survey-hosting platform aimed at academics and researchers. This experiment was done as a longitudinal study on Prolific with four distinct parts.

For the demographic screening questionnaire, participants from a participant pool were invited to take the survey. This pool was filtered by demographic factors to target participants who could be speakers of the dialects of interest. If the participants fit the target demographic criteria, their Prolific ID was added to a custom “allow list” for the next survey. After the grammatical acceptability questionnaire and the perception questionnaire, participants were added to the custom allowlist for the next survey if they passed the attention checks for the survey they had just completed. These criteria for exclusion will be detailed in the methods section for each survey.

5.3 Participants

Participants for this study were drawn from five communities in the United States and United Kingdom. Dialects in which NC has been attested were compared against those in which NC has not been attested or is claimed to not exist. The NC dialects chosen were African-American Language (AAL), Southern White American English (SWAE), and Tyneside English. The non-NC dialects were Mainstream US English (MUSE) and York English. Participants of all ages, genders, and educational backgrounds were invited to take part in the study.² Selection criteria were kept broad in order to get a robust response rate, particularly from communities that are less

²With the exception of the MUSE group, which was pre-screened by participants who had a college education, as discussed in Section 5.3.3.

well represented on Prolific (e.g. York). Age, gender, and education information were collected and will be examined at a later date.

It is not possible to pre-screen participants by dialect group on Prolific, so participants were recruited based on demographic conditions in order to have the best chance of getting speakers of these dialects, or at least people who grew up hearing the dialect of interest, even if they did not speak it themselves. In the following subsections, I introduce and justify including the dialects in this study, the demographic questions used to include or exclude participants from the dialect group, and predictions for how each group would react to the experimental conditions.

5.3.1 Demographic screening questionnaire

In order to assess their suitability for the experiment, participants were asked the following demographic questions, which were created based on the work of Kim et al. (2019).

On the first page of the demographic screener, participants were asked what their native language is. They were given examples of what a suitable answer might be (American English, Korean, Uruguayan Spanish, etc.), and were given a text box to answer. After this, they were asked if they had native fluency in any languages besides their native language, and were again given a text box to answer. They were also asked which of five options (Female, Male, Non-binary, Other, Prefer not to say) best describes their gender identity. They were asked for their year of birth in YYYY (4-digit) format, and were then asked their ethnicity, with a text box to answer. The example answers for the US version of the screener were “White/Caucasian, Black/African American, Asian (Chinese), etc.”, and on the UK version of the screener were “White (Scottish), Black (African), Asian (Chinese), etc.”. These examples were based on how ethnicity questions appear in each country’s census, and the text box was designed to allow participants to be as specific as they wished.

The next page of the screener asked about the participant's location history. They were asked to choose the area where they spent the most time from 0-18 on a drop-down menu. For US participants, this list included all 50 states, D.C., "In a territory abroad", and "Outside the US" as options. For UK participants, this list included all major areas of the UK and their subparts (ex. "North East, England (Tees Valley, Durham, Northumberland and Tyne and Wear)"), as well as "In a UK territory abroad" and "Outside the UK" as options. The next question asked participants to narrow down where they grew up by asking for the name of the city/town (US version) or 3 digit postcode (UK version) where they spent the most time between ages 0-18. They were then asked which of the following of the choices "rural", "suburban", or "urban" best describes their location during this time.

On this page, participants were asked if languages other than were English spoken at home, and if so, which ones. This question was clarified with the text, "This asks if family members spoke a language other than English, regardless of whether you learned that language", and participants were given a text box to answer. This question was purposefully separated from other questions about their linguistic background to ensure they did not overthink any of their answers.

The last question on this page asked if the participant spent any "significant" amount of time in other places during ages 0-18. The word "significant" was defined for them as 1 year or more, and they were asked to include the city, state, and length of time they lived elsewhere.

The following page asked nearly identical questions about the participant's location history, this time from age 18 on. They were asked which state (US version) or area (UK version) they spent the most time in after age 18, the name of the city/town (US version) or 3 digit postcode (UK version) where they spent to most time after age 18, whether "rural", "suburban", or "urban" best described their location during this time, and whether they spent a significant amount of time in any other places after age 18. A significant amount of time after age 18 was defined for the participants as 5 years or more.

After completing the questions on their location history, participants were asked about their level of education and their occupation. They were asked to select their highest level of education from a drop-down menu, with the following options for US participants: Some high school, High school, Some college, Associate's degree, Bachelor's degree, Some graduate school, Graduate or professional degree (MA, JD, PhD, MD, etc.). UK participants were given the options of No formal qualifications, Secondary education (e.g. GCSE), Further education or A-levels, Undergraduate degree (BA/BSc/other), Some postgraduate work, Postgraduate degree (MA/MSc/MPhil/other), or Doctorate degree (PhD/other). After this question, participants were asked if they were currently a student, with the answer options "Yes, full-time", "Yes, part-time", or "No".

Finally, participants were asked about their occupation and were given a text box to answer. If the participant was unemployed, they were asked to enter their most recent occupation. If the participant was a student, they were asked to enter the occupation of the primary income source in their household when growing up.

In the following subsections, I introduce the different participant groups of interest and discuss the inclusion/exclusion criteria for each one. Prolific allows researchers to pre-screen participants for a number of demographic factors, and gives a participant pool of all users who fit those demographic conditions and have been active on the Prolific site in the past 90 days. In each subsection, I include the pre-screening factors and the size of the participant pool at the time the experiment was run.

5.3.2 African American Language (AAL)

African-American Language (AAL) is an umbrella term for the speech of Black Americans, whether or not they also speak African-American Vernacular English (AAVE) (see King 2020 for a discussion of the difference in these terms). There is regional variation in the pronunciation and grammar of AAL, as previous variationist studies (Weldon 1994; Blake et al. 2009; Blake & Shousterman

2010; Jones 2015; Farrington et al. 2021, among others) and the Corpus of Regional African-American Language (CORAAL, Kendall & Farrington 2021) attest.

All three NC syntactic constructions (Object NC, Subject NC, and NAI) have been attested in AAL (Labov 1972b; Weldon 1994; Martin & Wolfram 1998; Green 2002, among others). I take this as evidence that these constructions are part of the community grammar, even if there are individual AAL speakers who may reject these constructions. Given the attestation of NC in CORAAL across time, geography, age groups, and socioeconomic class (Robinson 2021), it is likely that Black Americans have heard either AAVE speakers or other AAL speakers who use NC.

The general prediction in this experiment is that morphological NC will be significantly less stigmatized in communities where it is widely used than in communities that do not use NC, and that the difference between the syntactic NC conditions will go unnoticed. In particular, the AAL group is predicted to show a smaller effect size than the other participant groups for the NPI vs NC morphological conditions.

For this experiment, the pre-screening criteria for potential participants in Prolific were that they reported they were Black or African American, their nationality was American, and that they were an English-speaking monolingual, which gave a total of 1,591 Prolific users in the participant pool. Participants were not invited to take part in the experiment if they answered any of the following on the screening survey: they reported their ethnicity as anything other than Black or African-American; they reported being fluent in a language other than English, or if a language other than English was spoken at home.

5.3.3 Mainstream US English (MUSE)

Mainstream US English (MUSE) is used in this work as a cover term for American English speakers who grew up with low rates of NC in their speech community. These are specifically speakers

who, based on their demographics as White, middle-class, well-educated, and non-Southern Americans, are also most likely to subscribe to prescriptive ideas about ‘correct’ English, and to believe that they themselves speak ‘correct’ English. Therefore, the pre-screening criteria for potential MUSE participants on Prolific were that they reported that they were White; their nationality was American; they were born and reside in a non-Southern US state (defined below in Section 5.3.4); their education level was a Bachelor’s degree or higher; and they would put themselves at a 4 or higher on a socioeconomic ladder.³ There were 3,812 Prolific users in the MUSE participant pool. Participants were not invited to take part in the experiment if on the demographic screening survey they answered that their ethnicity was not White; they reported being fluent in a language other than English and that language was spoken at home; they reported living for a significant amount of time in a Southern US state; or their highest education level was lower than a Bachelor’s degree.

While it is claimed that MUSE speakers do not have NC in their grammars, studies by Blanchette and Lukyanenko (2019a, 2019b) have found that MUSE speakers can and do interpret the NC meaning of a sentence with two negations, suggesting that these speakers have some grammatical knowledge of NC (see Chapter 3 for more elaboration on these studies).

As this was the group most likely to buy into prescriptive language norms, they were predicted to rate NC items as sounding less intelligent, less educated, and lower class than NPI items. In addition, the MUSE participants were predicted to be more likely to judge NAI NC items as less intelligent, less educated, and lower class than Subject NC or Object NC items.

³A Prolific pre-screening question asks, “Where would you put yourself on the socioeconomic ladder?”, and shows an image of a ladder with the rungs labeled 1 - 10. It is accompanied by this explanatory text: “Think of a ladder (see image) as representing where people stand in society. At the top of the ladder are the people who are best off—those who have the most money, most education and the best jobs. At the bottom are the people who are worst off—who have the least money, least education and the worst jobs or no job. The higher up you are on this ladder, the closer you are to people at the very top and the lower you are, the closer you are to the bottom. Choose the number whose position best represents where you would be on this ladder.”

5.3.4 Southern White American English (SWAE)

For this experiment, I use term Southern White American English (SWAE) to mean the speech of White American English speakers who were born and raised in the US states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia. This means that I am collapsing the two language varieties commonly called Southern American English (SAE) and Appalachian English (AppE) into one group for this experiment, while also making explicit that I am referring to the White speakers of these varieties.

SWAE was chosen for this experiment because NC is well-attested in this variety, and specifically because Object NC, Subject NC, and NAI NC have all been attested (see ch. 2 for details). Nevertheless, the rates of Object NC, Subject NC, and NAI NC are different in SWAE and AAL (Robinson 2021). It is predicted that NC will be significantly less stigmatized in the SWAE community than in communities that do not use NC, such as MUSE and York, and that the evaluations of NC in different syntactic contexts will not differ significantly from each other.

The pre-screening criteria for potential SWAE participants on Prolific were that they reported that they were White; their nationality was American; they were an English-speaking monolingual; and they were born and raised in one of the Southern states of the US. This left a potential participant pool of 3,597. Participants were not invited to take part in the experiment if on the demographic screening survey they answered that their ethnicity was not White; they reported being fluent in a language other than English and that language was spoken at home; or they reported living for a significant amount of time in a non-Southern state.

5.3.5 North East England (Tyne)

Tyneside English is spoken in North Eastern England, in the Newcastle-upon-Tyne and Sunderland metropolitan areas, and including the more rural region of Northumberland that spans the

area between Newcastle and the Scottish border. It is a distinct dialect phonologically, lexically, and morphosyntactically (Pearce 2017), and comes from a region that is proudly working class (Jackson 2019).

Object NC has been attested in Tyneside English (Beal & Corrigan 2005), but is used at low rates (Childs et al. 2018:10). Neither Subject NC nor NAI NC have been attested in descriptions of negations in Tyneside English (Beal & Corrigan 2005; McDonald 1985). Tyneside English, therefore, presents an interesting contrast with AAL and SWAE on one hand, which allow NC in more syntactic configurations, and MUSE and York on the other hand, which do not allow NC at all. It is predicted that Tyneside English speakers will be less likely than AAL or SWAE speakers to negatively evaluate Object NC, as Object NC is one of the features of colloquial Tyneside English, which carries covert prestige. They are predicted, however, to negatively evaluate both Subject NC and NAI NC, as these are non-standard syntactic configurations that are not part of their community grammar.

The pre-screening criteria for potential Tyneside participants on Prolific were that they reported that they were born in the North East of England; currently reside in the North East of England; spent most of their time before age 18 in England; and were an English-speaking monolingual. This gave me a potential participant pool of 1,047 people. Participants were not invited to take part in the experiment if on the demographic screening survey they reported being fluent in a language other than English and that language was spoken at home, or if they reported living for a significant amount of time outside the North East of England.

5.3.6 City of York (York)

The final language variety of interest is English from in and around the city of York in Northern England. The English of York was selected because it is a somewhat conservative variety of En-

glish (Tagliamonte 1998:158), and has also been described as more mainstream and standard than the varieties spoken around it (Tagliamonte 2013:103).

Object NC is “virtually absent” from York English (Childs et al. 2018:10), and both Subject NC and NAI NC are unattested for York (Anderwald 2005; Tubau 2016). Since NC is absent from the community grammar, and York English is more standard than the varieties around it, we expect participants from York to negatively evaluate all NC stimuli.

The pre-screening criteria for participants on Prolific were that they were born in the area of Yorkshire; spent most of their time before age 18 in England; were an English-speaking monolingual; and currently reside in a postcode area that is in or around the city of York: YO1, YO10, YO23, YO24, YO26, YO30, YO31, YO32, YO90, or YO91. These pre-screening criteria left a potential participant pool of only 51 Prolific users. Participants were not invited to take part in the experiment if they reported on the demographic screening survey that they were fluent in a language other than English and that language was spoken at home, or if they reported spending ages 0-18 outside of Yorkshire.

5.4 Stimuli

The stimuli for the experiments were short written passages that included one instance of either a target or distractor/filler condition. These stimuli were critical for the success and validity of the experiments, as the syntactic variants that were being tested needed to seem natural and unambiguous in context in order to separate perception ratings of syntactic variants from possible confounds of grammaticality, stigma, and misunderstanding.

This section explains and justifies the choices made in the creation of those stimuli, with special attention paid to the issues of stimuli modularity (spoken vs. written), combating the stigmatization of the variants of interest, creating stimuli that were as realistic as possible while being carefully controlled and balanced, and the choices of distractor and filler conditions. The

decisions made for creating the stimuli for the grammatical acceptability survey and the perception survey were largely the same. Section 5.4.4 lays out decisions that pertained to the acceptability survey only. The full set of perception stimuli is given in Appendix A, while the set of grammatical acceptability stimuli is given in Appendix B.

5.4.1 Written vs auditory stimuli

The question of stimuli modality in research of the social perception of syntactic variation is important; however, the answer is less than satisfying, no matter the choice made. In previous experiments (Robinson 2018, Robinson & MacKenzie 2019), I used auditory stimuli. In the present experiment, I used written stimuli. Although written stimuli are not ideal, in this section I argue that they are the better choice when comparing the social perception of syntactic variants, for two main reasons: there is less chance of mishearing or tacitly recasting a syntactic construction not in the participant's grammar, and written stimuli crucially can disentangle the socio-indexical judgment a participant is making about a speaker's grammar from the judgment about that speaker's accent.

The major downside of written stimuli for the present experiment is that NC tokens are rarely found in written texts; they are more likely to be heard in colloquial speech. However, auditory stimuli introduce a range of confounding factors for experiments that wish to test the socio-indexical perceptions of standard versus non-standard syntactic variants. One major issue is the mismatch in the length of time it takes to integrate the syntactic variant of interest into stimuli in a natural way, compared with the length of time it takes for a participant to make a judgment about what dialect they are hearing, which is then linked to socio-indexical judgments about the people who speak that dialect. For example, in the experiment discussed here, the target sentence with the NC or NPI construction was sentence 3 of 4 in the stimulus. This was to ensure that the purpose of the experiment was not obvious to the participants, and to create a rich enough context

to ensure the target sentence was understood as it was intended (i.e. as a token of NC, not a double negative). However, if these stimuli were read aloud, the participant may have already made a judgment about the speaker based on phonetic linguistic information, and they might not attune to the grammar of the second half of the stimulus. We know that listeners can guess a speaker's dialect with very little linguistic information. Purnell et al. (1999) report, for example, that participants in a perceptual experiment were able to distinguish Standard American English, African American Vernacular English, and Chicano English accurately 70% of the time when they heard only the word "Hello", in a recording less than a second long.

Even if the experimental participants listen to an entire sound clip before they are able to rate the speaker, it is difficult to disentangle the effects of the phonetic linguistic cues from the grammatical condition tested by the experiment. This is in part because the phonetic information in the speech stream can influence the perception of the grammar. In fact, some linguistic cues may even be ignored if they do not match the listener's expectation of what a speaker from a certain group will sound like (Carmichael 2018). For example, in a previous perception study, I found that some participants misheard the target stimuli "who all" and "what all" as "y'all", and concluded the speaker was from the South (Robinson 2017).

Auditory stimuli can affect both grammatical acceptability ratings and social perception ratings, and could therefore skew the results of both the experiments presented in this dissertation. Further research on the interaction of syntactic cues and auditory perception comes from Ramirez (2019, 2020), who found that grammaticality ratings were higher when the phonetic and syntactic cues "matched", for example, a stimulus featured an AAL speaker reading a zero copula sentence like "She wealthy". This was compared to conditions in which the phonetic and syntactic cues did not "match", as in a British English speaker reading the same zero copula sentence. A control group, which was presented with only written stimuli, rated sentences with *want* as a main verb and sentences with *have*-raising as more grammatical than did the participants who heard auditory

stimuli. However, the zero copula stimuli were rated as less grammatical when presented as written stimuli than when they were presented as auditory stimuli spoken by a AAL speaker.

In addition to affecting perceptions of how grammatical a sentence might be, auditory stimuli can influence social perception. Presenting the stimuli auditorily means the researcher decides in which accent a sentence is heard. Previous research has shown that listeners use acoustic cues such as pitch and intonation to determine a speaker's ethnicity (Anderson 2007). These acoustic cues in the speech signal are impossible to remove, and may activate existing stereotypes and prejudices that a participant has about certain groups of people, as linguistic discrimination is still quite pervasive (Craft et al. 2020). Therefore, it may not be possible to disentangle the question of whether the syntactic structure or the acoustic cues contributed more to the evaluation of the speaker.

There are numerous advantages to using written stimuli. On the practical, logistical side of experimental design, there is no danger of technical issues, such as the audio file not loading or not playing properly. Without auditory stimuli, it was not necessary for participants to listen to an entire audio clip before moving on in the survey, which would have added much time and expense to a 72-question survey. In addition, written stimuli eliminate the chance that participants will mishear the target sentence, and reduce the chance that participants will gloss over the target sentence, as they can re-read it as many times as they wish. As we can expect participants to read the stimuli in their own accent (Filik & Barber 2011), another practical advantage is that the same (or minimally edited) stimuli can be used across participant groups, making the results from different groups directly comparable to each other.

The difficulties in using written stimuli are clear: written language is more formal than spoken language; non-standard constructions are more obvious when written down; there is the risk that participants do not interpret the stimuli as intended; and there is the important decision of how to represent non-standard constructions orthographically. Written stimuli are not necessarily

the correct methodological choice for every experiment, nor am I arguing that they are. In this section, I address the decisions I made to overcome each of the difficulties listed above.⁴

Even though my participants did not hear speech in the perception experiment, they were told that the stimuli were excerpts from spoken interviews. Therefore, speech was still represented orthographically, a process that is full of decisions for the transcriber and inherently political (Bucholtz 2000). I chose to represent this “speech” as *naturalized transcription*, where speech is represented through standard orthographic norms. The advantage of this is that it avoids making the speech seem alien or more difficult to comprehend, as *denaturalized transcription* can do (Bucholtz 2000: 1461). At the same time, using naturalized transcription avoids the appearance of eye dialect, which is often intended as “a knowing look which establishes a sympathetic sense of superiority between the author and reader as contrasted with the humble speaker of dialect” (Krapp 1925, as cited in McArthur 1998). In addition, the phonological processes that eye dialect often reflects (e.g. *dudnt* or *dint* for *didn’t*) can carry social meaning on their own. Written stimuli were chosen so that socially significant phonological alternations could be avoided, so those same alternations were not represented orthographically. This did mean that Object NC constructions, for example, were written as *I didn’t see nothing*, even though *nothing* would rarely if ever be pronounced with the velar nasal that is represented orthographically. However, spelling the word as *nothin’* would have been an indicator of non-standard speech, which can be—and often is —read as a marker of low socio-economic status (Jaffe & Walton 2000). As one of the social traits I asked participants to evaluate was the socio-economic status of the speaker (on the scale *lower class* to *upper class*), adding indicators of non-standard speech would have interfered with the purpose of the experiment to isolate the syntactic configuration and morphological realization of the negative

⁴One other possible difficulty is that written stimuli rely on the participants being fully literate. Literacy rates may present an issue when working with populations which are school-age, severely under-served and under-educated, or speak a language which does not have a strong written tradition. However, by recruiting participants through Prolific, a web-based platform which has people sign up voluntarily in order to participate in academic studies, I was recruiting from a self-selected literate population.

items. I trusted the participants to notice and evaluate the non-standard NC constructions without marking them orthographically.

There are two points to make about the argument that written stimuli should not be used because written language is more formal than spoken language. First, this experiment was done in English, a written language that has undergone a stylistic shift and become increasingly informal (Baron 2012). Second, it is possible that the formality of writing with a naturalized transcription did in fact highlight the non-standardness of the experimental stimuli (in both the target and distractor conditions). If so, this was not a major issue for this experiment. The main purpose of the experiment was not to test if the non-standard NC constructions were given lower social evaluations than the standardized NPI forms. Instead, the purpose was to see if perceptions of the syntactic variants of NC differed significantly from each other.

The last difficulty was ensuring that participants understood the NC stimuli as they were intended. Previous research has shown that sentences with negations are more cognitively difficult to process (Ferguson et al. 2008; Beltrán et al. 2018), so written stimuli allow the participant to read and process sentences at their own pace, and to re-read the sentence, if needed. When two negations appear in a sentence, the double negation (DN) meaning, in which each negative word contributes a semantic negation, is distinguished from the NC meaning by prosody (Blanchette & Nadeu 2018). Without an auditory stimulus, it is possible that participants could read the stimulus in their head without the intended prosody. What was needed for the stimuli was to put them in an unambiguous context that forced a NC reading. I used the work of Blanchette & Lukyanenko (2019a) as a best practice case for creating these sorts of stimuli, and emulated their methods. An example of the same sentence with a NC context and a DN context is given below in (189) and (190), with the relevant words bolded and in small capitals to make the NC and DN readings clear. Blanchette & Lukyanenko were careful not to include any syntactic negation in the context sentences, to avoid possible confounds (2019a:9).

- (189) Negative Concord context and target sentence (Blanchette & Lukyanenko 2019a:9)

Greg had terrible luck at the casino last night.

He **didn't** beat **nobody** at poker. (= he beat no one)

- (190) Double Negation context and target sentence (Blanchette & Lukyanenko 2019a:9)

Greg lost most of his blackjack games, but he did great at the poker table.

He **didn't** beat NOBODY at poker. (= he beat somebody)

Following their example, I was careful to construct contexts that allowed only the NC reading of the target sentence, and I also avoided syntactic negation in context sentences.

5.4.2 Creating realistic yet controlled stimuli

One significant challenge in writing stimuli was designing items that would seem like realistic excerpts of speech, while keeping them controlled and consistent enough that meaningful generalizations could be drawn from the experimental data. To that end, I based the items in childhood games and activities, modeled items on real quotations from sociolinguistic interviews, and asked multiple colleagues from the US and UK to examine the stimuli for linguistic and cultural appropriateness.

To give the passages a consistent theme, I chose to make them all about childhood memories, with many being about playing games as a child. This was an ideal setting for the passages, as playing games as children is a (near) universal experience for the US and UK participants I wanted to target in the study. The stimuli were largely based in games that children play in groups with little to no equipment, such as tag, hide-and-seek, jump rope, etc. The experimental participants were more than likely to have played these games either at school or with local children, regardless of the participant's location or socio-economic status growing up. In addition, these sorts of children's games are passed from generation to generation of children, and often go unchanged, even across centuries (Opie & Opie 1972). This meant that the same stimuli could be used in a

variety of geographic locations with participants of many ages, and only the region-specific names of the games would need to be changed. A final advantage of using the theme of childhood games to write stimuli is that it may favor the use of more colloquial, less self-conscious speech, and so may make the non-standard target and distractor tokens seem more natural. In a study of topic-based style shifting in the Corpus of Regional African-American Language (CORAAL, Kendall & Farrington 2021), Greiser (2019) found that the topic “Games” significantly favored the use of AAL morphosyntactic features, for example.

Another advantage in basing the stimuli in the context of childhood games is that these games are often asked about and discussed in sociolinguistic interviews. To create the most naturalistic stimuli possible, I gathered examples of discussion of childhood games from real sociolinguistic interviews in the Corpus of Regional African-American Language (CORAAL, Kendall & Farrington 2021) and the Diachronic Electronic Corpus of Tyneside English (DECTE, Corrigan et al. 2012). To ensure the stimuli were as natural as possible, the names of some games were changed. For example, the chasing and catching game known as ‘tag’ in the United States is more often called ‘tig’ in the York area and ‘tiggy’ in Tyneside (Katz 2019). Given the stigma associated with NC, and the possible indexical links between NC usage and a rebellious persona (see Ch. 2), all passages featuring NC, or any other non-standard grammatical feature were written in either a neutral or a positive context. This meant that the “speakers” of the NC or distractor conditions never mentioned breaking rules, misbehaving, or getting in trouble. In the same vein, auxiliary verbs or NCI forms that are themselves stigmatized were also avoided. Therefore, *ain’t* does not appear in the stimuli, even though it is quite frequent in examples of NC from SWAE and AAL (see Ch. 2 for examples and references). Likewise, the Tyneside forms *divvn’t* for *didn’t* and *nowt* for *nothing* were avoided in stimuli writing, as *divvn’t* can be considered a shibboleth in Tyneside English (Rowe 2009). Although both *nobody* and *no one* are used in every dialect group targeted in

this experiment, only *nobody* appears in the stimuli, to avoid activating any prescriptive pedantry in the participants about the spelling of *no one/noone/no-one*.

Three different auxiliary verbs were used in the construction of the perception stimuli: *didn't*, *couldn't*, and *wouldn't*. These three forms were chosen for a number of reasons. For one, none of them show person agreement, so there were no extra confounds of agreement or non-agreement with the subject of the sentence. For another, these auxiliary verbs were predicted to sound the most natural to the British participants: *didn't* and *couldn't* are attested in British English Subject NC (Anderwald 2005; Tubau 2016), and NC with a modal or semi-modal auxiliary and a lexical verb is attested in British English corpora from Glasgow, Tyneside, and Salford (Childs 2017b:18). As there were six target items per experimental condition, each auxiliary verb appeared twice in each condition.

For the NCIs and NPIs, only the pairs *nobody* ~ *anybody* and *nothing* ~ *anything* were used. This was so that the NCI and NPI items were as parallel as possible, and to reduce a possible confound from *-one* ~ *-body* variation. In addition, *nobody* and *nothing* appear in NC constructions more frequently than *no* DPs do (e.g. *no fish*, *no books*, etc.). Although adverbs like *nowhere* and *never* can appear in NC constructions, they appear at a lower rate than *nothing* and *nobody*. As there were six target items per condition, *no-/anybody* appeared in three of the target items in each condition, and *no-/anything* appeared in the other half. Crossing this with the three auxiliary verbs, the target items for the Object NC condition, for example, had the formula in example (191).

(191) Pattern for Object NC target stimuli

I didn't VERB nobody

I wouldn't VERB nobody

I couldn't VERB nobody

I didn't VERB nothing

I wouldn't VERB nothing

I couldn't VERB nothing

With this formula established, all that was left was to choose a verb and establish a realistic context. All stimuli followed the the same pattern of two filler sentences, a target or distractor sentence, and a final filler sentence. The filler sentences added context to ensure that the target or distractor was not misinterpreted, and where possible, the context came from real sociolinguistic interview discussions of playing games as a child.

5.4.3 Distractor Conditions

Four different linguistic phenomena were chosen to act as distractor conditions in this experiment: the Northern Subject Rule, third person singular *-s* absence, the alternate embedded passive, and *have*-raising. The Northern Subject Rule refers to a non-standard agreement pattern in Northern Englishes where *-s* is present on verbs that do not have third person singular subjects (Buchstaller & Corrigan 2015:77-78). Third person singular *-s* absence is a description of the nearly categorical absence of the third person singular agreement marker *-s* on verbs in AAVE (Rickford & Rickford 2000:111-112). The alternate embedded passive, also called the *needs washed* construction, is one where the past participle directly follows a verb, most commonly *need*, *want*, or *like*, and is found in some English varieties of Northern England, Scotland, Ireland, and the United States Midlands (Edelstein 2014). *Have*-raising refers to the standardized English spoken throughout the UK in which the main verb *have* does not require *do*-support (Trudgill & Hannah 2017:67).

(192) Northern Subject Rule

The **boys** always **plays** football on Saturday.

(193) Third person singular *-s* absence

I think **she** still **live** over there.

(194) Alternate embedded passive

The cat **needs fed** every day.

(195) *Have-raising*

I **haven't** any idea where she went.

These four phenomena were chosen as distractors because, unlike NC, they are not so-called vernacular universals (Chambers 2003). Instead, these constructions were differentially likely to be heard by some, but not all, of the target groups of participants.

5.4.4 Grammatical acceptability stimuli

The stimuli for the grammatical acceptability survey were written in much the same way, and with the same considerations, as those for the perception survey. The same three auxiliary verbs —*didn't*, *wouldn't*, and *couldn't*—were used, as well as the same NCI - NPI pairs, *nobody* ~ *anybody* and *nothing* ~ *anything*, so the formula for creating the stimuli (191) was the same.

As the grammatical acceptability stimuli were only one sentence long, compared to the perception stimuli which were four sentences long, context was essential to ensure that sentences received a NC reading instead of a DN reading. I again used Blanchette & Lukyanenko (2019a) as a model (189) - (190). I alternated giving the context before or after the target clause, and made sure that the *body* - *thing* sentences varied in whether they had context before or after, which gave a stimuli formula as in (196).

(196) Object stimuli formula with alternating context

- a. CONTEXT, SUBJECT didn't VERB nobody
- b. SUBJECT didn't VERB nothing CONTEXT
- c. SUBJECT didn't VERB anybody CONTEXT
- d. CONTEXT, SUBJECT didn't VERB anything

As in the perception study, there were a total of 72 stimuli: 36 target items (6 per condition), and 36 distractors and fillers. The distractor linguistic conditions for the grammatical acceptability survey were the same as listed in the previous section: Northern Subject Rule, third person singular *-s* absence, alternate embedded passive, and *have*-raising. There were four stimuli in each of the distractor conditions, for a total of 16 distractor items. There were a total of 20 filler items, which were taken from previous work on acceptability judgments (Sprouse et al. 2013; Sprouse 2018).

5.5 More experimental design: Choosing scales for perception

One of the most important parts of the design of a perception experiment is choosing which perceptions to record. We might want to ask if people who use one variant or another seem more attractive, approachable, tall, or independent than those who use another. However, not every variant carries every kind of social meaning. Plus, participants might not have opinions about every social trait of a speaker after exposure to one stimulus. To include many social traits may increase participant fatigue and lead to possible spurious correlations between social trait and linguistic variant. However, when only a few social traits are asked about, we want to ensure that we are testing the participants' perceptions, not confirming the researcher's own opinion. In addition, when running a perception study in different dialect regions, we must be careful how we phrase the social traits. For example, what is 'smart' [i.e. clever] to American participants may not seem 'smart' [i.e. stylish] to British participants; and what is perceived as 'lower class' can differ considerably based on a participant's socio-economic and geographic background. For these reasons, before conducting the perception experiment presented in Chapter 5, extensive piloting was done to ensure that the adjectives and target stimuli for the perception experiment were appropriate and comparable across regions.

5.5.1 Choosing adjectives

In constructing a pilot experiment, I used the three-factor model of Zahn & Hopper (1985), who divide social attributes into three dimensions: *superiority*, *attractiveness*, and *dynamism*. The superiority dimension refers to attributes that evaluate the speaker's status, education, and linguistic competency; while the attractiveness dimension includes attributes having to do with solidarity, trustworthiness, and likeability; and the dynamism dimension reflects the speaker's "social power, activity level, and the self-presentational aspects of speech" (1985:119).

Evidence from previous literature on NC suggests that NC may be evaluated along all three of these dimensions. In the superiority dimension, NC is a symbol of "incorrect" speech (Nevalainen 2006, Anderwald 2017), its usage is stratified by social class (e.g., Wolfram 1969, Feagin 1979), and its usage may be perceived as sounding less professional (Sneller & Fisher 2015). Additionally, NC is used stylistically among adolescents to convey a rebellious, anti-school or delinquent identity (Cheshire 1982, Eckert 2000, Moore 2021), which relates to both the attractiveness and dynamism dimensions. These personae can be seen as unfriendly, unlikeable, or dishonest, attributes in the attractiveness dimension, as well as possibly confident, talkative, or aggressive, attributes in the dynamism dimension.

As the majority of the literature on NC refers to attributes in the superiority dimension, three different adjectival pairs were chosen: *educated* - *uneducated*, *intelligent* - *unintelligent*, and *upper class* - *lower class*. Both education level and intelligence were included, as "intelligent" can refer to natural intellectual ability, whereas "educated" may refer instead to the performance of linguistic norms. I hypothesized that higher status groups (here, MUSE and York) may equate intelligence with education level, while groups whose speech is often stigmatized (AAL, SWAE, Tyne) may be more nuanced with these terms.

SPEAKER: I was the opposite of my brother. I was a good kid. I didn't bother nobody. All the neighbors liked me!

Which phrases describe this speaker? Please select all that apply.

Educated	Unintelligent
Intelligent	Lower class
Upper class	Unfriendly
Friendly	Doesn't sound like me
Sounds like me	Obedient
Rebellious	None of these phrases describe this speaker
Uneducated	

Figure 5.1: Object NC item in pilot experiment

Three more adjectival pairs were chosen for the pilot experiment, to test whether the indexical meanings found in NC production are also shared in perception. In the attractiveness dimension, I chose *friendly* - *unfriendly* as an exploratory look into the possible covert prestige associated with NC usage. Also in the attractiveness dimension, I chose *sounds like me* - *doesn't sound like me* as an exploratory look at the solidarity participants might feel with NC speakers. In the dynamism dimension, I chose *rebellious* - *obedient* as an exploratory look at whether the anti-establishment attitude conveyed by some NC users was also reflected in perception.

5.5.2 Pilot methods

Five participants were recruited from each of the five dialect groups of interest: AAL, MUSE, SWAE, Tyne, and York (see Section 5.3 for more information about these groups), for a total of 25 participants. They were instructed to read short “extracts from spoken interviews” and select phrases to describe the speaker. A full list of phrases is given in Figure 5.1.

Participants had to select at least one phrase to move on to the next item, so the choice “None of these phrases describe this speaker” was added, in case they thought that none of the adjectives were appropriate. Participants could select as many phrases as they thought appropriate. This pilot included six target items for each of the six experimental conditions, for a total of 36 items. No filler or distractor items were included in the pilot. The 36 items were presented in a random order. At the end of the survey, participants were asked to fill out a series of demographic questions, detailed in Section 5.3.1 above. The pilot experiment was hosted on Qualtrics, and participants were recruited and paid through Prolific.

5.5.3 Pilot results

All participant responses were coded for each phrase: 0 if the participant did not select the phrase, and 1 if the participant did select the phrase. Then, logistic regressions were used to determine the effect of dialect group, morphology, and syntactic context on the likelihood of selecting a particular adjective. Models were run in R version 4.0.2 (R core team 2020), with an example given in (197). For each trait, the model determined how likely was that trait to be clicked, with the fixed effects of dialect group, morphology, and syntax, as well as the interaction between dialect group and morphology, dialect group and syntax, and syntax and morphology. The baseline for all models was MUSE as dialect group, NPI as morphological condition, and Object as syntactic condition.⁵ Since a model was run for each of the 13 phrases used in the pilot, the Bonferroni correction was employed, and the level of significance used in reporting these results was $p \leq .003$.

(197) Logistic regression for the phrase ‘educated’

```
glm(formula = educated ~ dialect_group * syntactic_condition + dialect_group * nc_condition
+ syntactic_condition * nc_condition, family = "binomial", data = pilotdata)
```

⁵Put together, this means that each answer was compared to how a MUSE speaker rated Object NPI.

A negative estimate that was significantly different than the intercept was interpreted to mean that the participants were less likely to click the phrase. A positive estimate that was significantly different than the intercept was interpreted to mean that participants were more likely to click the phrase. Table 5.4 summarizes the significant findings for each phrase tested.

Phrase	Dimension	Finding
Educated	Superiority	Less likely to be clicked in NC conditions
Uneducated	Superiority	More likely to be clicked in NAI conditions, NC conditions, and NAINC condition (interaction)
Intelligent	Superiority	No significant results
Unintelligent	Superiority	No significant results
Upper class	Superiority	No significant results
Lower class	Superiority	More likely to be clicked in NAI conditions and NC conditions (no significant interaction)
Friendly	Attractiveness	Tyne participants more likely to click
Unfriendly	Attractiveness	No significant findings
Sounds like me	Attractiveness	Less likely to be clicked in NAI conditions and NC conditions (no significant interaction)
Doesn't sound like me	Attractiveness	No significant findings
Rebellious	Dynamism	Less likely to be clicked in NAINC condition (interaction)
Obedient	Dynamism	No significant findings
None of these	None	No significant findings

Table 5.4: Significant findings from perception pilot study

As Table 5.4 shows, NC users were less likely to be labeled as ‘educated’ or ‘sounds like me’, and were more likely to be labeled as ‘uneducated’ and ‘lower class’, across all dialect groups and regardless of syntactic condition. NAI users were less likely to be labeled as ‘sounds like me’, and more likely to be labeled as ‘uneducated’ and ‘lower class’. NAINC users (*Couldn't nobody see it*) were more likely to be labeled as ‘uneducated’, and less likely to be labeled as ‘rebellious’.

Across all dialect groups, negative attributes in the superiority dimension (*uneducated*, *lower class*) were significantly connected to use of NC. There were no main effects of dialect group, and perceived attributes in the attractiveness and dynamism dimensions were not influenced

by NC usage to the same degree as the superiority dimension. This is in line with the literature on NC (see Ch. 2). These findings suggest that there is global evaluation of NC users on superiority traits, but that evaluation of NC users on attractiveness and dynamism traits is not necessarily shared cross-dialectally.

In addition to the statistical model, I also created ‘constellations’ for each dialect group and each condition. These constellations consisted of the top three adjectives chosen by each dialect group for each experimental condition. Although there may not have been statistically significant differences in the rate at which participants selected these phrases, they still informed the choice of which adjectival pairs would appear in the perception experiment. These constellations appear in Table 5.5.

The results of this pilot informed which adjectival pairs were chosen for the perception experiment. The pairs *educated* - *uneducated* and *upper class* - *lower class* showed significant findings with regard to the morphological and the syntactic conditions, and were chosen for the experiment. The pair *intelligent* - *unintelligent* was also chosen. Although there were no statistically significant findings for this pair, Table 5.5 shows that participants did use *intelligent* to evaluate users of the Object NPI, Subject NPI, and even the Object NC constructions. In addition, participants used *unintelligent* in their evaluations of the Object NC, Subject NC, and NAI NPI constructions.

Based on Table 5.5, the pair *friendly* - *unfriendly* was also chosen for the perception experiment. Although there were no statistically significant effects with these phrases, *friendly* appeared among the top three adjectives chosen more often than not. In fact, the only time that *friendly* is **not** one of the top three adjectives is in the York group’s rating of Object NPI users. Therefore, it was reasonable to choose the *friendly* - *unfriendly* scale for the perception experiment.

In sum, based on the pilot presented in this section, the scales *educated* - *uneducated*, *upper class* - *lower class*, *intelligent* - *unintelligent*, and *friendly* - *unfriendly* were chosen for the

perception experiment. In the perception experiment, participants from all dialect groups rated speakers on these scales.

5.5.4 Piloting adjectival baselines

Based on the results of the pilot experiment presented in the previous subsection, the adjectival pairs chosen for the perception experiment were: *intelligent* - *unintelligent*, *upper class* - *lower class*, *friendly* - *unfriendly*, and *educated* - *uneducated*. To ensure participants were paying attention in the perception experiment, 16 stimuli were created as attention checks. I refer to these stimuli as “adjectival baselines”, as they targeted one of the eight adjectives on either end of the perception scales. In other words, there were two stimuli which were designed to elicit high scores for the adjective *intelligent*, two which were designed to elicit *friendly*, and so on. These baselines were the same for all dialect groups, with the exception of small lexical or grammatical changes between the US and UK stimuli (as discussed in Section 5.4.2).

Since participants from different backgrounds may have different ideas of who is “intelligent” or “upper class”, a pilot survey was created with the 16 adjectival baselines. Participants were asked ratings of these “speakers”, and a text box was included so that participants could give feedback on the examples. An example which targeted *upper class* is given in Figure 5.2.

This small pilot survey was circulated through social media to participants from the US and UK. Based on the ratings and qualitative feedback from some survey takers, baselines were edited. Overall, the average ratings for all positive adjectives was at least 5 out of 7, and the average for all negative adjectives was less than 4 out of 7.

During the experiment presented in Chapter 6, participants’ answers to these adjectival baseline were used as attention checks. If the adjectival baseline was *lower class* for example, as in Figure 5.2, then the participant’s rating on the scale from 1 (*lower class*) to 7 (*upper class*) was checked. The attention check was failed if the participant rated a negative adjective (such as *lower*

SPEAKER: My father was out of work a lot, so we didn't have a lot growing up. We had to make up our own entertainment, and we would sit for hours making things or playing capture the flag. We never had the newest toys or anything, but we were happy.

How would you rate this speaker?

Unintelligent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Intelligent
Lower class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Upper class
Unfriendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Friendly
Uneducated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Educated

Any additional comments about this speaker? (Optional)

→

Figure 5.2: Lower class adjectival baseline item in pilot experiment

class) as a 5 or higher on the targeted scale. For positive adjectives, the attention check was failed if the participant rated the positive adjective as 3 or lower on the targeted scale. A participant was excluded from the experiment if they failed more than 50% of these attention checks. In other words, if a participant rated 9 or more of these adjectival baselines on the “incorrect” side of the scale, it was concluded that they were not reading the stimuli carefully. Based on these exclusion criteria, no participants were excluded from the perception experiment.

5.6 Conclusion

In this chapter, I detailed the design and methodology of the current experiment, with careful discussion of how I navigated the methodological difficulties discussed in Chapter 2. The experimental conditions for both the grammatical acceptability study and the perception experiment

are divided into morphological conditions (NPI, NC) and syntactic conditions (Object, Subject, NAI) based on the adoption of the Adapted Movement approach to the syntax of NC. This syntactic theory also made predictions for the grammatical acceptability study. In the next chapter, I present the results of the grammatical acceptability study and see whether these predictions are borne out. Then, in Chapter 7, I present the results of the perception experiment to see the effect morphological and syntactic variation have on the social perception of NC.

Condition	Dialect group	Top three adjectives chosen (number of times chosen out of a possible 30)
Object NPI <i>I didn't see anything</i>	AAL	friendly (13), educated (9), intelligent (5), none of these (5)
	MUSE	sounds like me (13), friendly (7), educated (5)
	SWAE	friendly (14), sounds like me (14), intelligent (12)
	Tyne	friendly (18), educated (13), intelligent (9)
	York	sounds like me (13), intelligent (12), educated (8)
Subject NPI* <i>I saw nothing</i>	AAL	friendly (16), educated (13), lower class (10)
	MUSE	educated (9), intelligent (7), friendly (6)
	SWAE	friendly (14), educated (11), intelligent (11)
	Tyne	educated (17), friendly (17), intelligent (16)
	York	intelligent (14), educated (10), friendly (10)
NAI NPI <i>Didn't anybody see him</i>	AAL	friendly (14), lower class (10), none of these (7)
	MUSE	uneducated (11), lower class (11), friendly (5), unintelligent (5)
	SWAE	friendly (10), rebellious (10), unintelligent (10)
	Tyne	friendly (18), uneducated (11), rebellious (10)
	York	uneducated (11), lower class (10), friendly (9)
Object NC <i>I didn't see nothing</i>	AAL	friendly (16), lower class (11), doesn't sound like me (7)
	MUSE	uneducated (7), unintelligent (7), friendly (6), lower class (6)
	SWAE	uneducated (12), friendly (11), rebellious (10)
	Tyne	friendly (14), uneducated (12), intelligent (11)
	York	uneducated (10), friendly (8), doesn't sound like me (8)
Subject NC <i>Nobody didn't see him</i>	AAL	friendly (13), lower class (13), doesn't sound like me (6)
	MUSE	uneducated (11), friendly (8), unintelligent (6)
	SWAE	friendly (14), uneducated (10), rebellious (7)
	Tyne	friendly (18), uneducated (18), lower class (17)
	York	friendly (11), lower class (9), uneducated (7)
NAI NC <i>Didn't nobody see him</i>	AAL	friendly (14), lower class (10), doesn't sound like me (8)
	MUSE	lower class (14), uneducated (11), friendly (8)
	SWAE	friendly (17), uneducated (14), obedient (10)
	Tyne	uneducated (21), friendly (16), lower class (11)
	York	lower class (17), friendly (11), uneducated (10)

Table 5.5: Constellations by linguistic condition, faceted by dialect group

CHAPTER 6

Grammatical acceptability survey

6.1 Introduction

This chapter presents the grammatical acceptability survey, designed to test whether the different syntactic configurations of NC are grammatically acceptable to participants from different English dialect groups. It is yet unclear what the relationship is between a participant's social perception of a syntactic construction and whether that construction is grammatical to them or not. This survey asks which of the 6 experimental conditions the participants find acceptable. Having this information for the same individuals who took the perception survey helps to put those results in context. As a reminder, the grammatical acceptability survey was taken after the demographic screener and before the perception experiment.

In this chapter, I describe the methods (where they differ from those in Chapter 5) of this experiment and present the results. In Chapter 7, I discuss these results as they relate to the perception experiment results.

6.2 Methods

A grammatical acceptability survey was carried out to shed light on which experimental conditions the participants found grammatically acceptable, before asking those same participants about their social perceptions of those linguistic conditions. The survey tested two morphological conditions, NC and NPI, and three syntactic conditions, Object, Subject, and Negative Auxiliary Inversion (NAI). A table of these conditions from Chapter 5 is repeated here for convenience as Table 6.1.

Syntactic condition	Morphological condition	
	NPI	NC
Object	Object NPI <i>I didn't see anything</i>	Object NC <i>I didn't see nothing</i>
Subject	Subject NPI* <i>Nobody saw him.</i>	Subject NC <i>Nobody didn't see him.</i>
Negative Auxiliary Inversion (NAI)	NAI NPI <i>Didn't anybody see him</i>	NAI NC <i>Didn't nobody see him</i>

Table 6.1: Experimental conditions for the grammatical acceptability study and the perception experiment

Participants were recruited from five different dialect groups: African-American Language (AAL), Mainstream US English (MUSE), Southern White American English (SWAE), North East England (Tyne/Tyneside), and the city of York, England (York). Potential participants completed a demographic screening questionnaire before acceptance to the study. Details of this questionnaire, as well as justifications for inclusion of each dialect group, are discussed in section 5.3 of Chapter 5.

Participants were pre-screened and recruited from the website Prolific, and the questionnaires were created and distributed through Qualtrics. US Participants were given the following instructions:

In this survey, you will be asked to rate the acceptability of sentences. “Acceptability” here means how natural the sentences seem to you. We are interested in how people talk differently in different parts of the United States. Some sentences that are not acceptable to you may be acceptable to people in other parts of the country.

If you are having a hard time deciding if a particular sentence sounds acceptable or not, you may wish to read the sentence out loud to yourself.

Try not to dwell on any sentence too long, as we are interested in your first impressions of acceptability. Keep in mind that there are no wrong answers. This survey asks you to evaluate how acceptable the sentences seem to you, regardless of whether or not they are acceptable in formal writing.

You will be asked to rate 72 sentences. After every 12 sentences, you will see a screen that invites you to take a short break if you need to. We estimate the survey will take between 40-50 minutes to complete, including breaks.

These sentences will be rated on a scale from 1-7, with 1 being completely unacceptable, 7 being completely acceptable, and 2-6 being somewhere in between.

If a sentence is completely unnatural, such as

The was insulted waitress frequently.

It would get a rating of 1.

However, if a sentence is completely natural, such as

This is a pen.

It would get a rating of 7.

Not every example will be so extreme. If a sentence is understandable but somewhat unnatural, such as

Tanya danced with as handsome a boy as her father.

It might get a rating of 3-5, depending on how odd the sentence seems to you.

These three examples are what Sprouse (2018) calls Anchor items, which help the participant get a firm idea of the ends and middle of the scale.

The survey contained 72 stimuli: 36 target items, 6 in each condition, and an equal number of fillers and distractors. A full list of experimental stimuli can be found in Appendix B. The distractor conditions were the same in the grammatical acceptability survey and perception experiment, and are discussed in Chapter 5, Section 5.4.3. The experimental stimuli were presented in blocks of 12. The first block of items was not randomized, as it contained all the *unannounced practice* (Sprouse 2018). The unannounced practice is designed to ease the participant into the experiment by presenting clear end cases, each point on the scale, and then reminding them of the end points before they rate any of the target items. This survey had questions in blocks of 12, so three distractor items were added to fill out the block: one Northern Subject Rule, one 3rd singular -s absence, and one alternate embedded passive.

Filler items on either end of the scale were used as attention checks. These filler items were taken from Sprouse (2018), and therefore, these exact items have been thoroughly tested and validated as grammatically acceptable or unacceptable English sentences. Six “unacceptable” fillers (rated 1-3) and four “acceptable” fillers were used, and a participant would only be excluded if they failed 6 or more of these attention checks (i.e. over 50%). A participant failed an attention check if they rated an item at the “wrong” side of the scale. This was defined as rating the unacceptable

fillers as 6-7, or rating the acceptable fillers as 1-3. On this basis, zero participants were excluded from the experiment.

6.3 Results

In Table 6.2, I give the average responses for each group for each experimental condition. For context, I have also included the average ratings for the stimuli that were intended to be rated high (grammatical practice and fillers), intended to be rated low (ungrammatical practice and fillers), and intended to be rated in the middle (neutral practice and fillers). Recall that the participants rated the stimuli on a Likert scale from 1-7, with 1 classified as ‘unacceptable’ and 7 classified as ‘completely acceptable’.

Condition — Dialect group	AAL	MUSE	SWAE	Tyne	York
Object NPI	6.3	6.6	6.6	6.2	6.6
Subject NPI (non-NC)	6.3	6.7	6.2	6.4	6.6
NAI NPI	4.6	3.1	3.7	2.7	3.1
Object NC	5.2	4	5	3.9	3.9
Subject NC	4.9	3.1	4	2.5	3.4
NAI NC	4.8	2.9	4	2.9	3
Grammatical practice/fillers	6.4	6.4	6.5	6.3	6.1
Neutral practice/fillers	5.5	4.5	4.9	4.3	4.6
Ungrammatical practice/fillers	3	2.2	2.8	2.3	2.4

Table 6.2: Average stimuli ratings by condition and dialect group

There are clear patterns in Table 6.2: NC is less acceptable than NPI, and NAI is the least acceptable syntactic condition. It is also clear that participants used the scales differently, even in the control conditions of the grammatical/neutral/ungrammatical fillers.

For this reason, all participant answers were transformed using z-scores. These were calculated for each condition by taking the rating for the target condition, less the mean of the participant’s own ratings, divided by the standard deviation of the participant’s own ratings. This

transformation aims to account for participants using the scales in different ways, and puts each target condition in context of the participant's other ratings.

A linear mixed effect regression model was run on the data, using the lme4 (Bates et al. 2015) and lmerTest (Kuznetsova et al. 2017) packages in R version 4.1.3 (R core team 2022). The baseline for all models presented in this section was MUSE as dialect group, NPI as morphological condition, and Subject as syntactic condition. The data was also divided into subsets by morphological condition. Since the data was handled by two statistical models, I employed the Bonferroni correction, and the level of significance used in reporting these results is $p \leq .025$.

A global model was run on all data with fixed effects for dialect group, syntactic condition, and morphological condition; interactions between each of these fixed effects; and random effects for stimuli presentation order and for participant.¹

(198) Linear mixed effect best fit model, as chosen by step-down process

`lmer(zscore ~ group * syntax + group * morph + syntax * morph + (1 + scale(order) |ID))`

A step-down process was used to determine the best fit model for the data, and no terms were dropped. The output of this model is given in Table 6.3.

As Table 6.3 shows, both NAI and NC were rated as much less acceptable than the Subject and NPI baselines. However, the interaction of NAI and NC was not as unacceptable as we might have expected from the fixed effects. In addition, the AAL and SWAE groups rated NAI and NC as much more acceptable than the MUSE group did, while the ratings of the Tyne and York groups did not differ significantly from those of the MUSE group. This connection will be discussed in relation to perception results in Chapter 7. One final note is that although NC was rated as much less acceptable than NPI, the Object NC condition was rated as more acceptable than Subject NC.

¹It is more accurate to say that this model generated a line for each participant: The intercept of that line is an adjustment for individual differences in acceptability ratings, while the slope of the line was determined by stimuli presentation order.

6.3.1 Results by morphological condition: NPI

To isolate the effects of the syntactic condition, the data was broken into subsets based on morphological condition. As a reminder, here are examples of the sentences discussed in this section.

- (199) I **didn't** see **anything** Object NPI
- (200) **Nobody** saw him Subject NPI*
- (201) **Didn't anybody** see him NAI NPI

While the Object and Subject conditions are part of standardized US and UK Englishes, the NAI NPI has only been attested in SWAE, as discussed in Chapter 3.

A linear mixed effect regression was run on the NPI-only data, with fixed effects of dialect group and syntactic condition, interactions between those fixed effects, and random effects of participant and stimuli presentation order.

- (202) Linear mixed effect best fit model for NPI data, as chosen by step-down process
- `lmer(zscore ~ group * syntax + (1 + scale(order) |ID))`

A step-down process was used to determine the best fit model for the data, and no terms were dropped. The output of the model is presented in Table 6.4.

As we see in Table 6.4, the fixed effects of groupAAL and groupSWAE show that the AAL and SWAE groups gave Subject and Object NPI stimuli lower ratings than the MUSE group did, while the Tyne and York groups did not differ significantly from the MUSE group. Table 6.2 shows that the AAL and SWAE groups still rated the Object NPI and Subject NPI as acceptable overall, they just did not rate them as highly as the other groups did.

The main effect of NAI syntax indicates that NAI NPI is significantly less acceptable than Subject NPI for MUSE. The lack of a significant interaction with syntax for Tyne or York indicates that the same holds for those dialects, too. However, the significant interactions between AAL and

NAI, and SWAE and NAI, show that these groups rated NAI NPI as not as unacceptable, relative to Subject NPI.

6.3.2 Results by morphological condition: NC

To test for the effects of syntactic configuration, the data was divided into subsets by morphological condition. As a reminder, here are examples of the kinds of sentences rated in the NC conditions.

- | | | |
|-------|------------------------------|------------|
| (203) | I didn't see nothing | Object NC |
| (204) | Nobody didn't see him | Subject NC |
| (205) | Didn't nobody see him | NAI NC |

Recall that in Chapter 3, Object NC was robustly attested in SWAE and AAL, was uncommon in Tyne and virtually absent in York (Childs et al. 2018), and unattested in MUSE.

A linear mixed effect regression was run on the NC-only data, with fixed effects of dialect group and syntactic condition, interactions between those fixed effects, and random effects of participant and stimuli presentation order.

- (206) Linear mixed effect best fit model for NPI data, as chosen by step-down process

`lmer(zscore ~ group * syntax + (1 + scale(order) |ID))`

A step-down process was used to determine the best fit model for the data, and no terms were dropped. The output of the model is presented in Table 6.5.

As Table 6.5 shows, the AAL group rated Subject NC as more acceptable than the MUSE baseline did, and no other groups differed significantly from the MUSE baseline. In addition, across all groups, the Object NC condition was rated as more acceptable than the Subject NC baseline.

6.4 Discussion

As we will see, not every construction that has been attested in the literature for a variety is rated as grammatically acceptable by speakers of that variety. Of course, what we mean by ‘acceptable’ is a much more difficult question to answer than we would like. For now, we will say that these participants rated the condition as acceptable if there was an average rating of 5 or more (Table 6.2), which is around what all groups rated the neutral filler stimuli.

As Table 6.6 shows, NAI NPI, Subject NC and NAI NC were not rated as acceptable by any of the dialect groups, even though they have been attested in these varieties. It is worth mentioning here that despite the fact that the average ratings did not meet the threshold for acceptability, in the global model in Table 6.3, the AAL and SWAE groups rated NC significantly higher than the baseline MUSE group did. When studying stigmatized constructions such as NC, it can be useful to compare average ratings to a fixed scale, as we see in Tables 6.2 and 6.6, but it is also useful to see ratings in comparison, as the statistical models show us.

6.4.1 Testing the predictions of syntactic theories

In this section, I review the predictions made under each syntactic theory, and consider which have been borne out by the grammatical acceptability survey. The table of predictions of each of the syntactic approaches to NC is repeated here as Table 6.7 for convenience.

6.4.1.1 Agreement approach

The Agreement approach is discussed in detail in Chapter 4, Section 4.3. As a brief reminder, the Agreement approach (Zeijlstra 2004, 2008a, 2008b) treats NC as syntactic agreement between a negative item with an uninterpretable Negation feature [uNeg] and a higher interpretable Negation feature [iNeg]. NC languages are divided into two typological groups: Non-Strict NC languages

and Strict NC languages. These language types, and the predictions regarding them, will be dealt with in turn.

Non-Strict NC languages, like Spanish, allow Object NC, as shown in (207), but do not allow Subject NC, as shown in the ungrammaticality of (208b) when compared to (208a).

- (207) Juan **no** ha visto a **nadie** Spanish
 Juan not have.3sg seen to nobody
 ‘Juan hasn’t seen anybody.’
- (208) a. **Nadie** vino
 Nobody come.3.SG.Past
 ‘Nobody came.’
- b. ***Nadie no** vino
 Nobody not come.3.SG.Past
 Intended: ‘Nobody came.’

In essence, the Agreement approach claims that Subject NC is not allowed in Non-Strict NC languages because the element bearing the [iNeg] feature is the sentential negation (in Spanish, *no*), and any NCIs that Agree with the sentential negation must be c-commanded by it. In (208b), the NCI *nadie* ‘nobody’ has moved above *no* in the syntactic structure and is no longer c-commanded by *no*. Therefore, *nadie* and *no* cannot Agree, and the resulting Subject NC word order *nadie no vino* is ungrammatical.

To apply this analysis to English, we must first set aside the issue that NC is always variable in English, and, as shown in Chapter 2 and Chapter 3, there are no attested dialects of English that use NC 100% of the time. With that in mind, based on this analysis, a Non-Strict NC variety of English would allow Object NC, as Spanish does, would not allow Subject NC, the same as Spanish, and would allow NAI NC, such as *Didn’t nobody see him*. The logic here is that Subject NC is only ruled out because the negative subject is not in the c-command domain of the sentential negation. In NAI NC, the negative subject would be c-commanded by sentential negation, and the

As for Strict NC languages, they are the varieties in which both Object and Subject NC are not only grammatical, but obligatory. An example of a Strict NC language is Polish, where in the examples below, an asterisk outside of an element in parentheses indicates that the sentence is ungrammatical without that element.

- In Strict NC languages, there is a silent operator that carries the [iNeg] feature, while all negative items, including the sentential negation *nie*, carry a [uNeg] feature. All negative items must be in the c-command domain of the silent negative operator and undergo agreement with it.

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the negative item *n't*, marked with a [uNeg] feature, out of the c-command domain of the silent negative operator carrying the [iNeg] feature.

This analysis would lead us to predict that speakers of Strict NC English varieties would rate NAI NC as significantly less acceptable, compared to Object NC and Subject NC. In the Table in 6.5, we do not find that any group rates NAI NC as significantly less acceptable than the Subject NC baseline. Therefore, this prediction is not borne out.

6.4.1.2 Movement approach

The Movement approach is discussed in detail in Chapter 4, Section 4.4. In terms of the predictions it makes, the Movement approach claims that all English varieties generate Object NC in their grammars but do not realize NC because of social factors (Blanchette 2013). Therefore, it predicts that Object NC will be rated as more acceptable than Subject NC or NAI NC. This prediction is borne out in the grammatical acceptability study: Table 6.5 shows that Object NC is rated as more acceptable than Subject NC across all dialect groups.

Under the Movement approach, a Subject NC sentence like *Nobody didn't see him* is derived from a NAI NC sentence like *Didn't nobody see him*, by moving the subject in the NAI sentence over the negated auxiliary verb. In this way, the syntax of Subject NC is tied to NAI NC, and the theory predicts that every variety that allows Subject NC will also allow NAI NC, a prediction refuted by the data in Chapter 3. The theory also predicts that Subject NC will be more marked than NAI NC, based on its low rate of occurrence in US English varieties compared with NAI NC. The results in Table 6.5 do not show evidence that this is the case.

6.4.1.3 Adapted Movement approach

The Adapted Movement approach is described in depth in Chapter 4, Section 4.5. Although it is based on the Movement approach, it differs in enough detail to make distinct predictions for the grammatical acceptability study. These predictions are laid out in the following example, reproduced from Chapter 5 for convenience.

(211) Grammatical acceptability hypotheses:

1. The Object NC condition will receive significantly higher acceptability ratings than the Subject NC or NAI NC conditions.
2. The NAI NC condition will receive significantly lower acceptability ratings than the Subject NC or Object NC conditions.

This approach follows Blanchette (2013) and the Movement approach in claiming that all English varieties generate Object NC, which, as seen in the previous section, is a prediction borne out by the data in Table 6.5. The Object NC condition does indeed receive significantly higher acceptability ratings than the Subject NC condition. Object NC is not compared directly to NAI NC in Table 6.5, but because NAI NC does not differ significantly from the Subject NC baseline, we might infer that Object NC is rated as more acceptable than NAI NC. While this inference seems to be corroborated by the data in Table 6.2, future (corrected) pairwise comparisons are needed to know for sure.

The second prediction made by the Adapted Movement approach is not borne out, but deserves some discussion. The overall prediction presented in Table 6.7 was that Object NC would be rated as more acceptable than Subject NC, which would be rated as more acceptable than NAI NC. The average ratings presented in Table 6.2 indicate that this is borne out for AAL, MUSE, and York, but not for SWAE, where Subject NC and NAI NC received the same average rating, or for Tyne, where NAI NC was rated as slightly more acceptable than Subject NC. Although the

prediction holds for three of the five dialect groups based on the raw data, the differences between the ratings for Subject NC and NAI NC were not found to be statistically significant.

6.5 Conclusion

In this chapter I presented a grammatical acceptability survey that tested ratings of different syntactic configurations of NC and NPI sentences. Overall, the NC morphological condition and the NAI syntactic condition were found to lower acceptability ratings, and the results best support the Adapted Movement approach. These results will be referred to again in the next chapter.

Random effects:						
Groups	Name	Variance	Std.Dev.	Corr		
ID	(Intercept)	0.00526	0.07252			
	scale(order)	0.01413	0.11888	0.35		
Residual		0.40253	0.63445			
Number of obs: 2700, groups: ID, 75						
Fixed effects:						
	Estimate	Std. Error	df	t value	Pr(> t)	
(Intercept)	1.085	0.06035	693.8	17.982	< 2e-16	*
groupAAL	-0.2984	0.08202	606.6	-3.638	0.000299	*
groupSWAE	-0.3517	0.08173	601.0	-4.303	1.97e-05	*
groupTyne	-0.1951	0.08160	597.8	-2.391	0.017125	*
groupYork	0.01305	0.08170	600.3	0.160	0.873114	
syntaxObject	0.008525	0.07402	2599	0.115	0.908326	
syntaxNAI	-1.656	0.07371	2580	-22.471	< 2e-16	*
morphNC	-1.680	0.06526	2598	-25.745	< 2e-16	*
groupAAL:syntaxObject	-0.09984	0.09527	2586	-1.048	0.294728	
groupSWAE:syntaxObject	0.09897	0.09538	2591	1.038	0.299535	
groupTyne:syntaxObject	0.05724	0.09526	2585	0.601	0.547940	
groupYork:syntaxObject	-0.09892	0.09548	2595	-1.036	0.300259	
groupAAL:syntaxNAI	0.3614	0.09513	2578	3.799	0.000149	*
groupSWAE:syntaxNAI	0.2855	0.09537	2589	2.994	0.002780	*
groupTyne:syntaxNAI	0.1771	0.09522	2582	1.860	0.063024	
groupYork:syntaxNAI	-0.02236	0.09512	2577	-0.235	0.814203	
groupAAL:morphNC	0.5853	0.07791	2593	7.513	7.92e-14	*
groupSWAE:morphNC	0.4291	0.07784	2590	5.512	3.90e-08	*
groupTyne:morphNC	0.1288	0.07778	2587	1.656	0.097886	
groupYork:morphNC	0.09026	0.07790	2592	1.159	0.246648	
syntaxObject:morphNC	0.4321	0.06040	2596	7.155	1.09e-12	*
syntaxNAI:morphNC	1.483	0.06031	2590	24.582	< 2e-16	*

Table 6.3: Linear mixed effect regression model of grammatical acceptability ratings

Random effects:						
Groups	Name	Variance	Std.Dev.	Corr		
ID	(Intercept)	0.022967	0.15155			
	scale(order)	0.007742	0.08799	-0.20		
Residual		0.322981	0.56831			
Number of obs: 1350, groups: ID, 75						
Fixed effects:						
	Estimate	Std. Error	df	t value	Pr(> t)	
(Intercept)	1.13378	0.07179	236.55722	15.793	< 2e-16	*
groupAAL	-0.47915	0.10137	233.67186	-4.727	3.94e-06	*
groupSWAE	-0.40605	0.10173	239.35763	-3.992	8.73e-05	*
groupTyne	-0.13487	0.10152	237.12983	-1.329	0.185282	
groupYork	-0.07071	0.10139	234.17993	-0.697	0.486220	
syntaxObject	-0.04949	0.08564	1264.02571	-0.578	0.563418	
syntaxNAI	-1.77517	0.08554	1262.33677	-20.753	< 2e-16	*
groupAAL:syntaxObject	0.07355	0.12077	1256.56598	0.609	0.542611	
groupSWAE:syntaxObject	0.16264	0.12099	1262.51179	1.344	0.179112	
groupTyne:syntaxObject	-0.04424	0.12078	1256.84496	-0.366	0.714239	
groupYork:syntaxObject	0.06334	0.12103	1263.05143	0.523	0.600814	
groupAAL:syntaxNAI	0.74856	0.12083	1258.83882	6.195	7.87e-10	*
groupSWAE:syntaxNAI	0.45842	0.12094	1261.67188	3.790	0.000158	*
groupTyne:syntaxNAI	0.11258	0.12095	1261.67899	0.931	0.352130	
groupYork:syntaxNAI	0.09894	0.12093	1261.62699	0.818	0.413407	

Table 6.4: Linear mixed effect regression model of grammatical acceptability ratings, NPI conditions only

Random effects:					
Groups	Name	Variance	Std.Dev.	Corr	
ID	(Intercept)	0.04280	0.2069		
	scale(order)	0.02815	0.1678	0.21	
Residual		0.41554	0.6446		
Number of obs: 1350, groups: ID, 75					
Fixed effects:					
	Estimate	Std. Error	df	t value	Pr(> t)
(Intercept)	-0.63485	0.08733	208.55830	-7.269	7.14e-12 *
groupAAL	0.45499	0.12309	205.93288	3.696	0.00028 *
groupSWAE	0.13761	0.12320	206.76840	1.117	0.26531
groupTyne	-0.13253	0.12301	205.53375	-1.077	0.28257
groupYork	0.17216	0.12343	208.07385	1.395	0.16456
syntaxObject	0.48613	0.09795	1254.13104	4.963	7.90e-07 *
syntaxNAI	-0.07209	0.09745	1239.35540	-0.740	0.45957
groupAAL:syntaxObject	-0.25898	0.13825	1248.61033	-1.873	0.06126
groupSWAE:syntaxObject	0.05158	0.13811	1246.77660	0.373	0.70887
groupTyne:syntaxObject	0.15398	0.13880	1256.63052	1.109	0.26747
groupYork:syntaxObject	-0.23426	0.13858	1253.80406	-1.690	0.09120
groupAAL:syntaxNAI	-0.00794	0.13768	1236.20417	-0.058	0.95402
groupSWAE:syntaxNAI	0.13226	0.13821	1247.47418	0.957	0.33880
groupTyne:syntaxNAI	0.24611	0.13784	1241.19496	1.785	0.07444
groupYork:syntaxNAI	-0.10960	0.13792	1242.06357	-0.795	0.42699

Table 6.5: Linear mixed effect regression model of grammatical acceptability ratings, NC conditions only

Construction	Varieties where construction is attested	Varieties that rated construction as acceptable
Object NPI	all dialect groups	all dialect groups
Subject NPI	all dialect groups	all dialect groups
NAI NPI	SWAE	none
Object NC	AAL, SWAE, Tyne	AAL, SWAE
Subject NC	AAL, SWAE	none
NAI NC	AAL, SWAE	none

Table 6.6: Comparison of attested versus acceptable constructions

Approach	Predictions for grammatical acceptability study
Agreement	Non-Strict NC English speakers accept Object NC and NAI NC, reject Subject NC
	Strict NC English speakers accept Object NC and Subject NC, reject NAI NC
Movement	Higher acceptability ratings for Object NC than Subject NC or NAI NC
	Lower acceptability ratings for Subject NC than Object NC or NAI NC In sum: Object NC > NAI NC > Subject NC
Adapted Movement	Higher acceptability ratings for Object NC than Subject NC or NAI NC
	Lower acceptability ratings for NAI NC than Object NC or Subject NC In sum: Object NC > Subject NC > NAI NC

Table 6.7: Experimental predictions made by the syntactic approaches discussed in Chapter 4

CHAPTER 7

Perception experiment

7.1 Introduction

In this chapter, I present the results and discussion of a perception experiment designed to test the perception of Negative Concord (NC) in different syntactic contexts. A full discussion of the methods is in Chapter 4. As noted in Chapter 4, the perception study was given to the participants after a grammatical acceptability survey (discussed in Chapter 5). As a quick refresher, the methods for this experiment are repeated below. I then present the results of the study, and discuss what these results mean for the social perception of morphological and syntactic variables.

7.2 Methods

A perception survey was carried out to determine whether the syntactic configuration in which NC occurred had a significant effect on the perception of a speaker's intelligence, education level,

social class, or friendliness. The survey tested two morphological conditions, NC and NPI, and three syntactic conditions, Object, Subject, and Negative Auxiliary Inversion (NAI).

Participants were recruited from five different dialect groups: African-American Language (AAL), Mainstream US English (MUSE), Southern White American English (SWAE), North East England (Tyne/Tyneside), and the city of York, England (York). Potential participants completed a demographic screening questionnaire before acceptance to the study. Details of this questionnaire, as well as justifications for inclusion of each dialect group, are discussed in Section 5.3 of Chapter 5.

Participants were pre-screened and recruited from the website Prolific, and the questionnaires were created and distributed through Qualtrics. Participants were given the following instructions:

You will read short excerpts of spoken interviews in which the interviewee discusses memories of childhood. We are interested in your perception of the speaker.

Try not to dwell on any excerpt too long, as we are interested in your first impressions of the speakers. Keep in mind that there are no wrong answers.

You will be asked to rate 72 excerpts. After every 12 excerpts, you will see a screen that invites you to take a short break if you need to. We estimate the survey will take between 50-60 minutes to complete, including breaks.

As this quotation shows, participants were told that the written stimuli were excerpts from spoken interviews, and that the theme of each excerpt would be a memory of childhood. Detailed discussion on how these stimuli were written is found in Section 5.4 of Chapter 5. Participants were encouraged to go with their initial reaction to each “speaker”, and encouraged to take breaks

SPEAKER: I was the opposite of my brother. I was a good kid. I didn't bother nobody. All the neighbors liked me!

How would you rate this speaker?

Unintelligent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Intelligent
Lower class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Upper class
Unfriendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Friendly
Uneducated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Educated

>>

Figure 7.1: Object NC target item in perception experiment

at set points during the survey to reduce fatigue. Participants were paid \$7.80 for their time (55 minutes at a rate of \$8.50 an hour).

In the experiment, participants were shown a written stimulus, and asked how they would rate the speaker on four semantic differential scales: *Unintelligent - Intelligent*, *Lower class - Upper class*, *Unfriendly - Friendly*, and *Uneducated - Educated*. These social traits were chosen based on previous literature on NC (see Chapter 2 of this dissertation) and pilot experiments, detailed in Section 5.5 of Chapter 5. As shown in Figure 7.1, the social traits were on opposite ends of 7-point Lickert scales.

These scales always appeared in the same order, and always had the negative adjectives on the left and the positive adjectives on the right. Because of this, it is possible that there may have been ordering effects with respect to the order and orientation of the semantic differential scales. However, this was balanced out by having the target and filler stimuli appear in a random order, and by having participants rate each experimental condition 6 different times. Since participants were asked to rate 72 different excerpts, the scale order and orientation were kept identical. This

was so that participants could become familiar with the possible answers and their location on the screen, all in an attempt to lessen participant fatigue.

7.3 Results

All participant answers were transformed using z-scores, which were calculated for each condition by taking the rating for the target condition, less the mean of the participant's own ratings, divided by the standard deviation of the participant's own ratings. Using a z-score transformation aims to account for participants using the scales in different ways, and puts each target condition in context of the participant's other ratings. The data was then divided into subsets for each perception scale, and linear mixed effect regressions were run on each data set, using R version 4.1.3 (R core team 2022). The baseline for all models was MUSE as dialect group, NPI as morphological condition, and Subject as syntactic condition. I also created subsets by morphological condition, to see more clearly the effect of the syntactic conditions, which I discuss in Section 7.3.1 below. Since I was then running eight models on the same data (four traits times two models), I employed the Bonferroni correction, and the level of significance used in reporting these results is $p \leq .00625$.

A linear mixed effects regression was run for each trait, using the lme4 (Bates et al. 2015) and lmerTest (Kuznetsova et al. 2017) packages, with the call given in (212). This model has fixed effects for dialect group, syntactic condition, and morphological condition; interactions between each of these fixed effects; and random effects for stimuli presentation order and for participant.

(212) Linear mixed effects model run for all traits, before step-down process

rating \sim group*syntax + group*morph + syntax*morph + (1+scale(order)|ID)

A step-down process was then used to find the best model fit for each trait. A positive estimate in the model was interpreted as closer to the positive adjectives (more intelligent, upper class, friendlier, more educated), and a negative estimate was interpreted as closer to the negative adjectives (less intelligent, lower class, less friendly, less educated).

7.3.1 Intelligence

The model given in (212) did not converge with the intelligence rating data. Instead, the random effects were dropped for the model to converge. The step-down process was used with this new model.

The model chose by the step-down process is given in (213). This model has main effects of dialect group, syntactic condition, and morphology, as well as interactions between dialect group and syntactic condition, and syntactic condition and morphological condition.

(213) Best fit model for intelligence trait as chosen by step-down process

$\text{lm}(\text{rating} \sim \text{group} + \text{syntax} + \text{morph} + \text{group:syntax} + \text{syntax:morph})$

Table 7.1 presents the model for the perceived intelligence ratings.

Coefficients:					
	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	0.382352	0.068193	5.607	2.27e-08	*
groupAAL	0.002508	0.088037	0.028	0.9773	
groupSWAE	-0.038055	0.088037	-0.432	0.6656	
groupTyne	-0.135343	0.088037	-1.537	0.1243	
groupYork	-0.065709	0.088037	-0.746	0.4555	
syntaxObject	-0.165603	0.096439	-1.717	0.0861	
syntaxNAI	-0.906761	0.096439	-9.402	< 2e-16	*
morphNC	-0.690513	0.055679	-12.402	< 2e-16	*
groupAAL:syntaxObject	-0.059590	0.124502	-0.479	0.6322	
groupSWAE:syntaxObject	-0.090299	0.124502	-0.725	0.4683	
groupTyne:syntaxObject	0.110867	0.124502	0.890	0.3733	
groupYork:syntaxObject	-0.009546	0.124502	-0.077	0.9389	
groupAAL:syntaxNAI	0.317135	0.124502	2.547	0.0109	
groupSWAE:syntaxNAI	0.291247	0.124502	2.339	0.0194	
groupTyne:syntaxNAI	0.063791	0.124502	0.512	0.6084	
groupYork:syntaxNAI	0.016069	0.124502	0.129	0.8973	
syntaxObject:morphNC	0.143990	0.078742	1.829	0.0676	
syntaxNAI:morphNC	0.497295	0.078742	6.315	3.14e-10	*

Table 7.1: Linear mixed effect regression model of perceived intelligence ratings

As Table 7.1 shows, NAI users were perceived as less intelligent than the Subject baseline. NC users were also perceived as less intelligent than the NPI baseline. Speakers who used NAI NC (*Couldn't nobody see it*) were also perceived as less intelligent, although the negative effects of NAI and NC on intelligence are somewhat mitigated when the two co-occur.

7.3.2 Social class

Starting again from the model in (212), the step-down process suggested the following model as a best fit for the data. It has main effects of dialect group, syntactic condition, and morphological condition; interactions of dialect group and syntactic condition, as well as syntactic condition and morphology; and random effects of stimuli presentation order and participant.

(214) Best fit model for social class trait as chosen by step-down process

```
lmer(rating ~ group + syntax + morph + group:syntax + syntax:morph + (1 + scale(order)
|ID))
```

Table 7.2 presents the model for class ratings.

In Table 7.2, we see that NAI users are perceived as lower class compared to the Subject baseline. Again, NC users are also perceived as lower class than NPI users. NAI NC users are perceived as lower class, but again, this interaction is not additive. Interestingly, the perceived class ratings show an interaction between dialect group and syntactic condition. Both the AAL and SWAE groups rated NAI stimuli as higher class (relative to the Subject baseline) than the other dialect groups.

7.3.3 Education level

The model in (212) failed to converge with the education level ratings data. When the random effect of stimuli presentation order was dropped, the model converged, and this model was used for the step-down process. The best fit model for this data is given in (215). It includes main effects

Random effects:						
Groups	Name	Variance	Std.Dev.	Corr		
ID	(Intercept)	0.0005636	0.02374			
	scale(order)	0.0219857	0.14828	0.16		
Residual		0.5539618	0.74429			
Number of obs: 2700,		groups: ID, 75				
Fixed effects:						
	Estimate	Std. Error	df	t value	Pr(> t)	
(Intercept)	3.625e-01	6.146e-02	7.438e+02	5.898	5.58e-09	*
groupAAL	-1.600e-02	7.946e-02	5.521e+02	-0.201	0.840457	
groupSWAE	-1.100e-01	7.940e-02	5.502e+02	-1.385	0.166488	
groupTyne	-1.320e-01	7.934e-02	5.498e+02	-1.663	0.096861	
groupYork	-2.148e-01	7.956e-02	5.540e+02	-2.700	0.007154	
syntaxObject	5.167e-03	8.656e-02	2.578e+03	0.060	0.952406	
syntaxNAI	-8.800e-01	8.670e-02	2.584e+03	-10.150	< 2e-16	*
morphNC	-5.616e-01	4.995e-02	2.576e+03	-11.242	< 2e-16	*
groupAAL:syntaxObject	-4.041e-02	1.117e-01	2.574e+03	-0.362	0.717492	
groupSWAE:syntaxObject	1.837e-02	1.118e-01	2.580e+03	0.164	0.869492	
groupTyne:syntaxObject	6.743e-02	1.115e-01	2.568e+03	0.605	0.545520	
groupYork:syntaxObject	2.449e-01	1.118e-01	2.581e+03	2.191	0.028561	
groupAAL:syntaxNAI	4.027e-01	1.119e-01	2.583e+03	3.599	0.000325	*
groupSWAE:syntaxNAI	3.849e-01	1.118e-01	2.580e+03	3.443	0.000584	*
groupTyne:syntaxNAI	1.944e-01	1.120e-01	2.587e+03	1.736	0.082650	
groupYork:syntaxNAI	2.922e-01	1.119e-01	2.586e+03	2.611	0.009089	
syntaxObject:morphNC	-2.490e-02	7.060e-02	2.573e+03	-0.353	0.724374	
syntaxNAI:morphNC	3.938e-01	7.068e-02	2.578e+03	5.572	2.78e-08	*

Table 7.2: Linear mixed effect regression model of perceived social class ratings

of dialect group, syntactic condition, and morphological condition, as well as interactions between dialect group and syntactic condition, and syntactic condition and morphological condition. The random intercept for participant was dropped during the step-down process, as the original model had a near singular fit.¹

(215) Best fit model for education level data, as determined by step-down process

$\text{lm}(\text{rating} \sim \text{group} + \text{syntax} + \text{morph} + \text{group:syntax} + \text{syntax:morph})$

¹The near singular fit in the model was due to a lack of variance in the random intercept for participant. In effect, that means that there were little to no individual differences in how participants approached the task.

Table 7.3 presents the model for education level ratings.

Coefficients:					
	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	0.35041	0.06501	5.390	7.66e-08	*
groupAAL	0.05169	0.08393	0.616	0.5381	
groupSWAE	-0.05110	0.08393	-0.609	0.5427	
groupTyne	-0.10464	0.08393	-1.247	0.2126	
groupYork	-0.03151	0.08393	-0.375	0.7074	
syntaxObject	-0.11740	0.09194	-1.277	0.2018	
syntaxNAI	-0.82930	0.09194	-9.020	< 2e-16	*
morphNC	-0.69762	0.05308	-13.142	< 2e-16	*
groupAAL:syntaxObject	-0.05742	0.11869	-0.484	0.6286	
groupSWAE:syntaxObject	0.06006	0.11869	0.506	0.6129	
groupTyne:syntaxObject	0.14421	0.11869	1.215	0.2245	
groupYork:syntaxObject	-0.00676	0.11869	-0.057	0.9546	
groupAAL:syntaxNAI	0.20982	0.11869	1.768	0.0772	
groupSWAE:syntaxNAI	0.29531	0.11869	2.488	0.0129	
groupTyne:syntaxNAI	0.04085	0.11869	0.344	0.7308	
groupYork:syntaxNAI	-0.08886	0.11869	-0.749	0.4541	
syntaxObject:morphNC	0.10963	0.07507	1.460	0.1443	
syntaxNAI:morphNC	0.51161	0.07507	6.815	1.16e-11	*

Table 7.3: Linear mixed effect regression model of perceived education level ratings

Speakers who used NAI were perceived as less educated compared to the Subject baseline. Likewise, speakers who used NC were perceived as less educated compared to the NPI baseline. Speakers in the NAI NC condition were perceived as less educated, but there was no additive effect.

7.3.4 Friendliness

For the friendliness ratings, the model suggested by the step down process used syntactic condition and morphological conditions as main effects, with an interaction term of syntactic and morphological condition, as shown in (216).

(216) Best fit model for friendliness trait, as chosen by step-down process

`lmer(rating ~ syntax + morph + syntax:morph + (1 + scale(order) |ID))`

The output of the model is shown in Table 7.4.

Random effects:						
Groups	Name	Variance	Std.Dev.	Corr		
ID	(Intercept)	3.629e-05	0.006024			
	scale(order)	1.902e-02	0.137903	1.00		
Residual		7.587e-01	0.871037			
Number of obs: 2700, groups: ID, 75						
Fixed effects:						
	Estimate	Std. Error	df	t value	Pr(> t)	
(Intercept)	0.13403	0.04128	2664.18391	3.247	0.00118	*
syntaxObject	-0.10134	0.05842	2673.76337	-1.735	0.08291	
syntaxNAI	-0.17450	0.05839	2669.87504	-2.988	0.00283	*
morphNC	-0.16757	0.05838	2669.30671	-2.870	0.00414	*
syntaxObject:morphNC	-0.12767	0.08252	2665.41025	-1.547	0.12194	
syntaxNAI:morphNC	0.24310	0.08260	2671.47253	2.943	0.00328	*

Table 7.4: Linear mixed effect regression model of perceived friendliness ratings

Once again, speakers were perceived less favorably, in this case as less friendly, if they used NAI on its own or NC on its own. However, speakers were perceived as relatively more friendly in the NAI NC condition.

7.3.5 Syntax

The data was put in further subsets by morphological condition, to further examine the effect of syntactic construction without the confound of morphological condition. Just as in the models in the previous section, the baseline for all models was MUSE as dialect group and Subject as syntactic condition. The linear mixed effects regressions were run with fixed effects for syntactic condition and dialect group, interactions between each of these fixed effects, and random effects of stimuli presentation order and participant.

(217) Linear mixed effects model run for all traits, before step-down process

`lmer(rating ~ group * syntax + (1 + scale(order) |ID))`

A step-down process was then used to find the best fit model for the data.

7.3.5.1 NPI conditions

As a refresher, the example sentences being compared here are Subject (*Nobody saw him*), Object (*I didn't see anything*), and NAI (*Couldn't anybody see him*).²

Intelligence

The model chosen by the step-down process for Intelligence ratings in NPI conditions is the same model presented in (217). The output of the model is shown in Table 7.5.

Especially when the NC is not present, NAI NPI (*Couldn't anybody see him*) was rated across groups as sounding less intelligent.

²As discussed in Chapter 5, the NAI stimuli were written carefully as declarative sentences.

Random effects:						
Groups	Name	Variance	Std.Dev.	Corr		
ID	(Intercept)	0.02638	0.1624			
	scale(order)	0.02170	0.1473	-0.15		
Residual		0.64884	0.8055			
Number of obs: 1350,		groups: ID, 75				
Fixed effects:						
	Estimate	Std. Error	df	t value	Pr(> t)	
(Intercept)	3.510e-01	9.531e-02	3.072e+02	3.683	0.000272	*
syntaxObject	-7.138e-02	1.216e-01	1.259e+03	-0.587	0.557237	
syntaxNAI	-8.452e-01	1.213e-01	1.252e+03	-6.966	5.26e-12	*
groupAAL	-7.737e-03	1.347e-01	3.066e+02	-0.057	0.954248	
groupSWAE	2.950e-02	1.345e-01	3.046e+02	0.219	0.826596	
groupTyne	-7.669e-02	1.346e-01	3.052e+02	-0.570	0.569142	
groupYork	-5.569e-02	1.350e-01	3.087e+02	-0.413	0.680214	
syntaxObject:groupAAL	-1.818e-01	1.717e-01	1.254e+03	-1.059	0.289914	
syntaxNAI:groupAAL	3.202e-01	1.715e-01	1.249e+03	1.867	0.062162	
syntaxObject:groupSWAE	-1.779e-01	1.712e-01	1.243e+03	-1.039	0.299002	
syntaxNAI:groupSWAE	2.176e-01	1.710e-01	1.237e+03	1.273	0.203365	
syntaxObject:groupTyne	-6.373e-02	1.714e-01	1.248e+03	-0.372	0.710076	
syntaxNAI:groupTyne	-5.406e-02	1.717e-01	1.255e+03	-0.315	0.752960	
syntaxObject:groupYork	-5.162e-02	1.723e-01	1.263e+03	-0.300	0.764480	
syntaxNAI:groupYork	-9.404e-02	1.715e-01	1.250e+03	-0.548	0.583507	

Table 7.5: Linear mixed effect regression model of perceived intelligence ratings, NPI conditions only

Class

The model chosen by the step-down process for Class level in NPI conditions is the same model presented in (217). The output of the model is shown in Table 7.6.

As Table 7.6 shows, NAI NPI was perceived across groups as lower class. The same interaction between dialect group and NAI previously observed in Table 7.2 is observed in Table 7.6 as well. Both the AAL and SWAE participants rated NAI as higher class than the MUSE baseline. In fact, this effect is stronger in the NPI results when compared to Table 7.2. NAI is still

Random effects:						
Groups	Name	Variance	Std.Dev.	Corr		
ID		(Intercept)	0.02142	0.1464		
		scale(order)	0.02636	0.1623	0.33	
Residual		0.54215	0.7363			
Number of obs: 1350, groups: ID, 75						
Fixed effects:						
	Estimate	Std. Error	df	t value	Pr(> t)	
(Intercept)	4.106e-01	8.675e-02	3.160e+02	4.733	3.34e-06	*
syntaxObject	5.268e-03	1.114e-01	1.255e+03	0.047	0.96230	
syntaxNAI	-9.751e-01	1.112e-01	1.246e+03	-8.772	< 2e-16	*
groupAAL	-2.190e-01	1.226e-01	3.159e+02	-1.785	0.07515	
groupSWAE	-1.398e-01	1.222e-01	3.120e+02	-1.144	0.25365	
groupTyne	-1.148e-01	1.226e-01	3.153e+02	-0.936	0.35010	
groupYork	-2.468e-01	1.230e-01	3.190e+02	-2.006	0.04570	
syntaxObject:groupAAL	6.590e-02	1.573e-01	1.248e+03	0.419	0.67538	
syntaxNAI:groupAAL	7.125e-01	1.571e-01	1.242e+03	4.535	6.32e-06	*
syntaxObject:groupSWAE	-4.929e-02	1.567e-01	1.237e+03	-0.314	0.75321	
syntaxNAI:groupSWAE	5.579e-01	1.566e-01	1.231e+03	3.563	0.00038	*
syntaxObject:groupTyne	-3.098e-02	1.570e-01	1.242e+03	-0.197	0.84358	
syntaxNAI:groupTyne	1.970e-01	1.574e-01	1.250e+03	1.251	0.21102	
syntaxObject:groupYork	2.769e-01	1.580e-01	1.260e+03	1.753	0.07985	
syntaxNAI:groupYork	2.749e-01	1.571e-01	1.244e+03	1.750	0.08033	

Table 7.6: Linear mixed effect regression model of perceived social class ratings, NPI conditions only

rated as lower class overall by the AAL and SWAE participants, but they rated it as significantly higher class than the other participant groups did.

Education level

The model chosen by the step-down process for Class level in NPI conditions is the same model presented in (217). The output of the model is shown in Table 7.7.

As Table 7.7 shows, the NAI NPI condition was rated as less educated across all dialect groups.

Random effects:					
Groups	Name	Variance	Std.Dev.	Corr	
ID	(Intercept)	0.01714	0.1309		
	scale(order)	0.02251	0.1500	0.53	
Residual		0.57758	0.7600		
Number of obs: 1350, groups: ID, 75					
Fixed effects:					
	Estimate	Std. Error	df	t value	Pr(> t)
(Intercept)	3.403e-01	8.697e-02	3.565e+02	3.912	0.00011 *
syntaxObject	-6.201e-02	1.148e-01	1.258e+03	-0.540	0.58909
syntaxNAI	-8.476e-01	1.145e-01	1.250e+03	-7.401	2.46e-13 *
groupAAL	-3.156e-02	1.230e-01	3.568e+02	-0.257	0.79759
groupSWAE	-1.542e-02	1.225e-01	3.526e+02	-0.126	0.89991
groupTyne	-8.682e-02	1.231e-01	3.568e+02	-0.706	0.48095
groupYork	1.035e-02	1.234e-01	3.593e+02	0.084	0.93321
syntaxObject:groupAAL	-1.262e-01	1.621e-01	1.252e+03	-0.779	0.43637
syntaxNAI:groupAAL	4.148e-01	1.619e-01	1.247e+03	2.562	0.01052
syntaxObject:groupSWAE	5.423e-03	1.615e-01	1.241e+03	0.034	0.97323
syntaxNAI:groupSWAE	3.086e-01	1.614e-01	1.235e+03	1.912	0.05607
syntaxObject:groupTyne	6.794e-02	1.618e-01	1.246e+03	0.420	0.67458
syntaxNAI:groupTyne	-3.124e-02	1.621e-01	1.254e+03	-0.193	0.84724
syntaxObject:groupYork	-5.734e-02	1.626e-01	1.262e+03	-0.353	0.72445
syntaxNAI:groupYork	-1.345e-01	1.618e-01	1.248e+03	-0.831	0.40616

Table 7.7: Linear mixed effect regression model of perceived education level ratings, NPI conditions only

Friendliness

The model chosen by the step-down process considered the rating modulated by the effect of syntactic condition, with the random effects for participant and stimuli presentation order.

(218) Linear mixed-effects model for friendliness ratings, NPI conditions only, as chosen by step-down process:

```
lmer(rating ~ syntax + (1 + scale(order) | ID))
```

The model gave a singular fit for the data, but the random effects were not excluded by the step-down process. The output of this model is given in Table 7.8 below.

Random effects:					
Groups	Name	Variance	Std.Dev.	Corr	
ID	(Intercept)	0.001472	0.03837		
	scale(order)	0.019408	0.13931	1.00	
Residual		0.719290	0.84811		
Number of obs: 1350, groups: ID, 75					
Fixed effects:					
	Estimate	Std. Error	df	t value	Pr(> t)
(Intercept)	0.13892	0.04046	1169.33578	3.434	0.000616 *
syntaxObject	-0.10167	0.05700	1328.51493	-1.784	0.074701
syntaxNAI	-0.17492	0.05697	1326.57939	-3.070	0.002182 *

Table 7.8: Linear mixed effect regression model of perceived friendliness ratings, NPI conditions only

As Table 7.8 shows, NAI NPI users were rated as less friendly, although the effect size is not particularly large.

Summary

In the NPI conditions, there were no significant differences between Object NPI sentences like ‘I didn’t see anything’ and Subject non-NC sentences like ‘Nobody saw him’ with respect to any of the social traits examined. However, the inversion of a negated auxiliary with an NPI subject (*Didn’t anybody see him*) was rated as significantly less favorable across all dialect groups and social traits. NAI NPI users were rated as less intelligent, lower class, less educated, and less friendly. There are two notes to make here, and these points will be elaborated on in the discussion section (7.4). The first note is that as a declarative sentence, the NAI NPI word order (e.g. *Didn’t anybody see him.*) is evaluated negatively. However, this same order of words in an interrogative (e.g. *Didn’t anybody see him?*) is quite unlikely to bear the same negative social evaluation,

suggesting social evaluation of the syntax differentiating these usages. The second note is that the AAL and SWAE participants rated NAI NPI as lower class overall, but higher class than any other participant group did. I suggest that this may be related to the finding presented in Chapter 6 that the AAL and SWAE groups rated NAI NPI as significantly more grammatically acceptable than the other dialect groups did.

7.3.5.2 NC condition

This section compares the results within the NC conditions only. As a reminder, the example sentences being compared here are Subject (*Nobody didn't see him*), Object (*I didn't see nothing*), and NAI (*Couldn't nobody see him*). The same linear mixed effect regression in (217) was run for each of the social traits, repeated below for convenience.

(219) Linear mixed effects model run for all traits, before step-down process

```
lmer(rating ~ group * syntax + (1 + scale(order) |ID))
```

This model contained fixed effects for dialect group and syntactic condition, an interaction between those fixed effects, and random effects for participant and stimuli presentation order. After the model was run for each trait, a step-down process was used to find the best fit model. In the case of the NC conditions, dialect group was not chosen by the step-down process for any social trait.

Intelligence

The best fit model for the intelligence ratings included syntactic condition as a fixed effect, with random effects of participant and stimuli presentation order.

(220) Best fit model for intelligence trait, NC only, as chosen by step-down process

```
lmer(rating ~ syntax + (1 + scale(order) |ID))
```

The output of this model is presented in Table 7.9.

Random effects:					
Groups	Name	Variance	Std.Dev.	Corr	
ID	(Intercept)	0.05267	0.2295		
	scale(order)	0.05978	0.2445	0.08	
Residual		0.59700	0.7727		
Number of obs: 1350, groups: ID, 75					
Fixed effects:					
	Estimate	Std. Error	df	t value	Pr(> t)
(Intercept)	-0.35572	0.04549	228.84991	-7.820	1.92e-13 *
syntaxObject	-0.03334	0.05213	1229.99570	-0.640	0.523
syntaxNAI	-0.27137	0.05247	1242.85300	-5.172	2.69e-07 *

Table 7.9: Linear mixed effect regression model of perceived intelligence ratings, NC conditions only

As Table 7.9 shows, NAI NC speakers were perceived as significantly less intelligent than Subject NC speakers.

Class

The best fit model for the social class ratings included syntactic condition as a fixed effect, with random effects for participant and stimuli presentation order.

(221) Best fit model for social class trait, NC only , as chosen by step-down process

`lmer(rating ~ syntax + (1 + scale(order) |ID))`

The output of the model is presented in Table 7.10.

In Table 7.10 we see that the NAI NC condition was rated as significantly lower class than the other NC conditions.

Education

Random effects:					
Groups	Name	Variance	Std.Dev.	Corr	
ID	(Intercept)	0.03939	0.1985		
	scale(order)	0.03777	0.1943	-0.16	
Residual		0.48976	0.6998		
Number of obs: 1350, groups: ID, 75					
Fixed effects:					
	Estimate	Std. Error	df	t value	Pr(> t)
(Intercept)	-0.28588	0.04041	241.11447	-7.075	1.62e-11 *
syntaxObject	0.03772	0.04716	1233.33447	0.800	0.424
syntaxNAI	-0.22884	0.04743	1247.80710	-4.825	1.57e-06 *

Table 7.10: Linear mixed effect regression model of perceived social class ratings, NC condition only

The best fit model for education level ratings had a fixed effect for syntactic condition and random effects for participant and stimuli presentation order.

(222) Best fit model for education level trait, NC only, as chosen by step-down process

`lmer(rating ~ syntax + (1 + scale(order) |ID))`

The output of the model is given in Table 7.11.

Random effects:					
Groups	Name	Variance	Std.Dev.	Corr	
ID	(Intercept)	0.04237	0.2058		
	scale(order)	0.04689	0.2165	0.19	
Residual		0.56765	0.7534		
Number of obs: 1350, groups: ID, 75					
Fixed effects:					
	Estimate	Std. Error	df	t value	Pr(> t)
(Intercept)	-0.38183	0.04306	249.82104	-8.868	< 2e-16 *
syntaxObject	0.01854	0.05079	1231.99524	0.365	0.715
syntaxNAI	-0.22724	0.05108	1245.84845	-4.448	9.43e-06 *

Table 7.11: Linear mixed effect regression model of perceived education level ratings, NC conditions only

As Table 7.11 shows, speakers who used NAI NC were considered significantly less educated.

Friendliness

The best fit model for the friendliness ratings had syntactic condition as a fixed effect, with no random effects chosen by the step-down process.

(223) Best fit model for friendliness trait, NC only, as chosen by step-down process

$\text{lm}(\text{rating} \sim \text{syntax})$

The output of this model is presented in Table 7.12.

Coefficients:				
	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-0.03415	0.04256	-0.803	0.422399
syntaxObject	-0.22852	0.06018	-3.797	0.000153 *
syntaxNAI	0.06443	0.06018	1.070	0.284590

Table 7.12: Linear mixed effect regression model of perceived friendliness ratings, NC condition only

As Table 7.12 shows, Object NC users were rated as significantly less friendly than Subject NC.

7.4 Discussion

The previous section described what the results *are*, and this section aims to shed light on what the results *mean*. In this section, I discuss to what extent the research question of the dissertation has been answered, and what these results mean for syntactic theory and sociolinguistic theory.

7.4.1 Revisiting the research question: Is syntactic variation socially evaluated?

It is useful in discussing results to remind ourselves of the experimental hypotheses. There was one main hypothesis that this experiment was designed to test, and it was contrasted with a null hypothesis. These hypotheses are repeated here for convenience.

(224) Experimental hypothesis:

Changing the syntactic configuration in which NC appears will have a significant effect on the ratings of perceived social attributes of the speaker.

(225) Null hypothesis:

Changing the syntactic configuration in which NC appears will have no (significant) effect on the ratings of perceived social attributes of the speaker.

Two conditions were clearly socially evaluated on all traits: Negative Concord (NC) and Negative Auxiliary Inversion (NAI, *Didn't nobody see him/Didn't anybody see him*). NC was classified as a morphological condition, and NAI was classified as a syntactic condition, following the distinctions made in Robinson & Thoms (2021a, 2021b), presented in Chapter 4. The results presented in this chapter show clear support for the experimental hypothesis, as NAI carried negative social evaluation across all social traits and all dialect groups, regardless of whether or not it co-occurred with NC.

In examining whether the experimental hypothesis was supported, it is important to consider how we tested this hypothesis. All of the models presented in the above sections had Subject as the syntactic condition baseline. This means that a comparison of NAI to the baseline was a comparison of *Nobody didn't see him* to *Didn't nobody see him* in the NC condition, and *Nobody saw him* to *Didn't anybody see him* in the NPI (non-NC) condition. These four sentences are

functionally equivalent (in the sense of Dines 1980 and Romaine 1981), and so can be considered variants of each other. In addition, they are truth-conditionally equivalent.³ In other words, not only are these sentences used in the same discourse-pragmatic contexts, but when one is true, the others will be true, and vice versa. The only differences in these four sentences are in the order of the words and the form of the words. As these results clearly show, the order of the words (Subject condition vs. NAI condition) elicited different ratings of the speaker's social characteristics. Therefore, we can say that the experimental hypothesis is supported.

In the next sections, I look at the results in more detail, and then discuss their theoretical implications.

7.4.2 Negative Concord

The results for NC serve in a sense as a sanity check, as these results replicated what has been reported in the literature for NC. NC, when compared to NPI, is perceived as less intelligent, lower class, and less educated. This is unsurprising, and matches the literature as reported in Chapter 2.

One somewhat unexpected result was that NC was also rated as less friendly. This does not support the hypothesis I made in chapter 5, which was that a nonstandard dialect feature like NC would be rated lower in the superiority dimension but would be rated higher in the attractiveness dimension, following Zahn & Hopper's (1985) terminology. In other words, I had predicted NC to be perceived as low status across all groups but high solidarity in the AAL, SWAE, and Tyne groups, if not across all groups. Instead, NC was rated less favorably by all groups across all social traits. In both the global friendly model (Table 7.4) and the NC friendly model (Table 7.12), dialect group was excluded from the model by the step-down process because there was not enough between-group variation in the data to justify keeping it in the model. These results show that there was no significant positive social evaluation of NC, either overall or by any particular dialect group.

³Green (2014:127; discussed in Chapter 3, Section 3.2.3) shows that there are differences in interpretation between Subject NC and NAI NC, in that Subject NC allows exceptions and NAI NC does not.

In the pilot presented in Chapter 5, Section 5.5, every NC item was rated as friendly, which is why I included the friendliness scale in the full experiment. It is unclear why the friendliness results were different in the pilot and the full experiment. I will suggest a tentative connection between the lack of positive evaluation of NC and the previous literature on the social meaning of NC. As discussed in Chapter 2, Cheshire (1982), Eckert (2000), and Moore (2021) have found in large qualitative studies on groups of adolescents that NC is correlated with rebelliousness and delinquent behavior. As noted in Chapter 5, Section 5.4.2, I made sure when writing the stimuli that none of the NC items discussed rule breaking or being disobedient. This was to counteract the possible influence of confounding factors and try to disentangle the meaning of NC from associations with delinquency. It is possible that there was much more participant fatigue in the full experiment, which included 72 stimuli, than there was in the pilot study, which included only 36 stimuli. If there was more participant fatigue, it is possible that the participants in the full experiment did not read the stimuli as closely as the participants in the pilot experiment. If that was the case, then it is possible that the careful avoidance of rule-breaking in the NC conditions was canceled out by participant fatigue. It is also possible of course that the participants in the full experiment did not have strong feelings about whether the speakers were friendly or not, which led to these unexpected results. Finally, it is of course possible that the 75 participants in this experiment make a strong connection between NC and being unfriendly. Unfortunately, as I limited the perception scales to three superiority/status traits and only one attractiveness/solidarity trait, it is not possible to draw strong conclusions in the attractiveness dimension versus the superiority dimension, nor is it possible to draw the conclusion that NC usage carries covert prestige as evidenced by higher friendliness ratings.

7.4.3 Negative Auxiliary Inversion

NAI was clearly negatively evaluated across all groups for all social traits, as shown by Tables 7.1 - 7.4. What is interesting is that this inversion was evaluated negatively regardless of morphological condition. Within the NPI conditions, NAI was rated as less intelligent, lower class, less educated, and less friendly. This means that a word order like *Didn't anybody see him*, which is a perfectly fine question word order across English dialects, was heavily socially evaluated as a declarative sentence.

Within the NC conditions, NAI was rated as less intelligent, lower class, and less educated. That is, even when compared to other sentences that were negatively evaluated, NAI NC fared worse than the other NC conditions. However, as the models in Tables 7.1 - 7.4 show, the evaluation of NAI NC as an interaction was more positive than we might expect. I want to make clear that the NAI NC condition still did not carry a positive evaluation, it is just that the effects of NAI and NC were not additive.

The AAL and SWAE groups rated NAI as higher class than the other groups did, the only group level variation in the perception results. By comparing Tables 7.2, 7.6, and 7.10, it is clear that the ratings for the NAI NPI condition (*Didn't anybody see him*) were responsible for this difference. I want to make a few notes on NAI in AAL and SWAE, and draw a tentative connection between those notes and this result, resulting in a speculation as to why the AAL and SWAE groups rated NAI NPI as higher class than the other participant groups did. The first note is that in the grammatical acceptability survey, the AAL and SWAE groups rated NAI and NC higher than the other groups did (see Chapter 6, Table 6.3), and also rated NAI NPI as higher than the other groups did (see Chapter 6, Table 6.4). The second note is that NAI NC has been well attested in AAL and SWAE (see Martin & Wolfram 1998, among others for AAL; see Feagin 1979, among others for SWAE). The third note is that real-life examples of NAI NPI are rare, and it has only been attested

in SWAE (Feagin 1979; Foreman 2001). The fourth note is that of the rare examples of NAI NPI in Feagin's data, most examples are from upper class speakers, with a few from working class speakers. At the same time, most of Feagin's NAI NC data is from working class speakers, with a very small number of examples from upper class speakers. From this evidence, I want to suggest that in dialects that have NAI NC, speakers hyper-correct NAI NC to NAI NPI because of the social stigma associated with NC. This would explain why NAI NPI examples are so rare compared to NAI NC examples; why the NAI NPI examples attested are largely from upper class speakers; and why speakers of NAI NC dialects rate NAI NPI as higher class than other participants do, even though they do not rate NAI NPI as more intelligent, more educated, or more friendly than other participants do.

7.4.4 The relationship between grammaticality and social perception

In this section, I discuss the correlations between the results from the grammatical acceptability study in Chapter 6 and the perception results presented in this chapter. As the extent and nature of the relationship between grammaticality and social perception has not been studied extensively, I leave for future study the question of whether a causal relationship exists between these results as well.

We saw in Chapter 5 that across all groups, NAI was rated as less grammatically acceptable than the Subject baseline, and NC was also rated as less acceptable than the NPI baseline (see Chapter 6, Table 6.3). As discussed in the previous section, the AAL and SWAE groups rated NAI and NC higher than the other groups did. It is important to note that these groups rated only Object NC as clearly grammatically acceptable; they just did not dislike Subject NC, NAI NC or NAI NPI as much as the other groups did.

Lower grammatical acceptability ratings for NAI and NC conditions correlated with less favorable social perceptions of those conditions: in the perception study, the NAI and NC con-

ditions were rated as less intelligent, lower class, less educated, and less friendly. The NAI NC condition was not rated as low for grammatical acceptability as we might expect, given the ratings for the NAI and NC conditions. In other words, there was not an additive effect of NAI and NC. We find this reflected in the perception results as well: across all four social traits, NAI NC is rated more favorably than we might otherwise expect, and we do not find an additive effect for social perception.

One instance in which the grammatical acceptability results and the perception results do not correlate is in the rating of the NC conditions by the AAL and SWAE groups. These groups rated NC conditions significantly higher than the other groups did in the grammatical acceptability study. However, in the perception data (Tables 7.1-7.4) the interaction of dialect group and morphological condition was not chosen by the step-down process for the model for any social trait. In other words, there was not enough between-group variability in the perception of NC versus NPI to justify keeping that interaction in the model, so the higher ratings the AAL and SWAE groups gave in the grammatical acceptability survey were not reflected in the perception study.

The only other result to note is that Object NC was rated higher across all groups relative to Subject NC in the grammatical acceptability study, as reflected in both the global model (Table 6.3) and the NC only model (Table 6.5). In the perception results, the only place that Object NC was chosen as a significant result was in the friendliness ratings. Object NC was rated as significantly less friendly, but this effect is only seen in the NC only model (Table 7.12), not the global friendly model (Table 7.4).

7.4.5 Implications for sociolinguistic theory

This chapter has presented evidence that suggests that some syntactic variation is subject to social evaluation. This is an important implication for sociolinguistic theory, as it challenges the long-held assumption that syntactic variation is somehow ‘too abstract’ for social evaluation. It opens

up deeper questions about at what level the Sociolinguistic Monitor (Labov et al. 2011) operates, as well as questions about how social perception of syntax is similar to and different than social perception of phonetics, and what this comparison can tell us about what social meaning attaches to, and how social evaluation interacts with other cognitive linguistic processes.

One response to this claim may be that what is being evaluated here is the string of words, not the syntactic structure. I would point out that with the NAI NPI condition (*Didn't anybody see him*), the string of words is fine in an interrogative and quite unlikely to be subject to negative social evaluation. Therefore, the social evaluation cannot simply come from the string of words, but that string of words as a declarative sentence, rather than an interrogative one. I will note that while syntacticians may disagree about whether head movement is in the narrow syntax or post-syntactic, most would agree that the clause type (declarative versus interrogative, for example) and the operations that realize that clause type (e.g., fronting *wh*-words in interrogatives but not declaratives) are in the syntax.

One other response to the results presented here might be that what is being evaluated is the number of negative words in the sentence, not the sentence structure. This opens up the possibility of a Labov et al. (2011) style experiment where stimuli vary in the number of negative words they contain. A version of this has been done by Sneller & Fisher (2015), although a larger version that contains a variety of syntactic configurations of NC and sentences with multiple negatives that do not result in NC would be informative. If, for example, a sentence with multiple negative words that does not result in NC is not negatively evaluated, then the social evaluation found in the present experiment must be due to something besides the number of negative words in the sentence.

The experiment presented in this dissertation also relates to a number of other interesting questions in sociolinguistic theory. For example, participants in this experiment were recruited from five different dialect groups from across two countries, which vary in whether NC has been attested, and in rates of NC. However, the social evaluation was mostly limited to global effects,

with little between-group variation. Further work on NC could look more closely into the local versus global perceptions that the syntactic configurations of NC might carry.

Where does this study leave us? We now have clear counter-evidence against the Syntactic Invisibility Principle, but more similar studies are needed to refute the principle in its entirety. The main takeaway, then, is that when sociolinguists investigate in more detail what social meaning attaches to, syntax also needs to be part of the conversation.

CHAPTER 8

Conclusions and directions for further research

8.1 Dissertation summary

This dissertation began by presenting an empirical gap in the sociolinguistic literature: There has been an assumption that syntactic variation does not carry social meaning, and partly as a result of this assumption, few studies have investigated whether syntactic variation does indeed carry social meaning. This dissertation is not only an investigation into NC, but a window into the perception of syntactic and morphological variation. It seeks to demonstrate how sociolinguists and syntacticians can meaningfully talk to each other, and how researchers can design studies that have theoretical consequences for both fields.

I began by establishing my theoretical assumptions for both social evaluation and syntactic variation in Chapter 2. In that chapter, I also introduced NC as a test case for the exploring the perception of morphological and syntactic variation. NC made an ideal test case as it is used across

many varieties of English (as discussed in Chapter 3), it is highly socially salient (as discussed in Chapters 2 and 3), and it is used in different syntactic configurations, as shown in Chapter 3. In addition, I argued in Chapter 3 that NC should more accurately be used as an umbrella term for variation in the placement and realization of negative items. In Chapter 4, I presented a morpho-syntactic account of NC that was able to account for the data from Chapter 3 by treating the placement of negative items as variation in the syntax, and realization of negative items as morphological variation. Therefore, heading into the second half of the dissertation, I began with a clear distinction between syntactic NC and morphological NC based in syntactic theory.

In Chapter 5 I described the methodological difficulties and choices present in creating the grammatical acceptability study and the perception experiment, including advocating for written stimuli, if appropriate, when testing the perception of syntactic variation. Although my methodological choices may not work for all variables, languages, or projects, I hope that in being transparent with them I can contribute to the conversation about how we test linguistic theories with experimental means.

In Chapters 6 and 7 I presented both parts of my experiment. Chapter 6 covered the grammatical acceptability study, which found that participants did not accept the NC morphological condition or the NAI syntactic condition overall. The perception experiment in Chapter 7 found that both NC and NAI were negatively socially evaluated across all social traits examined. The experimental hypothesis was that the syntactic condition of the test sentences would have a significant effect on the social ratings. This hypothesis was clearly supported, even in the case of NAI NPI, which does not have the non-standardized NC morphology. The results presented in Chapter 7 suggest that the participants were attuning to and forming social judgments about speakers based in part on their syntax.

Given the design of the experiment, every syntactic theory from Chapter 4 would say that the participants are evaluating something syntactic, below the surface structure. Therefore, this

dissertation strongly suggests that syntactic variation can be socially evaluated, and opens up a research program to further investigate this idea. The next sections lay out three other variables in English that could be reanalyzed in a similar way: relative pronouns, particle verbs, and floating quantifiers under *wh*-movement (*wh-all*).

8.2 Relative pronouns

The choice of pronoun to head a restrictive relative clause (a ‘relativizer’, as in (226)) in English has long been a topic of interest in sociolinguistics, with a number of studies looking at the regional distribution of relativizers (Milroy and Milroy 1993, a.o.), as well as those examining the social and linguistic factors that favor one variant over another (Tottie 1995, Guy and Bayley 1995, Levey and Hill 2013, D’Arcy and Tagliamonte 2015 a.o.).

(226) Variable relative pronouns in English

- a. The boy **who** I saw
- b. The boy **whom** I saw
- c. The boy **that** I saw
- d. The boy **which** I saw
- e. The boy **what** I saw
- f. The boy \emptyset I saw

The structure of relative clauses in English and beyond has also been of interest to syntacticians, who continue to debate three popular analyses of relative clauses (see Bhatt 2015 for a detailed overview): the head raising analysis, in which the head DP *the boy* originates inside the relative clause (see Kayne 1994, among many others); the head external analysis, in which the head DP *the boy* originates outside the relative clause (see Chomsky 1977, among many others); and the matching analysis, in which the head DP *the boy* originates outside the relative clause, although it

has a corresponding head inside the relative clause that is deleted under phonological identity with the external head (see Sauerland 1998, 2003, Hulsey and Sauerland 2006, a.o.).

These relativizers are subject to varying amounts of social conditioning and social evaluation, depending on the context in which they are spoken (see D’Arcy and Tagliamonte 2010, a.o.). For example, the use of *whom* as a relativizer may be considered pretentious or too formal in informal social settings, while a relativizer other than *whom* may be stigmatized in a pedagogical setting. This variable has been called “a clear case of syntactic variation” in the sociolinguistic literature (Guy and Bayley 1995), but it is not obvious from the surface forms that there are structural differences between the sentences in (226). The variation may be due to competing Spell Out grammars, as this dissertation has argued for in the case of *any/no* NC variation. If the matching analysis is adopted, for example, it might be the case that the head internal to the relative clause is not deleted, but variably spelled out as *who*, *which*, *that*, null, etc. It is also possible that different relativizers occupy distinct syntactic positions, for example, *wh*-relativizers may occupy the specifier of CP while relativizer *that* occupies the C head.

8.3 Particle verbs

Particle verbs with objects in English can be pronounced one of two ways, with the object either preceding or following the particle, as in (227).

(227) Particle verb alternation in English

- a. I took **out** the trash (Verb-Particle-Object)
- b. I took the trash **out** (Verb-Object-Particle)

Much of the previous syntactic and variationist literature has focused on the linguistic and extra-linguistic factors that favor one order over another. For example, longer objects and particle verbs with more idiomatic meanings both favor the VPO order (Kroch & Small 1978, Gries 2003, Lohse

et al. 2004). It has also been claimed that information structure has a role to play, as given objects favor the VOP order, while discourse-new objects favor the VPO order (Dehé 2002).

Syntactically, one prominent view comes from Haddican & Johnson (2014), itself based on earlier analyses from Svenonious (1996) and Dehé (2002). In information structure neutral contexts, Haddican & Johnson analyze the particle verb alternation as optional head movement of the particle above the object DP.

Kroch & Small (1978) was the first variationist study of the particle verb alternation. They analyzed the use of particle verbs by hosts and callers on a radio show, and found that the radio show hosts used the VPO order more often, while those who called into the radio show used the VOP order more often. Kroch & Small attributed this difference to the grammatical ideology that prescribes against ending sentences with prepositions.

Robinson and MacKenzie (2019) tested this claim in a larger perception study that was based on the “newscaster paradigm” of Labov et al. (2011). Listeners heard two “aspiring newscasters” who used particle verbs sentence-finally. Half of the participants heard the VPO order sentence-finally, while the other half heard the VOP order sentence-finally. There was no significant difference between the perceived professionalism of the speaker in the two conditions. However, it is possible that a new study that follows the methodology presented in this dissertation, including adopting written stimuli, may yield different results.

8.4 Floating quantifiers under *wh*-movement (*wh-all*)

Although all English varieties allow floating quantifiers (FQ, (228)), only some English varieties allow FQs under *wh*-movement, or *wh-all* (229, 230). Two varieties with this feature include West Ulster English (WUE) (McCloskey 2000) and American English (AmE) (YGDP, Robinson 2018, Tilleson 2018).

(228) Floating quantifiers

- a. **All** the girls ate ice cream
- b. The girls **all** ate ice cream

(229) *Wh-all* in WUE (McCloskey 2000: 62)

- a. What **all** do you think that he'll say that we should buy?
- b. What do you think **all** that he'll say that we should buy?
- c. What do you think he'll say **all** that we should buy?
- d. What do you think that he'll say that we should buy **all**?

(230) *Wh-all* in AmE

- a. Who **all** was at the party?
- b. Who was **all** at the party?

There are two main kinds of analysis within the literature on FQs. One is a stranding analysis, in which the FQ raises through the structure successive-cyclically along with the nominal phrase it modifies, and can be stranded in one of the positions that the nominal phrase moves through (McCloskey 2000, a.m.o.). The other major kind of analyses of FQ analyzes them as adverbial phrases which adjoin to the VP (Bobaljik 2003, Koopman 2009, a.m.o.). The most prominent analysis of *wh-all* comes from McCloskey (2000), which adopts a stranding analysis. It analyzes the *wh*-word and *all* as members of a constituent that raise through the sentence together, ending in the left periphery, as in (229a). However, McCloskey argues that *all* can also be stranded in the constituent's first merged position (229d), or in either of the intermediate positions that the constituent raises through, in the SpecCP of the lowest clause (229c) or the SpecCP of the intermediate clause (229b).

Blümel (2018) analyzes *wh-all* in WUE as a case of distributed deletion. This takes the same idea as McCloskey's analysis and implements it in a technically different way. Instead of saying that the *wh-all* constituent moves through syntactic positions, and may strand *all* along the

way, this analysis uses the Copy theory of movement, which states that syntactic constituents leave a copy of themselves in each position they move through. Although it is usually the case that the highest copy is pronounced and the lower copies are deleted, a Distributed Deletion approach (Fanselow & Ćavar 2002) allows for the various parts of distinct copies to be pronounced at different places in the derivation, as in (231), where **bold** indicates where part of the copy is pronounced and ~~strikeout~~ indicates where part of the copy is deleted.

(231) A distributed deletion analysis of *wh-all* in WUE (Blümel 2018)

- a. [**What all**] do you think [~~what all~~] that he'll say [~~what all~~] that we should buy [~~what all~~]
- b. [**What all**] do you think [~~what all~~] that he'll say [~~what all~~] that we should buy [~~what all~~]
- c. [**What all**] do you think [~~what all~~] that he'll say [~~what all~~] that we should buy [~~what all~~]
- d. [**What all**] do you think [~~what all~~] that he'll say [~~what all~~] that we should buy [~~what all~~]

While under the stranding or adverbial analyses, *wh-all* appears to be a syntactic variable, under the distributed deletion approach, *wh-all* could be argued to be syntactic or morphosyntactic. This would depend on the author's theoretical commitments about whether deletion takes place in the narrow syntax or post-syntactically. McCloskey (2000) notes that prosody plays a role in where *all* can be pronounced, so this may point to a post-syntax role for distributed deletion.

There have been no variationist studies on *wh-all*, and much of the literature on the variable after McCloskey has focused on where *all* can be pronounced in *wh*-questions. Henry (2012) argues that *wh-all* is not as free in WUE as McCloskey seems to suggest. She collects judgements from sub-dialects of WUE to show how *wh-all* is highly variable, and not all sub-dialects of WUE accept all the sentences in (229).

Outside of WUE, there has been some work on *wh-all* in AmE, although it is far more constrained in where the *all* can be pronounced. Robinson (2018) identifies the two possibilities as *wh-all* (230a) and *wh-AUX-all* (230b). She found that in an informal social media survey,

respondents explicitly referred to *wh-all* as sounding “Southern”, even though in an acceptability study, *wh-all* was found to be acceptable across many parts of the United States, with the notable exceptions of the New York City and New England. However, in a perception study, Robinson did not find a correlation between *wh-all* or *wh-AUX-all* with either personality traits or perceived region of the speaker. In future work, it is worth investigating whether written stimuli (as opposed to the auditory stimuli that Robinson used) elicit stronger social judgments. In addition, future work could test the extent to which social perceptions of *wh-all* differ in WUE and AmE.

APPENDIX A

Perception experiment stimuli

Item	Code
SPEAKER: I was the opposite of my brother. I was a good kid. I didn't bother nobody. All the neighbors liked me!	ONC1
SPEAKER: You know, I hated tag. The other kids tried to get me to play, but I wouldn't chase nobody. Eventually they just left me alone.	ONC2
SPEAKER: I looked for a really long time. I must have been looking for a half hour! I couldn't find nobody. I started thinking the other kids just went home instead of hiding.	ONC3
SPEAKER: So then he said he saw a ghost in the hallway. I looked out and said I could see it too. I didn't see nothing. But the look on his face when I said I saw the ghost too, it was priceless.	ONC4
SPEAKER: It was this haunted house where you stick your hands in these mystery bowls. You know, it's cold spaghetti but it feels like brains. Well, I wouldn't touch nothing. That stuff grossed me out.	ONC5
SPEAKER: I was a good runner, so I loved playing outside. But one summer I broke my leg and had this big cast. I couldn't play nothing. I just had to sit inside for months.	ONC6

Table A.1: Object NC items (US English)

Item code	Change from US English item to UK English item
ONC1	<i>neighbors</i> changed to <i>neighbours</i>
ONC2	<i>tag</i> changed to <i>tig</i> in York item <i>tag</i> changed to <i>tiggy</i> in Tyne item
ONC3	<i>a half hour</i> changed to <i>half an hour</i>
ONC4	<i>hallway</i> changed to <i>corridor</i>
ONC5	<i>It was this haunted house where you stick your hands in these mystery bowls.</i> changed to <i>It was this activity where you would put your hand into these mystery bowls and guess what was inside.</i> <i>That stuff grossed me out</i> changed to <i>That stuff disgusted me</i>
ONC6	<i>big cast</i> changed to <i>big plaster cast</i>

Table A.2: Changes between US English Object NC items and UK English items

Item	Code
SPEAKER: One Halloween, I tried to prank all the trick-or-treaters. I would hide in the bushes and then jump out and yell, “BOO!” But I didn’t scare anybody. Later my parents told me everyone could see me in the bushes before I jumped out.	ONPI1
SPEAKER: I always hated playing tag. I would be “it”, and I would run as fast as I could, but I wouldn’t catch anybody. It was so embarrassing.	ONPI2
SPEAKER: I got one of those prank snack cans with the exploding snakes inside. I tried to get all the kids in my class to open it, but I couldn’t trick anybody. That was pretty disappointing.	ONPI3
SPEAKER: My friends were always talking about their favorite TV shows. But my parents were really strict. I didn’t watch anything. So I was always left out of the conversation.	ONPI4
SPEAKER: Oh, you know, we would talk about crushes. Everyone would say who they had a crush on and then they turned to me. I wouldn’t say anything. I was too shy to admit who I liked.	ONPI5
SPEAKER: I was really bad at baseball. Well, I was okay at catching and throwing but I was a terrible batter. I mean, I couldn’t hit anything. When we played in the park, I was always picked last.	ONPI6

Table A.3: Object NPI items (US English)

Item code	Change from US English item to UK English item
ONPI2	<i>tag</i> changed to <i>tig</i> in York item <i>tag</i> changed to <i>tiggy</i> in Tyne item
ONPI3	<i>snack can</i> changed to <i>nut tins</i>
ONPI4	<i>favorite TV shows</i> changed to <i>favourite programmes</i>
ONPI5	<i>had a crush on</i> and <i>liked</i> changed to <i>fancied</i>
ONPI6	<i>baseball</i> changed to <i>rounders</i> <i>When we played in the park, I was always picked last.</i> changed to <i>Everyone wanted me on the other team.</i>

Table A.4: Changes between US English Object NPI items and UK English items

Item	Code
SPEAKER: My little sister had a really hard time. She always used to play with the other neighborhood kids, but after we moved nobody didn't play with her. So she had tea parties with her stuffed animals instead.	SNC1
SPEAKER: Then one day my sister came home crying. She was playing tag with the boys but she felt left out. Nobody wouldn't chase her, because some of the boys heard at school that girls had cooties.	SNC2
SPEAKER: My friends and I were into magic tricks for a while. We would get mad because one classmate always guessed how we did them. Nobody couldn't trick him. He always figured it out.	SNC3
SPEAKER: We tried to teach my little brother to jump rope but he was hopeless. He always tripped on the rope. Nothing didn't help him. We even went slowly and yelled, "JUMP!" when he should jump.	SNC4
SPEAKER: We always ate everything that was on the table. Even stuff kids normally hate, like brussel sprouts or broccoli. Nothing wouldn't bother us. We were the least picky eaters.	SNC5
SPEAKER: We would try to get out of doing chores all the time. We said we already did what she asked, but nothing couldn't fool her. Mom always knew what we were up to.	SNC6

Table A.5: Subject NC items (US English)

Item code	Change from US English item to UK English item
SNC1	<i>neighborhood</i> changed to <i>neighbourhood</i>
SNC2	<i>tag</i> changed to <i>tig</i> in York item <i>tag</i> changed to <i>tiggy</i> in Tyne item <i>had cooties</i> changed to <i>had got the lurgy</i> .
SNC3	<i>mad</i> changed to <i>angry</i>
SNC4	<i>jump rope</i> changed to <i>skip</i>
SNC5	<i>picky</i> changed to <i>fussy</i>
SNC6	<i>Mom</i> changed to <i>Mum</i>

Table A.6: Changes between US English Subject NC items and UK English items

Item	Code
SPEAKER: That was so much fun, jumping rope with my friends at recess. But when we got to middle school everything changed. Nobody jumped rope then. Everyone had decided it was for babies.	SNPI1
SPEAKER: My little sister was the best at tag. She was really quick. Nobody would catch her. The other kids always got tired before she did.	SNPI2
SPEAKER: My brother got lost for two hours in a shopping mall once. We turned around and he was just gone. Nobody could find him. It turned out okay, but it was really scary.	SNPI3
SPEAKER: He would score almost every time he got the ball. He was fast, but he was agile too. Nothing stopped him. Everyone wanted him on their team.	SNPI4
SPEAKER: I hated horror movies, but my big brother loved them. He even watched them alone late at night. Nothing would scare him. To tell you the truth, I thought he was crazy.	SNPI5
SPEAKER: Then one time, my friend said she was sick of being the baby. She would only play house if she could be the mom. Nothing could change her mind. So I had to be the baby after that.	SNPI6

Table A.7: Subject NPI* (Subject non-NC) items (US English)

Item code	Change from US English item to UK English item
SNPI1	<i>jumping rope</i> changed to <i>skipping</i> <i>jumped rope</i> changed to <i>skipped</i>
SNPI2	<i>tag</i> changed to <i>tig</i> in York item <i>tag</i> changed to <i>tiggy</i> in Tyne item
SNPI3	<i>shopping mall</i> changed to <i>shopping centre</i>
SNPI5	<i>movies</i> changed to <i>films</i> <i>crazy</i> changed to <i>mad</i>
SNPI6	<i>mom</i> changed to <i>mum</i>

Table A.8: Changes between US English Subject NPI* items and UK English items

Item	Code
SPEAKER: I was pretty good at making friends playing jump rope, so I felt okay about the new school. But at recess my first day, I got the worst surprise. Didn't nobody jump rope there! And I thought, how am I supposed to make friends now?	NAINC1
SPEAKER: He was really big and really mean. He could knock you right over. Wouldn't nobody chase him. They were too afraid of getting hurt.	NAINC2
SPEAKER: My friend was the best at hide and seek. She always found the perfect hiding spots. Couldn't nobody find her! I mean, you could search for hours.	NAINC3
SPEAKER: My sister was so tough. She could do all these things that would have hurt me. Didn't nothing stop her. Once she fell down the stairs but just walked away and kept playing.	NAINC4
SPEAKER: My friend was the brave one. I would only go to haunted houses if she came too. Wouldn't nothing scare her. She made me feel brave too.	NAINC5
SPEAKER: My dad got the wrong impression of the boy across the street. I wanted to go play over there, but he said no. Couldn't nothing change his mind. I was really mad at him about that.	NAINC6

Table A.9: Negative Auxiliary Inversion NC items (US English)

Item code	Change from US English item to UK English item
NAINC1	<i>playing jump rope</i> changed to <i>skipping rope</i> <i>recess</i> changed to <i>lunchtime</i> <i>jump rope</i> changed to <i>skip</i>
NAINC2	<i>mean</i> changed to <i>nasty</i>
NAINC5	<i>to haunted houses</i> changed to <i>on the ghost train ride</i>
NAINC6	<i>street</i> changed to <i>road</i> <i>mad</i> changed to <i>angry</i>

Table A.10: Changes between US English NAI NC items and UK English items

Item	Code
SPEAKER: There was this one boy I remember. He was so mean to everybody! Didn't anybody play with him. Sometimes when he came around, we all ran away.	NAINPI1
SPEAKER: I think The Flash was my favorite superhero. He could just run, and wouldn't anybody catch him. I wished I was that fast too.	NAINPI2
SPEAKER: My friend, she was really clever. We all tried to play April Fools' Day pranks on her every year. Couldn't anybody trick her! She always outsmarted us.	NAINPI3
SPEAKER: My little sister wanted to play soccer with me and my friends. I gave her tips and practiced with her one-on-one, but didn't anything help her. She was always terrible at it.	NAINPI4
SPEAKER: I think some of my happiest times were when I played make believe with my best friend. We could forget about everything else. Wouldn't anything bother us. We were in our own little world.	NAINPI5
SPEAKER: We tried to play pranks on substitute teachers. There was one who always caught us. Couldn't anything fool him. The other substitutes were more fun.	NAINPI6

Table A.11: Negative Auxiliary Inversion NPI items (US English)

Item code	Change from US English item to UK English item
NAINPI1	<i>mean</i> changed to <i>nasty</i> <i>around</i> changed to <i>round</i>
NAINPI2	<i>The Flash</i> changed to <i>Billy Whizz</i> <i>favorite superhero</i> changed to <i>favourite character</i>
NAINPI4	<i>soccer</i> changed to <i>football</i> <i>terrible</i> changed to <i>rubbish</i>
NAINPI6	<i>substitute teachers</i> changed to <i>supply teachers</i> <i>substitutes</i> changed to <i>supply teachers</i>

Table A.12: Changes between US English NAI NPI items and UK English items

Item	Code
SPEAKER: I tested high in math, and I was put in math class with the grade above me. So I went to math at the middle school in the morning, and then I walked over to the elementary school for the rest of my classes. It was nice, because then I got a chance to make friends with the older kids. And then they sort of protected me from being bullied by my classmates.	BIntel1
SPEAKER: My mom says I read all my birthday cards out loud at my 4th birthday party. I didn't know it was unusual to read that early, so it's not like I was showing off. But apparently it made for an awkward moment for the other parents, and they were clearly worried their kid was behind because they couldn't read yet.	BIntel2

Table A.13: Adjectival baselines: Intelligent (US English)

Item code	Change from US English item to UK English item
BIntel1	<i>tested high in math</i> changed to <i>got good marks in maths</i> <i>math</i> changed to <i>maths</i> <i>middle school</i> changed to <i>secondary school</i> <i>elementary school</i> changed to <i>primary school</i>
BIntel2	<i>mom</i> changed to <i>mum</i>

Table A.14: Changes between US English Intelligent items and UK English items

Item	Code
SPEAKER: April Fool's Day was the worst because I always fell for everything. Once, one kid said that Kansas was falling into the ocean. And they said, "April Fool's!", but I guess I didn't get which part was the joke. So until I was 16 or so I thought Kansas was the joke, and that oh, Kansas isn't a place.	BUnintel1
SPEAKER: I've always been a bit slow, and people have taken advantage of that. So like, my little brother would always play tricks on me when we were kids. He would ask to flip a coin to see who gets the last cookie and would say, "Heads, I win. Tails, you lose." And it took until I was about 12 for me to realize why I always lost that game.	BUnintel2

Table A.15: Adjectival baselines: Unintelligent (US English)

Item code	Change from US English item to UK English item
BUnintell1	<i>Kansas</i> changed to <i>Derbyshire</i>
BUnintell2	<i>cookie</i> changed to <i>biscuit</i>

Table A.16: Changes between US English Unintelligent items and UK English items

Item	Code
SPEAKER: My parents insisted that I go to a Montessori school when I was little. It's this style of teaching where you let students work at their own pace. At the time, it seemed new and weird, but looking back, I think that background really helped me when I got to college.	BEdu1
SPEAKER: I used to cry after school because I was so bored there. The school couldn't do anything to help, so I ended up going to a private school. Socially it was difficult, but academically it was the right choice. I think I value education more now than I would have otherwise.	BEdu2

Table A.17: Adjectival baselines: Educated (US English)

Item code	Change from US English item to UK English item
BEdu1	<i>college</i> changed to <i>university</i>

Table A.18: Changes between US English Educated items and UK English items

Item	Code
SPEAKER: When I was growing up, I had a lot of stuff going on at home. Basically, I had to care for my younger siblings and I didn't have a lot of time for school. I ended up dropping out at 17. Sometimes it feels like I'm still playing catch up on all the things I missed.	BUnedu1
SPEAKER: I never learned anything in school. If I was actually interested in something and tried to ask questions, I got in trouble. It was a complete joke. I dropped out at 16, and I've never thought about going back.	BUnedu2

Table A.19: Adjectival baselines: Uneducated (US English)

Item code	Change from US English item to UK English item
BUnedu1	<i>dropping out at 17</i> changed to <i>leaving at 16</i>
BUnedu2	<i>learned</i> changed to <i>learnt</i> <i>dropped out</i> changed to <i>left</i>

Table A.20: Changes between US English Uneducated items and UK English items

Item	Code
SPEAKER: My father was out of work a lot, so we didn't have a lot growing up. We had to make up our own entertainment, and we would sit for hours making things or playing capture the flag. We never had the newest toys or anything, but we were happy.	BLC1
SPEAKER: I would have liked to have a nicer house. I never asked friends over because I was ashamed of how shabby our place was. I think kids sometimes don't notice these things, but I did because I've always been a bit on the proud side.	BLC2

Table A.21: Adjectival baselines: Lower class (US English)

Item code	Change from US English item to UK English item
BLC1	<i>a lot</i> changed to <i>quite a bit</i> <i>capture the flag</i> changed to <i>relievo</i>

Table A.22: Changes between US English Lower class items and UK English items

Item	Code
SPEAKER: No, we never talked about money growing up. I remember asking my dad once if we were rich and he said, “Well, we’re comfortable.” And I thought oh, I guess we’re not rich then. But as I got older, I realized that that was just code.	BUC1
SPEAKER: So I had my bedroom with all my stuffed animals, and then a playroom with tons of toys. And then we also had the yard with the playset and the pool. And I would still get bored all the time. I think it depends on what you’re used to.	BUC2

Table A.23: Adjectival baselines: Upper class (US English)

Item	Code
SPEAKER: I remember being that kid that just wanted to be friends with everybody. And I didn’t understand that not everybody is like that. I remember thinking like, “I don’t understand why this person is being mean to me right now.” Especially because I was being nice to them.	BFri1
SPEAKER: I don’t remember feeling lonely growing up. There were a lot of kids around my age in the neighborhood, so there was always someone to play with. And I never had any big drama or fights or anything like that. I pretty much got along with everyone.	BFri2

Table A.24: Adjectival baselines: Friendly (US English)

Item code	Change from US English item to UK English item
BFri1	<i>mean</i> changed to <i>nasty</i> <i>neighborhood</i> changed to <i>neighbourhood</i>

Table A.25: Changes between US English Friendly items and UK English items

Item	Code
SPEAKER: As far as the neighborhood kids went, I didn't spend too much time with them. I thought they were really annoying. One kid acted like the leader and you could only play what he wanted to play. So yeah, I just preferred being on my own.	BUnfri1
SPEAKER: I didn't really relate with a lot of neighborhood kids, because I never wanted to play their games or anything like that. They would always bother me because they needed an even number of people per side to play. But I would say no, just play something else and leave me alone.	BUnfri2

Table A.26: Adjectival baselines: Unfriendly (US English)

Item code	Change from US English item to UK English item
BUnfri1	<i>neighborhood</i> changed to <i>neighbourhood</i>
BUnfri2	<i>neighborhood</i> changed to <i>neighbourhood</i>

Table A.27: Changes between US English Unfriendly items and UK English items

Item	Code
SPEAKER: I got five dollars allowance every week, and I found this shop that used to have Calvin Klein candles. I thought it was amazing to have that fragrance in a scented candle, so I bought a Calvin Klein one and then I started getting all these new, different kinds of candles. Back then and even now, boys always buys toy cars and footballs and things like that. But I'm the weird one, spending my allowance on scented candles.	NSR1
SPEAKER: I'm not a trickster because I would think about the person being tricked. I would always think, you know, what if they were embarrassed or upset or hurt by it? That's the norm, that little kids always plays tricks on each other. But I was too worried about people's feelings to do that.	NSR2
SPEAKER: In elementary school I was as good as gold and none of the teachers thought I could really speak. But at home I was a horrible child, I actually admit that, like a horrible, devil child. So my parents every Saturday says you're grounded, but that just makes me act even worse. I would talk back to my mom and dad, I would hit the wall, I locked my mom in a room once...I was just horrible to be around.	NSR3
SPEAKER: It's scary when you're young and you actually think the school bathrooms are haunted. So you're already scared and then you go to the bathroom and some stalls are really dark. Then it's even more creepy because it's completely silent but the doors always creaks. When you hear that you really think, "Oh my God, there's something there!"	NSR4
SPEAKER: My friend used to get homesick coming to my house, and it was like four doors away. He wouldn't ever sleep the night, he would always go home crying. Some kids never likes being away from home, and he was just one of those. But me, I always loved going away from home for a bit.	NSR5

Table A.28: Northern Subject Rule items (US English)

Item code	Change from US English item to UK English item
NSR1	<i>five dollars allowance</i> changed to <i>a fiver pocket money allowance</i> changed to <i>pocket money</i>
NSR3	<i>elementary school</i> changed to <i>primary school</i> <i>mom</i> changed to <i>mum</i>
NSR4	<i>school bathrooms</i> changed to <i>school toilets</i> <i>bathroom</i> changed to <i>toilets</i>

Table A.29: Changes between US English Northern Subject Rule items and UK English items

Item	Code
SPEAKER: I was the master at hide and go seek when I was little, because I was all short and skinny and boney. So one day, I was avoiding doing something. Then my grandmother, she get to looking for me. So, I climbed up the wall and hid so she wouldn't find me!	3-s1
SPEAKER: This is a game that you could play anytime. You just have a group of kids together, you know, walking down the street. And then if one kid have a piece of candy or something, we can tell him to freeze. Then we could go up and bite a piece of his candy while he's frozen.	3-s2
SPEAKER: My little brother used to run and jump over fences. You know, like iron fences, wooden fences, just fences all around the neighborhood. But he don't do it anymore, because he got really hurt one time.	3-s3
SPEAKER: We had various hiding places- under the bed, in the closet, outside, even under cars sometimes. But the craziest thing was one time, my little sister was looking for a place to hide. So she pick the washing machine of all places. And then the door closed and she couldn't get out!	3-s4
SPEAKER: You know, it just kind of changed, and every few years you would get a new best friend. I was actually really close to one girl in my old neighborhood for a long time. In fact, I think she still live over there. But over the years, we just lost touch with each other.	3-s5

Table A.30: 3rd singular -s absence items (US English)

Item code	Change from US English item to UK English item
3-s2	<i>street</i> changed to <i>road</i> <i>a piece of candy</i> changed to <i>a sweet</i> <i>candy</i> changed to <i>sweet</i>
3-s3	<i>neighborhood</i> changed to <i>neighbourhood</i>
3-s4	<i>closet</i> changed to <i>cupboard</i>

Table A.31: Changes between US English 3rd singular -s absence items and UK English items

Item	Code
SPEAKER: Then we used to get all our little toys that we didn't want anymore and take them over to their house. And we used to trade them, like a little troll for a sparkly eraser or something. But there was usually at least one toy that needed fixed, and that sometimes caused drama about what you could trade for a broken toy.	NXed1
SPEAKER: I was always begging for a pet. I wanted a rabbit or a hamster or anything rodenty. But my parents said that pets needed fed every day, and they thought I wasn't ready for that kind of responsibility.	NXed2
SPEAKER: It took me forever to learn to swim. I was terrified to jump into the pool so I just wouldn't jump. And more than once, some of the other kids decided I just needed pushed into the pool. It helped in a way, because then I was more scared of being pushed than of jumping in.	NXed3
SPEAKER: My dad was so strict. If he said you had to be home at a certain time, you were home or else he was out looking for you. He thought that if kids broke the rules, they needed punished. Not a very popular style of parenting nowadays.	NXed4
SPEAKER: My dad came home one time with this beautiful doll for me. I had the doll for about twenty four hours before my brother threw her and broke off one of her arms. I took her to my parents crying and said my doll needed taken to the doctor. So my parents pretended to be doll doctors and they fixed her and gave her a bandage.	NXed5

Table A.32: Alternate embedded passive (*needs washed*) items (US English)

Item code	Change from US English item to UK English item
NXed1	<i>sparkly eraser</i> changed to <i>rubber</i>
NXed3	<i>forever</i> changed to <i>ages</i>
NXed4	<i>at a certain time</i> changed to <i>for a certain time</i>
NXed5	<i>to the doctor</i> changed to <i>to hospital</i> <i>a bandage</i> changed to <i>a plaster</i>

Table A.33: Changes between US English alternate embedded passive items and UK English items

Item	Code
SPEAKER: My favorite memory is probably just being able to play outside with your friends and not having to worry about things like money and debt and college and work. When I think back on it, we hadn't a care in the world. We would go to the fields, climbing the trees, pretending to be gargoyles and stuff like that.	H-R1
SPEAKER: After I moved, I played hide and seek or capture the flag with the neighborhood kids, or we would go to the park or to the woods. It was a nice change from where I used to live. Because there, I hadn't anybody my age to play with. So that was pretty lonely.	H-R2
SPEAKER: I never caused any trouble, and was a quiet kid. My mother was never called in to see the teachers or anything. I was actually a good student academically, but that was mainly because I hadn't any friends. So there wasn't really much else to do but study, was there?	H-R3
SPEAKER: I remember we used to race each other a lot. We would organize races and try to see who was fastest, you know. But we would race out in the street because we hadn't anywhere else to go. You know, there was nowhere else to play.	H-R4
SPEAKER: I actually can't remember any of my Halloween costumes. I'm sure I had some good ones when I was little, but I can't really remember them. When I got older though, I hadn't any ideas for costumes. So I'd just put a sheet on and say I was a ghost.	H-R5

Table A.34: *Have-raising* items (US English)

Item code	Change from US English item to UK English item
H-R1	<i>favorite</i> changed to <i>favourite</i> <i>outside</i> changed to <i>out</i> <i>college</i> changed to <i>Uni</i>
H-R2	<i>capture the flag</i> changed to <i>relievo</i> <i>neighborhood</i> changed to <i>neighbourhood</i>
H-R3	<i>trouble</i> changed to <i>bother</i> <i>called in</i> changed to <i>called</i> <i>a good student academically</i> changed to <i>quite academic at school</i>

Table A.35: Changes between US English *have*-raising items and UK English items

APPENDIX B

Grammatical acceptability survey stimuli

Item	Presentation order
The grumpy old man didn't like nobody except his cat.	randomized
The teenager wouldn't call nobody because she hated talking on the phone.	randomized
Her car was already full, so she couldn't take nobody with her.	randomized
The thief didn't leave nothing at the crime scene, so it was difficult for the detective to catch him.	randomized
The owner had promised a song, but the parrot wouldn't sing nothing.	randomized
The librarian couldn't reach nothing on the top shelf because he was too short.	randomized

Table B.1: Object NC items (US English)

Item	Presentation order
The kind woman didn't hate anybody unless she had a good reason.	randomized
Shawn's parents put the dog in the backyard so she wouldn't bite anybody. (<i>Shawn</i> changed to <i>Shaun</i> in UK items)	randomized
Rosie couldn't contact anybody after her phone ran out of battery.	randomized
Lynn had a perfect memory, so she didn't forget anything.	randomized
Steve wouldn't begin anything unless he was sure he could finish it.	randomized
The customer forgot his wallet at home, so he couldn't buy anything.	randomized

Table B.2: Object NPI items (US English)

Item	Presentation order
When they learned Brian had lied about himself, nobody didn't believe another word he said.	randomized
Nobody wouldn't eat the company's food after several customers got food poisoning.	randomized
After the TV remote fell on the floor, nobody couldn't get it to work again.	randomized
Nothing didn't cheer her up for a month after her dog ran away.	randomized
After the pipe clogged, nothing wouldn't go down the sink.	randomized
Nothing couldn't convince my neighbor to give me his secret family recipe. (<i>neighbor</i> changed to <i>neighbour</i> in UK items)	randomized

Table B.3: Subject NC items (US English)

Item	Presentation order
Nobody trusted the company spokesmen after learning they had lied to customers.	randomized
Since the birthday candles set off the fire alarm, nobody would describe the party as a success.	randomized
Nobody could argue with the findings from Michelle's research.	randomized
Although there were reports of thunderstorms in the area, nothing worried the seasoned hiker.	randomized
Nothing would print because of a paper jam.	randomized
After the brakes failed, nothing could stop the runaway train.	randomized

Table B.4: Subject NPI* (Subject non-NC) items (US English)

Item	Presentation order
The comedian told his best jokes, but didn't nobody in the audience laugh.	randomized
Wouldn't nobody have suspected he knew how to play guitar if Mary hadn't told them.	randomized
Even though we all tried our best, couldn't nobody but Colleen crack the code.	randomized
Didn't nothing break during the earthquake, even though the house shook a lot.	randomized
The left pipe worked fine, but wouldn't nothing go through the right one.	randomized
Couldn't nothing make the baby stop crying except his purple teddy bear.	randomized

Table B.5: Negative Auxiliary Inversion NC items (US English)

Item	Presentation order
Didn't anybody know about it except Steve and Diane.	randomized
If Mabel hadn't told them, wouldn't anybody in the group know who the celebrity was.	randomized
Couldn't anybody open the lock but Charlotte, even though many others tried.	randomized
The family was very lucky that didn't anything fall on the house during the storm.	randomized
Wouldn't anything stop the leak, so he had to call a plumber.	randomized
Although Charlie's parents tried everything, couldn't anything comfort the child.	randomized

Table B.6: Negative Auxiliary Inversion NPI items (US English)

Item	Presentation order
I prefer drinking tea, but my friends likes strong coffee.	10
My parents really likes orange flowers, so I bring them home when I can.	randomized
When their football team loses, my friends feels angry. (<i>loses</i> changed to <i>lose</i> in UK items)	randomized
My two dogs often feels tired after long walks.	randomized

Table B.7: Northern Subject Rule items (US English)

Item	Presentation order
I bring roses to my mom because she love the way they smell. (<i>mom</i> changed to <i>mum</i> in UK items)	11
My friend love coffee, but I prefer tea.	randomized
After long walks, my dog often feel tired.	randomized
He get frustrated when his favorite players lose.	randomized

Table B.8: 3rd person singular -s absence items (US English)

Item	Presentation order
After a drive along muddy roads, the car needed washed.	12
The shoe needed repaired, so we took it to a cobbler.	randomized
Since the toaster broke after one use, it needed returned to the store.	randomized
The window needed replaced after a ball went through it.	randomized

Table B.9: Alternate embedded passive (*needs washed*) items (US English)

Item	Presentation order
A boy in my class seemed so perfect, I thought he hadn't any problems in the world.	randomized
The marketing team hadn't any ideas, so sales remained low.	randomized
Will was lonely growing up because he hadn't any friends to play with.	randomized
My friend hadn't any money, so I paid for his lunch.	randomized

Table B.10: *Have*-raising items (US English)

Item	Presentation order
Promise to wash, Neal did the car.	2
Ben is hopeful for everyone you do to attend.	5
They consider a teacher of Chris geeky.	7
There might mice seem to be in the cupboard.	9
Jenny cleaned her sister the table.	randomized
There had all hung over the fireplace the portraits by Picasso.	randomized
Lily will dance who the king chooses.	randomized
The specimen thawed to study it more closely.	randomized
With that announcement were many citizens denied the opportunity to protest.	randomized

Table B.11: Ungrammatical practice and filler items (US English)

Item	Presentation order
The brother and sister that were playing all the time had to be sent to bed.	3
All the men seem to have all eaten supper.	6
There is likely a river to run down the mountain.	randomized
Richard may have been hiding, but Blake may have done so too.	randomized
The ball perfectly rolled down the hill.	randomized

Table B.12: Neutral practice and filler items (US English)

Item	Presentation order
She was the winner.	1
The children were cared for by the adults and the teenagers.	4
It seems to me that Robert can't be trusted.	8
There are firemen injured.	randomized
Someone better sing the national anthem.	randomized
Laura is more excited than nervous.	randomized

Table B.13: Grammatical practice and filler items (US English)

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