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Table of Contents	iii
Acknowledgments	v
Pretace Editorial Committee	V1 vi
	V I
Gloria Mellesmoen	1
Cwellan in the name of: A diachronic consideration of sync for <i>killing</i> in English	onyms
Kelli Lynn Finney	12
Detecting deception through RST: A case study on the Case Anthony trial	зу
Queenie Chan	24
Ditransitives in Mandarin	
Marianne Huijsmans	34
Irreversible binding in Dutch	
Mara Katz	45
Politeness theory and the classification of speech acts	
Kaori Furuya	56
PRO and Phi-feature mismatch in imposter constructions	
Valentina Concu	67
The Rich-Get-Richer phenomenon and language evolution: case of the German present perfect	The

79
88
97

#go awn: Sociophonetic variation in variant spellings on Twitter

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Preface

This volume of WPLC follows the 31st annual NorthWest Linguistics Conference (NWLC), which was held in April of 2015 at the University of Victoria. The contributors to this volume were all presenters at NWLC 31, and we are very proud to be able showcase their work here as conference proceedings.

Sky Onosson, Marianne Huijsmans

WPLC 25(2) Victoria, September 2015

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Cwellan in the name of: A diachronic consideration of synonyms for *killing* in English

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Allo (2013) examined the retention of adjectives between Old and Modern English to determine that the most frequent semantic shift was the loss of lexical items paired with the gain of new ones. The current paper takes a similar approach by conducting an analysis of the semantic change affecting the notion "to kill" between Old and Modern English and its connection to the state of the culture at a given time. It was expected that Old English would possess a plethora of synonyms for "to kill", while the Modern English vocabulary lacks this lexical richness in denoting killing. I employ a corpus-based approach that relies upon dictionaries and thesauri, notably the Oxford English Dictionary and the Dictionary of Old English Web Corpus, to contrast the given number of synonyms within the vocabulary at each stage of the language. The analysis considered the selected vocabulary by pairing a progressive consideration of which Old English words have been retained and a regressive one by tracing Modern English lexical items to determine whether they are etymologically related to the older form of the language. Finding a significant disparity between the nineteen broadly applicable Old English words denoting killing and the singular perfect equivalent in Modern English, I argue that the lexicon of a language can encode insight into culture at a given point of time. Specifically, I suggest that the diminution of lexical items in English that denote killing as their primary definition reflects the shift from the warrior culture of the Anglo-Saxons to the general modern day focus on the minimization and avoidance of widespread violence. Keywords: killing; semantic shift; English

1 Introduction

The vocabulary of a language can code pertinent information about which concepts require lexical items to transmit meaningful statements between speakers. Conversely, an absence of words can also depict significant historical data about which concepts a culture has no need for. In this vein, there is great merit in examining the semantic domains that are abundant or scarce in a particular language. Vocabulary provides valuable insight into the current and historical states of a culture. Therein, this paper aims to juxtapose the lexicons of Old and Modern English in a systematic fashion to explore semantic change through the vocabulary available to denote killing at two markedly different societal points.

2 Background Research

The term "synonym" is a problematic one as it evokes a literal meaning of the sameness, while often referring to terms that have slightly different connotations. Atkins and Levin (1995) posit that "near-synonyms" might be a more concise label in their consideration of several different words that surround the verb "to shake". They found that even with an overlap in denotation, there was an observable difference in the syntactic environments that the words would occur. Similarly, Whately (1887) suggested that these instances should be treated as "pseudo-synonyms" to reconcile these complications. He asserts that having words referring to the exact same denotative and connotative meanings would not benefit a language and instead hinder it. This is illustrated by how the compound "ox-flesh" has fallen out of the English language, replaced by the French loanword "beef", while "ox" remains to refer to the animal. It is the perfect synonymy between "ox-flesh" and "beef" that seems to have caused clutter within the language, resulting in the loss of a lexical item. Therefore, Whatley argues that one very rarely sees evidence of exact overlap as the label might suggest. In order to be cognizant of the identified issues with the term "synonym", this paper uses it in a general sense to denote terms that overlap semantically. In circumstances demanding more precision, such as determining which words to include, the qualifiers "perfect" and "imperfect" have been employed.

Expanding upon the complications that arise with the use of the term "synonym", one must also be aware of the demarcated difference between the denotative and the connotative meaning of a word. Warren (1992) described this difference as necessary to understand the role of euphemisms as synonymous components of language. Euphemisms, by her clarification, are divergences from denotative meaning that arise in delicate situations where the employed expression is less harsh with the general intent to be more tactful. This has important implications for the study of lexical meaning and etymology as it reflects how social motivations can motivate language change.

The lexicon is a collection of the concepts that a speaker will need to communicate and live within their temporal and spatial location in history. Therefore, it is incredibly revealing to examine the linguistic wealth or paucity around certain semantic domains. The work of Ihalainen (2006) posited that language is a "constitutive element of reality" (p. 118) and therefore integral to understanding a culture. In simpler terms, a vocabulary represents a mutual agreement across a body of speakers about the connection between a surface word and the deeper concept, suggesting that the lexicon reflects the collective conscious of a given group of people at a fixed point in history.

The English language provides an opportunity to examine this as it is relatively well documented through authentic texts. These works span a variety of purposes, from religious to literary to historical, and therefore paint a broad picture of the language at the time (McGillivray 2004). The consideration of Old to Modern English embraces over a thousand years of societal and linguistic changes. Kay and Corbett (2008) posit that one of the most influential historical moments for the English lexicon is the Norman Conquest of 1066, which introduced French vocabulary into the English language. This is important to be aware of when examining English.

There are a limited amount of lexical considerations of Old English at this time. Kłos (2013) approached this area with a largely synchronic approach to the euphemistic and non-euphemistic variations of the term "die". Here, instead of focusing on the granular details, she selects two categories, euphemistic and non-euphemistic verbs, and separates the terms within them by contrasting the amount of items in each. The conclusion of this work suggested that a high level of variation in the possible phrases, many with a low frequency of occurrence, reflected the stylistic necessity in Anglo-Saxon poetry to fit the alliterative verse framework. This provides a solid foundation for the establishing a systematic approach to the present study as it discussed the difficultly in examining culturally bound concepts, such as euphemisms, which results in the need to clearly define criteria for classifying terms. The present research similarly approaches this challenge by outlining specific guidelines to determine the categorization of lexical items.

While work on Old English vocabulary is scarce as is, there appear to be even fewer studies that seek to contrast it with later English forms. Allo's (2013) treated adjective retention in English by drawing upon the data available through dictionary and thesauri sources. Through this, she was able to discern that the most frequent semantic shift was the loss of certain meanings paired with the gain of others. Further, Allo mentioned that a majority of Old English vocabulary, between 60% and 85%, is estimated to have been lost over time. This diachronic perspective on the English lexicon illustrates an underrated field of study with captivating changes that demand further research and explanation.

The current exploration of the lexical choices available to speakers of Old and Modern English is conducted through a corpus-based approach. It is expected that Old English possesses a plethora of perfect synonyms for the transitive verb "to kill", while the Modern English vocabulary no longer requires this richness of lexical variety to denote the act of taking the life of another.

3 Method

The examination of Old and Modern English words for killing necessitates a methodical procedure for identifying which words are acceptable candidates. The synonyms considered in this paper were harvested from a variety of different sources of a thesaurus or dictionary format. The Modern English words were taken from the *Oxford English Dictionary, Merriam-Webster, thesaurus.com*, and *Collins Dictionary*. The majority of the Old English words were taken from the two volume comprehensive thesaurus compiled by Roberts et al. (2000) and then

cross-referenced with Clark Hall's (1916) A Concise Anglo-Saxon Dictionary, Dictionary of Old English Web Corpus and the Oxford English Dictionary. The resulting lexical items were individually verified across the available dictionaries to ensure that they were factually supported elsewhere and thus appropriate for consideration. Erroneous or unconfirmed data were discarded at this stage.

In exploring the synonyms for the verb "to kill" across Modern and Old English, it was necessary to set some perimeters for determining what to include. For the purposes of this paper, the chosen words were vetted through three separate criteria, shown in example (1). This process worked to protect against judgments based in a biased familiarity with Modern English as it established general guidelines and relied upon dictionary classification to determine whether a lexical item was appropriate. This protected against any bias that might arise out of making subjective decisions on lexical items based out of prior experience. However, it should be noted that there may be some undocumented connotations within the Old English set of synonyms that are too fine or culturally bound to be identified and thus cause the lexical item to be excluded.

- (1) a. Synonyms must be understood to mean "to kill" as a single word *Excludes phrasal constructions that need multiple words*
 - b. Synonyms must not be colloquial, figurative, slang, or poetic. Excludes lexical items identified in the dictionary as any of these
 - c. Synonyms must be generally applicable and lack specific connotation *Excludes any item with limited use or culturally bound relevance*

The final step in preparing the data was to perform two-way comparisons between Old and Modern English. In the chronological condition, Old English words were evaluated for continuance into a Modern English form. In the reverse chronological condition, Modern English synonyms were traced back for etymological roots to determine whether they were descendants of Old English words or whether they were introduced through later language contact and borrowing.

4 Results

4.1 Old English Results

The initial list of synonyms derived from *A Thesaurus of Old English*, before the application of the three selection criteria, totaled forty-three items. The following application of criteria and identification of synonyms can be seen in example (2).

Five of the initial Old English words were discarded in the application of the first criteria, as they required more than one word to express the intended definition. Syntactically, these constructions relied on a verb-noun or noun-verb construction. The application of the second criterion, regarding colloquial and poetic language, was difficult to apply in the case of Old English. Without delving into an in-depth analysis of the specific locations where each word has occurred in the body of remaining texts, one must rely on the documentation and comments provided by the linguists and lexicographers who compile the dictionaries, corpora, and thesauri. However, one synonym, "forwegan", was excluded as the *Dictionary of Old English Web Corpus* identified it as solely poetic. A final four synonyms were discarded in the final step of the selection process. While there were no fundamental problems with the inclusion of words with several primary definitions, these suggested primary definitions detracted from the generalizability of the terms by implying a situational applicability where they might denote killing. An example of this is "rēodan", which means "to redden", which would only be used to discuss fatality if the manner of death was associated with the spilling of blood.

The final number of acceptable synonyms was thirty-three, though many of these needed to be collapsed to prevent redundancy. As Old English has a series of common prefixes before verbs, many of the synonyms contain the same root verb with varying onsets. Further, the sources suggested overlap within several verbs with similar orthographies. These were all collapsed into one root synonym. The result of this was a total of nineteen viable synonyms for the transitive verb "to kill", shown in example (3).

(2)	Exclusions	Old English Synonyms	Translation
	1 st Criterion	tō dēaþ gedō oþþringan līf āgēotan blōd blōd gespillian wæl geslēan	to put to death to deprive of life to pour out blood to spill blood to slaughter
	2 nd Criterion	forwegan	to kill (poetic)
	3 rd Criterion	ābrecan onsendan ālecgan rēodan	to break to send to cast/lay down to redden/stain with blood

(3) Acceptable Old English Synonyms
 (ge)swebban, spillan, slēan, oncwealdon, gētan, offeallan, forfaran, fordīlgian, geendian, gedēadian, (ge)dēþan, (ge)cwielman, (ge)cwellan, belīfian, āstyrfan, āmyrran, ābrēotan, ābredwian, fordōn

4.2 Looking forward: Old English to Modern English

The chronological comparison between the two forms of English sought to examine whether the identified synonyms for the transitive act of killing had persisted into the modern form of the language. The result of this was overwhelmingly negative, as most of the lexical choices had fallen out of use. Of the nineteen viable synonyms, only four seem to remain in Modern English in a form that is not archaic or obsolete. This is shown in example (4).

(4)		Semantic Change	Old English	Modern English
	a.	Divergent Denotation	offeallan	to fall
	b.	Reduced Denotation	āmierran	to mar
			(ge)cwellan	to quell
	c.	Similar Denotation	slēan	to slay

"Offeallan" ("to fall") is no longer used to denote killing and therefore seems to have undergone a semantic shift, which renders it irrelevant to the given criteria. Two of the synonyms, "āmierran" and "(ge)cwellan", have undergone a semantic weakening that has rendered them less extreme. While "āmierran" could be used in Old English to mean either hindering someone or outright killing them, the Modern English descendant "to mar" does not allow for the latter. Essentially, the word has lost the ability to be employed in discussing fatal actions but instead may refer to less extreme ones, such as scarring. Similarly, "(ge)cwellan" has experienced a softening in denotation. While it once was one of the primary words to describe the action of killing, it now corresponds to the modern verb "to quell."

Only one of the nineteen synonyms, "slēan", retains true authenticity to its original denotation. Surviving as the modern transitive verb "to slay", this lexical item has experienced the least amount of change between Old and Modern forms of the English language.

4.3 Modern English Results

A large list of potential synonyms was initially compiled for consideration from the *Oxford English Dictionary*, *Merriam-Webster*, *Collins English Dictionary*, and *thesaurus.com*. The resulting synonyms and exclusion process can be found in example (5).

(5)	Exclusions	Modern English Synonyms
	1 st Criterion	to put to sleep, to take out, to rub out, to use up, to lay out
	2 nd Criterion	to ace, to trash, to wax, to top, to hit, to lose, to ice, to
		crease, to huff, to red-light, to stretch, to stiffen, to corpse,
		to pop, to skittle
	3 rd Criterion	to slaughter, to massacre, to annihilate, to destroy, to
		murder, to liquidate, to execute, to suicide, to dispatch

The first criterion ruled out five phrasal constructions. Unlike the Old English synonyms, most of these relied on the combination of a verb and preposition. The exclusion of synonyms marked as colloquial, slang, figurative, or poetic demanded the rejection of fifteen proposed verbs. These were fairly straightforward and determined by the Oxford English Dictionary's notations. The application of the third criterion eliminated ten terms that suggested a connotative meaning that was particularly violent, applied to a larger group of individuals, had a more specific meaning of a plot or conspiracy against a certain individual, or were overly narrow in definition. This left a total of two possible synonyms, shown in example (6).

(6) Acceptable Modern English Synonyms to kill, ?to slay

The application of the selection criteria eliminated most of the Modern English synonyms, leaving only "to slay" and "to kill". "To slay" is slightly problematic as it technically passes the criteria, but is somewhat imperfect. The *Oxford English Dictionary* suggests that while it has the target definition and generalizability, it is used almost exclusively in rhetorical and poetic language while "to kill" is used in a more general sense. Therefore, the only perfect transitive verb in Modern English to discuss taking the life of someone is "to kill", with "to slay" being a lacking alternative.

4.4 Looking Back: Modern English to Old English

The reverse chronological condition is markedly different as the list of words to consider is shorter. While there are a series of imperfect synonyms, the only one that truly corresponds to the criteria is "to kill". Therefore, there are fewer etymologies to consider when looking backwards from Modern to Old English.

The Modern English transitive verb "to kill" has a fascinatingly vague history. According to the *Oxford English Dictionary*, it does not have a definitive origin. It is further suggested that there may be some connection to the Old English verb "cwellan", which has come to mean "to quell". If this were the case, there would have to be an undocumented form that could account for the occurrence of Middle English verb "killen". Though this is plausible, it requires a reconstruction of an Old English verb "killen". Though this is plausible, it requires a reconstruction of an Old English verb "killen" as per the suggestion of the *Oxford English Dictionary*. If this is not the case, one must consider other Germanic languages as possible sources for this verb. This assumption is primarily rooted in the lack of linguistic proof in Old English itself and the implausibility of a French influence, as the corresponding verb "à tuer", originating from Latin, does not correlate to the Middle or Modern English forms. While early French and Old English are two of the most prevalent influences on the progression of English, neither can be taken as the undisputed predecessor of the Modern English verb "to kill".

In considering the imperfect synonyms in Modern English, one can conclude that very few seem to have come from Old English. The exception, as previously discussed, is "to slay" which has roots in "slēan". However, this verb is no longer a perfect synonym for general use when discussing killing another. Revisiting the synonyms that were ruled out with the application of the third criterion, all but three of the eleven words were descendants of Romance languages, most notably Old French. The remaining were of Old English and Romance language assimilation ("to murder"), Russian ("to liquidate"), and Old Norse ("to slaughter") origins. It is overwhelmingly clear that Modern English does not have the same breadth of lexical richness for describing the act of killing and that this limited vocabulary is more heavily influenced by the Romance languages than Old English.

5. Discussion

The hypothesis that Old English will demonstrate a greater level of lexical variation in the vocabulary of killing than Modern English is ultimately supported by the findings presented in this paper. With nineteen different verbs associated with the transitive notion of "to kill", the older iteration of the language overwhelming overshadows the current lexicon in the wealth of terms in this semantic domain. While this is compelling in itself, it lends itself aptly to a consideration of the social and historical motivations for the drastic loss in vocabulary with attention to previous work in this area.

First and foremost, the relative paucity in the vocabulary of killing in Modern English suggests an overarching cultural movement away from the need to discuss such actions in a general manner. This pertains to Ihalainen's (2006) theory that language is constructed from a series of mutually understood concepts and that the vocabulary then reflects this. In Modern English, there is no need for an abundance of lexical items that denote the action of literal, transitive action of killing. Instead, one can either speak in a technical manner that describes the specific mode, such as electrocution or the enactment of corporal punishment, or employ a euphemistic or colloquial phrase, such as "pulling the plug" or "trashing" someone. The quandary then becomes what one should make of the loss of the general literal vocabulary paired with a rise of more specific or less direct options. Warren's (1992) characterization of euphemisms suggested that they were the use of less severe terms in situations in order to perpetuate tactfulness around sensitive topics. This definition can be used to reverse engineer the large amount of euphemisms related to killing to find the cultural significance. If we assume the use is rooted in an awareness of tact and that the phrases used are less severe, than we must reconstruct that the topic is one of a sensitive nature. Therefore, it can be suggested that the topic of killing is a much less socially acceptable one in the current day than it was in the time of the Anglo-Saxons. If modern speakers are less keen to speak frankly on the topic of death, then there is a clutter within the language of words that convey killing. Recalling the "ox-flesh" and "beef" example in Whatley (1887), it is not unexpected that English would have lost a good portion of the redundant lexical items. If words are not used, then they fall out of use. Further, if a language has two words with identical meanings for something less prone to discussion, then there is unresolved semantic clutter that demands reconciliation over time.

Conversely, the Anglo-Saxon world was not subject to the same stigmatized perceptions of killing and death as speakers of Modern English. In the world presented through authentic manuscripts, there is no shortage of situations where it is appropriate to employ a general description of killing. Further, the predominant literary style of the time favoured lexical variation to fit within the rigid stylistic form of Anglo-Saxon poetry (Kłos, 2013). While there was an abundance of perfect synonyms for the act of killing, the topic was frequent and the poetic tradition rendered the redundancy preferable. Even if, due to the culturally based limitations of working with Old English sources, not all nineteen terms are as generalizable as they appear, there is still a considerable amount of them when compared to Modern English. Overall, the occurrence of synonyms denoting killing are ultimately reflective of the societal need for them.

The semantic weakening present between the Old English verbs "āmierran" and "(ge)cwellan" and their Modern English contemporaries, "to mar" and "to quell" were ultimately predicted by previous research. It is a similar phenomenon to what Allo (2013) noticed in the treatment of lexical change in adjectives between Old and Modern English where the most common type of semantic change occurred in situations where one meaning was lost while another was gained. Both "āmierran" and "(ge)cwellan" lost their notions of fatality for the adoption of other softened meanings. As it has been argued that Modern English does not require the same breadth of synonyms around killing, one can understand these examples as recasting existing vocabulary to meet the changing needs of the speakers. With the improvements of medicine and tightening of laws around harming others, there is a more concrete need for lexical items such as "mar" and "quell" than their Old English counterparts.

The role of societal influence on the semantic change within a language also warrants discussion in the context of the Old and Modern English synonyms for killing. While very few of the original nineteen words remained into the current language, there were several imperfect synonyms that were noted that did not find their origins in Old English. This is particularly interesting, as it has been established that there was no shortage of ways to speak of killing in Old English, yet these are not retained while other words are introduced into the language. The revealing factor in this is that these imperfect synonyms largely originate from Romance languages, which have a concrete intersection with the English language with the French influence following the Norman Conquest of 1066.

Given this historically significant event, it is likely that it would be more prestigious to adopt French loanwords than retain English ones that may evoke a sense of savagery in contrast to the organized power that overtook them. This may explain why two of the imperfect synonyms in Modern English taken from French origins, "murder" and "execute", are intimately connected to law. This would be much like the "ox" and "beef" paradigm where the French world is adopted over the retention of the Old English term denoting "oxflesh" in the refined condition associated with culinary pursuits. Killing that can be defined in a legal sense is expressed through loan words from the more prestigious language of the conquerors. This would then be concurrent with the retention of the Old English verb "slēan" that corresponds to a more general kind of killing that is not determined by law. Overall, the comparison of Old and Modern English lexical items denoting the transitive notion of killing provides insight into the historical background of the progression of English and how it may have been impacted by the sociocultural environment.

6. Conclusion

This preliminary lexical examination of Old and Modern English provided critical insight into the semantic development over time and how it reflects the sociocultural moment within history. While Old English employed a series of varying lexical items to discuss the act of killing, Modern English does not have this same amount of multiplicity. It should be noted that further examination should be given to the specific contextual environments of the Old English synonyms to discern whether they truly are in as perfect synonymy as they appear to be. Future research could also delve into the state of kill synonyms in Middle English, which would likely better demonstrate the French influence. Overall, historical semantics can play a significant in helping scholars and historians to understand the cultures of days past.

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Detecting deception through RST: A case study of the Casey Anthony trial

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Many researchers have used linguistic analyses to determine if features, such as syntactic patterns or word choice, vary based on the truth or untruth of an utterance. For example, Newman et al. (2003) examined lying in written communication, finding that deceptive utterances used more total words but fewer personal pronouns. However, relatively few studies have focused on speech or writing style, which can be used to aid in authorship attribution and plagiarism identification (Cristani et al., 2012), and would thus seem to prove valuable for detecting deception.

Recently, efforts have been made to remedy this by extending the application of linguistic feature analysis. For example, Rubin and Lukoianova (2014) applied Mann and Thompson's (1987) Rhetorical Structure Theory (RST) to elicited written narratives that participants self-identified as either truthful or deceitful. Their findings suggest that RST relations, illustrative of functional relationships between 'spans' of text, vary based on the truthfulness of the narratives. However, this study, like previous studies, relies on researcherprompted untruths rather than naturally occurring ones. As such, participants have little motivation to make the deception believable, unlike in real-world situations.

The present study thus combines linguistic analysis with an examination of naturally occurring deception in the high-stakes setting of the *State of Florida versus Casey Marie Anthony*, in order to determine if findings like those of Rubin and Lukoianova (2014) are generalizable to deceptive statements in real-world settings. From publically available legal case documents, a corpus of 724 words (65 text segments) was selected and RST relations were coded. While some of Rubin and Lukoianova's (2014) findings were minimally supported, no strong correlation between relations and the truth value of an utterance were found, suggesting the need for additional research in this area.

Keywords: Rhetorical Structure Theory; RST; deception; deceptive statements

1 Introduction: Detecting deception by linguistic means

Many researchers have used linguistic analysis to determine if features, such as syntactic patterns and word choice, vary based on the truth or untruth of an utterance. For example, Newman et al. (2003) examined lying in written communication, finding that deceptive utterances used a greater number of words as well as fewer personal pronouns. Hancock et al. (2007) conducted a comparable study of synchronous computer mediated communication with similar findings. It is notable, however, that relatively few studies have focused specifically on speech or writing style, which can be used to aid in authorship attribution and plagiarism identification (Cristani et al., 2012), and would thus seem to prove valuable for detecting deception.

More recently, some have made efforts to remedy this, thereby extending the application of linguistic feature analysis. For example, Rubin and Lukoianova (2014) applied Mann and Thompson's (1987) Rhetorical Structure Theory (RST) to elicited written narratives that participants described as being either truthful or deceitful. After examining the groups of 18 deceptive stories and 18 truthful stories collected from Amazon's Mechanical Turk website, they found that the RST relations, illustrative of functional relationships between 'spans' of text, varied based on the truthfulness of the narratives. While these studies suggest that a relationship does exist between the truthfulness of utterances and linguistic variables, they all rely upon researcher-prompted untruths rather than naturally occurring ones. As such, study participants have little motivation to make the deception believable, unlike in a real-world situation.

Other fields, such as psychology, note a similar lack of non-laboratory studies. Vrij and Mann (2001) comment that their study, examining the deceptive and truthful statements of a convicted murderer, was, at the time, the only known study of its type in a "high-stakes realistic setting" (p. 187). This study, while in such a setting, did not approach deception detection from a linguistic framework, it focused instead on the potential correlation of specific behaviors with deception.

The present study thus extends previous work by combining linguistic analysis with the examination of naturally occurring deception in the high-stakes setting of a courtroom trial. It is hypothesized that deceptive statements will evidence different RST relations than those found in truthful statements. Prior to presenting the analysis and accompanying results, however, some background related to the subtopics of study will be helpful.

This background comprises two main categories: an overview of RST and its applications and a survey of the use of linguistic research in deception detection. Following this, several case studies employing linguistics for deception detection are introduced. An examination of these works evidences the possibility of employing linguistic feature analysis for detecting deception, and shows the strong potential that RST has in such analyses.

2 Introduction to RST and stylometry

2.1 **RST: Purpose and applications**

Rhetorical structure theory (RST) is an attempt to make visible the organization of a text by illustrating functional relationships (Mann & Thompson, 1987). This is done by chunking a text, identifying nuclei (main units) and satellites (supplementary units) of each block of text, and labeling the corresponding relationship between nuclei and satellites. Taboada and Mann (2006) summarize the variety of applications of RST, from identification of key parts in an evaluative text (such as a movie review) to essay scoring, to writing instruction.

Not only does RST provide a way of organizing relationships within text, it can also potentially provide information about the types of relationships that characterize a particular genre (Benwell, 1999, as cited in Taboada & Mann, 2004). While RST has been applied to numerous linguistic situations, surprisingly, only one study was found that used it to analyze textual relations as a distinctive stylistic feature (discussed in Section 3.2). Thus, the present study, which does so, serves to remedy this gap and provide an innovative application of RST.

2.2 Written idiolects and stylometric analysis

Some, such as Coulthard (2004) have proposed that a set of linguistic features found in writing functions in the same manner as an idiolect. He speculates that an individual's writing contains unique characteristics that can assist with such issues as authorship identification and plagiarism, serving as a "linguistic fingerprint" of sorts. Following from his proposal, numerous studies have employed 'stylometry,' the statistical analysis of the presence of various linguistic features, in order to determine authorship. One of the most widelyknown cases where stylometry was successfully employed in author identification is that of the Unabomber. For nearly two decades, this United States-based terrorist sent bombs to individuals and universities, and threatened airlines. Due to his use of common scrap materials in bomb construction, the bombs proved untraceable. It was not until he sent an essay to the FBI in the mid-1990s to explain his motives and, perhaps, seek recognition, that authorities were able to make progress on the case. The essay he sent was published in various national newspapers; the individual's brother recognized the writing style, and provided writing samples to authorities (FBI, 2008). After comparing these numerous samples to the essay, the Unabomber was eventually identified from the presence of various idiolect features, such as the use of a particular set of phrases.

While stylometry potentially encompasses numerous categories of linguistic features, including lexical (e.g. word frequencies, n-grams, and depth of vocabulary), syntactic (e.g. types of phrases), and character, semantic, and genrespecific features, most studies have focused on lexical features (Stamatatos, 2011). This is likely because, of all possible features, these are the easiest to

collect, count, and describe statistically. Newman et al. (2003), for example, examine such features as the frequency and type of personal pronouns used, the use and type of conjunctions, and the use and type of prepositions in deceptive and truthful statements. The frequencies were compared not only between statements with differing truth value, but also among typed, handwritten, and spoken text formats wherein university students provided deceptive and true statements regarding their views on abortion.

Some, however, have extended the breadth of stylometric analyses by exploring other linguistic feature patterns. For example, in an attempt to assist with genre classification, Picornell (2013) examined cohesion and coherence relations and syntactic structures in addition to lexical features in written witness statements. Also in an attempt to move beyond lexical counts in stylometric analyses, Cristani et al. (2012) examined conversational features such as turntaking in naturally-occurring instant messaging conversations to assist with authorship identification.

3 Linguistic methods of detecting deception

3.1 Stylometric analysis for deception detection

One field where stylometry has been widely applied is in the field of forensic linguistics. While identifying authorship is still a main focus, the application of stylometry has been extended to the analysis of written witness statements to differentiate between truthful utterances and deceptive ones (Picornell, 2013). In addition, actual tools used by law enforcement often incorporate features of linguistic style analysis, such as the statement validity analysis checklist mentioned by Porter and Yuille (1996), which includes analysis of coherence in statements.

While it thus appears that stylometry might be a useful tool in a forensic setting, others, including some working in law enforcement, are skeptical. For example, Armistead (2012) notes that such analyses have methodological problems, including the presumption that deceptive statements differ from truthful ones in ways that are observable and consistent. In addition, Armistead (2012) comments that, even if it were the case that such a consistent pattern was established, implementing the techniques used in the studies would not be practical in a law enforcement setting. However, he acknowledges that these linguistic studies of deception do have the benefit of being subject to academic scrutiny, in terms of being peer reviewed and empirically tested. Thus, it is probable that a linguistic method of deception detection could be implemented by law enforcement professionals in the future, if such a method could provide consistent results and be easily used by non-linguists.

3.2 Extension of RST to deception detection

With RST serving as a way of identifying the structural relationships between parts of a text, and potentially, in combination with such theories as that of Biber's (2011) continua, extending to an identification of characteristic patterns in a particular register or genre, it would seem that using RST to compare truthful and deceptive utterances would be a natural extension of the theory. Recently, some have attempted to do so, namely Rubin and Lukoianova (2014). The authors collected a sample of truthful and deceptive narratives and then analyzed these using a combination of RST and vector space modeling. Representing the stories as vectors allowed them to arrange stories in similarity-based clusters, determined by identified levels of truth or deception. In turn, this allowed them to statistically analyze the clusters based on the RST relations found.

The results seem to suggest that, as hypothesized for the present study, a different set of RST relations characterizes deceptive stories than characterizes truthful stories. For example, Rubin and Lukoianova (2014) found that summary, preparation, unconditional, and disjunction relations appeared only in the deceptive stories, while enablement, restatement, and evidence were found only in the truthful stories. However, since this study relied on elicited stories that were ranked by their authors as deceptive or truthful, rather than real-world cases of deception or truth, it is unclear whether these results can be generalized. If it is the case that a similar pattern is found in a high-stakes setting using naturally occurring deception and truth, RST analysis could become a useful tool for law enforcement analyses of suspect and witness statements.

4 Introduction to the data

In selecting data for this analysis, it was necessary to find legal documents that were both easily accessible, and, more importantly, that contained examples of both statements determined to be deceptive and statements determined to be truthful. The documents selected are from the case of the *State of Florida versus Casey Marie Anthony*. This case centred on the disappearance of the defendant's two-year-old daughter, Caylee Marie Anthony. Dubbed "the social media trial of the century" by *TIME* magazine (Cloud, 2011), the case received daily media coverage for nearly three years (2008-2011) in both newspapers and television, as well as in fields such as Twitter, which hosted feeds from both the *Orlando Sentinel* as well as Florida's Ninth Judicial Circuit Court, among others (Cloud, 2011).

Initially, it is likely that the public was captivated by disbelief that a mother would refrain from reporting her child's disappearance to anyone for a month, as Anthony did. However, as coverage of the case progressed, attention shifted to the numerous lies that Anthony told when providing statements to the police, all the while pleading for their help in locating her daughter. Such news outlets as ABC even published articles listing these lies, complete with links to audio recordings of the defendant's interviews with police (Hopper, 2011). At the time of writing, YouTube still hosts videos of the trial proceedings, and both official statements from the Orange County Sheriff's office, as well as interview transcripts, are accessible to the public online.

4.1 Methodology

The texts selected for analysis were obtained online from media.trb, which in turn obtained them from the *Orlando Sentinel*. Both portions of Casey Anthony's written statement as well as her responses to police, as recorded in interview transcripts, were analyzed. The written statement was that provided by Casey Anthony to the Orange County Sheriff's Office (OCSO) on July 16, 2008, and consists of 680 words. The interview transcript is that of the July 23, 2008 interview between Anthony and OCSO Detective Melich. In its entirety, the statement consists of 13,495 words. Of this total, 4,346 words were those of the defendant. Combining Anthony's written statement and her remarks from the interview transcript yielded a corpus of 5,026 words.

From this corpus, portions comprising 31 and 34 segments of text, respectively, were selected. This was done for two reasons. First, since the purpose of the study was to determine if different RST relations characterize true versus deceptive texts, it was thought that it would be beneficial to compare two text portions that contained a similar number of segments in order to potentially obtain a comparable number of relations. Second, especially at the beginning of the interview, Anthony's responses consist of "Uh-huh," coded by the transcriber as an indication of an affirmative response. It was thought that analysis of 'content full' responses would provide more useful results.

The resulting corpus from the interview transcript consisted of 259 words comprising 34 segments, and that from the written statement consisted of 465 words in 31 text segments. In total, the written statement portion and the selected responses from the interview transcript consisted of 724 words and 65 segments. Due to space constraints, the written statement and interview transcripts are not herein included; however, a URL where they can be accessed is provided in the reference section (Guide to Casey Anthony case legal documents, n.d.)

The documents, originally in .pdf form, were manually converted to plain text format and then imported into RST tool for annotation (O'Donnell, 2003). The written statement was analyzed separately from the interview remarks. In RST tool, each text was segmented following sentence boundaries (the original statement did not have paragraph boundaries; these were not added). After segmenting each text, RST structures were identified and RST relations indicated, using the provided set of "classic" relations from RST tool.

Since portions containing deceptive statements and potentially truthful statements were often in relationship with one another, the decision was made to analyze the RST relations in each text as a whole, and then compare the relations in the deceptive parts to those in the truthful portions. This also helped to guard against bias in the analysis. As the goal of the study is to determine whether specific sets of RST relations correlate with the truthfulness or deceptiveness of

statements, being conscious of the truth value during analysis would call the validity of the results into question.

After all texts were marked in RST tool, the portions of each were coded as being deceptive or truthful. Deceptiveness of the texts was determined using the list of lies in Hopper (2011), as well as by the statements made by OCSO Detective Melich in the July 23, 2008 interview, wherein he identifies certain of the defendant's statements as such. Other portions not explicitly identified as lies were coded as true.¹ Following this, a list of relations and their frequencies were compiled for both the deceptive texts and the truthful texts. Finally, the relations identified in the deceptive texts were compared to those found in the truthful texts.

5 RST relations in deceptive and truthful texts

After completing RST analyses of the written text segment and interview transcript excerpts, each chunk of text was identified as either truthful or deceptive, and the relations in each were compared. In the interview excerpts, one chunk, identified as the 'phone call' text, was almost entirely deceptive with the exception of two text spans (16-17). The RST analysis of this text is provided in Figure 1.

¹ Identifying statements based on proven truthfulness, either through police statements in the interview transcripts or court determinations, would have been methodologically stronger (Thank you to a reviewer for noting this). Doing so was the original intent. However, the nature of the material made this a difficult task. Most transcripts featured police working to uncover falsehoods rather than corroborate truths, which follows from the structure of the US justice system: a suspect is innocent until proven guilty. Thus, all statements are held to be true until they are proved false. It would, perhaps, be more appropriate to view the 'truthful' statements as 'non-false' statements.



Figure 1: RST analysis of "phone call" text

The other interview text, termed the 'park' text, a portion of which is presented in Figure 2, was judged to be entirely true.



Figure 2: RST analysis of 'park' text, spans 8-17

The written statement portion, however, showed fluidity between true and deceptive portions. For example, the true spans describing Anthony's daughter (spans 2-6 in Figure 3) are provided as background to the deceptive information about Zenaida the nanny, who never existed, in spans 8-15.



Figure 3: RST analysis of portion of 'statement' text

Table 1 summarizes the RST relations found in both the truthful and deceptive text portions and indicates the frequency with which the various relation types occur.

Relation Name	Deceptive	Truthful
Elaboration	14	13
Circumstance	4	1
Evaluation	0	2
Evidence	1	2
Justify	0	2
Interpretation	0	1
Conjunction	1	0
Restatement	1	0
Antithesis	1	0
Condition	1	0
Solutionhood	1	0
Volitional-Cause	1	0

Table 1: Frequencies of RST relations in analyzed texts

Most noticeable about the RST relations in the two classes of text is the similarity between the number of elaboration relations, with 13 relations of this type in the truthful text portions, and 14 in the deceptive text portions. However, since

elaboration is one of the most common discourse relations, this is not surprising. Also of note are the wider range of relations found in the deceptive texts, with nine different types of relations found as compared to six in the truthful text excerpts.

In addition, several spans of text were judged as showing a relation between a deceptive portion and a truthful one. These include spans 2-6 with spans 8-15 in the written statement (presented in Figure 3) and spans 15-17 in the 'phone call' portion of the interview transcript (seen above in Figure 1).

Rubin and Lukoianova (2014), in their RST analysis of narratives discussed in Section 3.2, found that a limited set of relationships characterized each of the classes of deceptive and truthful texts. Based on their conclusions, it was hypothesized that such relations as disjunction, unconditional, summary, and preparation would characterize deceptive texts, while enablement, restatement, and evidence would describe truthful texts. However, this was not the case. Instead, as seen in Table 1, some relations such as evidence and elaboration were found in both deceptive and truthful texts.

6 Discussion and conclusions

It was hoped that the truth value of statements would show a clearer correlation with the types of RST relations found. However, this was not the case. This could be due to a variety of factors. For example, the defendant, Casey Anthony, was known by friends to be a habitual liar (this was revealed over the course of the trial). As someone becomes more adept at deceiving, it is likely that the relations, which may have once differed from those found in truthful statements, would become similar. It is also possible that Anthony herself came to believe some of the lies she told, which would likely result in a patterning of the relations in such statements with those identified as true.

On a more practical level, it is also likely that the amount of text analyzed, as well as the type of text analyzed, contributed to the inconclusive nature of the results. In a small sample of text, the number of possible RST relations will be comparatively small. This is especially true of the interview transcript portions. Often, the spans of Anthony's answers were in relation with the questions posed by the interviewer rather than with each other. By separating these from their context, it was more difficult to see cohesive links between the spans. The length of her responses, often merely an "Uh-huh" or a "Yes" did not provide enough content to determine a relationship.

Likewise, the topic of the passage was perhaps not ideal for the purpose of an RST analysis. In the written statement, Anthony focuses mostly on a description of her daughter, the nanny, and the circumstances surrounding her daughter's disappearance. The interview statements also showed a similar elaborative structure. Possibly, selecting texts from the genre of written court statements or trial transcripts requires a more thorough perusal of content prior to analysis in order to obtain data that does not focus solely on elaboration. It is also possible that the interview transcripts and the written statement are better classified as different sub-genres, and would thus not be appropriate for a comparative analysis such as the present one.

In addition to the excessive number of elaboration relations found, another difficulty encountered when completing the RST analysis was the definitions of RST relations themselves. That is, the wording of the definitions conveys the assumption that the provided text is not flouting Grice's maxim of quality. For example, it seems that the relation of Circumstance, by its very definition, implies that a statement must be true, in that it states that "S is not unrealized" (Mann & Thompson, 1987). If a satellite describes a situation that did not occur because it is in itself deceptive, it seems that a circumstance relation should not be possible.

Despite the difficulties encountered in the current analysis, and the inconclusive results, it is still thought that RST could prove to be a valuable tool for law enforcement professionals. Additional studies examining RST relations in deceptive and truthful statements that use larger corpora of data, as well as a wider range of data types (i.e. audio and video statements or interview responses), would be beneficial in making such a determination. It also seems that RST relations might be better used in conjunction with other facets of linguistic feature analysis such as syntactic patterns and word choice, rather than being used as the sole means of determining the truth value of an individual's statements. Doing so would likely provide an analysis having greater depth and breadth, and, more importantly, would increase the credibility of using linguistic analyses in law enforcement settings while guarding against RST analysis becoming either a law enforcement fad or a linguistic polygraph.

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Ditransitives in Mandarin

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This paper attempts to provide a syntactic account for the derivation of ditransitives in Mandarin, which has a four-way realization—(a) [V DO gei IO], (b) [V IO DO], (c) [V gei IO DO] and (d) [gei IO V DO], where DO denotes the direct object, IO the indirect object and gei is treated as the equivalent of the preposition to. Particularly, this study sets out to determine whether any of the four alternations share underlying syntactic structures. Syntactic tests were employed to elicit different syntactic behaviours, which serve as an indicator of non-identical underlying structures. An examination of implication of location and idioms reveals that (a), (c) and (d) are comparable. This study concludes that (b) has its own underlying syntactic structure, while (a), (c) and (d) are derivationally related.

Keywords: ditransitives; Mandarin; syntax

1 Introduction

This paper examines ditransitives in Mandarin. Similar to their English counterparts, Mandarin ditransitives involve a direct object, an indirect object and three participants—an Agent, a Theme and a Goal. The direct object corresponds to the thematic role Theme while the indirect object corresponds to Goal. However, unlike English, Mandarin ditransitives have four surface forms, two of which seem syntactically parallel to the two alternations found in English. This paper aims to provide a syntactic account for the derivation of the four patterns in Mandarin ditransitives. To determine if the alternations are derivationally related, relevant syntactic behaviours are examined through employing various syntactic tests.

This paper is organized as follows—this section has given a brief overview of the current study. The next section introduces the key data and relevant research questions. Previous work on ditransitive construction is reviewed in section three. Section four gives syntactic analyses of the data, the results and implications of which are given in section five. The final section concludes the paper.

2 Key data and questions

The ditransitive construction involves three participants and has a two-way realization in English, as exemplified in (1a-b) below.

(1)	a.	John sent a letter to Mary.	[V DO to IO]
	b.	John sent Mary a letter.	[V IO DO]

In (1), the VP structure is given after each sentence, where DO denotes the direct object and IO denotes the indirect object. In each case, *John* is the Agent, *a letter* is the Theme and *Mary* is the Goal.

In the case of Mandarin ditransitives, four alternations are possible, as exemplified in (2a-d) below.

(2)	a.	Zhangsan son	g yi-bu che	gei	Lisi	[V DO gei IO]
		Zhangsan gift	one-CL car	to	Lisi	
		'Zhangsan gifts	Lisi with a car'			
	b.	Zhangsan song	Lisi yi-bu che			[V IO DO]
	c.	Zhangsan song gei Lisi yi-bu che				[V gei IO DO]
	d.	Zhangsan gei L	isi song yi-bu ch	ne		[gei IO V DO]

For the ease of description in this paper, I shall refer to the (a) structure *double complement construction*, (b) *double object construction*, (c) *V gei construction* and (d) *pre-verbal construction*.

Similar to the English examples, the Mandarin ditransitives in (2a-d) involve three participants—*Zhangsan* is the Agent, *yi-bu che* 'a car' is the Theme and *Lisi* is the Goal. *Gei* is treated as the equivalent of the preposition *to*. Note that (1a-b) and (2a-b) appear to be syntactically parallel given their VP structures.

This study is motivated by a gap in current literature, which seems unable to answer the two research questions this paper aims to address, as stated below.

- 1. Which surface forms are derivationally related?
- 2. Which surface forms have different underlying syntactic structures?

3 Previous work on ditransitive construction

Asymmetries are observed within the VP structures of (1a) and (1b) (Barss & Lasnik, 1986). In both (1a) and (1b), DO asymmetrically c-commands IO. Larson (1988) and Harley (2002) have both attempted to account for the two alternations in English through a hierarchical structure. Larson (1988) postulates identical double VP shells for both types, where (1b) is syntactically derived from (1a). (3a) and (3b) give his proposed syntactic structures for (1a) and (1b) respectively.



Larson (1988) posits that (3b) is derived from (3a) through a passivizationlike operation at the VP level, which he calls dative shift. To derive (3b) from (3a), first the case assigner *to* is absorbed, causing the theta-role assigned to *a letter* (subject of the lower VP in (3a)) to undergo demotion and the lower [spec, VP] to be a nonthematic position. This theta-role is instead assigned to a V' adjunct. *A letter* is thus realized as a V' adjunct in (3b). The indirect object *Mary* then undergoes NP movement to the lower empty [spec, VP].

(3a) and (3b) thus predict that the double complement construction and the double object construction should exhibit identical syntactic behaviours, which is not supported by empirical data (Harley, 2002). In her analysis of ditransitives, Harley (2002) preserves Larson's hierarchical structure to capture syntactic asymmetries, but she contends that the two alterations have underlyingly different structures, her proposal of which is given in (4a) and (4b) below.

(4) a. double complement construction



b. double object construction



Harley (2002) contends that the syntactic structures of English ditransitives should reflect the semantic differences between the two alterations. The P heads in (4a) and (4b) make different semantic contributions. The double object construction has an implication of possessor due to P_{HAVE} while the double complement construction has an implication of location due to P_{LOC} . The P heads raise to v_{CAUSE} to spell out the main verb. Since the two structures also have different composition in constituency, they exhibit different grammaticality for idioms.

Larson's and Harley's approaches seem unable to account for the Mandarin data as they predict only two alternations for ditransitive construction. Hung and Mo (1992) have looked at Mandarin ditransitives exemplified by (2a) and (2c) and they argue that (2a) is an instance of serial verb construction while [V *gei*] in (2c) forms a complex predicate. Her (1999) establishes [V *gei*] in (2c) as a compound. Despite the report of the existence of four patterns in Chinese ditransitives in previous works (Zhu, 1979; Chin, 2010, among others), work on the syntactic derivations of all four alternations is limited in the literature.

4 Syntactic behaviours of the four alternations

To determine whether the four alternations are derivationally related, a good starting point is to find out if they exhibit identical or different syntactic

behaviours. To achieve this end, syntactic tests were employed, as described in this section.

4.1 Implication of location

The four alternations exhibit different grammaticality when the indirect object is referred to as a location, as exemplified in (5) below.

- (5) a. Zhangsan tui yi-ben shu gei shudian Zhangsan return one-CL book to bookstore 'Zhangsan returns a book to the bookstore'
 - b. *Zhangsan tui shudian yi-ben shu
 - c. Zhangsan tui gei shudian yi-ben shu
 - d. ??Zhangsan gei shudian tui yi-ben shu

In (5a-d), the indirect object *shudian* 'bookstore' is a location. The ungrammaticality of (5b) suggests that the double object construction requires an animate Goal. On the other hand, the ungrammaticality of (6a, c) below seems to indicate that the IO must be an inanimate location for the double complement and V *gei* constructions.

(6)	a.	*Zhangsan	jiao	Yingwen	gei	Lisi
		Zhangsan	teach	English	to	Lisi
		'Zhangsan t	eaches I	Lisi English	,	
	h	7hongson iii	o Lici V	Vingwon		

- b. Zhangsan jiao Lisi Yingwen
- c. *Zhangsan jiao gei Lisi Yingwen
 d. ?Zhangsan gei Lisi jiao Yingwen¹

d. ?Zhangsan gei Lisi jiao Yingwen¹

(6a, c) are ungrammatical since the IO Lisi is not an inanimate location.

Compare (5d) to (6d). Although both sentences are marginally acceptable, (6d) is better than (5d). It seems like the pre-verbal construction prefers an animate location to an inanimate location.

In (5) and (6), the alternations in Mandarin ditransitive exhibit different syntactic behaviours. The double complement, V *gei* and pre-verbal constructions require an IO that can be interpreted as a location, while the double-object construction does not have such a requirement. However, it seems puzzling as to why (2a, c) are grammatical, since their IO *Lisi* is animate, as pointed out by an anonymous reviewer. The choice of verb may play a role here. In (2a, c), the verb *song* 'gift' is ambiguous in selecting its goal—the goal can be a (animate) recipient or a location, much like the English sentences 'John sent a letter to Mary' versus 'John sent a letter to Philadelphia'. This ambiguity of the verb may explain why (2a, c) are grammatical—the IO *Lisi* can be interpreted as a 'destination'. Although the verb *jiao* 'teach' in (6) is ambiguous similarly, its preference for an animate recipient rather than a location seems stronger, hence the pre-verbal construction is better in (2d) than in (6d).

¹ An alternate translation for (6d) is 'Zhangsan teaches English to Lisi'. This translation is more appropriate for (6d), and thus provides support that (6d) is more acceptable with an animate goal, as discussed below.

So far, the data have shown a contrast in location semantics between the double object construction on the one hand and the double complement and the V *gei* constructions on the other. The pre-verbal construction patterns partially with either group—similar to the double complement and the V *gei* constructions, the pre-verbal construction allows its IO to be a location; similar to the double object construction, it prefers animacy. The next section sheds more light on the syntactic behaviours of the pre-verbal construction. For now, consider the syntactic trees for (5a, b), given in (7a, b) respectively. The presence or absence of the abstract locative preposition P_{LOC} (Harley, 2002) accounts for the contrast in location semantics between the two constructions.





4.2 Idioms

For idioms that are composed of the verb and direct object, an idiomatic reading is only possible for the double object construction, as exemplified in (8) below.

(8)*Zhangsan song yi cheng Lisi a. gei Zhangsan gift one ride to Lisi Literal: *'Zhangsan gives Lisi a ride' Idiomatic: *'Zhangsan kills Lisi' b. Zhangsan song Lisi yi cheng Literal; idiomatic

c.	*Zhangsan song gei Lisi yi cheng	*Literal; *idiomatic
d.	Zhangsan gei Lisi song yi cheng	Literal; *idiomatic

In (8), song yi cheng has a literal interpretation 'give (someone) a ride' and an idiomatic interpretation 'kill (someone)'. Recall in section 4.1, the indirect object of the double complement construction, the V gei construction and the pre-verbal construction has an implication of location. Additionally, the pre-verbal construction allows an animate location. This correctly predicts the ungrammaticality of the literal reading for (8a) and (8c) and the grammaticality of the literal reading for (8d). From the ungrammaticality of (8a, c, d) for the idiomatic reading and under the assumption of idioms as constituents, we can posit that (8b) has a different underlying syntactic structure from the other sentences in (8). (9a, b) give the syntactic structure for (8a, b), respectively.



In (9b), P_{HAVE} and the direct object *yi cheng* 'a ride' form a constituent. P_{HAVE} then raises to v_{CAUSE} to spell out the main verb. In (9a), however, the P head and the direct object are never a constituent. Assuming idioms are constituents, an idiomatic reading is only possible for (9b) but not (9a).

4.3 Aspectual marker *le* and constituency

In Mandarin, the aspectual marker le is typically only allowed after a main verb. Compare the following examples in (10).
(10)	a.	Zhangsan	song	le	yi-bu che	gei	Lisi
		Zhangsan	gift	ASP	one-CL car	to	Lisi
		'Zhangsan gifted Lisi with a car'					

- b. Zhangsan song le Lisi yi-bu che
- c. *Zhangsan song le gei Lisi yi-bu che
- d. Zhangsan gei Lisi song le yi-bu che

In (10a, b, d), the aspectual marker *le* is allowed after the main verb *song* 'gift'. The V *gei* construction can only be grammatical if *le* appears after *gei*, as in (10c').

(10) c. Zhangsan song gei le Lisi yi-bu che

The prohibition of the insertion of *le* between *song* and *gei* seems to suggest that the V and *gei* form a unit. An examination of the constituency of V *gei* construction provides further insight into the syntactic structure of the V *gei* construction. Consider (11a-b) below.

(11)	a.	*Zhangsan	[xie	gei]	[ji	gei]	Lisi	yi-feng xin
		Zhangsan	write	to	send	to	Lisi	one-CL letter
		'Zhangsan w	vrites ar	nd send	ls Lisi a	ı letter'		
	b.	Zhangsan	[ji	gei	Lisi]	[xie	gei	Xiaoming]
		Zhangsan	send	to	Lisi	write	to	Xiaoming
		yi-feng xin						
		one-CL lette	r					
		'Zhangsan sends Lisi and writes Xiaoming a letter'						

The ungrammaticality of (11a) suggests that although V and *gei* form a unit, as exemplified in (10c, c'), V and *gei* are not a constituent. Instead, V, *gei* and IO together form a constituent, as in (11b).

The data in (10) and (11) make two predictions—either the claim that (10c) is derivationally related to (10a, d) is incorrect, or (10c) is indeed derivationally related to (10a, d), but it goes through further morphological, phonological or syntactic processes.² Further analysis is required to resolve this peculiar issue with the V *gei* construction.

5 Summary of findings and implications

(12) summarizes the findings from the syntactic tests employed in the previous section.

² A member of the audience at the 31^{st} Northwest Linguistics Conference suggested that a phonological process might be involved—*gei* may be too phonologically light to stand alone in the V *gei* construction and so it has to attach to the main verb.

(12)					
		Double	Double	V gei	Pre-verbal
		complement	object	0	
	T	+	_	+	+
	Location	(inanimate)		(inanimate)	(animate)
	Idiom	*		*	*

From the table in (12), it appears that the double complement construction, the V *gei* construction and the pre-verbal construction are derivationally related while the double object structure has a distinct underlying syntactic structure. However, the fact that V, *gei* and the IO form a constituent in the V *gei* construction as exemplified in (10-11) could be counterevidence to the claim that the V *gei* construction is derivationally related to the double complement and the pre-verbal constructions. Further analysis is required before a definitive claim can be made. Harley's (2002) analysis of English ditransitives seems to capture the syntactic differences between the four alternations in Mandarin ditransitives— P_{LOC} captures the implication of location in the double complement construction, the V *gei* construction and the pre-verbal construction, while P_{HAVE} forms a constituent with the direct object, allowing the grammaticality of double object idioms.

6 Conclusion

This paper has examined the four alternations in Mandarin ditransitives. It was found that of the four surface forms, the double object structure has its own underlying syntactic structure while the double complement, the V *gei* and the pre-verbal constructions appear to be derivationally related. Future research of Mandarin ditransitives should work in the direction of addressing the following issue—how are [V DO *gei* IO], [V *gei* IO DO] and [*gei* IO V DO] derivationally related?

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33

Irreversible binding in Dutch

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In a model of syntax where the derivation proceeds in phases, LF accesses the derivation each time a phase is completed; specifically, LF accesses the domain of the completed phase. I propose (following McGinnis 2009) that binding relationships are established irreversibly when LF accesses the derivation. This correctly predicts the interactions between moving and binding found in Dutch double-object constructions. In contrast, earlier analyses that evaluate a binding dependency based on the relationship between a moved argument and its trace are less successful in predicting the Dutch data. *Keywords: Dutch; syntax; binding; phases; scrambling*

1 Introduction

In this paper, I argue that binding relationships are irreversibly established in Dutch when LF accesses the derivation (following McGinnis, 2009). Within a model of phase-based derivation, the syntax is built from bottom up in stages or *phases*, units relating to the propositional structure of the utterance. When a phase is complete, the domain of the phase (the complement of the phase head) is transferred to the interfaces with the semantic and phonological components of the grammar (sent to Spell Out). The consequence of this transfer is that relationships established in the domain of the phase cannot be altered by further syntactic operations.

In this model, binding dependencies are evaluated according to the configuration of the coindexed DPs at the completion of a phase. That is, further syntactic operations cannot alter a binding dependency established when LF accesses the derivation, and the binding dependency does not refer to stages in the derivation prior to the configuration at Spell-Out (cf. McGinnis, 2004). This approach contrasts with earlier formulations of the restrictions on movement and binding that refer to representational dependencies established between arguments and their traces (e.g. Rizzi, 1986; McGinnis, 2004).

The data from this paper represents the judgments of seven native Dutch speakers. In some cases, there is variation between speakers with regards to grammaticality judgments. Where there are differing judgments between speakers, I either discuss this in the text or acknowledge this in a footnote.

The next section of this paper briefly outlines crucial aspects of the analysis and presents the main claims. In Section 3, I propose a detailed account of Dutch double-object passives, since key data involve movement and binding

interactions in these constructions. Finally, in Section 4, I present evidence that Irreversible Binding takes place in Dutch double-object constructions and discusses how Irreversible Binding departs from previous approaches to correctly predict the binding patterns found in Dutch.

2 Irreversible Binding in Dutch

A Dutch DP can bind into a DP it A-moves over, but cannot necessarily bind the DP itself. Passives of Dutch double-object constructions illustrate this contrast; the direct object (DO) must become subject of a passive clause, moving over the indirect object (IO). When the direct object (DO) is a quantified expression that becomes subject of the passive clause, it can bind a possessive pronoun within the indirect object DP. However, my consultants do not allow the DO to bind the IO itself, regardless of whether the IO is in its base position or scrambled to the left of an adverb (1b-c).¹

- (1) a. Iedere hond_i werd zijn_i baasje toegewezen.² every dog was his owner assigned 'Every dog was assigned to his owner.'
 - b. * Jan was/werd waarschijnlijk zichzelf getoond Jan was probably himself shown 'Jan was probably shown to himself.'
 - c. * Jan was/werd zichzelf waarschijnlijk getoond. Jan was himself probably shown

McGinnis (2009) observes parallel contrasts in Albanian, Georgian, Tagalog and Japanese. To account for this set of facts, she proposes the following binding principle:

Irreversible Binding: A binding dependency between two DPs is established as soon as possible at a phase edge and cannot be reversed (McGinnis, 2009, p. 3).

¹ This construction is reported to be grammatical in McGinnis 2004, 2009 and speaker 5 found this construction less marked than the other speakers, so long as the verb was focused. See section 4.2 for further discussion. ² Speaker 1 prefers this example with a prepositional goal. This holds also in the active:

i) a. Ik schreef aan iedere auteur zijn eigen boek toe.

I assigned to every author his own book PRT

^{&#}x27;I assigned every book to its author.'

b. Ik toonde aan iedere auteur zijn eigen boek.

I showed to every author his own book

^{&#}x27;I showed every author his own book.'

It is unclear why this is the case. This speaker judged other double object sentences grammatical without a PP Goal.

ii) Gisteren gaf hij zijn vriend een boek.

yesterday gave he his friend a book

In this paper, I operationalize phase edge as the point in the derivation where the phase head (e.g. v) projects its root node (e.g. vP).

With this binding principle, we can straightforwardly account for the grammaticality contrasts in (1). In (1b-c), the IO anaphor *zichzelf* in c-commands the DO *Jan* when the *v*P phase edge is reached. This is schematized in (2a) where the IO has moved (scrambled) to spec-*v*P occupying the phase edge (as in (1c)).³ At this point, a binding dependency is established between the IO and the DO. Since the IO is an anaphor and the DO is an R-expression in (1b-c), this results in a principle C violation.⁴ Later movement of the DO to check EPP and Case in spec-TP cannot reverse the binding dependency. In contrast, (1a) is grammatical because the possessive pronoun contained within the IO does not c-command the DO, so no binding dependency is established until after the DO has moved over the IO to subject position. This is schematized in (2b); no binding dependency is established in the *v*P phase and the DO c-commands the possessive pronoun within the IO when the CP phase is complete.



3 Dutch passives

In this section, I propose a specific derivation for Dutch double-object passives, linking interactions between scrambling and passivization to the apparent violation of locality caused by the DO moving to subject position over the IO. My analysis builds directly on Anagnostopoulou's (2003) claim that scrambling the IO and DO into multiple specifiers of the same functional head makes both objects being equidistant to higher probes, allowing the DO to move over the IO to check Case and the EPP feature of T without violating locality.

As noted, the direct object becomes the subject of Dutch double-object passives. Treating the indirect object as subject results in ungrammaticality.⁵

³ See section 3 for arguments that the IO and DO must scramble to spec- ν P in double-object passives.

 $^{^{4}}$ (1b) is also ungrammatical because the IO has not scrambled.

⁵ One of my consultants allows the indirect object to passivize, contrary to what has been reported in the literature; this speaker likely shows English influence (English has IO passives), having spoken primarily English for many years, although Dutch is his native language.

(3) a. De boeken waren/werden haar/de student gisteren gegeven *her/the student* the books became-PL yesterday given 'The books were given to the student yesterday.'

b.	*	De student	was/werd	de boeken	gisteren	gegeven. ⁶
		the student	became	the books	yesterday	given
		'The student wa	s given the bo	oks yesterday.'		

At first glance, this movement of the DO appears to violate locality, since the IO asymmetrically c-commands the DO in active clauses, as shown by the contrast in (4). In (4a) the IO quantified expression can bind the possessive pronoun within the DO. In (4b) the DO quantified expression cannot bind the possessive pronoun within the IO.

(4)	a.	Ik	toonde	iedere _i	auteur	zijn _i	boek.
		Ι	showed	every	author	his	book
		ʻI sł	nowed ever	y _i author]	his _i book.'		
	b.	*Ik	gaf z	zijn _i au	teur ied	ler	boek _i .
		·I g	ave its _i autl	nor every	book _i .'		
	(Intended: I gave every book _i to its _i author.)						

However, the IO does not remain *in situ* when the DO becomes subject of a passive (den Dikken, 1995; Broekhuis & den Dikken, 2012; Broekhuis, 2008). This is shown in the contrast between (5a) and (5b). In (5a), the IO has scrambled

- i) a. Er was een verkoopster in de winkel. ii) a. Er werden haar boeken gegeven.
 - 'There was a saleslady in the store.'

'There were her books given.'

- b. *Er werden een verkoopster de boeken gegeven.
- b. * Er was de verkoopster in de winkel. 'There was the saleslady in the store.'

⁶ This example leaves open the possibility that the IO is a 'quirky' subject that cannot trigger verbal agreement, as with dative subjects in Icelandic (e.g. Andrews 1981; Marantz 1984; McGinnis 1998). In Dutch, a dative pronoun can occur preceding the verb when the verb agrees with the DO; however, data from several of my consultants indicates that the dative pronoun does not occupy subject position. For instance, the expletive 'er' can occur with indefinite subjects, but not definite subjects (ia-b). While the expletive is grammatical when the DO is indefinite and the IO is definite, the expletive is ungrammatical when the DO is definite and the IO is indefinite (iia-b). Moreover, while two conjoined verb phrases can take a single external argument, the construction is degraded when the preverbal argument is a dative pronoun (iiia-b).

^{&#}x27;There were a saleslady the books given.'

iii) a. Hij gaf haar de boeken en stuurde hem de fotos toe.

^{&#}x27;He gave her the books and sent him the photos.'

b. ?Haar werden de boeken gegeven en de fotos toegestuurd.

^{&#}x27;Her were the books given and the photos sent.'

Speaker 5 does not have contrasting judgments on the examples in (ii) and (iii); if this indicates that this speaker allows dative subjects for passive clauses, this may explain why this speaker finds (1) less marked than the other speakers.

to the left of the adverb *waarschijnlijk*, while in (5b) the IO remains *in situ* to the right of the adverb and the sentence is degraded.⁷

- (5) a. De boeken waren {haar/de student waarschijnlijk gegeven. *the books were {her/the student probably given* 'The books were probably given to the student.'
 - b. ?* De boeken waren waarschijnlijk de student gegeven. the books were probably the student given

This case of obligatory IO scrambling is somewhat surprising, since scrambling is generally a discourse-related phenomenon, motivated by the information structure of the clause. Scrambling moves 'given' material leftwards, leaving 'new' information *in situ* (e.g. Broekhuis & den Dikken, 2012; Neeleman & Van De Koot, 2008). However, regardless of information structure, scrambling of the IO necessarily accompanies movement of the DO to subject position in a passive.⁸





I propose that the IO has structural Case and scrambles to the edge of vP, checking Case. After checking Case, the IO is inactive for further movement operations (Chomsky, 2000 and 2001). The DO next scrambles, tucking in to a

⁷ For speaker 5 this example is marked, but not completely ungrammatical, regardless of whether the IO DP appears to the right or left of the adverb. The only fully felicitous example has the IO as a pronoun scrambled to the left of the adverb. Speaker 6 also prefers the IO to be a pronoun.

⁸ The IO must also scramble when the DO scrambles, topicalizes, and undergoes *wh*-movement (Broekhuis & den Dikken, 2012, pp. 1072-1073).

lower specifier of vP (by hypothesis checking an EPP feature), but does not check Case in spec-vP. The IO and DO then occupy multiple specifiers of the same head; I adopt the assumption that multiple specifiers of the same head are equidistant to a higher probe (e.g. Chomsky 1995, 2000; Anagnostopoulou 2003). Once the IO and DO are equidistant to T, the DO can move over the inactive IO to check EPP on T and receive nominative Case (following Anagnostopoulou, 2003, p. 218). (9) illustrates the proposed derivation.

4 Irreversible Binding in Dutch

In this section, I argue that interactions between movement and binding in Dutch provide evidence for the principle of Irreversible Binding. I first discuss data from the majority of speakers (group 1), whose variety of Dutch gives direct evidence for Irreversible Binding (section 4.1). In Section 4.2, I discuss treatment of the *zichzelf* anaphor by my other consultants (group 2) and also address judgments reported in McGinnis (2004 and 2009). Section 4.3 compares Irreversible Binding to previous accounts of movement and binding.

4.1 Evidence for Irreversible Binding in Dutch

The speakers in Group 1 do not accept binding of the IO by the DO in a passive (1b-c), but do allow the DO to bind an anaphor in a goal PP (10a). For these speakers, an IO can also bind a DO anaphor in an active clause (10b). In both cases, grammatical binding dependencies are formed when the antecedent c-commands the anaphor when the root node of the vP phase is projected.

- (10) a. Jan_i werd waarschijnlijk aan zichzelf_i getoond. Jan became probably to himself shown 'Jan was probably shown to himself.'
 - b. Jan heeft Marie_i waarschijnlijk zichzelf_i getoond. Jan has Mary probably herself shown 'Jan probably showed Mary to herself.'

I therefore propose that passive vP, although a 'weak phase' (Chomsky, 2001), constitutes a domain for binding.

When the IO is an anaphor and the DO is an R-expression, as in (1b-c), an ungrammatical dependency is established at the vP phase edge (incurring a principle C violation), which cannot be reversed (11a). In contrast, when the anaphor is introduced in a goal PP (e.g. (10a), the DO c-commands the anaphor both before and after movement; I will assume that the DO passes through spec-vP and binding takes place at the vP phase edge as for the other examples (11b). Similarly, in an active clause the IO c-commands the DO at the completion of the vP phase, allowing grammatical binding of an anaphoric DO by the IO in an active clause (10b).



A further note is in order. So far, I have argued that binding dependencies, whether grammatical or ungrammatical, are formed when a phase edge is reached. This suggests that speakers from group 1 should allow passive clauses where a DO anaphor is bound by the IO at the vP phase edge before moving to subject position. However, if the DO is an anaphor and the IO is an R-expression, the derivation does not converge.

(13) ? Zichzelf_{DOi} werd Jan_{IOi} t_{DOi} waarschijnljk t_{IOi} t_{DOi} getoond. himself became Jan probably shown

McGinnis (2009) proposes that anaphors must have checked Case to be successfully bound (see also Sabel, 2012 on English anaphors) (f 4, p. 9). In (13), the DO has not checked Case when the IO binds it, and binding is unsuccessful. After moving to Spec-TP the DO has no local antecedent and a Principle A violation is incurred. This predicts that a DO anaphor should be grammatical if it could check Case *in situ*. Indeed, in impersonal passives, a DO anaphor is grammatical.⁹

(14) Waarschijnlijk werd hem zichzelf getoond. probably became him himself shown

4.2 Variation in Dutch anaphor binding

For speakers in group 2, the *zichzelf* anaphor seems to be external-argumentoriented; while (14) is ungrammatical with the reading where the IO is the antecedent for the DO anaphor, (14) is grammatical with the DO anaphor bound by the subject *Jan*.

(11) a. *Jan_{DOi} werd zichzelf_{IOi} t_{DOi} waarschijnlijk t_{IOi} t_{DOi} getoond. (=1c))
b. Jan_{DOi} werd t_{DOi} waarschijnlijk t_{DOi} aan zichzelf_i getoond. (=(10a))

⁹ The reason (13) is marked with a ? and not a * is that it can be interpreted as an impersonal passive with a topicalized DO given the right context. It is ungrammatical without a topicalization reading.

(14) Jan_i heeft Marie_j waarschijnlijk zichzelf_{i/*j} getoond. Jan has Mary probably herself shown 'Jan probably showed Mary to herself.'

Group 2 speakers do not allow the subject of a passive to bind an anaphor introduced in a goal PP (15).

(15) * Jan_i werd waarschijnlijk aan zichzelf_i getoond. Jan became probably to himself shown 'Jan was probably shown to himself.'

It is beyond the scope of this paper to fully characterize the distribution of the *zichzelf* anaphor for Group 2 speakers, but see Rooryck and Vanden Wyngaerd (2011) for a detailed discussion of the distribution of both *zichzelf* and *zich* that accords with these judgments. For the purposes of this analysis, the important point is that derived subjects are not eligible antecedents for the *zichzelf* anaphor in the variety of group 2 speakers. This obscures Irreversible Binding effects in these speakers' grammars (though the evidence presented here does not constitute counterevidence against Irreversible Binding).

There is a final important point of variation to be addressed. In McGinnis (2004), the equivalent of (13) is reported grammatical; her consultant allows the DO to bind an IO anaphor, unlike my consultants.

(16) Jan_i werd waarschijnlijk zichzelf_i t_i getoond. Jan became probably himself shown 'Jan was shown to himself.' (McGinnis, 2004, p. 53)

McGinnis (2004) proposes a derivation where the IO has inherent Case, allowing the DO to move over the IO on its way to T.¹⁰ I speculate that this is the case; in at least one variety of Dutch, the IO has inherent case and does not intervene between the DO and T. In this variety, the DO moves over an *in situ* IO to c-command the IO at the *v*P phase edge. At this point, the DO will irreversibly bind an IO anaphor, creating a grammatical binding dependency.¹¹

4.3 Previous analyses of movement and binding interactions

While Irreversible Binding (McGinnis, 2009) is able to predict the full range of movement and binding interactions in Dutch, previous approaches to interactions between movement and binding make errant predictions in some cases. I argue that previous approaches fail to capture the full range of patterns of movement

¹⁰One anonymous reviewer reports that the DO can move over an *in situ* IO in his dialect; this speaker seems to also accept binding of an *in situ* anaphor by the subject of a passive (e.g. *Jan werd waarschijnlijk zichzelf getoond.*), suggesting that he or she speaks the same variety of Dutch as McGinnis's consultant (and could even be the same speaker).

¹¹In her analysis the DO moves straight to T over the IO, which does not intervene since it has inherent Case. Since I am treating passive vP as a phase for purposes of movement and binding, the DO would move through spec-vP under my analysis, binding the *in situ* IO from the vP phase edge.

and binding in Dutch because they propose restrictions on representations rather than derivations; that is, binding dependencies are evaluated based on the relationship between a moved argument and its theta-position. For instance, Rizzi (1986) proposes that a syntactic chain is formed by a series of coindexed syntactic positions, located such that each c-commands the next. No coindexed DP that intervenes between an argument and its theta-position can be omitted in chain formation, but only chains with one argument and one theta position are grammatical. Similarly, McGinnis (2004) proposes that a moved phrase must be able to unambiguously link with its copy at LF. Lethal Ambiguity causes the derivation to crash when an intervening phrase shares the same index and address (determined by the phrase's sister) as the moved phrase, since either phrase can potentially link with the lower copy.

Both these accounts correctly predict Dutch passives with a coindexed IO and DO to be ungrammatical, since the derivation involves two coindexed arguments, the IO and DO, occupying spec-vP (prior to movement of the DO to spec-TP) and two lower coindexed traces. Lethal Ambiguity rules out this derivation since the scrambled IO and DO share the same address, vP, and index, meaning that either argument is a potential antecedent to either trace; this ambiguity causes the derivation to crash. Rizzi's theory of chains means that the coindexed DO in the lower specifier of vP must be included in a chain formed between the IO and its trace, but this violates the Chain Condition, since the resulting chain has with two arguments and one theta-position (spec-Appl). Similarly, the trace of the IO must be included in any chain formed between the DO in spec-vP and its trace, but this results in an ungrammatical chain with one argument and two theta-positions.

While both these approaches correctly predict the ungrammaticality of double-object passives with coindexed arguments, both analyses also incorrectly predict scrambling of a coindexed IO and DO in an active clause to be ungrammatical. An active clause with a scrambled IO and DO involves two coindexed arguments in spec-vP and two lower coindexed traces, exactly the configuration that Lethal Ambiguity and the Chain Condition predict to be ungrammatical, and correctly rule out in passive clauses. However, speakers from Group 1 accept active sentences where the coindexed IO and DO both scramble.

getoond. 12 zichzelfi waarschijnlijk (17)Jan heeft Marie t_{DOi} t_{IOi} Mary herself probably shown Jan has 'Jan has probably shown Mary herself.'

Neither Lethal Ambiguity nor the Chain Condition can account for this contrast in grammaticality.

IB correctly predicts active clauses with the IO and DO scrambled and coindexed to be grammatical. Under IB, the scrambled IO binds the DO at the vP phase edge, forming a grammatical binding dependency between the IO and the DO anaphor. This contrasts with passive clauses where the DO cannot be successfully bound as an anaphor, since it has not checked Case, and no longer has an antecedent after moving to spec-TP (see Section 4.1).

In short, unlike previous approaches, IB correctly predicts both cases of grammatical and ungrammatical binding dependencies in Dutch. Acceptable binding relationships are established when the antecedent c-commands the anaphor at the vP phase edge. In passive clauses, acceptable binding relationships are formed when the DO c-commands an anaphor in a Goal PP or when a DO anaphor checks Case *in situ* and is bound by a c-commanding IO. Similarly, the IO can bind a DO anaphor in active clauses, regardless of scrambling, since the IO always c-commands the DO at completion of the phase. In contrast, the ungrammatical contexts involve an ungrammatical dependency established between an IO anaphor and a DO R-expression at the vP phase edge, or unsuccessful binding followed by a Principle A violation at the next phase.

5 Implications and conclusion

Phase-based, cyclic Spell-Out predicts that semantic interpretation should specifically refer to the configuration accessed by LF at the completion of the phase. The principle of Irreversible Binding operationalizes this prediction. In this paper, I have shown that binding dependencies are evaluated based on the configuration of the coindexed DPs at Spell-Out, rather than based on the relationship between a moved argument and its trace/theta-position. The success of this account suggests that a phase-based model of syntax is indeed explanatory. In the future, it would be interesting to explore whether other semantic effects result from semantic interpretation at the edge of a phase. This is clearly a matter for future research, but *wh*-reconstruction is a possible candidate. The *wh*-phrase

 $^{^{12}}$ For speaker 5, this sentence requires contrastive stress on the verb, but this is independent of whether the DO is coindexed with the IO or agent.

i) (?) $Jan_i heeft Marie_j zichzelf_{i/j}$ waarschijnlijk getoond.

Jan has Mary himself/herself probably shown

This may reflect a restriction on scrambling multiple full DPs. Similarly, speaker 6 finds (25) ungrammatical regardless of whether the subject or IO binds the DO, but finds other cases of scrambling multiple full DPs also marked/ungrammatical:

ii) ??Jan heeft zijn moeder het boek waarschijnlijk gegeven.

Jan has his mother the book probably given

^{&#}x27;Yes, Jan has probably given the book to his mother.'

is recorded in its base position by LF when the root node of the vP phase is projected. Subsequent movement of the *wh*-phrase to the outer specifier of vP(obeying the Phase Impenetrability Condition (Chomsky, 2001)) cannot erase this memory 'trace'. Hence, a DO *wh*-phrase, for example, will invariably reconstruct below the subject DP in an active clause. Of course, these ideas are purely speculative at this point.

Throughout this paper, I treat passive vP as phasal, triggering Spell Out. However, Chomsky (2001) characterizes passive vP as a weak phase, while arguing that strong phases are associated with EPP features and cyclic Spell Out. Legate (2003) and Sabel (2012) argue that passive vP in English is a target for movement and a domain for binding, respectively, properties associated with strong phases (which host EPP features and trigger Spell-Out, allowing LF to access the derivation). Similarly, in this paper, passive vP acts as a target for scrambling and a domain for binding, just as active vP in Dutch. In light of this, I suggest the phasal status of passive vP merits further cross-linguistic attention.

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Politeness theory and the classification of speech acts

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Speech acts are utterances that perform actions. Their focus is usually less on their truth value than on their illocutionary effect, the effect that a speaker wishes to have on his or her environment. The study of speech acts initially focused on performative acts such as making a bet, naming a ship (or a person), or declaring two people to be married (Flowerdew, 2013). However, no utterance exists in a vacuum, and all speech can be considered to have illocutionary effects. Therefore, the study of speech acts has broadened to include more or less every kind of utterance, as well as the interpersonal functions of whole texts. A variety of methods exist for classifying speech acts based on their illocutionary effects. Austin (1975) and Searle (1976) devised two wellknown taxonomies of speech act that are still used today to study the interpersonal functions of texts. However, both of these classification systems are incomplete in their description of speech acts. In this paper, I will address the shortcomings of both systems, including Searle's criticism of Austin's taxonomy, and propose a new taxonomy based on Searle's that incorporates features of Brown's (1987) politeness theory and Culpeper et al.'s (2003) impoliteness theory in order to make more precise distinctions among classes of speech acts.

Keywords: discourse; speech acts; politeness

1 Introduction

Speech acts are utterances that perform actions. Their focus is usually less on their truth value than on their illocutionary effect, the effect that a speaker wishes to have on his or her environment. The study of speech acts initially focused on performative acts such as making a bet, naming a ship (or a person), or declaring two people to be married (Flowerdew, 2013). However, no utterance exists in a vacuum, and all speech can be considered to have illocutionary effects. Therefore, the study of speech acts has broadened to include more or less every kind of utterance, as well as the interpersonal aspects of whole texts.

A variety of methods exist for classifying speech acts based on their illocutionary effects. Austin (1975) and Searle (1976) devised two well-known taxonomies of speech act that are still used today to study the interpersonal features of texts. However, both of these classification systems are incomplete in their description of speech acts. In this paper, I will address the shortcomings of both systems, including Searle's criticism of Austin's taxonomy, and propose a new taxonomy based on Searle's that incorporates features of Brown's (1987)

politeness theory and Culpeper et al.'s (2003) impoliteness theory in order to make more precise distinctions among classes of speech acts.

2 Speech acts

2.1 Taxonomies of Speech Acts

2.1.1 Austin's Taxonomy

Austin (1975) establishes five categories of speech act based on broad classes of illocutionary force. They are as follows. Verdictives are acts in which a verdict or appraisal is given, usually by someone in a position of power to give that appraisal. Exercitives involve the exercise "of powers, rights, or influence." Austin's examples of exercitives include "appointing...urging... warning, &c." Commissives commit the speaker to an action or intention; they include promises as well as mental commitments like taking one side of an argument (Austin, 1975).

The last two of Austin's categories are broader than the first three, and defined in a vague way that Austin acknowledges as problematic. Behabitives have to do with social behavior, including "apologizing, congratulating, commending, condoling, cursing, and challenging." Austin acknowledges the broad scope of this category, but moves on to describing the even vaguer expositives, which he defines as "mak[ing] plain how our utterances fit into the course of an argument or conversation, how we are using words, or, in general, are expository. Examples are 'I reply', 'I argue', 'I concede', 'I illustrate', 'I assume', 'I postulate'' (Austin, 1975).

2.1.2 Searle's Taxonomy

Searle (1976) challenges Austin's taxonomy on the basis of the categories that Austin himself admits are problematic. They are too vaguely defined: Searle points out that many of the example words Austin chooses fit into multiple categories; for example, "describe" is listed as both a verdictive (in that it reports findings) and an expositive (in that it is an act of exposition). Searle goes so far as to challenge Austin's claim that his categories are based on types of illocutionary force, claiming that, of Austin's categories, only commissives are "clearly and unambiguously" based on the illocutionary point of the actions they describe (Searle, 1976).

In response, Searle establishes a set of features that vary across speech acts and creates a taxonomy of speech acts based on variation in these features. Searle lists twelve of these features, which he calls "dimensions of variation," but the following three are most significant for his purposes. First is illocutionary point, the purpose of a speech act. Searle illustrates illocutionary point by comparing requests with commands: while they are different speech acts with different amounts of force behind them, they share the purpose of getting the addressee to do something. Second is direction of fit: whether the words comprising the speech act are intended to match the world, as in assertions and descriptions, or the world is intended to match the words of the speech act, as in promises and requests. Searle's example of world-to-word fit is a shopping list used by a man in a grocery store; his example of word-to-world fit is a detective following the shopper around the store and writing down everything he buys. Third is expressed psychological state, which is less precise but can still be generalized across classes of speech act. If a speech act contains propositional content, the act must also express the speaker's attitude toward that content (Searle, 1976).

Based on these features, Searle creates the following five categories of speech act. Representatives commit the speaker to the truth value of a proposition. Their fit is word-to-world, and their psychological state is belief in a proposition; examples include suggesting, insisting, complaining, and deducing. Directives try to get their addressee to do something. Their fit is world-to-words, and their psychological state is a desire "that the hearer...does some future action." Examples include requesting, inviting, and challenging. Searle borrows his third category, commissives, from Austin's system, but defines it more tightly than Austin on the basis of his own system of features. Commissives fit world-to-word, and their psychological state is an intention that the speaker do "some future action" (Searle, 1976).

His fourth category, expressives, describes the speaker's attitude toward the propositional content of the speech act, and includes many of Austin's behabitives, such as apologies, thanks, and congratulations. They are presupposed to be true and therefore have no direction of fit. His fifth category, declarations, is essentially performative utterances: speaking a declaration causes it to become true. Searle describes declarations as having bidirectional fit: the words fit the world at the same time as the world is caused to fit the words (Searle, 1976). The descriptions of the direction of fit of expressives and declarations are not entirely satisfactory, for reasons that will become clear in the following section.

2.1.3 Criticism of Searle's Taxonomy

Searle's criticism of Austin's taxonomy as insufficiently rigorous is a valid one: as we have seen, Austin's categories overlap to the extent that verdictives and expositives are essentially the same category repeated, and his main criterion of classification, the illocutionary force or purpose of an act, is vaguely defined except in the case of commissives, a category Searle borrows for his own taxonomy (Searle, 1976).

Searle's taxonomy is superior to Austin's in that it begins with a strict set of organizational principles and holds to them. However, the application of these principles to his categories is not without fault. He acknowledges one shortcoming himself: that directives and commissives seem, under his rules, to be one category, except for the fact that directives impose on the hearer and commissives on the speaker. In fact, though he reports three colleagues of his suggested to him that this fact is sufficient to combine directives and commissives into one category, Searle brushes off these suggestions, saying that "[he has] been unable to make [them] work" (Searle, 1976, p. 12) without explaining why they do not work.

The greater flaw in Searle's analysis is his insistence on giving each of his categories a unique direction of fit. This is an impossible task, as he admits in his definition of direction of fit, but his attempts to do it anyway weaken his theory by expanding a reasonable binary feature into one with multiple unnecessary values. Searle describes his expressives as having no direction of fit because the truth of the utterance is presupposed (Searle, 1976); however, the truth of his representatives can be assumed in the same way, given the Sincerity Condition of speech acts, which requires that the speaker of a speech act sincerely intend the probable illocutionary force of that act. In the case of representatives, this means that the speaker is describing the world honestly and accurately as he or she sees it. As a result, representatives have an unambiguous word-to-world fit.

In the case of expressives, the Sincerity Condition also requires that the speaker describe a state of being honestly and accurately as he or she perceives it. Under Searle's rules, expressives and representatives should therefore be a single category, and yet Searle insists on giving expressives their own direction of fit because they describe expressions of emotion and not tangible features of the speaker's environment.

A similar problem occurs in Searle's description of declarations as having two directions of fit. Describing declarations as world-to-word makes sense: a speaker performs an act, such as taking an oath of office, and the world changes so that the propositional content of the utterance is true. But describing them as simultaneously word-to-world is inappropriate, as can be seen in Searle's definition of mistakes in word-to-world utterances. Imagine a detective following another man around a grocery store and writing down everything that man buys:

If the detective gets home and suddenly realizes that the man bought pork chops instead of bacon, he can simply erase the word 'bacon' and write 'pork chops'. (Searle, 1976, p. 3)

A change in the state of the world (the man bought pork chops instead of bacon) causes a change in the propositional content of a word-to-world utterance (the report that reads "bacon" is now untruthful). This is not the case for declarative speech acts. Barack Obama took the oath of office that made him President of the United States in 2009 and again in 2013. When he leaves office in 2017, the American presidential oath of office will not suddenly become false. In fact, it has no truth value, which is what drew Austin's attention to speech acts in the first place (Austin, 1975, p. 5). Since declarations have no truth value, they can only have a world-to-word direction of fit as directives and commissives do. Not only is it impossible for Searle to give each of his categories a unique direction of fit, it is also unnecessary. Direction of fit can be used as a simple binary feature to separate Searle's representatives and expressives from his commissives, directives, and declarations.

2.2 Politeness and Impoliteness Frameworks

Another type of framework for examining speech acts focuses on the effect a speaker intends to have on a listener's self-image, or face. Brown (1987) describes two types of face: negative face, which represents a person's desire to act unimpeded by the desires and actions of others, and positive face, which represents the desire to be appreciated and valued by others. The purpose of many speech acts involves balancing a speaker's positive and negative face desires with those of his or her interlocutor (Brown, 1987).

Brown (1987) focuses on requests, a type of speech act that is considered inherently threatening to the negative face of its addressee: the speaker of a request limits the addressee's freedom to act by trying to commit the addressee to an action. Assuming that the speaker is aware of this imposition, Brown outlines three strategies for mitigating the face threat it causes: negative politeness, which acknowledges and downplays the magnitude of the imposition to show respect for the addressee's negative face ("if it's not too much trouble, could you..."); positive politeness, which builds up the addressee's positive face (a request prefaced with a compliment); and indirectness, which can give the speaker plausible deniability in case the addressee objects to the request ("it's chilly in here" as a request that someone close a window). They also list bald on record requests, that is, requests without any mitigating face work, as a politeness strategy (Brown, 1987).

Brown's politeness framework describes facework well enough when everyone is trying to be nice to each other, but, aside from its description of bald on record requests, it does not account for situations where cooperative conversation breaks down and face threats are made intentionally. Among the theories that attempt to extend politeness theory to cover impoliteness is that of Culpeper et al. (2003), who outline a set of impoliteness strategies that mirror Brown's politeness strategies. Bald on record impoliteness is similar to the bald on record politeness described in Brown's theory, in that the speaker does nothing extra to mitigate the face threat the speech act represents. The difference between bald on record politeness and bald on record impoliteness is that the former is used when it will incur the least possible face cost to either speaker or addressee, while bald on record impoliteness is used when the speaker wishes to make it obvious that he or she is threatening someone else's face. Negative impoliteness intensifies a threat to the addressee's negative face by associating him or her with an undesirable trait or simply cutting the addressee off to restrict his or her freedom to speak. Positive impoliteness, on the other hand, threatens an addressee's positive face by making him or her feel excluded or unvalued, while indirect impoliteness is often achieved through insincere politeness, sarcasm, or simply not performing an expected polite speech act (Culpeper et al., 2003).

49

2.3 Discussion

	Austin (1975)	Searle (1976)	Brown (1987)	Culpeper et al. (2003)
Categories	(1) Verdictive(2) Exercitive(3) Commissive(4) Behabitive(5) Expositive	 (1) Representative (2) Directive (3) Commissive (4) Expressive (5) Declarative 	 (1) Bald on record (2) Negatively polite (3) Positively polite (4) Indirect 	 (1) Bald on record (2) Negatively impolite (3) Positively impolite (4) Insincerely polite (5) No politeness
Organiza- tional principles	Illocutionary force	 (1) Illocutionary point (2) Direction of fit (3) Expressed psychological state 	 (1) Positive/ negative face (2) Degree to which face support is desired 	(1) Positive/ negative face(2) Degree to which face threat is desired

 Table 1: Comparison of speech act frameworks

The four theoretical frameworks for classifying speech acts described above are summarized in Table 1. Searle's taxonomy can be improved by the inclusion of politeness and impoliteness theory. While politeness theory as it stands only truly applies to Searle's directives, Culpeper et al. show that it can be applied to other types of speech act as a mirror to impoliteness theory. A directive that uses negative politeness to mitigate its face threat is a fundamentally different speech act from one in which the face threat is intensified through positive impoliteness; likewise, representatives can be used in support of face or to attack face. In the following section, I will demonstrate this distinction, and provide evidence for the necessity of a new taxonomy of speech acts that combines politeness and impoliteness theory with my proposed modifications to Searle (1976).

3 An alternate taxonomy of speech acts

My taxonomy of speech acts builds on the principles laid out by Searle, applied in a manner that I believe is more internally consistent than Searle's own taxonomy. I begin with his favorite feature of speech acts, direction of fit, which I apply as a binary feature separating word-to-world speech acts from world-to-word acts. I will divide these classes of speech act based on their expressed psychological state and possible propositional content, and define further subcategories based on the illocutionary force and face effects expressible by members of each category.

3.1 Descriptives

The class of speech acts whose direction of fit is word-to-world contains one category, which I will call descriptives. The psychological state expressed by descriptives is the belief that their propositional content is true. There are two subcategories of descriptives: objective descriptives, whose propositional content describes the speaker's environment as in (1), and subjective descriptives, whose propositional content describes the speaker's mental state as in (2). (These and subsequent examples, except where marked, are drawn from the January 2, 1971 episode of the BBC television drama Doctor Who, on which I have previously performed speech act analysis.)

- (1) Steady-state micro-welding always produces more smoke than fire.
- (2) I said I don't want any tea today, thank you. (Holmes, 1971)

The main illocutionary point of both objective and subjective descriptives is to provide descriptive information. However, this can be done using a variety of politeness and impoliteness strategies that may support or attack the addressee's face, or elevate or denigrate the speaker's face. Subcategories of both types of descriptive speech act can be defined by the face effects they produce. For example, Sentence (1) is an objective descriptive speech act that uses positive impoliteness to attack the addressee's face. It is uttered during an argument between the Doctor, an alien scientist, and Jo Grant, a young woman who has been assigned to the Doctor as his assistant (Holmes, 1971). The Doctor knows that Jo will not understand what steady-state micro-welding is, and that introducing this new information will damage her positive face by making her feel ignorant. He has the option to mitigate this face threat by presenting the information in a way she will understand, but instead he phrases it in a way that ignores her face wants and lets her feel bad.

Descriptive speech acts can also be used politely to defend a speaker's face or support an addressee's face. During the same argument, Jo utters several examples of the former, including (3).

(3) I'm not the tea lady....I'm your new assistant.

The Doctor has threatened Jo's positive face by assuming that she is a servant and by insisting on the truth of his assumption as in (2). Jo's presentation of the fact that she is actually someone the Doctor should care about falls under Culpeper et al.'s (2003) category of defensive responses to impoliteness (Holmes, 1971).

Some speech acts may have multiple face effects simultaneously. Sentence (4), uttered by Jo late in the argument would be classified by Austin as behabitive (Austin, 1975) and by Searle as expressive (Searle, 1976). In the taxonomy I am developing, it is an example of a subjective descriptive speech act used to decrease the speaker's positive face and support the addressee's positive face.

(4) I'm sorry I ruined your experiment.

Earlier in the scene, Jo put out an electrical fire in the Doctor's scientific apparatus, causing some damage to a project in progress. At first, Jo defends her actions, but late in the scene she admits to wrongdoing in order to make peace with the Doctor (Holmes, 1971). An apology has the primary face effect of decreasing the speaker's positive face, since it associates the speaker with some improper or disallowed action; however, it has the secondary face effect of subordinating the speaker to the addressee and thus making the addressee feel more important, boosting his or her positive face.

3.2 Obligatives and Performatives

The class of speech acts whose fit is world-to-word is broader than the word-toworld class, containing two subclasses, obligatives and performatives. I will discuss these two subclasses and their politeness categories in turn.

3.2.1 Obligatives

The expressed psychological state of obligatives is the desire that a person perform some future action. Obligatives can be subdivided into commissives, in which action is desired of the speaker, and persuasives, in which action is desired of the addressee. Commissives have the primary face effect of reducing the negative face of the speaker, while persuasives have the primary face effect of reducing the negative face of the addressee. However, both persuasives and commissives can be performed using a variety of politeness and impoliteness strategies. On the one hand, speakers can mitigate the face threat using Brown's (1987) positive or negative politeness strategies. Prefacing a request with "would you be so kind," is an example of this: it lessens the overt obligation of the request by suggesting that it the speaker is merely asking a favor, not giving a command.

On the other hand, speakers can make bald on record requests or use Culpeper's (2003) impoliteness strategies to increase the negative face threat or add a positive face threat. In Doctor Who, the Doctor's archenemy, the Master, provides an example of this when he catches Jo Grant spying on him and hypnotizes her to do his bidding.

(5) You will return to UNIT with a negative report. You found nothing suspicious ... When you leave this room you will have no memory of meeting me.... Your instructions are already implanted. You will obey them without a further word from me.

Each of the statements in (5) is a bald on record command when taken alone. Taken together, they build on each other to limit Jo's options, decreasing her negative face repeatedly in a manner described by Culpeper et al. (2003) as a face attack strategy.

3.2.2 Performatives

Performatives correspond more or less to Searle's class of declarations and Austin's class of verdictives. They are utterances that alter the world to fit their content, not by committing a person to an action, but simply by being uttered. Their psychological state is the desire of the speaker to effect an immediate change in their environment. Performatives are heavily context-dependent: most of them, such as christening a ship (or a person), issuing a verdict in court, or declaring two people married, require a speaker whom society has given the authority to cause these changes (Austin, 1975). Others, such as bequeathing or betting, simply require a specific context.

Performatives in general can be said not to have face effects, since they are pronounced to the world at large and not to a specific listener. However, certain types of performative can affect the face of a listener by changing his or her social status. Examples of performatives that decrease face include guilty verdicts, which damage the positive face of the addressee by giving him or her the label of "convicted criminal," and decrease his or her negative face by imposing a sentence of punishment. Performatives which can increase the face of the addressee include the conferring of an honor or reward.

3.3 Discussion

Figure 1 summarizes my taxonomy of speech acts.



Figure 1: Taxonomy of speech acts

Like any classification system, this one is not without its borderline cases. For example, an accusation such as "you're wrong" may be either an objective or a subjective descriptive act depending on context, and is often used subjectively to give the speaker's beliefs the force of objective truth. Likewise, the act of betting is usually classified as performative (Searle, 1976), since it expresses the desire that a sum of money be attached to the outcome of an event. However, it can also be considered commissive, since it obligates the speaker to pay the wagered amount in the event that he or she loses, or persuasive, since it also places the addressee under an obligation accept the bet, and to pay up should the speaker win. However, these can be addressed on a case-by-case basis in the context in which they are used more easily and precisely than would be possible using Searle's or Austin's less precise taxonomies. In addition, the hierarchical structure of my taxonomy limits the number of categories any speech act can belong to in the infinite number of possible contexts in which it might appear. An accusation can be objective or subjective, but it cannot be persuasive, commissive, or performative because its direction of fit is incompatible with those categories. Likewise, betting cannot be descriptive in either an objective or subjective way because of its direction of fit prohibits it from being descriptive. In this way I have given Searle's favorite category the special status it deserves without his unnecessary requirement of a unique direction of fit for every category.

4 Conclusion

I have adapted Searle's taxonomy to systematically apply the features Searle defines as characteristic of categories of speech acts. Where Searle gives each of his categories its own direction of fit and expressed psychological state, I have used these features as binary features to distinguish speech act categories. I have also integrated face work into the definition of illocutionary force, using Brown's politeness strategies as well as Culpeper et al.'s impoliteness strategies to further distinguish between subcategories of speech act. These modifications to Searle's taxonomy will allow the integration of politeness and impoliteness theories into the study of speech acts, as well as permitting increased precision in the definition of speech acts.

Some complications may arise from the greater granularity of my taxonomy; for example, it can be shown that some speech acts, such as betting and accusing, fall into multiple categories. However, I believe that since my taxonomy defines speech acts more precisely than either Austin's or Searle's, it can address the possible context-based changes in the illocutionary effect of speech acts while limiting the categories to which a single speech act can belong based on the top-level feature of direction of fit.

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Doctor Who episode transcripts obtained with permission from chakoteya.net.

PRO and Phi-feature mismatch in imposter constructions

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This paper examines control constructions, and investigates the interaction of the syntax and semantics of control, using Minimalist syntax in combination with the framework of Distributed Morphology. I present binding alternations in control constructions with the imposter phenomenon studied by Collins and Postal (2012). I offer a syntactic account which would validate such alternations and show evidence for PRO in infinitives with imposter constructions. Furthermore, comparing PRO and pro, I argue that pro cannot account for the binding alternations. I demonstrate that the lack of the effect of phi-feature valuation does not result in ungrammaticality whereas the failure of Agree itself leads to ungrammaticality. The current analysis offers a systematic picture of the morphosyntactic variation of English nominals in terms of {person}.

Keywords: control; binding; imposter constructions; person; Agree

1 Imposter constructions

After reviewing distinctive agreement in binding relations of imposter constructions studied by Collins and Postal (2012), I discuss the same binding alternations are observed in infinitival adjuncts to imposter constructions. I compare the imposter and non-imposter constructions, and present research questions regarding control constructions to pursue an answer in this paper.

Collins and Postal (2012) observe that full DPs which refer to the speaker can select 1^{st} and 3^{rd} person reflexives in (1) and (2).

- (1) a. This reporter_i (=I) sent myself_i to cover Bill Clinton's lecture...
 - b. This reporter_i (=I) sees himself_i as managing editor in the future. (Collins and Postal 2012:20)
- (2) These reporters (=we) respect ourselves_i/themselves_i.

(Ibid., 54)

The subject DPs *this reporter* and *these reporters* refer to the speaker or the speaker's group in (1) and (2) respectively. However, the same DPs determine a

1st person reflexive or a 3rd person reflexive in (1) and (2).¹ These particular kinds of expressions, which may exhibit notionally and grammatically distinct person features, are what Collins and Postal call *imposters*. They observe that a similar observation applies to DPs which denote the addressee (2nd person) as well. For simplicity, I will focus only on singular DPs that refer to the speaker (1st person) in the following discussion.

Interestingly, the imposter DPs referring to the speaker can be coreferential with nominal elements in the adjunct infinitives as well in (3a,b).

- a. [To protect myself_i/himself_i,] this reporter_i (=I) is going to wear a bulletproof vest. (*Ibid.*, 73)
 - b. [To keep ourselves_i/themselves_i out of jail], the present authors_i (=we) are going to wear bullet-proofing vests. (*Ibid.*, 187)

The subject DPs in the main clause are in imposter use, and they are coreferential with the reflexives in the adjunct infinitives. The dual selection of the reflexives in the adjunct clause of (3) is the same as that in (1) and (2). However, this "optional" selection of reflexives appears to be uniquely restricted to imposter constructions, and this optionality is not observed in non-imposter constructions in (4).

- (4) a. To protect *myself_i /himself_i, this reporter_i (≠I) wore a bullet-proof vest.
 - b. To protect *myself_i/himself_i, he_i wore a bullet-proof vest.
 - c. To protect myself_i/*himself_i, I_i wore a bullet-proof vest.

The subjects in the matrix clauses are not in imposter use and only one selection of reflexives in the infinitive clauses is grammatical and the other selection is ungrammatical, unlike in the case of imposter constructions as in (1)-(3). The "optional" selection of reflexives prompts us to question how phi-agreement is optional in imposter constructions. What are the antecedents of the reflexives in the infinitives within the imposter construction in (3)? Is it PRO? Is it a trace via movement? To what extent does syntax regulate the interpretation of control constructions?

I examine properties of {person} based on Harley and Ritter's (2002) feature geometry, and argue that PRO in infinitives may not possess the same person value with the controller even after an Agree relation. I attribute a mismatch in person to dual properties of {person}. I demonstrate that underspecification of binding agreement as a result of Agree does not induce

¹ According to Collins and Postal, only the 3rd person reflexive yields a grammatical result for some dialects of English speakers.

ungrammaticality, unlike in the case of the failure of Agree.

Section 2 critically reviews Hornstein's movement analysis and Landau's (2000, 2003, 2010) Agree analysis by applying them to control constructions with the imposter phenomenon, and presents that both analyses cannot fully account for the constructions in question. Section 3 introduces Harley and Ritter's feature geometry with a slight modification and applies it to imposter constructions to clarify distribution of {person} in the binding alternations within control constructions, in support of a PRO hypothesis.

2 Movement vs. PRO

Although dominant throughout the 1980s, the approach involving government has been abandoned in minimalist analyses. The control theory has been replaced by either a movement analysis (Hornstein, 1999) or revived by the introduction of the syntactic operation, Agree (Landau, 2000, 2003, 2010) in the generative literature. I critically review Hornstein's (1999) movement analysis in 2.1 and Landau's (2000, 2003, 2010) Agree analysis in 2.2 by applying these analyses to infinitives with imposter constructions, and I identify the issues of {person} in terms of the binding alternations in infinitives with imposter constructions.

2.1 Hornstein's (1999) movement analysis

I apply Hornstein's (1999) movement analysis and show how this analysis can account for the binding alternations in the infinitive of (5) (=3a).

(5) [To protect myself_i/himself_i,] this reporter_i (=I) is going to wear a bulletproof vest.

Consider the schemas of the derivation under Hornstein's (1999) movement analysis in (6) for the sentence in (5).

- (6) a. $[_{XP}$ this reporter_i (=I) protest myself_i/himself_i]
 - b. [*t* to reporter protest myself_i/himself_i]
 - c. this reporter_i (=I) is going to wear a bullet-proof vest.
 - d. [TP [XP this reporter_i (=I) protest myself_i/himself_i] [TP this reporter_i (=I) is going to wear a bullet-proof vest.

The imposter DP *this reporter* is originally generated in subject position of the adjunct clause and binds either a 1^{st} or 3^{rd} person reflexive in (6a). It moves out of the clause in (6b) and becomes the subject of the matrix clause, where it receives structural Case in (6c). Both clauses merge by adjoining the adjunct infinitive XP to TP in (6d). Under Hornstein's movement analysis, no *PRO* appears in the infinitive. Instead, the imposter DP merges in subject position of the adjunct clause, and after that, it remerges in the matrix clause via movement. This means that the DP possesses two theta roles (one from the embedded verb and the other

from the matrix verb), which does not violate the theta criterion according to Hornstein. Yet, in order for the theta roles to be "visible" the imposter DP needs a structural Case. This requirement drives the DP to be "remerged" in the matrix clause. Note that the imposter DP does not violate a Minimal Link Condition at the stage of the derivation when the imposter DP remerges in subject position of the matrix clause in (6c). At this stage, both adjunct and matrix clauses are separately built, and at the same time the imposter DP in subject position of the infinitive is moved out of the clause. Thus, before the imposter DP remerges in the matrix clause, this DP is not c-commanded by the object DP in the matrix clause. What is important for the current purposes is that this movement analysis attributes the lack of the embedded subject to a trace via movement.

I continue to apply Hornstein's analysis to the imposter construction in (7).

(7) a. [To cover myself_i in case of an investigation], this reporter_i (=I) is going to keep himself_i out of the newspapers.

(Collins, Moody & Postal, 2008)

b. [To keep ourselves_i out of jail], the present authors_i (=we) are going to behave themselves_i from now on.

(Collins & Postal, 2012, p. 187)

The imposter DPs in subject position of the matrix clauses bind a 3rd person reflexive in the main clauses while a 1st person reflexive appears in both infinitives. These reflexives are coreferential with the imposter DPs despite of their distinct person. The imposter sentences in (7) are problematic to Hornstein's movement analysis. If the imposter DPs originate in subject position of the infinitives and remerge in subject of the matrix clause later, the reflexives in both clauses are expected to exhibit the same person. Otherwise, the sentences should be ungrammatical, as in (8).

(8) *[The present authors_i (=we) are going [to talk to ourselves_i about themselves_i]]. (Collins & Postal 2012:187)

The two reflexives in the infinitive have a distinct person value, and at the same time they are coreferential with the same DP in the matrix clause, which is ungrammatical. This shows that imposer DPs cannot possess two distinct person values simultaneously in (8). Yet, the distinct person values of the reflexives in (7) does not induce ungrammaticality. Thus, the grammaticality of the infinitives in (7) (in contrast with (8)) weakens Hornstein's movement analysis.

2.2 Landau's (2000, 2003, 2010) Agree analysis

Landau (2000, 2003) argues for the existence of PRO as the subject of infinitives.²

Given his analysis, the subject of the embedded clause in (5) is PRO, which enters into an Agree relation with the imposter DP in the main clause for coreference. We would assume that the binding alternations in the infinitive of (5) ultimately result from the imposter DP via PRO; because the imposter DP should possess $\{1^{st}\}$ or $\{3^{rd}\}$, one of the features is shared to *PRO* via Agree, and passes down to the reflexive via Agree, as the schemas in (9a,b) show the two binding relations in (5).

Unfortunately, Landau's Agree analysis cannot also account for the mismatch in person of reflexives in (7), whose schema is shown in (10).

(10) [PRO_i {1st}... reflexive_i {1st} ... [DP_i {3rd} ... reflexive_i {3rd}]]

As the reflexives show, the controller DP possesses 3^{rd} person while *PRO* exhibits 1^{st} person. Yet *PRO* as well as the two reflexives are coreferential with the DP in imposter use. Under Landau's Agree analysis, it is not clear how elements of a distinct person value can corefer in (10).

In the following section, I will examine properties of a person feature and present the mechanism of the binding alternations in infinitives with imposter constructions with a revised Agree analysis.

3 Phi-feature geometry and imposter DPs

I review Harley and Ritter's (2002) feature geometry for phi-features and revise it slightly by applying it to imposter constructions. I argue that seeming "optionality" of the reflexive selection in imposter constructions is attributed to dual properties of {person} because imposter DPs lack lexical/referential

 $^{^{2}}$ Landau argues that a movement analysis cannot explain the partial construction as in (ia), whose schema is in (ib).

⁽i) a. The chair_i preferred [to PRO_{i+} gather at 6]. (Landau, 2003, p. 834) b. $[DP_i \{3^{rd}, Singular\}... [CP [TP PRO_i \{3^{rd}, Plural\}...]]$

According to Landau, the subject DP enters into an Agree relation with the C head, which Agrees with the T head. This T head with $\{3^{rd}\}$ enters into an Agree relation with PRO. This way PRO receives 3^{rd} person. However, C has no specification for number and PRO does not acquire a value for number via Agree. Instead, it gets {plural} semantically. Thus, the controller and PRO shares the person feature value but not the number value via Agree. Importantly, this partial control cannot be accounted for by a movement theory.

properties in 3.1. Given the revised feature geometry, I argue that the dual properties of a person value create the "optionality" of binding relations in imposter constructions and thus that phi-agreement in itself is not optional in 3.2. I offer an analysis to the example in question which involves a mismatch in person in (7) in 3.3.

3.1 Feature geometry for person

Harley and Ritter (2002) examine morphosyntactic properties of pronominal systems and argue that morphosyntactic features are best thought of as forming a dependency structure, or a feature geometry in (11).



(Harley & Ritter, 2002, p. 486)

The individual nodes represent privative phi-features of DPs. Particularly, the Participant node and its dependents represent person features which depend on the DP's discourse role. The participant node and its dependents, {Speaker} and {Addressee} are used to represent {person}.

Given the phi-feature geometry in (11), let us consider a feature geometry of imposter DPs. Full DPs such as *this reporter* do not possess lexical/referential properties and yet they can refer to the speaker. I assume that imposter DPs possess {Speaker} in the appropriate contexts. Based on the fact that English imposter DPs can bind either a 1st or 3rd person reflexive, I further assume that the Speaker node may be connected with grammatical person. This means that notional person {Speaker} and grammatical person {1st} are not always identical with imposter DPs. Thus, they may possess {Speaker1st}; otherwise, {Speaker} lacks grammatical person, which is assigned a default 3rd person feature value as last resort (Baker 2011), i.e., {Speaker-3rd}. Thus, {Speaker} in (11) possesses additional dependencies in (12).

 $^{^{3}}$ I focus only on person features in this paper and I omit the dependent nodes of INDIVIDUATION in (11).

(12) Speaker node for English imposter DPs



This feature geometric structure shows that 1^{st} person is decomposed into notional person {Speaker} and grammatical person $\{1^{st}\}$, because the Speaker node is not automatically tied to morphology for {person} when a DP lacks a special form. The {Speaker} feature may be connected with $\{1^{st}\}$ and if not with $\{3^{rd}\}$ as last resort. In contrast, personal pronouns inherently possess lexical/referential properties and thus they cannot exhibit the dual selection of reflexives as in (13).

(13) I sent myself/*himself to cover the story.

The pronominal subject *I* has the feature geometry which involves the combination of notional person {Speaker} and grammatical person $\{1^{st}\}$, thanks to its intrinsic lexical/referential properties, and thus the pronoun in (13) binds a 1^{st} person reflexive and cannot tolerate a 3^{rd} person reflexive.

Once the dual properties of {person} is clear, let us return to imposter constructions and examine the binding alternations.

3.2 Imposter DPs and binding variation

Given the feature geometry with the dual properties of $\{person\}$ for DPs in imposter use, the "optionality" of reflexive selection in imposter constructions is readily accounted for in (14) (=1).

- (14) a. This reporter_i (=I) sent myself_i to cover Bill Clinton's lecture...
 - b. This reporter_i (=I) sees himself_i as managing editor in the future.

In (14) the imposter DP *this reporter* referring to the speaker possesses notional person {Speaker}. Because the imposter DP does not possess lexical/referential properties, {Speaker} does not automatically possess grammatical person $\{1^{st}\}$. Given the appropriate contexts, the imposter DP in (14) may or may not possess {Speaker} with grammatical person. In (14a), the DP possesses {Speaker-1st} and shares it with the reflexive. Thus, a 1st person reflexive is inserted post-syntactically. In contrast, the DP in (14b) only has notional person {Speaker- \emptyset }, and thus a 3rd person reflexive is selected post-syntactically. Both 1st and 3rd person reflexives are grammatical when they are coreferential with the imposter DP referring to the speaker, because of {Speaker}, notional person shared via Agree.

In the following subsection, I will employ the revised feature geometry of 1st person and analyze infinitives, in support of the PRO hypothesis.

3.3 Mismatch in person feature

I examine the distribution of $\{person\}$ in (15a) (=7), whose tree is shown in (15b).

(15) a. [To cover myself_i in case of an investigation], this reporter_i (=I) is going to keep himself_i out of the newspapers.



In (15b) the imposter DP *this reporter* involves {Speaker- \emptyset }, which is shared with PRO via Agree. Once PRO obtains the feature, it shares the feature with the reflexive in the embedded clause via Agree, while the DP shares the same feature with the one in the main clause. Post-syntactically a 1st person reflexive is selected in the embedded clause while a 3rd person reflexive is selected in the matrix clause. Although grammatical person of the reflexives is distinct, they are ultimately coreferential because of notional person {Speaker}. This indicates that Agree does not inevitably guarantee full sharing of {person}. Put differently the absence of the effect of phi-feature valuation does not result in ungrammaticality.⁴

One might consider the presence of pro instead of PRO as the subject of the adjunct clause. Pro possesses its phi-features and binds the reflexive in the infinitive (analogous to a 1st person pronoun), independently from the subject DP

⁴ Collins and Postal (2012) argue that a null pronominal DP appears at the left periphery of the sentence, which binds *PRO*. Thus *PRO* gets 1st person and binds the 1st person reflexive. However, their analysis cannot account for the sentence in (i).

 ⁽i) [To cover himself_i in case of an investigation], this reporter_i (=I) is going to keep himself_i out of the newspapers.

If a covert pronoun exists in the left periphery in (i), it should be a 3^{rd} person pronoun because the reflexive in the embedded clause is 3^{rd} person. However, if a null element is *pro*, it is not clear how a 3^{rd} person pronominal element is coreferential with the imposter DP referring to the speaker.

in the main clause. However, English is not considered as a pro-drop language. Moreover, in the Government and Binding era, pro is treated as [+pronominal], distinct from PRO with [+anaphor, +pronominal]. I take this to mean that pro possesses both notional and grammatical person like lexical pronouns. If the subject of *keep* in (16) is pro, it should not allow for the binding alternations.

(16) It is important to keep myself/herself (=I) from getting sunburned.

Given the appropriate contexts, the referent of the reflexive in (16) is the speaker even when the 3^{rd} person reflexive is selected, and the sentence is still grammatical. If pro were the antecedent of the reflexive in the infinitives, pro should only bind a 1^{st} person reflexive as in the case of a 1^{st} person pronoun because the referent is the speaker. The selection of the 3^{rd} person should be ungrammatical in (16), contrary to fact. On the other hand, if PRO is the subject of the infinitive, it does not have a person value from the beginning of the derivation; it is given notionally in (16) or via Agree in (15), and it possesses {Speaker}, like imposter DPs. Thus, the reflexives bound by *PRO* may coreferential with a DP referring to the speaker even when they are 3^{rd} person in (15) and (16). The current analysis supports the PRO hypothesis.

We should notice one difference between PRO and imposter DPs in terms of grammatical person.

a. I_i respect this reporter_i (=I) who never perjured himself_i.
b. *I like_i to PRO_i see himself_i as managing editor.

In (17a) the imposter DP in object position of the matrix clause is coreferential with the 1st person pronoun in subject position of the matrix clause. At the same time, the DP binds a 3rd person reflexive. I assume that the imposter DP has only notional person {Speaker} without grammatical person $\{1^{st}\}$ via Agree and passes it down to the reflexive. Because the feature lacks grammatical person, a 3rd person is inserted post-syntactically in (17a). A partial sharing operation is not applied to PRO controlled by the lexical pronoun in (17b). PRO in (17b) requires full sharing of a person value via Agree; otherwise it causes ungrammaticality.

With the difference between imposter DPs and PRO in mind, let us consider the example in (18a) with its structure in (18b), in favor of the PRO hypothesis.

(18) a. [To cover *myself_i/himself_i in case of an investigation], it is important to keep himself_i out of the newspapers. (The referent is the speaker)



In (18a), no imposter DP exists in the sentence and yet the intended interpretation is that the reflexives are coreferential with XP referring to the speaker as in (16). The sentence in (18a) shows that the selection of a 3^{rd} person reflexive in the infinitive is grammatical while that of a 1^{st} person reflexive is ungrammatical. Under the PRO hypothesis, XP is PRO_{XP} and YP is PRO_{YP}. {Person} of PRO_{YP} cannot differ from that of its antecedent if the antecedent is not an imposter DP. Put differently, PRO_{YP} cannot notionally obtain a person value in the appropriate contexts without an Agree relation or it does not permit a partial sharing operation as in (17b). Thus, PRO_{YP} must possess {Speaekr-3rd} in (18a), as opposed to that in (16) (where PRO gets a person value notionally in the appropriate contexts).

Let us consider the pro hypothesis one more time in (18). Since the reflexive is coreferential with a DP referring to the speaker, it is not clear why 1^{st} person is ungrammatical in the embedded clause while a 3^{rd} person is not ungrammatical if YP as well as XP is pro in (18). Thus, the pro hypothesis cannot account for the distribution of person in (18).

I have discussed the four types of pronominals in terms of 1^{st} person. I summarize the properties of 1^{st} person in terms of the pronouns in (19).

(19) Morphosyntactic properties of 1st person of four types of nominal

Pronoun	Pro	PRO	Full DP
{Speaker-1 st }	{Speaker-1 st }	{Speaker-1 st } {Speaker-3 rd }	{Speaker-1 st } (Speaker-3 rd)

Lexical pronouns and pro possess notional and grammatical person in the numeration, whereas PRO and full DPs may or may not possess grammatical person along with notional person. They may get one via Agree in the middle of the derivation, which leads to the morphosyntactic variation in binding relations.

4 Conclusion

In this paper I examined control constructions with imposter DPs. After having shown the binding alternations with reflexives in imposter constructions, I argued
for an infinitival PRO subject with the revised feature geometry. When PRO has its controller, PRO obtains the relevant feature geometry from the controller via feature-sharing operation, Agree. The failure of Agree results in ungrammaticality although the lack of the effect of phi-feature valuation is grammatical. In the latter case, PRO only receives notional person via Agree or notionally in the given contexts. I also argued that because of the anaphoric property of PRO, pro cannot be replaced with PRO in the control constructions with the imposter phenomenon.

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The Rich-Get-Richer Phenomenon and language evolution: The case of the German present perfect

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This paper explores language evolution within a complex network framework and, in particular, the preferential attachment tendency, also known as the Rich-get-Richer phenomenon, in the development of the German present perfect. This process, which was first discovered in the World Wide Web where "the links are formed preferentially to pages that already have high popularity" (Easley & Kleinberg, 2010, p. 483), refers to the dynamics involved in the growth of complex scale-free networks (Barabási & Albert, 1999) and, in more general terms, to the development of complex adaptive systems that show a power law degree of distribution: when new connections are created, they connect to the few hubs in the network that already have a high number of links.

I argue that the same phenomenon can be found in the evolution of specific grammatical structures and I will provide evidence using written data from different time periods related to the history of German. Diachronic linguistics analyses show indeed that the evolution of the present perfect displays the same patterns observed in the World Wide Web; in the first attestations from the Old High German period just a few verbs could be combined with the auxiliary verbs. The lexicon's growth in Middle High German and the expansion of contexts in which the present perfect could be used increased the number of possible combinations. Today in New High German, every verb can be coupled with the auxiliary verbs.

In conclusion, this paper provides general support for the implementation of a network framework for the study of the dynamics involved in language change and evolution, as well as support for a Complexity Theory approach, which considers human languages as complex adaptive systems, as described by Hopper (1998), Larsen-Freeman and Cameron (2009) and Bybee (1994, 2003, 2006, 2007, 2010). *Keywords: networks; emergent grammar; complexity theory*

1 Introduction

In recent years, the discovery of complex networks, such as small-world (Watt & Strogatz, 1998) and scale-free (Barabási & Albert, 1999) networks, has opened new possibilities for the representation of the complex connectedness of our society (Ke, 2007; Easly & Kleinberg, 2012). Understanding and studying

complex systems with networks can result in a more effective approach when dealing with complexity. Using a multidisciplinary approach, networks science today offers specific tools for the analysis and for the understanding of complex systems. Network science started to be applied also for the representation of languages themselves since human languages can be also considered as complex dynamic systems (The Five Graces Group, 2008; Larsen-Freeman & Cameron, 2009; Bybee, 2010; De Bot, 2009). To this extent, different scholars used networks for the representation of specific language aspects related to phonetic, phonology, morphology etc. (Ke, 2007; Ke, Gong & Wang, 2008; Chodhury & Mukherjee, 2009; Cong & Liu, 2014; Vitevitch, 2008). In his article, Perc (2012) analyzed the most common English words and phrases since the beginning of the sixteenth century, and showed that these words, regardless of the century considered, are more likely to retain their top rank. He refers to it as the linear preferential attachment, also known as the Rich-get-Richer Phenomenon, which indicates the tendency of new connections in a complex network to be formed with already highly connected nodes which will grow consequentially in connectivity. This process was first observed in the World Wide Web, where "the links are formed preferentially to pages that already have high popularity" (Easley & Kleinberg, 2010, p. 483). The phenomenon described above shows striking similarities to what happens in linguistics to grammatical structures that undergo bleaching or generalization, which is "the process by which specific features of meaning are lost, with an associated increase in the contexts in which that particular structure may be appropriately used" Bybee (2003, p. 605). This means that the loss of semantic force will also increase the elements the specific form can be combined with. Bybee (2003) shows this process using an example from the development of the modal verb "can" from the Old English era to the modern day. "Cunnan" increased in type frequency of co-occurring lexical items as a consequence of bleaching and, at the same time, the token frequency of units also increased dramatically till it reached the number of combinations that are possible today in Modern English with the verb "can".

The Rich-Get-Richer phenomenon seems to be not limited to the World Wide Web, but also can be observed in the different dynamics related to language evolution. Indeed, the historical development of the German present perfect resembles the development of the modal verb "can". The present perfect was at the beginning limited to a small number of verbs. Like "cunnan", it underwent "categorization", which is "the expansion of contexts in which a construction can occur" (Bybee, 2003, p. 12) and today, in Modern German, this tense can be combined with every available verb.

The goal of this work is to provide evidence of the preferential attachment tendency in the historical evolution of the German present perfect. In order to do this, I will be using written data from different historical periods: *The Lay of Nibelungen* (ca. 1200) and *The Sorrow of Young Werther* by Goethe (1774). For the texts' analysis I will use the free web-based text analysis software, Voyant, available at <u>http://voyant-tools.org</u>, which allows users to perform lexical analysis including the study of frequency and distribution data on any written document.

The organization of this study is as follows: The first part deals with Complexity Theory, Emergent Grammar and the Network framework and lays the theoretical foundation of this work, while the second part will be dedicated to the texts' analyses, with some introductory information about the software used for this research and the presentation of the results, and lastly, the final part will provide a short discussion.

2 Emergent grammar, Complexity Theory, and human languages

In an Emergent Grammar approach, as described by Hopper (1999), grammar is not the source of understanding and communication, but can be considered as a by-product of it, or a result of the interaction between speakers. Grammar is, in other words, epiphenomenal.

Complexity Theory shares with this framework the same view about languages: "When linguistic structure is viewed as emergent from the repeated application of underlying process, rather than given a priori or by design, then language can be seen as a complex adaptive system" (Bybee, 2010, p.2). This approach today offers a new theoretical framework in applied and historical linguistics, fostering a change in the way we should look at human languages; they are continuously evolving systems with emergent structures, developed through usage and repetition. "From a complexity theory perspective, a language, at any point in time, is the way it is because of the way it has been used" (Larsen-Freeman and Cameron, 2009, p. 80). In this perspective, human languages are viewed as complex adaptive systems which interact with their environment and change over time. Also, Larsen-Freeman and Cameron (2009), underline the dynamic nature of the human languages and consider linguistic patterns as "epiphenomena of interaction", emphasizing in this way the essential roles of the agents and their interactions with each other which is the guiding force of language change and evolution. This approach views human languages no longer as an autonomous set of grammar rules developed on their own and learned by speakers of a specific linguistic community, but rather as dynamic systems strictly related to their speakers and to their environment. The authors highlight that "the history of a language reflects the behavior of its speakers" (Larsen-Freeman and Cameron, 2009, p. 91), quoting Nettle's (1999) claim that "the structure of language has emerged from the kind of message speakers wish to convey and the kind of cognitive, perceptual, and articulatory mechanisms they have to convey them, either by biological evolution, cultural evolution, or more likely by some combination of the two" (Nettle, 1999, p. 13). Complexity theory draws attention to the strong connection between speakers and languages and how the first influences the second and vice versa. Larsen-Freeman and Cameron (2009) explain magisterially this phenomenon when they claim that "language emerges upwards in the sense that language-using patterns arise from individuals using the language interactively, adapting to another's resources. However, there is reciprocal causality, in that the language-using patterns themselves,

downwardly entrain emergent patterns" (Larsen-Freeman & Cameron, 2009, p. 80).

A Complexity theory approach means to also combine a synchronic with a diachronic approach, because "language change is not just a peripheral phenomenon that can be tacked on to a synchronic theory; synchrony and diachrony have to be viewed as an integrated whole" (Bybee, 2010, p. 105).

In this work, languages are also viewed as complex dynamic systems, and grammar structures are considered as a result of the interactions between speakers to convey ideas and thoughts since the aim of a language is communication, as also emphasized by The Five Grace Group in their position paper (2007): "language has a fundamentally social function. Processes of human interaction along with domain-general cognitive processes shape the structure and knowledge of language" (p. 1). Languages, therefore, "emerge from the verbal interaction among humans" (Lee, Mikesell, Joaquin, Mates & Schumann, 2009, p. 3) and their most fundamental features are biological adaptations for cooperative social interaction in general" (Tomasello, 1999, p. xi).

3 The Rich-get-Richer Phenomenon in languages

Since languages are complex adaptive systems (The Five Graces Group, 2008; Larsen-Freeman & Cameron, 2009; Bybee, 2003, 2006, 2010; De Bot, 2009), their representation can be carried on in a framework that better captures their complexity and dynamics. The implementation of networks for the study of languages requires a multidisciplinary approach, since it demands the implementation of mathematical models to the representation of linguistics phenomena. Different scholars are adopting a representation with networks in order to analyze different aspects of languages themselves, including phonetics, phonology, morphology, etc., (Ke, 2007; Ke, Gong & Wang, 2008; Chodhury & Mukherjee, 2009; Cong & Liu, 2014; Vitevitch, 2008). Network analysis allowed the visualization of language structures in a completely different and new way and made new findings possible, like the notions of key players, maximal connectivity (Borgatti, 2006), coreness (Carlson, Sonderegger & Bane, 2014) etc. These studies also allowed the discovery of specific processes involved in their growth over time, like the preferential attachment tendency. Perc (2012), in his article, focuses on the development of written English and demonstrates how the most popular words in a certain time period keep in maintaining their high positions in rank and even become more popular with time. Analyses of lexical co-occurrence also showed that these words increase in connectivity, or the number of elements that they can be combined with. Perc refers to this phenomenon as the linear preferential attachment, or the so-called Rich-get-Richer model. This phenomenon was discovered first in the World Wide Web where it was observed that new webpages have the tendency to be connected within the network with already highly connected pages. The preferential attachment seems to, therefore, be a common feature of complex systems, which affects the dynamics of their evolution. It applies to these particular hubs in the

networks with the most connections since their distribution, both in the World Wide Web and in Perc's analysis, follows a power law distribution which can be observed in both a synchronic and a diachronic perspective.

Perc (2012) provides evidence for the presence of the preferential attachment tendency in the dynamics of language change, as well as support for the implementation of network science and Complexity Theory for the study of these dynamics. His article also represents the starting point for this work which will demonstrate how the Rich-get-Richer model can be found in the diachronic representation of the linguistic development of specific grammar structures.

The next sections will be dedicated to the description of the preferential attachment tendency in the development of the German present perfect with the implement of written data from different time periods: *The Lay of The Nibelungs* (ca. 1200) and *The Sorrow of Young Werther* by Goethe (1774). The earlier work has a modest amount of perfect forms and it suited perfectly for the analysis described here since the preferential attachment refers to already relatively highly connected nodes and not to the nodes at their earliest stages of evolution. Both works will be used to illustrate this phenomenon and the focus will be on the *haben Perfekt*, (to have present perfect).

4 The German present perfect and the linear preferential attachment

The development of the German present perfect, formed by the combination of the two auxiliary verbs haben and sein plus the past participle of the verbs, is analyzed by Kuroda (1999) and Concu (2015) in their respective works: Die historische Entwicklung der Perfektkonstruktionen im Deutschen and The German Present Perfect as an Emergent Structure. While Concu (2015) is mainly focused on the cognitive processes that led to the formation of this periphrastic construction, Kuroda (1999) analyzes the growth of the number of tokens combined with the auxiliary verbs. Like the verb "can" in English, the German present perfect underwent categorization, the expansion of the contexts in which that particular structure can be used. From the almost 50 forms found in the Evangelienbuch (ca.865) and the 250 in Tristan (ca. 1210), the present perfect was then used 300 times in Fortunatus (1509) and 400 times in Die Wahlverwandtschaften (1809). The increased number of verbs used can also be considered as a process that resembles the preferential attachment observed with both the World Wide Web and the verb "can". Every new verb introduced in modern German will also be conjugated in the present perfect tense, like the brand new "chatten" which indicates the participation in a web chat. The categorization which affected this construction allowed the combination with a progressively larger number of verbs. In a network framework, this process can be seen as the growth of connectivity of the verb haben and sein which became two of the largest hubs in Modern High German. In both English and German, the preferential attachment tendency can be considered as responsible for the power law distribution that the words in the languages follow. "Can" in English and haben and sein in German (with all the conjugated forms) are among the most

common words in these two languages and maintain constantly their high ranks in modern days.

4.1 The corpus

The corpus used in this study is composed of two literary texts from different time periods from German literature. These works are: The Lay of The Nibelungs (ca. 1200) by an unknown author and *The Sorrow of young Werther* (1774) by Goethe. The Lay of The Nibelungs is one of the most important literature monuments in Middle High German. It is a long heroic poem written between 1190 and 1200 and "it is handed down in thirty manuscript, partly complete and partly incomplete and written in an area between the cities Passau and Vienna" (Collitz, 1910, p. 147). The version used here is the manuscript C, which is the most known one. The second work included here is *The sorrow of young Werther*. This novel was published for the first time in 1774 and represents one of the most famous works of Johann Wolfgang von Goethe. It is an epistolary narration of the young Werther and his unfortunate and unrequited love for the beautiful Lotte, which will end with the tragic suicide of the protagonist. The sorrow of young Werther is the expression of Goethe's participation in the Storm and Stress literary movement, which dominates the panorama of the German literature from 1770 to the end of 1780 and anticipate the advent of Romanticisms.

The software used for the texts analyses is a free web-based tool which allows users to carry on lexical analyses on written texts and to display different data related to key words, word frequency and, most important of all, co-occurrence of words. Voyant has a user-friendly interface (Sinclair & Rockwell, 2015, Privacy v. 1.0 beta, 4692).

4.2 The data

4.2.1 The Lay of the Nibelungs

The analysis made with the software, *Voyant*, displays the following preliminary data from the whole poem, which has 81,191 total words with 8,989 unique words. The search toolbar was used to find all the tokens of the verb *haben* (to have) conjugated in present tense. Using the co-occurrence visualization tool, it was possible to discriminate the forms that were combined with a participle, which are the forms analyzed here, from the tokens of the verb that were used as a full-verb and not as auxiliary.

The examples below from the Lay of the Nibelungs are intended to clarify the difference between the two usages of the verb *haben*:

(1) Die drîe künege wâren, ich als gesaget hân kings The three Were. Ι said have as "The three kings were, as I have said" (Verse 29)

(2) Div frowe die helden was ir sister hetens in ir plegen their sister the heroes had in their the woman care was "The women was their sister and the heroes took care of her" (Verse 12)

In (1) the verb *haben* is used as an auxiliary verb in combination with a past participle, while in (2) is used as a verb with the meaning of possession. This work focuses on the analysis of the first type of use in both texts, as shown in (1). The chart below shows the amount of these forms found.

Forms	
	Amount
habe (1 st person singular)	13
han (1 st person singular)	109
hast (2 nd person singular)	8
hat (3 rd person singular)	124
haben $(1^{st}/3^{rd} \text{ person plural})$	21
Habt (2 nd person plural)	74
habst (2 nd person singular)	2
habn (1 st person plural)	12
habest (2 nd person singular)	2
habet (2 nd person plural)	1

Table 1: The forms of present perfect in the Lay of The Nibelungs

All of the forms seem to be well established in the text. The third person singular form of the verb has the highest number of forms, reflecting the third person perspective narration. The token *habe* is always combined with the pronoun *ich* (I) while the token *han* is combined largely with but sometimes without the plural form *wir* (we). The forms of *habet*, *habest*, and *habst* seem to be written with a different spelling. In the text, they are combined with participles and, for this reason, were included here.

4.2.2 The sorrow of Young Werther

In this section, I will focus on the *haben* present perfect in Goethe's novel which has 39,173 total words and a number of 6,861 unique words. As done for the first text, I will run frequency and co-occurrence analyses, in order to separate the tokens of the verb *haben* used as an auxiliary from the ones when it has been used as a full verb.

Form		Amount
habe	(1 st person singular)	100
hab'	(1 st person singular)	13
hast	(2 nd person singular)	8
hat	(3 rd person singular)	70
haben	$(1^{\text{st}}/3^{\text{rd}}\text{person singular})$	14
habt	(2 nd person plural)	3

Table 2. The forms of present perfect in The Sorrow of Young Werther

4.2.3 Discussion

The forms found in *The Lay of The Nibelungs* show a modest usage of the *haben* present perfect, which appears in both dialogic and narrative parts. The most common verbs used in past participle are *getan*, *genomen*, *verloren* and *gesehen*. An analysis of frequency and co-occurrence of these forms displays the level of evolution of the present perfect in this particular period of the history of the German language. The token *getan*, for example, is used in the text 301 times, but is used just 68 times in combination with the auxiliary *haben*. In Old High German, different scholars like Zieglschmitd (1929), Leiss (1992), Kotin (1999), Zeman (2010) have shown that the first combinations of *eigan/habên* are full verbs with no auxiliary function. The Old High German speakers started drawing an inference from possessive constructions like the one shown below:

(3) phigboum habeta sum giflanzotan in sinemo uuingarte a fig tree winegarden has someone planted in his "Someone has a fig tree planted in his wine garden" Tatian (ca. 830, 102,2))

In (3) both the verb *haben* and the past participle are used as normal verbs and not as a unique construction.

Bybee (2006) argues, "as a particular string grows more frequent, it comes to be processed as a unit rather than through its individual parts. As it is accessed more and more as a unit, it grows autonomous from the construction that originally gave rise to it" (Bybee, 2006, p.720). The combination of these two verbs also started to be seen as a unit in Old High German. Bybee, Pekins and Pagliuca (1994) claim that "the modern perfect develops out of early resultatives as the participle loses its adjectival nature and becomes part of the verb rather than an adjective modifying a noun" (Bybee, Perkins, Pagliuca, 1994, p. 68) and that "a resultative expresses the rather complex meaning that a present state exists as the result of a prevision action" (Bybee, Perkins, Pagliuca, 1994, p. 69). The cognitive association and generalization between resultative and past, should represent the first step of the development process of the German present perfect. Dan Slobin in his article (1994) analyzed the present perfect in Old English (*Ic haebbe gibunden pone feond pe hi drehte*). It had two different readings, an adjectival and a perfect one. The first was similar to a report (*I inform you that the enemy is bound and in my possession*), while the second was more like a claim and a negotiation (*It is I who captured the enemy, so give me my reward*). The have + past participle constructions contrasted with the preterite, which emphasized only the subject's past actions, and not the current state of the enemy. The Old English hearer, in drawing an inference from the possessive construction, must also have had a background knowledge of the contrasting option of the preterite and this option must have played a role as soon as the ancestor of the perfect contrasted with the preterite in given speech context (Slobin, 1994).

Also in German this contraction started to be uses in given speech context to express claim and to contrast to the preterite, as shown in the example below:

fúntan mir fand ih (4) Ih haben iz in ni líbes uu iht Ι have it found in me never found I good in you I have found it in myself, I never found something good in you. Evangelienbuch (ca.890, I-18-28)

In (4) a present perfect is used in a sentence that also contains a preterite. The claim is made here in the first part of the statement, which is highlighted by the writer through the usage of the present perfect. At the same time, when the present perfect was starting to emerge, the past participle alone started to lose its autonomy. This process began in Old High German and continued through the history of German. This explains the presence of a high number of past participles used without the auxiliary *haben* in the Lay of The Nibelungs. The Middle High German age can be seen as an intermediate stage in the evolutionary scale of the present perfect when it started to show preferential attachment tendency.

The forms found in Goethe's novel show a large use of the present perfect. The presence of such high use of the *haben-Perfekt* is the reflection of the type of narration. Klaus Welke from the Humboldt University in Berlin claims that "das Perfekt ist auf Grund seiner spezifischen semantischen Eigenschaften das Tempus des konstatierenden Berichten [vom Vergangenen] und das Präteritum auf Grund seiner spezifischen semantischen Eigenschaften das Tempus des fortlaufenden Erzählen [vom Vergangenen]" [The present perfect is the past tense of the comment because of its semantic features, while the Preterite is the past tense of the narration because of its semantic features] (Welke, 2010, p. 22). In the same way, Nicole Schumacher from the Free University of Berlin asserts that "die Differenz [zwichen Perfekt und Präteritum] liegt in der subjektiven, sprecherbezogenen Dimension der Distanz begründet, die sich durch Weinrichs (1993) Konzepte des Erzählens und Besprechens erfassen last" [The difference between Present Perfect and Preterite lies in the subjective dimension of "DISTANCE", which refers to Weinrich's categories of comment and narration] (Schumacher, 2005, p. 191) and "um die Gebrauchspräferenzen von Perfekt und Präteritum in Vergangenheitskontexten zu veranschaulichen, sind nicht mehr

temporale und aspektuale Phänomene, sondern die Subjektive Ausprägung von Distanz herauszuziehen" [In order to highlight the usage differences between preterite and present perfect, the temporal and aspectual phenomena do not have to be considered, but the subjective category of the "DISTANCE"] (Schumacher, 2011, p. 22). The present perfect is therefore used in the so-called commentary parts of every kind of narration (Concu 2015), which is why in Werther, Goethe made a large use of this construction.

The chart below shows a comparison between the forms found in the two texts.

Forms	The Lay of The Nibelungs	Forms	The Sorrow of Young Werther
habe	13	habe	100
han	109	hab'	13
hast	8	hast	8
hat	124	hat	70
haben	21	haben	14
habt	74	habt	3
habst	2		
habn	12		
habest	2		
habet	1		

Total 366

208

Table 3: The amounts of forms in the Lay of The Nibelungs and in The Sorrow of Young Werther.

The data in both tables show a very similar percentage of usage of present perfect (around the 1% of all the words used). The differences between both texts lie in the participle combined with auxiliary verbs. While in *The Lay of The Nibelungs* the majority of combinations are with the verbs like *getan*, *genomen*, *verloren* and *gesehen*, the variety in Goethe's novel is greater than the one in the Middle High German poem. The next charts show the most frequent past participles in the *Lay of The Nibelungs* and the comparison with the same forms in *The Sorrow of Young Werther*:

The Lay of the Nibelungs	The sorrow of young Werther	Translation
getan: 77	getan: 4	done
gesehn/gesehen: 15/5	gesehen: 11	seen
genomen/genommen: 12/1	genommen: 4	taken
verlorn: 10	verloren: 1	lost
geseget: 11	gesagt: 3	said

Table 4: The most frequent participle in the Lay of the Nibelungs and in the Sorrow of Young Werther

5 Conclusion

The analysis in this works shows evidence for the preferential attachment tendency in the evolution of the present perfect. The Rich-get-Richer model can, therefore, be seen a common pattern in the dynamics involved in the development of complex systems like languages. One of the particular features found through the comparison between *The Lay of the Nibelungs* and *The Sorrow of Young Werther* is that the growth in connectivity of a specific hub negatively affects the connectivity of another one. In the specific case of the German present perfect, the larger number of links of *haben* pushed back the amount of links of the past participle that, especially in the Old High German period and still at the beginning of the Middle High German era, had a greater autonomy. The usage in Modern German of the participle in attributive position is a relict of this lost autonomy.

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Uses of *someone*: Beyond simple person reference

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This study examines how the non-recognitional reference form someone is used to refer to a known referent when a recognitional, such as a first name or a descriptive recognitional, is available (Sacks & Schegloff, 1979). In a conversation, when participants have shared knowledge about the identity of a referent, the occurrence of someone connotes more than a simple reference to the referent. While there is little previous research concerning the use of a non-recognitional to complete particular social actions, this study shows how someone can be employed to accomplish disaffiliative actions such as disapprovals, disassociations, intensified complaints, and accusations in mediagenerated conversations. Using conversation analysis as an analytical framework, I closely analyze interactional turn taking, with a specific focus on the functions and positioning of *someone*. The results of this study show how a non-recognitional person reference is delicately utilized to construct various disaffiliative actions. Theoretically, uses of the non-recognitional reference form, someone, contribute to the current literature examining the use of non-recognitionals to accomplish more than mere referencing. The analysis demonstrates how a speaker uses someone when recognitional forms for a referent are available. The notion that someone is referring to a known referent presents an opportunity to expand the definition of non-recognitionals established by Sacks and Schegloff (1979). The commonality found throughout the examples in this study includes the connotation of a speaker's disaffiliative actions towards either the referent or co-participants. Keywords: Conversation Analysis; Person Reference; nonrecognitional reference form

1 Introduction

This study explores how the non-recognitional reference form *someone* is used to refer to a known referent when a recognitional, such as a first name or a descriptive recognitional (such as "the woman wearing a hat), is available (Sacks & Schegloff, 1979). In a conversation, when participants have shared knowledge about who a referent is, the occurrence of *someone* connotes more than a simple reference to the referent. While there is little previous research on the use of a non-recognitional to complete particular social actions, this study examines how *someone* can be employed to accomplish disaffiliative actions such as

disapprovals, disassociations, intensified complaints, and accusations in mediagenerated conversations through conversation analysis (CA).

2 Background

In a conversation, when a speaker refers to a third party, there are two preferences governing person reference, *minimization* and *recipient design* (Sacks & Schegloff, 1979). Minimization means that speakers use a minimal unit (e.g. a person's name) to identify the referent. Recipient design, including the utilization of recognitionals (e.g. a name or recognitional descriptor), is used when speakers prompt their recipients to recognize the referent. While recognitionals assume some shared knowledge among interlocutors, non-recognitionals do not call for recipient recognition since the assumption is that recipients are not familiar with the referent. Hence, when recognitional forms are available, they are preferred over non-recognitionals. However, there is little research about instances where non-recognitionals are applied at times when recognitionals are accessible.

Land and Kitzinger (2007) demonstrated how a non-recognitional form, *this person*, was used by a caller, Rose, to refer to herself on the phone. Rose spoke as if she were someone unknown (*this person*) to the call recipient. This usage implicitly accounts for the fact that the call recipient will not be able to follow up on the outcome of Rose's labor since Rose's identity is unknown to the call recipient. Therefore, the use of *this person* as a non-recognitional serves to function beyond a simple reference; the speaker uses *this person* to refer to herself as a stranger from the call recipient's perspective. Nevertheless, other forms of non-recognitionals, such as *someone*, were not discussed in the study.

What previous research has shown is that pragmatic actions are completed when a marked reference form is utilized instead of an unmarked, or default, form. However, previous researchers have not delineated situations where speakers use the non-recognitional reference form, *someone*, when a recognitional is available, to accomplish specific social actions. In this study, I show how using *someone* can accomplish complex pragmatic actions.

3 Data and method

The data were collected from media-generated conversations. One was from the American TV sitcom *Friends*, and the other was from the Singaporean film *I Not Stupid*. Contexts included ordinary and institutional talk within the TV show and the movie. The data were transcribed following Jefferson's (2004) notation system.

I focus on instances when *someone* is used for a referent while participants have shared knowledge of who the referent is, excluding cases where *someone* is used for a non-specific referent. Extract 1 from *Friends* provides an example as follows:

(1) 01 M: Chandler, 02 (0.2) 03 M: $\rightarrow \uparrow NObody \text{ likes breaking up} \text{ with someone.}$ 04 M: except for (.) Kevin Milmo::re ma:y he >r::ot in< hell,

In line 3, "someone" is used to refer to any possible referent (Sacks & Schegloff, 1979). Therefore, such an example was not included in the discussion of *someone* employed to refer to a specific referent.

Using conversation analysis (CA) as an analytical framework, I closely analyzed interactional turn taking, with a focus on the functions and positioning of *someone*. According to Waring, Creider, and Box (2013), CA focuses on a detailed analysis of audio or video transcripts in order to disclose interaction from the participants' perspectives in natural environments. What needs to be noted is that the data used in this study are media-generated conversations, whose nature is not the same as naturally occurring data. The difference lies in the fact that the purpose of media-generated conversation aims to entertain. Therefore, conversation is oriented to the invisible remote audience (Kääntä, Jauni, Leppänen, Peuronen, & Paakkinen, 2013), though there is no direct interaction between the audience and mass-media entertainment. In addition to grammar and prosody, gaze was analyzed in one of the examples. Three examples were analyzed to draw theoretical implications and conclusions.

4 Analysis

In the following, I analyze three instances where *someone* is deployed in ordinary and institutional talks derived from media-generated contexts, such as a TV show or a film. The first example (Extract 2) displays a complaint being strengthened by a speaker towards her own mother, a non-present referent, through the use of *someone*. The second example (Extract 3) displays how an accusation is accomplished via *someone* by a creative director targeting his colleague, a present referent. The third and final example (Extract 4) demonstrates a friend's disapproval of her co-participants (other friends) through the non-recognitional *someone* used to refer to the speaker's boyfriend, a non-present referent.

Extract 2 is from the classic American TV sitcom *Friends*. At Nana's (Grandmother, Mom's mother) memorial party, Mom (M) tells Daughter (D) that Nana would have been critical about the flower arrangement for this party. *A* in the transcript stands for the TV audience. The laughter track is marked as being produced by A.

(2)	01	M:	z'f I spent more she°'d be° sa::ying (.) why're you
	02		wasting your MONEY.=
	03		=I don't need <u>flowers</u> ,=
	04		=I'm de:::[ad.]
	05	A:	[((laughter))]

06	D:		[That sounds like] ↑Nana,=
07	A:		[((°laughter°))]
08	M:		=°(h)uh.°
09			(1.3)
10	M:		°.hhh°
11			(0.2)
12	M:		Di ↑you know what it's like (.) to grow up,
13			(1.0)
14	M:	\rightarrow	with someone who is critical of E:VERY S:IN[GLE
			THI:NG you say.]
15	A:		[((laugh-
			<i>ter</i>))]
16			((laughter))
17			(0.5)
18	D:		I <u>can</u> i::ma::gine?=
19	A:		=he he [((laughter))]
20	M:		[k(h)e °he° (.hhh)e I'm telling you.]
21			(0.5)
22			.hhh it's a wonder <u>your</u> mother turned out to be the positive=
23			=life-affirming person 't she i:::s.

Using *someone* in this context appears to be intensifying the speaker's disapproval of the referent, connoting a distance between the speaker and the referent, and reinforcing a complaint from the speaker. Before the utilization of "someone" (line 14), M creates a frame of Nana's extremely critical way of speaking towards her. M uses a conditional *if* ("z'f," line 1) to describe Nana's potentially negative questioning of M's flower expenses for this party. "She" in line 1 anaphorically refers to Nana. After the direct reporting speech (DRS; Vásquez et al., 2009) of Nana (line 1-4) after "saying," D shows her delayed affiliative stance in line 6. She uses "that" to refer to M's DRS. By saying the DRS resembles what Nana would say, D aligns with M regarding the possible take Nana would have: Nana would disapprove of everything done by her daughter, M.

Since both interlocutors have a clear understanding of Nana's personality, M's following use of "someone" (line 14) instead of a known referent, such as *her*, *Nana*, or *your grandmother*, is noticeable in the comparison of her interrogative (line 12-14) and self-praise (line 22-23). Note that M holds her turn during the 1.0s pause at line 13 by gazing at D. Therefore, line 13 is not considered problematic. Using the third-person reference form "your mother" (line 22) to refer to herself with an emphasis on *your*, M invokes an implicit

contrast to *my mother*. Comparing "your mother" (line 22) being "positive" (line 22) and "life-affirming" (line 23) with "someone" (line 14) being "critical" (line 14), M seems to show her disapproval of Nana and to emphasize the non-critical nature of her own personality in contrast to Nana's. M uses "your mother" to refer to herself for the purpose of achieving self-promotion. In this case, *someone* refers to Nana in order to accomplish a disapproval.

For M, *someone*—a reference typically reserved for an unknown stranger appears to be used by her to hinder any association of her and her mother. M's disassociation thus forms a contrast between *someone* and the close family member M grew up with. She not only excludes Nana from the community comprised of those with a family tie but also downgrades the status of Nana. To be noted is that on the other hand, M seems to invite D to imagine living with a critical person so that D can compare between her and M's experience. In this sense, *someone* has a non-referential role based on M's intention.

M's deliberate use of *someone* also serves as an intensifier in her complaint in lines 12-14. The stress, high volume, and lengthened emphasis on "every single thing" (line 14) presents her dissatisfaction of Nana being critical about everything. M actually uses "someone" (line 14) to refer to the known referent to strengthen her complaint. Should she have used other recognitional person reference forms, the complaint would not have been so serious as *someone* renders an otherwise intimate relationship distant.

In addition to being a complaint intensifier, *someone* can also be utilized to form an accusation towards a present referent with the aid of gaze. Extract 3 shows how an accusation is constructed by using *someone* in a media-based institutional setting. This extract is from the Singaporean film *I Not Stupid*. In a meeting room, the story begins with the client, K, unsatisfied with the current team's proposal to promote his business and wanting to talk to the creative director, J. The problem is, the team leader, Designer A (DA), secretly changed the appointment time without telling J, as the team does not want K to accept J's proposal. J finds out about the situation and enters the room with his team designers.

(3)	11	J:		=.hhh
	12			so::rry, so::rry, Mr. °k-° Ku::.
	13			I'm Jo::hn,=
	14			=the <u>creative</u> director.=
	15	K:		=°h:m.°
	16	J:		I'm <u>very sorry</u> to be LA:T(h)E.
	17			{kuh - ((<i>J pulls a chair and sits down</i>))}
	18		\rightarrow	{someone - ((gazes at K))}
	19			{did not - ((slowly shifts his gaze from K to DA))}
	20			[{tell me - ((lowers his head while gazing at DA))}]

21	DA:	[((gazes at J))]	
22	J:	[{that (.) - ((<i>shifts his gaze from DA back to K</i>))}]	
23	DA:	[((gazes away from J))]	
24	J:	{the ti:me °ha°ve been - (($gazes at K$))}	
25		[{changed. ((widely opens his eyes and raises his eyebrows while gazing at K))}	
26	DA:	[((slightly moves his head to the right and lowers it))]	
27	J:	where's my proposal?	

J's use of "someone" (line 18) has three functions. It displays J's disapproval of the present referent, DA, forms his accusation, and disassociates himself from DA. After apologizing for being late in line 16, J's account of "someone did not tell me that the time have been changed" (line 18, 19, 20, 22, 24, and 25) is also a complaint about his colleague, DA. J's complaint is based on not knowing the changed time of the meeting; it is *someone*'s fault that J is late. He suggests his victim role like K; hence, he is able to associate himself with K and potentially eliminate K's bad impression of him due to his lateness. Even when J does not specify who *someone* is, his gaze at DA while saying "tell me" in line 20 seems to mark DA as the person who changed the meeting schedule. DA's reaction after his gaze meets J's (line 20-21) suggests that he is the blamable person. His gaze away from J (line 23) and lowered head (line 26) to avoid eye contact reveal his guilt. Referring to DA as *someone* thus shows J's disapproval of DA not telling him about the time change.

As J's gaze reveals his knowledge of who the blamable person is, his word choice of *someone* is vital for forming his accusation against DA in front of the other participants. From this instance of gaze, everyone in this room knows that DA is responsible for hiding the time change. While a speaker-associated person reference, such as *my colleague*, seems to be an available candidate, J uses *someone* to target DA in an explicit way. J appears to downgrade the status of DA to a person deprived of recognition. This conflict between the non-recognitional *someone* and the knowledge of who this person is thus makes J's accusation stand out.

Simultaneously, J apparently does not regard DA equally as a colleague but excludes him by using the non-recognitional *someone*. J's disassociation from DA is observable from J's preference of *someone* over *my colleague*. If J used *my colleague* to associate himself with DA, then the degree of his accusation would not be as severe. Instead of including DA in his professional field, J deliberately excluded DA from his group by using *someone*, which seems to suggest that DA is responsible for this unsolvable issue. DA is not given an opportunity to

negotiate based on the other-exclusion of his collegial identity. It should be noted that since J does not explicitly point out who *someone* is, it is still possible for J to deny his accusation of DA.

A slightly different third type of use of *someone* is found in Extract 4. In this context, Monica (M) brings her new boyfriend, Alan, back to her apartment to meet her friends. After sending Alan back home, M goes back to her apartment and invites comments from her friends on the topic: "Let's let the Alan-bashing begin." However, the positive assessments from Ross (RS), Joey (J), Phoebe (P) and others, together with affiliation with Alan from Chandler (C), Racheal (RC) and others formulate a contrast to M's disaffiliation.

(4)	01	RS:	we loved °him.°
	02	All:	we <u>LOVED</u> him.=
	03	?	=[<u>hold on</u> .]
	04	J:	[°isn't]that great?°=
	05	M:	=ALL:::^RI:::GH'?=
	06		=[\$(h)w(h)ait] (h)a\$ minute.=
	07	P:	[°great.°]
	08	M:	\rightarrow =we're talking about someone that <u>I::</u> 'm going out
			°with°?=
	09	C:	= [YE(h):::S.]
	10	P:	=[YE::::::S.] [yeah.]
	11	J:	[↑yeah.]
	12	RC:	that pimento <u>trick</u> ?

M's use of a non-recognitional reference form "someone" (line 8) shows her disapproval of both the referent and her co-participants; interestingly, she also uses someone to disassociate her co-participants and herself from the referent. Different from what M was expecting, everyone has a good impression of Alan (line 1, 2, 4, and 7). "Him" in line 1 refers anaphorically to Alan. In contrast, M's attempt to get the floor to show her disalignment and forecast her disapproval is perceivable in line 6. When M says "wait a minute," she does not align with her friends but interrupts the flow of compliments. Additionally, the smiley sounds and outbreaths are embedded in "wait a." These discourse markers constitute laughter. This suggests that M treats the unexpected positive assessments as laughable, thus displaying her disalignment and projecting her disapproval in line 8. Using "someone" in line 8 suggests M's disapproval of her co-participants (friends) due to their positive comments towards Alan. The entire NP "someone I'm going out with" (line 8) appears to be a category or at least category-resonant, which appeals historically to M's dates which her friends typically did not like. M appears to regard the person who has been assessed positively by her friends as unrecognizable. This discrepancy is thus relevant between the highly-rated Alan and the category containing men she dated who her friends disliked. M apparently shows her disapproval of her friends' compliments for Alan. M's disapproval is salient by categorizing Alan with the word choice *someone*. In addition to that, by emphasizing the first-person singular "I" (line 8) with stress and vowel-lengthening, M seems to cast doubt on the positive comments her friends attribute to her new date. She uses the emphatic I to reinforce her disapproval of her friends since they are supposed to criticize the person *she* is going out with, but the compliments contradict her expectation. M also appears to question her friends by saying "I" with emphasis; no one follows *her* lead.

The non-recognitional *someone* may indicate M's disapproval of not only her friends but also Alan. The disapproval M shows of Alan is evident in M's initiation of the "Alan-bashing." With the negative connotation of "bashing," M already presupposes her disapproval of him. However, since the positive assessments from others seem to contradict M's initiation of the bashing, M's use of *someone* in the category of *someone I go out with* echoes her impression of Alan. Comparing "he" in line 1 and "someone" in line 8, M appears to push for the known referent to be excluded from recognition.

In addition, M's preference of *someone* over *Alan* or a recognitional descriptor, *my date*, seems to mark a distance between M's community and Alan. While M begins her turn in line 8 with "we," she affiliates herself with the community comprised of the other five friends. Thus, the occurrence of *someone* seems to implicitly exclude Alan from M's community of friends. As mentioned earlier, the NP *someone I'm going out with* treats Alan as a member of the category encompassing her dates that were disliked by M's friends. M seems to objectivize Alan in the sense that he too will fit into this category in order to echo the original Alan-bashing topic. While the other friends shorten the distance between Alan and them, M appears to purposely distance her date from the community.

Disassociation seems to occur between M and her referent as well. M appears to disassociate herself from Alan despite the positive impressions provided by her friends. If using *Alan* instead of *someone*, the degree of closeness between M and Alan would come across stronger. This implies that M does not view her romantic relationship with Alan as stable; after all, M and Alan have only met each other recently. Therefore, using *someone* seems to downgrade the position Alan occupies in their romantic relationship, which marks the distance of M's emotional proximity to Alan.

5 Discussion and conclusion

This study shows how non-recognitional person reference is delicately utilized to construct various disaffiliative actions. Theoretically, uses of the non-recognitional reference form, *someone*, contribute to the current literature of utilizing non-recognitionals to accomplish more than simple referencing. The data present how a speaker uses *someone* when recognitional forms such as a name or a recognitional descriptor are available. The notion that *someone* is

referring to a known referent presents an opportunity to expand the definition of non-recognitionals provided by Sacks and Schegloff (1979). The commonality found throughout these three examples includes the connotation of a speaker's disaffiliative actions including disapprovals, disassociations, intensified complaints, and accusations. In Extract 2, *someone* highlights Mother's (M) complaint of Nana. In Extract 3, *someone* constructs John's (J) accusation towards Designer A (DA) with the aid of J's gaze, which reveals the fact that *someone* is present. In Extract 4, in addition to constructing a disaffiliative action directed towards the referent, Monica (M) uses *someone* to express her disapproval of her co-participants and the referent. These three examples demonstrate how *someone* is used delicately to accomplish disaffiliative actions and thus social interaction.

In addition, the salience of *someone* is made relevant by the use of different categories such as *your mother* and *someone I'm going out with*. These categories are vital in constructing the pragmatic functions of *someone*.

Gaze appears to be significant in facilitating the use of non-recognitional person reference to refer to a known referent. This indicates the import of a detailed transcription and a close analysis through the lens of CA.

Future research will focus on expanding the data collection of *someone* beyond media generated data to include naturally occurring conversations. Instances of referring to present and non-present referents by using *someone* may be further delineated and compared when more data are accessible.

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Violence in newspaper's language

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This study investigates the relationship between violence and language. It is based on the linguistic analysis of one page of the Italian national daily *La Stampa*. The issue taken under consideration was published after a violent episode during the so-called *Anni di Piombo* ['Years of Lead'] in Italy: the bombing at the Bologna railway Station occurred on August 2, 1980. The analysis of the language is organized on three different levels: lexis, morphology and syntax.

Keywords: Violence; newspaper; Bologna Massacre

1 Introduction

Violence is recognizable in several situations in which human beings are involved. Is it possible to identify it in language too?

This paper is part of a bigger research project involving the linguistic analysis of seven Italian newspapers whose goal is to study the language used in the account of different violent episodes. The idea of recognizing violence in language was born of a primary need to discover its reproducibility. Is it possible that the word manages to reproduce the violence? If it does succeed in doing so, what tools are used?

The analysis in this paper demonstrates that violence can be part of language, not only in its content, but also in its form. The paper is structured as follows: Section 2 introduces the meaning of violence, whereas Section 3 presents violence in recent Italian History, examining in particular the Bologna Massacre. Section 4 consists of an explanation of the meaning of violence with reference to language. In Section 5 the issue of the Italian newspapers *La Stampa*, published on August, 3 1980 following the events of the Bologna Massacre, is analyzed. Finally, the conclusions of the linguistic analysis are summarized in Section 6.

2 What does violence mean?

The definition of the word 'violence' appears to be complicated, since even Roland Barthes pronounced the problem insoluble (Barthes, 1981). What he does in the interview edited by Jacqueline Sers, instead, is enumerate the main difficulties interpreting and finding the meaning of this word.

From a philosophical and theoretical perspective, violence would be connected to power, authority and control. Hannah Arendt finds in violence a specific trait: from a phenomenological point of view, violence needs instruments to apply its dialectics. The main difference between violence and power, therefore, can be summarized in this manner: power has to do with an end and violence with means (Arendt, 1970).

Walter Benjamin considered the issue from a similar perspective. However, in his essay *Zur Kritik der Gewalt* (Benjamin, 1999) he prefers to contrast violence (*Gewalt*), law (*Recht*) and justice (*Gerechtigkeit*). Benjamin analyzes the topic arguing that violence can be involved in every human matter except for one: communication. He states that communication, and therefore language, is inaccessible to violence — Darin spricht sich aus, dass es eine in dem Grade gewaltlose Sphäre menschlicher Übereinkunft gibt, dass sei der Gewalt vollständig unzugänglich ist: die eigentliche Sphäre der »Verständigung«, die Sprache (Benjamin, 1999, p. 193).

This paper, does not investigate the meaning and implications of violence; it will rather focus on demonstrating that language can be permeated by violence as well as every other aspect of human life.

3 Violence in Italian history

During the period that starts from the mid-Sixties and ends with Moro's murder in 1978, Italy has seen the rise of the Christian Democrats (DC) in a coalition with the Italian Socialist Party (PSI) and Italian Communist Party (PCI) adopting a strategy best described as an 'historic compromise.' The years between the end of the Sixties and 1980 are known as *Anni di Piombo* [Years of Lead], a period marked by a crescendo of violence and acts of terrorism perpetrated by extremist paramilitary groups, whether of the Right or the Left wing. This lapse of time has been called 'strategy of tension' and Anna Cento Bull in her work on Neofascism in Italy attributes the coinage of this expression to the British journalist Leslie Finer, who wrote from Athens and was later expelled from the country (Cento Bull, 2007).

During the *Anni di Piombo* the Far-Right and Far-Left wings, joined and helped in some cases by Italian Secret Services, used bombings, random and targeted assassinations and massacres as a form of demonstration against politics and democracy. The data collected by the Italian Ministero dell'Interno [Home Office] reports 491 deaths, 1181 wounded and 14 591 attacks accounted for politics between 1969 and 1987 (Ventura, 2010). Even though every violent attack was a crushing threat to democracy and freedom in Italy, perhaps the most devastating and terrible events in this lapse of time were six: the Piazza Fontana Bombing in Milan (December 12, 1969); the Massacre of Gioia Tauro (July 22, 1970); the Massacre of the police headquarters in Milan (May 17, 1973); the Piazza della Loggia Bombing in Brescia (May 28, 1974); the Massacre of Italicus (August 4, 1974) and the Massacre at the Bologna Station (August 2, 1980).

3.1 Bologna Massacre

In this paper I will take under consideration the last episode mentioned above, the Massacre at the Bologna Station also known as the Bologna Massacre.

It happened on the morning of Saturday, 2 August 1980, precisely at 10.25 a.m. as everyone can still read on the clock outside the railway station that stopped in that moment and was not fixed in memory of those who lived

through that tragic event. A time bomb in an unattended suitcase was placed inside one of the two air-conditioned waiting rooms at the railway station in Bologna. That bomb contained of 23 kilos (50 pound and 11 ounces) of explosives. It detonated at 10.25 a.m. in an overcrowded waiting room. The explosion destroyed not only most part of the main building where the roof collapsed onto the passenger in the room but also the train waiting at the first platform.

In the Bologna massacre 85 people were killed and more than 200 were injured.

4 Violence in language

John Berger, giving his account of the terrible photography pertaining to war scenes that appeared in newspapers, establishes a connection between the violence that the camera isolates capturing a moment of agony, and the violence itself isolated by the experience of that moment. Thinking about the word 'shot,' used at the same time for cameras and weapons, he insists stating that it is not a simple mechanic analogy: that image fixed by the camera reveals a double violence underlining the contrast between the moment captured and other moments (Berger, 2013).

Similarly, this work is grounded on the fact that on a linguistic basis, language at different levels (lexical, morphological and syntactical) can denote traces of the violence it is referring to. Language can be deconstructed into a violence of content and a violence of form.

(1) a. Ammazzalo!

'Kill him!'

b. Lo ammazzeresti per cortesia?

'Would you kill him, please?'

These sentences convey the same information — with reference to the content level — but in two very different ways — with respect to semantics, and therefore to the extralinguistic message they are carrying.

But in the sentence below, the content is clearly not violent, but the formal logic of the cause-and-effect structure gives it a connotation that can be defined as violent, almost threatening.

(2) Se non studi, non passerai l'esame.

'If you don't study, you won't pass the exam.'

The same sentence would be different — although still a cause-and-effect statement — if the future tense was replaced by the present:

(3) Se non studi, non passi l'esame.

'If you don't study, you don't pass the exam.'

The sentence would be even less powerful and therefore, according to our argument, less violent without the double negative:

(4) Se studi, passi l'esame.

'If you study, you pass the exam.'

The concept of emphasis ought not be automatically assimilated to that of violence. There is no trace of formal violence (nor violence of content) in:

(5) a. Il caffè lo bevo dopo.

'*The coffee I drink it later.'

b. Il caffè lo bevi dopo.

'*The coffee you drink it later.'

c. Bevi dopo il caffè.

'Drink later the coffee.'

There is no trace of formal violence (nor violence of content) in (5) a., but there certainly is in (5) b., which is unrelated to same solution at zero degrees in (5) c.

The point is the perception of the linguistic act as an action performed by a person who becomes an agent, hence this linguistic act can also be defined in a way that is linked to violence since this forecasts the abuse of force on the part of one subject on another.

This kind of violence is more recognizable in images or in cinematographic language. To quote an example already highlighted by many, perhaps the most crude and violent scene of all neorealist cinema is the torture of the partisan Manfredi in Rosselini's *Roma città aperta*. Not a single frame shows it, yet the spectator experiences it in the shots of Don Pietro / Aldo Fabrizi who is present at the scene.

5 Violence in newspaper's language

In the introduction to his *Violence*, Slavoj Žižek affirms that the violence he defines as subjective, that is, perceivable and recognizable episodes performed by identifiable actors, corresponds to an invisible violence that, according to the philosopher, is objective, of two types: symbolic, or of language and of form, and systemic, i.e. the product of economico-political

systems in which we live (Žižek, 2008). The theoretical premise underlying this research consists precisely of this intention to analyze and identify the linguistic elements that manifest themselves in this kind of objective violence.

In order to conduct this linguistic analysis it is necessary to select a corpus in which the matter is undoubtedly violent to reduce to zero this variable. As a consequence, the texts needed should have a violent topic and a non-fictional writing genre: for this reason the entire research is focused on articles taken from seven Italian newspapers and precisely the ones printed the day after the massacres occurred during the *Anni di Piombo* in Italy. In this paper only the issue of one newspaper, *La Stampa*, will be presented.

5.1 La Stampa issue August 3, 1980

La Stampa is one of the oldest Italian newspapers with a political alignment linked to the center-left wing. It is not in the author's intentions to investigate the political orientation of this newspaper, since the analysis will not be focused on politics.

The newspaper issued on August 3, 1980 will be the one analyzed in this paper because of the facts that happened on the previous day, known as the Bologna Massacre. *La Stampa* dedicates 5 pages to this event, in which there are 16 articles reporting of the massacre.

5.1.1. A linguistic analysis of the front page: headlines

La Stampa front page (see Figure 1) shows 2 photos and 6 articles of which 1 complete box and 1 complete article, while the others continue on the following pages of the newspaper.



Figure 1. La Stampa, August 3, 1980. Front page downloaded from www.lastampa.it.

Working Papers of the Linguistics Circle of the University of Victoria 25(2), 88–96 © 2015 Alessia Zocca The main headline is a complete sentence in bold on two lines, whereas the bottom headlines are two direct speeches.

On a lexical level, the headlines are giving an image of disaster, stressing the number of people involved ('*folla*' means 'crowd') and humanizing the sentence even more using a verbal phrase ('*saltare in aria*') which involves a verb ('*saltare*', which means 'to jump') used exclusively with living beings instead of an equal expressive verb like ('*esplodere*' which means 'to explode' as '*saltare in aria*').

Adjectives are almost absent in the top headlines but their presence grows in the bottom headlines where the adjectives used are meaningful ('sconvolgenti' means 'disturbing', 'semidistrutta' is 'partially destroyed') or inflected in the superlative form ('gravissimi' referring to the people injured would correspond to the English phrase 'very seriously injured').

The main headline closes with a question ('è un attentato?' 'is it an attack?') and the following subheading ('Paese senza pace' 'Country without peace' and 'Le prime ispezioni escludono un incidente' 'first investigations exclude the accident') lead to a specific answer. It is interesting to highlight that even though the answer seems to be positive — yes, this is an attack —, in the two sentences there are two negative forms, one in the preposition 'senza' [without] and one in the verb 'escludere' [to exclude]. The idea of instilling a feeling of doubt, dissolved few lines later into a dramatic certainty expressed in a negative way, is precisely what is intended when referring to violence in language.

5.1.2. A linguistic analysis of the front page: Articles

The articles are numbered starting from the left and not from the main one (see Figure 2).



Figure 2. La Stampa's front page: articles numbered.

Article 1 is the only complete article on the front page. In Italian newspapers the article in this position — 'articolo di fondo' — has a particular informative function. It gives a brief account of a fact offering considerations and implications about it. On a morphological level, in this article the verb inflection swings between the impersonal and the first plural, almost always preferring a passive diathesis, which in some cases consists of three or four words ('si è pensato' 'it has been thought', or "ci si è aggrappati" that in English could be translated as 'people were hanging on', or "potrebbe essere stata rotta" 'it could have been broken'). This morphological solution contributes to a sense of powerlessness and impotence facing a terrible event such as the railway bombing.

The complete box which reports in bold the claim of responsibility by the fascist group of NAR — '*Nucleo Armato Rivoluzionario*' — eventually retracted and denied, is numbered with 2. For the linguistic analysis, since it is written in the style required by the purpose, on this box there are no remarkable observations to make.

The leading article is Article 3. The very beginning presents nominal style sentences in which the words are relevant and significant: 'strage' [massacre], 'sangue innocente' [innocent blood], 'saltare in aria' [to explode in a very meaningful expression, to blow up], 'esplosione' [explosion], 'attentato' [attack], 'bomba' [bomb]. The reader finds in this story precise facts, data, the measure of the crater left by the bomb, the time of the explosion, the number of people involved, the hospitals where the wounded were left. The leading article's detailed slant is informative, its syntax is made of fast and sudden sentences. This observation might seem paradoxical if compared to what was said about Article 1, but this kind of precision and accuracy in the information communicates a sense of anxiety and alarm to the reader as much as the vagueness of Article 1.

Article number 4 occupies the position of the *articolo di spalla*, a column reporting an important fact that is usually different from the other front page big news. Nonetheless, on *La Stampa*'s front page, as well as on every national daily on August, 3rd 1980, every article was dedicated to the Bologna Massacre, therefore Article 4 also focuses on the same topic, but with a different point of view. It reports how the Prime Minister and the President reacted to the news. The construction of this article is relevant for the analysis: three of four paragraphs begin with direct speech. Two of the first lines in each paragraph end with a question mark and one with an exclamation mark. This questioning and alarming style reverses the approach that politics should use when dealing with important matters. It is expected from politics to give answers, to take actions, to work on solutions. What the structure of the article conveys, instead, is the opposite: confusion, hesitation, fear.

On the bottom of the front page, Article 5 consists of several interviews. First, a doctor's experience of the tragedy while he was working at one of Bologna hospitals and then interviews of those who survived to the attack. With other intense nominal sentences and parataxis style, the reader experiences the event approaching it from the distance — first the doctor's story and then direct witnesses. In the end the article's new focus starts to

develop: the investigation. The description in the direct speech is obviously made of first person verbs (singular or plural like: 'ero' 'I was', 'avevamo' 'we had', 'stavamo mettendo' 'we were putting', 'ho sentito' 'I heard', 'non ho più capito' 'I haven't understood'/'I couldn't understand anymore').

Article 6 is placed under the column about politics and is a piece dedicated to the President's reaction. What stands out in this article is an argumentative answer that the President gave to a journalist when he asked about his impressions: '*Come vuole che abbia reagito quando ho visto quei due bambini sdraiati con le braccia aperte e che adesso forse sono morti...*' [How do you expect me to react to the image of two kids lying down on the ground with open arms that by now could be dead...]. The journalist decided to report, among all the declarations the President has made, the one in which he is openly argumentative if not verbally violent.

6 Conclusions

The elements presented above arose from the analysis of *La Stampa*'s front page, carried out to highlight and explain that language is capable of transmitting violence by means of its form and not only of its content.

The analysis was structured on different levels: lexical, morphological and syntactical. It was easier to demonstrate how vocabulary could be violent: when reading 'sangue innocente' [innocent blood] it is clear that the journalist is exaggerating because it is impossible that all the victims where actually innocents. Or in 'spaventosa strage' [terrible massacre], could a massacre be not terrible?

It was more complex to explain where to find violence in terms of morphology. The focus on verbal diathesis, even though there are many differences between Italian and English verbal construction, was the perspective preferred. The passive was interpreted as a way of creating a sense of distance from reality and of focusing on the events but at the same time as a threatening menace of the unknown.

Regarding the syntax, the study showed that sometimes writing consisting of nominal sentences can give immediate and instantaneous flashes much more violent than accurate and detailed descriptions.

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#go awn: Sociophonetic variation in variant spellings on Twitter

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While there is a long history of investigating sociophonetic variation in speech, it has been less studied in computer mediated communication contexts such as Twitter. The most obvious reason for this is that interactions in Twitter are text-based and therefore do not include acoustic information. Twitter users are, however, encoding sociophonetic information through their use of variant spellings, such as "awn" for "on". This study provides evidence that Twitter users in multiple dialect regions are using variant spellings to encode sociophonetic variation in a systematic way and that these variant spelling are sensitive to style shifting. The methodology used here may be used in future studies to determine the salience of sociophonetic variables.

Keywords: sociolinguistics; phonetics; social media; Twitter

1 Introduction

This study has two aims. The first is to see if it is possible to replicate findings based on speech data using Twitter data. Secondly, it will attempt to determine whether tweets that include sociophonetic variation are subject to style shifting. This will help to provide information on the nature of the connection between soicophonetic variation and variant spellings on Twitter.

2 Background

It may seem counter-intuitive to attempt to look at phonetic information in a predominantly written medium. Previous work, however, has suggested that the parallels between face-to-face and computer medicated communication (CMC) are robust. If this can be shown to extend to phonetic variation, then data from computer mediated communication can provide a new line of enquiry for sociophoneticians and a new way to verify findings.

Twitter data is an especially appealing area to investigate for a number of reasons. Though it has some drawbacks, the sheer volume of available data makes it an appealing area to investigate. Perhaps the most exciting quality of Twitter data is the high number of variant spellings used. While it seems clear that these variant

spellings are encoding *something*, whether or not they are actually representing phonetic variation in speech is an open question.

2.1 Computer mediated communication & variationist sociolinguistics

There have previously been relatively few variationist studies of computer mediated communication (CMC). Androutsopoulos (2006) suggests that there are two main reasons for this: demographic information on users of CMC is often unreliable or missing and there is a lack of phonetic/phonological information.

Even with these hurdles, however, a body of work on variation in computational contexts has emerged. The consensus in the literature so far strongly suggests that 1) systematic variation does exist in CMC and 2) it parallels variation found in speech. This has been shown across a number of domains, including text messaging, Internet Relay Chat (IRC), blogs, instant messaging (IM) and Twitter.

Thurlow and Brown (2003) found that non-standard spellings in text-messaging can be divided into a small number of distinct purposes including accent stylization. They argue that these nonstandard spellings are explicitly used to reflect speech and create a casual style that helps to form and maintain close social ties.

Linguistic variation has also been observed in Internet Relay Chat (IRC) contexts. Siebenhaar (2006) investigated the use of standard and dialect forms in Swiss-German chat rooms. He found that not only were Swiss dialect forms being used in the chat room contexts (somewhat surprising given their rarity in written forms elsewhere), but that their use was mediated by both the regional identity and age of speakers. More dialect forms were used in region-specific channels and by younger speakers.

Blogs are another area of CMC that show predictable variation. Using markers that have been identified in previous computational work as "male" or "female", Herring and Paolillio (2006) investigated the use of "gendered" features in weblogs or blogs. They found that, while there was variation in the use of these features, they were tied more closely to genre than gender. This shows the need for the careful application of sociolinguistic knowledge and techniques in investigating variation in CMC. Unprincipled data-mining or statistical feature extraction runs the risk of misidentifying the role of variants.

More recently, Tagliamonte and Denis (2008) found that variation in Instant Messaging (IM) not only mirrors that of the speech community but also exhibits the same ongoing linguistic changes. They note that for some features—such as the distribution of personal pronouns—instant messaging patterns much more strongly with speech than other written mediums.

Twitter data has also been the focus of sociolinguistic investigations. Danescu-Niculescu-Mizil et al. (2011) used computational modelling to argue that Twitter users show accommodation, and that the degree of accommodation is influenced by the social network of the individuals involved. Bamman et al. (2014) also found that social network affects variation in the use of features linked with gender; the more an individual's network is made up of a single gender, the more

gender markers they are likely to use. Eisenstein (2015) found that the use of g-dropping and th-stopping was higher in conversations and areas with higher African American populations, mirroring findings from speech data.

What emerges from the literature is a strong trend: computer mediated communication strongly patterns with speech with regard to variation. Further, many of the sociolinguistic processes that have been observed in speech—language change, crossing, code-switching, style-shifting—have also been observed in CMC. This suggests that CMC is a fruitful area for sociolinguistic research. Twitter data, especially, offers an exciting area for future research.

There are many benefits to using Twitter data for sociolinguistic investigations. The most obvious is that there is a huge amount of Twitter data already available. There are over 500 million Tweets sent every day (About, 2015) and many of these are available for almost-instantaneous collection. Further, for the foreseeable future all Tweets will be archived at the Library of Congress (Osterberg, 2013). This is especially satisfying for researchers who are worried about reproducible research: since Twitter data is publicly available and archived all Twitter research is inherently reproducible. As an additional benefit to sociolinguistic studies, since Twitter is mainly used for peer-to-peer communication rather than research data collection, the effect of the Observer's Paradox (Labov, 1972) is minimized. Twitter presents one of the largest, richest and most accessible sources of linguistic data extant today.

However, there are also serious drawbacks to using Twitter data for sociolinguistic investigations. The first is that demographic data (age, geographic area, social class, etc.) is rarely available for users. One possible way to ameliorate this problem is by deducing demographic information from the content of tweets (Rao et al., 2010). There is also limited control over data production, making many sociolinguistic methods unusable. And the sheer amount of available data is as much of a drawback as it is a strength. Without a principled way to sample tweets it is impossible to extract meaningful insights from them. One final drawback, however, is perhaps the most difficult to overcome for sociophonetic research: there is no acoustic data available.

2.2 Variant spellings

That is not to say, however, that there is no phonetic information available. Twitter users, much like the text messengers investigated by Thurlow and Brown (2003), use a high proportion of variant spellings.

Variant spellings are non-standard orthographic representations of words. They are occasionally referred to as "dialect orthography" (Krapp, 1919) or "dialect respellings" (Preston 1985). There has been a resurgence of interest in variant spellings in the context of CMC. In contrast with the earlier use of non-standard orthography, which was almost always used to represent the speech of others, variant spellings in CMC are used at least sometimes to represent the speakers' own speech habits. Although as Dinkin (2014) points out, this is not always the case; some very common phonetic variables, such as (ing) are not

represented to the same degree in CMC.

Though it may not perfectly mirror speech, there is certainly more variation in spelling in CMC contexts is more variable than in other writing (Sebba, 2003). Variant spellings have also been observed to be doing social work in other informal written contexts. Androutsopoulos (2000) found that variant spellings in German punk fanzines encoded many of the same differences later observed in texting by Thurlow and Brown (2003), including phonetic and regional variation.

What has not been established, however, is whether the use of multiple variant spellings pattern with phonetic variation in speech. There seem to be two possibilities. The first is that variant spellings are in fact different lexical items and do not reflect sociophonetic variation. "Go awf", for example, is a set phrase, which seems to be used primarily by younger African American women as an expression of approval and solidarity. But many of the individuals who use this form prefer the spelling "off" in other contexts. Another example would be spellings like "hawt" which, if "aw" is used to represent /ɔ/, does not reflect the spoken production of individuals without the low back merger (Labov et al., 2005).

The second possibility is that variant spellings *are* representing phonetic variation, albeit perhaps imperfectly. If this is the case, we would expect phonetic variables that pattern together in speech to pattern together in variant spellings in Twitter. We would also expect them to show style-shifting. Finally, we would also expect them to occur in very low-frequency lexical items. This last quality can be readily observed—it is unlikely, for example, that "spelunkin" in the song title "Monster Spelunkin" (Tran & Velema, 2014) represents a separate lexical item from "spelunking"—and so will not be considered here. Very low frequency but intentional variant spellings, however, may be an interesting area for future work.

3 Case studies

In order to investigate the distinction above, data was collected for two dialect areas: the American South and Scotland. The following data-gathering procedure was used for both.

First, a well-studied sociophonetic variable with a clear alternate spelling was chosen. Then, high frequency words with that variable were selected. Next, tweets containing the variant spelling forms of the high frequency words were sampled using the public Twitter API (Application Program Interface) and the Twitter R package (Gentry & Gentry, 2014). Finally, the tweets selected this way were sorted by hand to remove tweets were the target words occurred in URL's, user names, foreign words or typos. Any other variant spellings in remaining tweets were then marked by hand

3.1 Southern American and African American English

3.1.1 Methodology

The target variable in for the American South was distinction between /a/ and /ɔ/, with /ɔ/ spelled "aw". The inclusion of "w" in the spelling is probably to highlight the rounding distinction. The lack of a low back merger is a sociolinguistic marker of Southern American English and African American English (Labov et al., 2005). For merged speakers, it is not possible to guess which is /ɔ/, which results in over-application of the spelling in words like "hawt" or "dawg".

The 100 most frequent English words with this distinction were selected using the Corpus of Contemporary American English (Davies, 2008) for frequency data and the CMU Pronunciation Dictionary (Weide, 1998) for pronunciation data. Future work should make use of more nuanced sources for /ɔ/ forms, as the CMU dictionary returned several words— "or", "for" and "your"—which were not good candidates for distinguishing speakers without a merger as the target vowel is prerhotic.

3.1.2 Results

However, the remaining targets items—on, all, also, want, and because—were all found spelled with "aw"—awn, awl, awlso, wawnt, becawse. In addition, of the 74 filtered tweets with one of these target variant spellings, 50% contained more than one variant spelling. And these variant spellings were also encoding sociophonetic variation, including th-stopping, g-dropping, r-lessess, cluster reduction and /ai/-monophthongization. These are summarized in Illustration 1. These features are consistent with those found in Southern English and, with the exception of /ai/-monophthongization, African American English (Labov & Boburg, 2005).


Number of Tweets With Varient Spellings in Addition to "aw"

Illustration 1: Other phonetic variables encoded with variant spellings in tweets containing the "aw" variant spelling in /ɔ/ words.

An example of a tweet with a number of variables can be seen in (1). Variant spellings of interest are italicized.

(1) Hype hayed foah dat becawse it was 8 bucks foah 2 yeahs and w da jets i like readin about da prospects ogay (JPG 2015)
"I paid for that because it was eight bucks for two years, and with the Jets [American football team] I like reading about the prospects, okay?"

Note that it includes r-lessness in "foah" and "yeahs", th-stopping in "dat" and "da" and g-dropping in "readin". There are also some variant spellings that are not encoding sociophonetic variation, such as "w" for "with" and lower case "I". Finally, there are some spellings where the intended interpretation is not entirely clear, such as "ogay" for "okay" or "hype hayed" for "I paid". Although the second "h" could be a representing aspiration, the first one is puzzling.

3.1.3 Discussion

It does appear that Twitter users are using multiple variant spellings together to encode phonetic variables that are consistent with those found in African American and Southern English. However, there are some issues with the data already discussed. For one, there is limited geographic data available. Only one tweet was geocoded, and though it was from Louisiana, that hardly shows that the bulk of these tweets were from the South or areas with a high proportion of African American residents. The use of variant spellings in this way could also be limited to one dialect area. Convergent findings from another dialect area are necessary to validate these findings and methodology.

3.2 Scottish English

3.2.1 Methodology

The sampling variable for the Scottish English dataset was the [du] vowel, which is produced [de] (Stuart-Smith 2004) and commonly spelt "dae". (Including in educational materials produced by Education Scotland, the national body for education assessment in Scotland [Education Scotland 2015]). All the words containing [u] were selected from among the 50 most frequent English words (Davies 2011). Tweets containing these words— "who", "do", "you" and "to"—with their variant spellings— "whae", "dae", "yae" and "tae"—were then sampled using the same code as before. After sorting, 45 tweets remained.

3.2.2 Results

The use of variant spellings was even more prevalent in this sample. 84% percent of the tweets contained more than one variant spelling and there was an average of three variant spellings per tweet. A summary of number of variant spellings can be found in Illustration 2. In addition, they encoded sociophonetic variables associated with Scottish Standard English, including, $[u] \rightarrow [u]$, $[ai] \rightarrow [æ]$, [l] vocalization, lack of [o], [o], and $[ei] \rightarrow [i]$ (Stuart-Smith 2004, Renni 2001). A number of these variables can be seen in example 2, with the variant spellings italicized.

(2) *dae ye* ever look back *oan* how much time *ye* wasted *oan* someone nd wonder why *nae*one punched u in the *heed* (bj 2015)
"Do you ever look back on how much time you wasted on someone and wonder why no one punched you in the head?"

Note that $[\circ]$ in "on" here is spelled "oa" where, presumably, the "o" also represents the presence of rounding. Other variables include [u] fronting in "ye", and [ei] surfacing as [i] in "heed".



Number of Tweets by Number of Variant Spellings

Illustration 2: Frequency of variant spelling counts in tweets. Note that while the average was three, some tweets contained as many as six.

3.2.3 Discussion

Taken together these two case studies provide evidence that speakers are using spelling variation to reflect sociophonetic variation. This suggests that variant spellings may provide a rich area of enquiry for sociophoneticians. It also shows that the methodology outlined above can be usefully applied to sample tweets that highlight sociophonetic variation—especially variation that is highly salient.

4 Style Shifting

While these case studies are suggestive that speakers are using variant spellings in the same way they do phonetic variables in speech, it is still not conclusive evidence. In order to further demonstrate this, tweets from a single user of Scottish English was sampled and examined to determine whether style-shifting was affecting the use of variant spellings.

Twitter user BradleyKirkwood (<u>https://twitter.com/BradleyKirkwood</u>) is a frequent user of variant spellings and also uses many markers of Scottish identity. His location is noted as "Scotland|Ayershire" his cover photo shows fans of the Rangers (a Scottish football team) cheering in the stands during a match (as of April 23, 2015).

His 100 most recent tweets were downloaded on April 23, 2015. They were then marked for variant spellings in the same way as the earlier samples. Most of the tweets in the sample, 64%, used at least one variant spelling.



Use of Variant Spellings by Topic

Sorted by proportion of use

Illustration 3: Twitter user @BradleyKirkwood's rate of use of variant spellings by topic area (as determined by a content analysis)

A content analysis was performed on these tweets and they were then sorted into the topic categories shown in Illustration 3. As can be seen, the rate of use of variant spellings varies dramatically between domains. Even with the relatively small sample size, these differences were large enough to be significant, χ^2 (6, N = 91) = 25.53, p <.001. It is perhaps not surprising that tweets discussing sports were not only very common but also contained a high proportion use of variant spellings. One example can be seen in (3), below.

(3) @RangersFC @LiviFCOfficial thats what happens when *ye* play lee mcculloch, tell mccall *a* said he's *tae* write that *doon* (BradleyKirkwood 2015)

"That's what happens when you play Lee Mcclloch (Socttish football player), tell McCall (Rangers football team manager) I said he's to write that down."

BradleyKirkwood's variant spellings seemed to be connected with both regional identity as well as covert prestige and possibly affiliation with the working class. Given earlier findings (i.e. Trudgill 1972) it would seem likely that male Twitter users would use more variant spellings associated with regional variation than Twitter users of other genders.

As it stands, however, this result suggests that this Twitter user is using variant spellings to show domain-based style shifting (Fishman 1967). The fact that his use of variant spellings fluctuates also suggests that they are sociolinguistic markers or stereotypes, rather than indicators (Labov 1972). The use of variant spellings during style shifting is a rich area for future research.

5 Conclusion

This investigation provides evidence that variant spelling on Twitter are encoding phonetic variation. These variant spellings were found to encode clusters of known phonetic features associated with two separate dialect regions. In addition, at least for one Twitter user, the use of variant spellings varies by domain. The fact that the use of variant spellings is susceptible to style shifting provides convergent evidence for the claim that variant spellings pattern closely with spoken language phonetic variation.

This study has been a very cursory examination of these phenomena, however, and many questions remain unanswered: Are Twitter users accurately reflecting their own speech through the use of variant spellings? Or are they more likely to use variant spellings to show reported speech or crossing? In terms of style-shifting, are some variables are more likely to occur in some contexts? Are variant spellings as common in languages other than English? Are there similar effects found in languages without phonetic writing systems? Encoding sociophonetic information in peer-to-peer computer mediated communication is still very much a new area for exploration.

Though there is much that remains unknown, in the small samples considered here the use of variant spellings is principled. While there may certainly be fixed lexical forms of certain variants (consider "awn" and "oan" in the American and Scottish studies respectively) the fact that they pattern together and reflect spoken language variation suggest that variant spellings are more than just new lexical forms. Twitter users are using variant spellings to encode their knowledge of sociophonetic variation.

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