SEMANTIC CHANGE AND
THE OLD ENGLISH DEMONSTRATIVE

THESIS

Presented in Partial Fulfillment of the Requirements for
the Degree of Master of Arts in the Graduate
School of the Ohio State University

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* * * * *

The Ohio State University

2008
ABSTRACT

This thesis provides formalizations of the semantic changes undergone by the Old English *se* paradigm, the demonstrative determiner which yielded the Modern English definite article *the* and the Modern English demonstrative *that*. I conclude that these changes exemplify the bidirectionality of semantic change. In the case of the masculine form *se*, its development into a definite article reflects a tendency toward 'semantic bleaching', a tendency often purported to be part of a unidirectional 'grammaticalization' process. I review the literature on grammaticalization and its criticisms, and conclude that the development of *the* from *se*, rather than being part of a unidirectional process, reflects a 'semantically natural' change. Furthermore, I show that the development of the Modern English demonstrative *that* from its ancestor form *æt* is a counterexample to unidirectionality. Upon examining the details of this development, I hypothesize that it was motivated by the restructuring of the gender system in English.
ACKNOWLEDGMENTS

I wish to thank my B.A. and M.A. Thesis advisors for all of their efforts; in particular, I want to thank Professor Craige Roberts for convincing me that my background in formal semantics can be useful for doing historical linguistics, Professor Brian Joseph for giving this project focus and for providing encouragement at every step, and Professor Judith Tonhauser for offering many helpful criticisms and suggestions which have improved the quality of this thesis substantially.
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Major Field: Linguistics
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SECTION 1

INTRODUCTION

Greenberg (1978) proposed a 'cycle of the definite article' whereby definite markers become gender markers, a cycle which begins when the definite article develops from a demonstrative determiner (pp. 31-32). It is taken for granted that an article will develop in this way, as this exemplifies the proposed unidirectional process of 'grammaticalization' and reflects a widely attested cross-linguistic tendency. However, an investigation of the Old English (OE) non-proximal demonstrative determiner shows that the directionality of the change from demonstrative to definite marker is reversible. The evolution of the paradigm involved not only the development of the masculine nominative *se* into the Modern English (MnE) definite article *the*, a change which follows the unidirectional path of grammaticalization phenomena, but also the development of the neuter nominative *æt* into the more deictic MnE demonstrative *that*. Because the more deictic demonstrative is more restricted in its use than its ancestor, this change is not expected if one assumes unidirectionality. Thus, I claim that the outcome of *æt* is a legitimate counterexample to unidirectionality and supports the view that the development of demonstratives into definites is merely a statistical tendency, rather than
a diachronic constraint. That is, I claim that the OE demonstrative is an example of semantic change in two directions, as illustrated below:

Figure 1: Bidirectional Semantic Change

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<table>
<thead>
<tr>
<th>se (&gt;be)</th>
<th>pæt</th>
<th>that</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓</td>
<td>↓</td>
<td>↑</td>
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<tr>
<td>the</td>
<td></td>
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</tr>
</tbody>
</table>
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By utilizing formal linguistic analyses, I attempt to make explicit the steps whereby these changes likely occurred. This involves making synchronic claims about the semantics of these determiners.

Reviewing OE data from c.695-1131 AD, I show that the *se* paradigm came to be used mainly in three contexts: to mark anaphoric reference, to differentiate or contrast one intended referent from other possible referents, and to signify a title. Given these uses, I conclude that *se* can be analyzed as involving a demonstration requirement similar to (but broader than) that described in Roberts' (2002) analysis of the MnE demonstrative. Under this analysis, and under Roberts' (2002, 2003) analyses of the demonstrative and the definite article in MnE, I show that the demonstrative > definite change was motivated by the close relationship between the meanings of these forms. I call this type of change a semantically natural change, because its context-independent nature can explain why cross-linguistic tendencies exist. I also argue that the change from the OE neuter nominative *pæt* to the MnE demonstrative *that* is, in addition to being
a counterexample to unidirectionality, an unnatural semantic change, and I hypothesize that it was motivated by the loss of grammatical gender in English.

This study unifies historical linguistics with formal linguistics, drawing semantic and pragmatic conclusions from textual analysis. One concern that this methodology creates is about the extent to which it is productive to do semantic analysis on a language with no existing native speakers. This is surely an obstacle, especially in an analysis which depends so crucially on context, as texts generally do not provide explicit information about what information exists in the common ground of the author and his or her audience; however, the obstacle is not insurmountable. It requires that assumptions be made on the basis of what is known about the texts and the intended audiences thereof. For example, the synchronic analysis I give for the OE demonstrative will not account for titles like *se Ælmihtiga Fæder* 'the Almighty Father' without assuming that this title and its referent exist in the common ground of the author and his or her intended audience. This is a reasonable assumption to make if the text is a sermon intended for a church audience, as generally such audiences are familiar with the deity that is being worshiped. In other cases, caution must be taken to ensure that the conclusions being drawn from the data are valid.

For the semantic analyses presented in this paper I operate under the frameworks of truth-conditional formal semantics in the tradition of Montague (1974) and File Change Semantics, originally developed by Heim (1982). I assume a proposition to be a set of possible worlds, i.e. the worlds in which that proposition holds, and entailment to be a relation between two propositions such that the entailed proposition follows logically
from the proposition that entails it. I am concerned with three types of meaning: denotations, or truth conditions, presuppositions, or propositions which must hold in order for an utterance to be felicitious (i.e. have a truth value), and conversational implicatures, or meanings which are conveyed by an utterance, but which are cancellable.

I assume Old English to be the English that was spoken between the mid-fifth and mid-twelfth centuries AD (Robinson 1992), and Early Middle English to be the English that was spoken between the mid-twelfth century AD and the time of Chaucer in the fourteenth century. The data given in this paper are from the West Saxon and Northumbrian dialects of Old English, for which I assume the following boundaries (Crystal 1995, p. 28):
Figure 2: Map of OE Dialects
In Section 2, I review literature on grammaticalization and semantic change, discussing the role of pragmatic inferencing and reanalysis in all semantic change, and I define a notion of semantic naturalness which provides an explanation for the tendency of certain grammaticalization changes to occur. In Section 3, I give a brief history of the debate about the meaning of definites in Modern English and summarize Roberts' (2002, 2003) analyses of definites and demonstratives, the analyses which I use to formalize the semantic changes affecting the OE demonstrative *se* paradigm. In Section 4, I give an account of how pragmatic inferencing and reanalysis led to the development of the definite article in English and show how this change was semantically natural. In Section 5, I show that the semantic evolution of the neuter OE demonstrative form *pæt* is unnatural, give an account of how pragmatic inferencing and reanalysis can account for this change as well, and argue that it was likely motivated by a changing system of gender agreement. In Section 6, I summarize and conclude.
SECTION 2

GRAMMATICALIZATION & SEMANTIC CHANGE

2.1 Grammaticalization

Meillet (1912) was the first to use the term 'grammaticalization', which he defined as the development of an autonomous form into a grammatical form. He uses as an example the development of the Greek future marker *tha* from *thelo ina* 'I wish that'. Grammaticalization has been defined in various ways since Meillet's work. Most definitions refer to some sort of reduction in semantic content as well as phonological complexity. Heine and Kuteva (2002) posit four defining criteria: so-called 'desemanticization', extension to new contexts, loss of morphosyntactic properties, and phonetic reduction. One oft-cited example which meets all four is the development of English *going to* into a marker of future tense-- the construction as a future marker is argued to be less complex semantically (though it is unclear from the literature what semantic complexity actually is), certainly the number of contexts in which we find *going to* has increased significantly, the loss of compositional meaning has led to the reanalysis of *going to* as one syntactic constituent, and it has also undergone phonetic reduction as in the form *gonna*. 
Although these four criteria are met by such canonical examples of grammaticalization, there is actually no strong consensus in the literature about the exact definition of the term. Campbell and Janda (2001) survey various definitions, concluding that, while more recent definitions have expanded its meaning, grammaticalization carries with it a core, and perhaps vague, notion of evolution from less grammatical to more grammatical. The broadest definition included in the survey is that given by Haspelmath (1999, p.1045):

The most general definition of grammaticalization would therefore not restrict this notion to changes from a lexical category to a functional category but would say that grammaticalization shifts a linguistic expression further toward the functional pole of the lexical-functional continuum.

There is also a distinction to be made between grammaticalization phenomena and the grammaticalization framework. Hopper and Traugott (2003) lay out this distinction:

'Grammaticalization' as a term has two meanings. As a term referring to a framework within which to account for language phenomena, it refers to that part of the study of language which focuses on how grammatical forms and constructions arise, how they are used, and how they shape the language... The term 'grammaticalization' also refers to the actual phenomena of language that the framework of grammaticalization seeks to address, most especially the processes whereby items become more grammatical through time. (pp. 1-2).

There is an implicit notion in referring to the 'processes' of grammaticalization, and it is one which permeates most of the literature. It is the notion that there is a process or
confluence of processes which act upon linguistic forms to produce more grammatical forms, and that those processes should not result in less grammatical forms. This notion is usually referred to as 'the unidirectionality hypothesis'.

2.2 Unidirectionality

The idea of unidirectionality is very closely tied to grammaticalization theory. Haspelmath (2004, p. 21) states that "the unidirectionality of grammaticalization is by far the most important constraint on morphosyntactic change." The importance of unidirectionality is apparent in many definitions of grammaticalization, such as the following from Traugott (1988, p. 406): "'Grammaticalization'... refers to the dynamic unidirectional historical process whereby lexical items in the course of time acquire a new status as grammatical, morphosyntactic forms." To speak of grammaticalization as a process rather than a result is to accept the unidirectionality hypothesis-- if the mechanisms which drive the process resulted in less grammatical forms, the term would denote merely an observation, and not a theory. Traugott and Heine (1991) suggest a basic unidirectional 'cline' of *lexical item used in discourse > non-lexical item used in morphosyntax*. There are of course intermediate steps in these changes, but the core principle of unidirectionality is that a linguistic form, after undergoing whichever process or processes constitute grammaticalization, will come to be more like a non-lexical item used in morphosyntax.

Many counterexamples to unidirectionality have been proposed over the years (see Janda 2001, pp. 27-28). To these Hopper and Traugott (2003, p.138) say, "when we review the literature on counterexamples to grammaticalization, a striking fact emerges...
they are sporadic and do not pattern in significant ways." However, the existence of even one legitimate counterexample refutes the claim that there exists a unidirectional grammaticalization process which drives independent forms inexorably toward a new status as functional morphemes.

2.3 Problems with Grammaticalization Theory

There are many well-attested cross-linguistic tendencies which ultimately yield semantically bleached and phonologically reduced forms with less morphosyntactic independence; however, there is ample evidence that the development of an autonomous form into a grammatical form is the aggregate result of reversible processes of linguistic change. Joseph (2001, 2003) reexamines the development of the Greek future marker *tha*, the very development which prompted Meillet to coin the term 'grammaticalization', boiling it down to several different, well-understood processes of language change. He concludes that there is no process called grammaticalization, and that the term should only be used to denote a particular type of result of the interaction of semantic, morphological, and phonological changes. Campbell (2001, p. 158) arrives at a similar conclusion:

...grammaticalization has no independent status of its own. Cases of grammaticalization are explained adequately by the other mechanisms of linguistic change, and grammaticalization explains nothing by itself but must rely on these other mechanisms and kinds of linguistic change.

If grammaticalization is not a process, then can there be a theory of grammaticalization? If we define grammaticalization as the tendency for interacting processes of language
change to result in more grammatical forms, then a theory of grammaticalization would be a set of claims about this tendency, which specific mechanisms interact to produce it, and why these interactions create it. If grammaticalization changes result from processes which are by themselves responsible for other types of changes, then one cannot make these claims without making broader claims about language change in general; thus, while the term is useful in describing a set of outcomes, it seems fruitless to talk about grammaticalization as a theory.

One useful way to think about grammaticalization is as a set of commonly occurring diachronic correspondences. Andersen (to appear, p. 21) suggests that these correspondences are an important starting point when studying language change:

The historical linguist’s task, accordingly, is to resolve every observed diachronic correspondence into the change or changes that brought it about, and each change, again, into the innovations from which it resulted.

With respect to grammaticalization changes, the historical linguist's task is to explain why these certain types of diachronic correspondences are more likely to be found than others.

2.4 Semantic Change

Although grammaticalization phenomena involve changes at all levels of language, semantic change has been the focus of much of the literature (e.g. Hopper and Traugott 2003, Traugott and Dasher 2005). In this paper I am concerned only with the semantic developments of the Old English demonstrative *se* paradigm, and will pay little attention to the phonological and morphosyntactic developments. The quantity of work
that has been done in the field of diachronic semantics is minimal when compared to the rich body of literature devoted to historical phonology and morphology. The chapter in Hock's *Principles of Historical Linguistics* (1991) on semantic change, although more thorough than some, is a scant 29 pages in length, after which it is concluded that semantic change is largely unpredictable. Fortson (2003) points out that it is only the results of semantic change which are unpredictable; the same mechanisms, extension and reanalysis, are responsible for the various results that are outlined in introductory textbooks.

The most recent work on diachronic semantics has focused on the role of pragmatic discourse. Traugott and Dasher (2005) is a book length study of how pragmatic inferencing and reanalysis is responsible for almost all semantic change. Two other recent studies, Eckardt (2006) and Deo (2006) have incorporated the tools of formal semantics to make ideas about semantic change more explicit. Although it is an emerging field, these two works have shown that the marriage of formal semantics and historical linguistics can indeed be a fruitful endeavor. Below, I briefly summarize these three recent approaches to historical semantics.

2.5 Previous Approaches

Traugott and Dasher (2005) propose the Invited Inferencing Theory of Semantic Change (IITSC). An invited inference, not unlike a conversational implicature, is a meaning which is cancellable which the speaker invites the hearer to infer. Invited inferences arise through metaphoric and metonymic processes; that is, speakers invite inferences which are either similar in meaning to or in some way associated with the encoded
(i.e. non-cancellable) meanings of the utterances which carry the inferences. The process by which these meanings engender change is as follows:

Step 1: Invited Inference (IIN) not generalized, situation-specific

Step 2: Generalized Invited Inference (GIIN) inference is preferred, but cancellable

Step 3: Coded Meaning second natural meaning becomes available, original meaning is no longer available in certain contexts

The goal of the theory is to explain how speakers’ use of language in discourse leads to semantic reanalysis, initially creating a polysemy, i.e. a situation in which one form has two meanings which are related. Once a polysemy has been created, it may remain stable (as with *going to*), or the form's original meaning may be lost from the language altogether.

As an example, the authors consider MnE *as long as* (pp. 36-38), the details of which I summarize below. This construction in OE had the meaning of 'for the same length of time that' (which may have in turn arisen metaphorically from its spatial reading). The three steps applied to the construction yielded a second available meaning, 'provided that', as illustrated below.

(1)

<table>
<thead>
<tr>
<th>Step 1:</th>
<th>wring</th>
<th>þurh</th>
<th>linenne</th>
<th>clād</th>
<th>on</th>
<th>þæt</th>
<th>eage</th>
</tr>
</thead>
<tbody>
<tr>
<td>squeeze</td>
<td>through linen</td>
<td>cloth on</td>
<td>dem.neut.acc</td>
<td>eye</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*swa lange swa* | *him* | *ðearf* | sy.*

as long as | 3sg.masc.dat need be.subjunctive

'squeeze the medicine through a linen cloth onto the eye for the length of time he needs.'

Here *sва lange swa* 'as long as' carries a temporal meaning, but in this context the writer is inviting the reader to infer that the medicine should be administered whenever it is true that the patient needs it, rather than for one consecutive period of time.

**Step 2:**

*They whose words doe most shew forth their wise vnderstanding, and whose lips doe ytter the purest knowledge, so as long as they vnderstand and speake as men, are they not faine sundry waies to excuse themselues?*  
(Hooker 1614, printed in English Experience 195).

The temporal reading is still available, and either reading will yield the same truth conditions, but the 'provided that' reading is more salient.

**Step 3:**

*Galligan told the jury that it is proper for police to question a juvenile without a parent present as long as they made a "reasonable effort" to notify the parent.*  
(United Press International 1990)

A polysemy exists, and *as long as* is being used in a context where only the 'provided that' reading yields the correct truth conditions for the sentence.

The *going to* example also fits nicely into this framework. From its original compositional meaning, which expressed motion with intent to perform some action, an inference of future meaning arose, exploiting the fact that intent to perform an action entails that the action is in the future. Speakers generalized this inference, using *going to*
to convey a more general future meaning, even when the original reading was still available. At some point, a polysemy arose, and now *going to* is used in contexts where no motion is possible, i.e. *Mary is going to love my new tattoo.*

Eckardt (2006) formalizes change under reanalysis, and makes use of inferences to explain diachronic semantic developments. Her inferences are the same as Traugott's Generalized Invited Inferences. Eckardt demonstrates how semantic reanalysis co-occurs with syntactic reanalysis to result in a new lexeme. By Traugott's framework, Eckardt is formalizing Step 3. That is, she is formalizing how an inference, once it has become the preferred meaning, is reanalyzed as the natural meaning of the form, as well as what syntactic consequences this can have. She formally derives several grammaticalization phenomena, including the development of *going to* (pp. 115-119). Below I give her formalization of this change, followed by an informal explanation:

(2) Horatio is going to visit a friend.

\[
[[\text{Horatio is going to visit a friend}]] =
\]

\[
\exists e (R=S & R \subseteq \tau(e) & \text{GO(HORATIO,e)} & \exists e' (\text{PREPARE}(e,e') & \\
\exists y (\text{FRIEND}(y,\text{HORATIO}) & \text{VISIT(HORATIO},y,e'))) )
\]

\[
\text{INFERENCE} \Rightarrow \\
\exists e' (\text{IMMINENT}(\text{now},e') & \text{now} < \tau(e') & \\
\exists y (\text{FRIEND}(y,\text{HORATIO}) & \text{VISIT(HORATIO},y,e'))) )
\]

\[
[[\text{Horatio}]] = \text{HORATIO}
\]

\[
\text{PRESENT} = (R=S)
\]

\[
[[\text{visit a friend}]] = \lambda z \lambda e' (\exists y (\text{FRIEND}(y,z) & \text{VISIT}(z,y,e'))) )
\]
MISSING MEANING $\Rightarrow$ $\lambda e,(e,t) \lambda x \exists e (R < \tau(e) \& \text{IMMINENT}(R,e) \& P(x,e))$

REMNANT MATERIAL $\Rightarrow$ $[[\text{be going to}]]$

REANALYSIS $\Rightarrow$ $[[\text{be going to}]] = \\
\lambda P \lambda x \exists e (R < \tau(e) \& \text{IMMINENT}(R,e) \& P(x,e))$

where e and e' are events, R is the reference time, S is the speech time, and \( \tau \) is the event time.

The proposition denoted by *Horatio is going to visit a friend* is that there is an event, which spans a time interval that is a superset of the speech time, which is the event of Horatio going somewhere, and that this event is a preparation for another event, that event being the event of Horatio visiting a friend. The inference is invited that the event of Horatio visiting his friend is imminent (i.e. expected to happen in the near future) with respect to the speech time. By this account, which is congruent with IITSC, sentences utilizing the *be going to* construction were reanalyzed at the proposition level. Knowledge about the meanings GO and PREPARE invited the inference that the event being prepared for was imminent, which then became conventionalized. Hearers then reanalyzed the syntactic structure of the semantically reanalyzed sentence, assigning the expected meanings to the noun phrase *Horatio*, as well as to the tense and to the verb phrase *visit a friend*, while parsing *be going to* as one constituent with one meaning. That meaning is the part of the inference which is not contributed by the other constituents in the sentence. This example illustrates how Eckardt uses formalizations to give clarity to the ideas developed in prior grammaticalization literature. By using the tools of truth-conditional semantics, she is able to show explicitly how the processes of pragmatic
inferencing and reanalysis, as laid out in Traugott and Dasher (2005), result in grammaticalization phenomena.

Deo (2006) is another work that unites formal semantics and diachronic linguistics. She investigates the evolution in certain Indo-Aryan languages of the progressive tense into the imperfective aspect, claiming that the typological and grammaticalization-based evidence regarding the progressive (PROG) > imperfective (IMPF) change is a basis for analyzing both of those operators as having 'nested denotations'. For one denotation to be nested within another means that the former denotation, if analyzed as being a set, is a proper subset of the latter denotation. One consequence of this is a one-way entailment relationship at the proposition level-- by Deo's analysis, the denotation of a progressive sentence entails the denotation of an imperfective sentence, but not the other way around. This means that, given a proposition P and a time t, PROG(P,t) entails IMPF(P,t), while IMPF (P,t) does not entail PROG (P,t). Alternatively, analyzing propositions as sets of worlds, IMPF(P,t) has a broader meaning than PROG (P,t) in that it includes all of the worlds which PROG(P,t) includes, plus more. I choose to talk about the consequences of nestedness in terms of entailment rather than set membership. The notion of nestedness is important in explaining the semantic facts about grammaticalization phenomena in that it explains grammaticalization changes in terms of the logical relationship between the meanings involved, rather than explaining them in terms of the processes which give rise to them. I argue that this is desirable because the processes of pragmatic inferencing and reanalysis
are responsible not only for grammaticalization changes, but for other types of semantic changes as well.

There are at least two ways in which an inference can arise. An inference can stem either from an association or from an entailment. One infamous case of semantic change, that of English *bead* from 'prayer' to 'little round object', instantiates the former. Because of the existence of rosary beads, i.e. little round objects that were used to count prayers, at one time there was a psychological association between *bead* 'prayer' and these objects. There is no entailment relationship there; at the time of the change, if one were counting one's prayers, it needn't have been the case that small round objects were being used. It was, however, likely that they were being used, and thus there arose an association between the two meanings. The association was dependent on the time and place of the change, so it is unsurprising that there is no cross-linguistic tendency for a word meaning 'prayer' to come to denote something physical. An entailment, on the other hand, is a logical relationship, and is not context-dependent. Perhaps if the counting of prayers entailed the use of such objects, we would see such a tendency. If the synchronic analyses can be shown to reflect nestedness, then the semantic change in question has most likely resulted from inferences which are entailed by the propositions that invited them, in which case we would expect a tendency for that type of semantic change to occur more than once.

2.6 Generalizations

True regularity in semantic change, i.e. regularity in the sense that sound change is regular, is impossible, because there is no domain which can change across the board
the way phonemes do. That is, the only semantic analog to phonological features is the facets of a lexeme's meaning, but these facets, which are not grounded in the physical world, are overlapping and infinite in number, in contrast to articulatory features, which are discrete and comprise a closed class. However, as recent work in diachronic semantics has shown, there is regularity in a different sense. There is regularity in the mechanisms which bring about change.

While grammaticalization fails to hold up as a theory, the literature has provided a key generalization. If the morphosyntactic changes involved in grammaticalization phenomena are best summarized by Givón's (1971) aphorism, "today's morphology is yesterday's syntax", then the semantic changes are perhaps best summarized by another aphorism, given by Heine et al (1991), "today's semantics is yesterday's pragmatic discourse." However, pragmatic inferencing, followed by the reanalysis of pragmatic content as semantic content, is responsible for changes up and down the grammaticalization cline. In the case of *bead*, these processes led to a change which does not reflect any movement with or against that cline. Below I show how the same type of derivation that Eckardt (2006) uses to account for grammaticalization changes can account for *bead*:

(3) A bead distracts Robin.

\[
[[\text{A bead distracts Robin}]] = \exists x (\text{PRAYER}(x) & \text{DISTRACT}(x, \text{ROBIN}))
\]

\[
\text{INERENCE } \Rightarrow \exists x (\text{ROUND-OBJECT}(x) & \text{DISTRACT}(x, \text{ROBIN}))
\]

\[
[[\text{a}]] = \lambda p \lambda q \exists x (p(x) & q(x))
\]

\[
[[\text{distracts}]] = \lambda x \lambda y \text{DISTRACT}(y, x)
\]
This example is simple, and does not involve any syntactic reanalysis, but it shows that the concepts of inferencing and reanalysis are applicable; it is not a difference in the processes which makes this an example of an isolated change, but rather a difference in how the inference arises. As discussed in Deo (2006), a change in meaning from A to B is likely to be cross-linguistically attested if A is nested within B, i.e. if A entails B. There is a comparison to be drawn here between semantic change and phonological change. It is intuitive to think of so-called grammaticalization changes as involving changes which are natural for semantic reasons, just as certain sound changes, e.g. palatalization (see Hock 1991, p. 73), are natural for phonetic reasons. I intend to capture this intuition formally by defining a notion of 'semantic naturalness'.

2.7 Naturalness

Natural semantic changes are those changes which arise from invited inferences that are entailed by the natural meanings of the propositions which invite those inferences; they are the changes which are motivated solely by the meanings of the forms and how people exploit those meanings in discourse, and are not dependent on the context of the change. Hence, they are changes which are likely to reflect cross-linguistic tendencies, and can result in grammatical forms. I do not claim that only natural changes
can lead to more grammatical forms, nor do I claim that every natural change should reflect a widely attested tendency; I merely claim that the notion of naturalness is useful in explaining why tendencies toward semantic bleaching exist. I define semantic naturalness such that the following holds:

(4) Given two synchronic grammars of a language at times $t_1$ and $t_2$ where $t_1 < t_2$, and given two linguistic forms $F_X$ and $F_Y$, where $F_X$ has a semantic meaning $X$ at $t_1$ and $F_Y$ has a semantic meaning $Y$ at $t_2$, and where $F_X$ is the ancestor form of $F_Y$, the change $F_X > F_Y$ is semantically natural if:

For all pairs of propositions $<P,Q>$, where $P$ is the proposition denoted or presupposed by a well-formed sentence $S$ at $t_1$ containing $F_X$, and where $Q$ is the proposition that would be denoted or presupposed by that sentence if $F_X$ contributed meaning $Y$ rather than meaning $X$, $P$ entails $Q$.

Returning once more to the going to example:

(5) $F_X = \text{going to}$ $X = \lambda P(e,(e,t)) \lambda e \lambda x \text{GO}(x,e) \& \exists e' (\text{PREPARE}(e,e') \& P(x,e'))$

$F_Y = \text{gonna}$ $Y = \lambda P \lambda x \exists e (R < \tau (e) \& \text{IMMINENT}(R,e) \& P(x,e))$

$S = \text{Horatio is going to visit a friend.}$

$P = \exists e (R = S \& R \subset \tau (e) \& \text{GO}(\text{HORATIO},e) \& \exists e' (\text{PREPARE}(e,e') \&$

$\exists y (\text{FRIEND}(y,\text{HORATIO}) \& \text{VISIT}(\text{HORATIO},y,e'))) )$

$Q = \exists e' (\text{IMMINENT}(\text{now},e') \& \text{now} < \tau (e') \&$

$\exists y (\text{FRIEND}(y,\text{HORATIO}) \& \text{VISIT}(\text{HORATIO},y,e')) )$
In this example, we start with $P$, the proposition denoted by $S$. We obtain $Q$ by extracting from $P$ the meanings of *visit a friend* and *Horatio*, which leaves us with $X$; we then substitute in $Y$, and give $Y$ the denotations of *visit a friend* and *Horatio* as its arguments. We must then look for an entailment relationship between $P$ and $Q$. $P$ states that Horatio is in the process of going, and that the process of going is a preparation for the event of visiting a friend. $Q$ states that the event of Horatio visiting a friend is imminent with respect to the speech time. If $P$ is true, then it is true that, after the amount of time that elapses during Horatio's process of going, he will visit a friend, provided that no unexpected event prevents the visit from happening. If the property of being imminent holds only in inertia worlds, meaning an imminent event will only happen barring an unforeseen intervention (see Dowty 1979, p. 128), then it is true that the event of Horatio visiting a friend is imminent with respect to the speech time. Thus, it is the case that $P$ entails $Q$. Furthermore, the entailment exists due to facts about the meaning of *going to*, and does not rely on the meanings of any of the other constituents in the sentence; therefore, this entailment relationship would exist for any sentence $S$ which contains *going to* in its older sense. From this it can be concluded that the evolution of *going to* into a future marker is natural, and thus, I argue, it is unsurprising that the change from a verb of motion to a marker of future tense is cross-linguistically attested.

The example I have given above reflects Deo's notion of nested denotations in that an earlier meaning entails a later one, but naturalness is defined to include cases of nested presuppositional meanings as well. This is important, as the semantic content of the demonstrative and definite determiners in English is purely presuppositional. I claim that
the evolution of the OE *se* paradigm exemplifies both naturalness and the potential for a changing agreement system to result in an unnatural change. Before supporting this claim, I briefly review the semantic literature on demonstratives and definites.
3.1 What is a Definite?

Before an adequate diachronic analysis of can be achieved, we must thoroughly examine the synchronic facts about definiteness in English. There is some disagreement about the semantics of definite NPs in MnE, but below I show that, using Roberts' theory of informational uniqueness (2002, 2003) as a working account of definite descriptions, the development of OE se into the MnE definite article is semantically natural, explaining the tendency described by Greenberg (1978). In this section I briefly discuss the history of the definiteness debate before turning to the semantics of demonstratives.

3.2 Russellian Uniqueness

Russell (1905) proposed that definite descriptions entail existence and uniqueness. By this account, a proposition containing a definite NP is true only if that NP has a referent which both exists and is unique in the world, and thus, to quote Russell's most famous example, the utterance in (6a) has (6b) as its truth condition:

(6a) The King of France is bald.

(6b) $\exists x \ [\text{king-of-france}(x) \land \forall y (\text{king-of-france}(y) \rightarrow y = x) \land \text{bald}(x)]$
The above sentence, according to this hypothesis, is false, since there is no King of France. Strawson (1950) took issue with this account, proposing instead that the existence and uniqueness of the NP were presupposed, not entailed.

(7) The King of France is bald. Is the statement I just uttered true or false?

Strawson's justification was that if A were to utter (7) to B, B would be more inclined to explain to A that there is no King of France than he would to directly answer A's question. That is, "...the question of whether the statement was true or false simply didn't arise..." (p. 330). It is perhaps easier to see that Russell's uniqueness must be presupposed if we form a question: *Is the King of France bald?* By forming a question we have left open the truth value of (6a), yet still there must exist a King of France in order for the question to be felicitous. By asking this question, one is not inquiring about the existence and uniqueness of the monarch in question-- that is presupposed.

The example in (8), taken from Clark (1975), fails Russellian uniqueness in the strictest sense:

(8) I met a man yesterday. The man told me a story.

This certainly does not presuppose that there is one and only one man in the world. Clark proposed that the felicity of this utterance can be explained by a pragmatic phenomenon he called bridging, whereby the speaker draws an implicature about the antecedent of the definite NP. In (8), the man can be taken to mean 'the man whom I met yesterday'. It is clear from this example that context must play a role in the use of definites. For uniqueness to be a plausible theory, these contextual enrichments must be included in the analysis. This is what Kadmon (1990) calls liberalization.
Kadmon also shows that Russell's analysis can be extended to plural NPs, with the definite description presupposing maximality rather than uniqueness, illustrated in the following example:

(9a) The Senators from Arizona are bald.

(9b) $\exists x \left[\text{senator-from-Arizona}(x) \land \forall y (\text{senator-from-Arizona}(y) \rightarrow y \in x) \land \text{bald}(x)\right]$

Here, $x$ is taken to be a set of individuals denoted by the plural NP, and maximal set membership is analogous to uniqueness. Note that (9a) and (10) will have the same presuppositions due to liberalization:

(10) (I met both Senators from Arizona.) The Senators are bald.

Russell's hypothesis and the aforementioned extensions of it can account for many uses of the definite article in MnE; however, it is too strong a claim, as illustrated in the following example, from Heim (1982):

(11) Everyone who bought a sage plant or a rosemary planted the sage plant with extra bone-meal or the rosemary in a well-limed soil (and if it was a sage plant, bought eight others along with it).

The uniqueness of the sage plant is contradicted by the assertion that if a sage plant were purchased, eight others were purchased along with it. Yet (11) is felicitous. Here it seems the definite NP is referring anaphorically to a sage plant, without regard to its uniqueness. Counterexamples such as these led Heim (1982) to give a formal account of the familiarity theory of definiteness, which was originally proposed by Christophersen (1939).
3.3 Heim's Familiarity

Irene Heim introduced in her 1982 dissertation a framework which she calls 'file-change semantics'. A file in Heim's terms is similar to Stalnaker's (1974) notion of a common ground, which is the information that is shared by interlocutors. A file consists of an ordered pair $<\text{Dom}, \text{Sat}>$ where Dom is the domain, a subset of the natural numbers, and Sat is the satisfaction set. The satisfaction set consists of the sets of sequences of individuals which satisfy the file. More intuitively, each number in Dom represents a card in the file, which is nothing more than an intuitive and metaphoric term for a discourse referent, introduced by Karttunen (1976), and each sequence in Sat is such that if one were to assign each successive member of that sequence to its corresponding file card in the domain, the information on the file cards would be consistent with the facts about the individuals. Heim revives the familiarity theory of definiteness using this framework: "For every indefinite, start a new card; for every definite, update a suitable old card." (p. 276). To illustrate, I build a file for the following discourse:

(12a) I met a businessman today. He had a dog.

According to Heim's framework, the indefinite NPs *a businessman* and *a dog* introduce new file cards. If we take our domain to be $\{1,2\}$, then the file looks something like:

[1 is a businessman, met by speaker] [2 is a dog, owned by 1]

The satisfaction set for this file is the set of sequences of individuals $<a(1), a(2)>$ such that $a(1)$ is a businessman whom the speaker met, and who owns a dog, and $a(2)$ is a dog which is owned by $a(1)$. We can then update the discourse with (12b):
(12b)  The businessman was taking the dog to the vet.

The file is then updated to look like this:

\[1 \text{ is a businessman, met by speaker, } \quad [2 \text{ is a dog, owned by 1,}
\]
\[\text{was taking 2 to the vet]} \quad \text{being taken to the vet by 1}\]

3.4 Weak Familiarity

The above framework explains discourses such as (11), yet it is not the whole story. Consider the following:

(13) I went to a bar last night. The bartender was friendly.

(14) (Driving home during a rain storm.) The rain is sure slowing things down, isn't it?

In both of these discourses, the definite NPs have novel referents, i.e. there is no prior existing discourse referent. Rather than being in the common ground, they are entailed by the common ground. A trip to a bar entails an encounter with a bartender because all bars have a bartender, and presumably the interlocutors know this. The existence of the referent of the definite NP in (14) is entailed by the physical surroundings. According to Heim, these sorts of utterances require presupposition accommodation in order to be felicitous. They also require bridging; (13) makes sense only if the bartender is synonymous with the bartender who was working at the bar that I went to last night.

This would be easier to deal with if we incorporated into the theory those discourse referents which are entailed, but not explicitly given, by the context. Roberts (2003) proposes a taxonomy of familiarity which classifies Heim's familiarity as 'strong familiarity', and defines 'weak familiarity' to include strong familiarity as well as those NPs which are in the common ground but do not have discourse referent antecedents.
Weak familiarity, however, does not seem to be a sufficient analysis of definite descriptions in English; the definite article is often used when weak familiarity fails:

(15) I opened the box and pushed the **button I found inside**.

This is one example where Russell's proposal is appropriate and Heim's is not. The best account is one which can reconcile these two approaches. Although other such attempts have been made, including Abbot's (2004) identifiability proposal, in this paper I use informational uniqueness (Roberts 2002, 2003) as a working theory, the details of which are briefly outlined below.

3.5 Informational Uniqueness

According to the theory of informational uniqueness, definite NPs presuppose existence and uniqueness, following Russell (1905), but the theory differs from Russell's in that by this account definites need not exist uniquely in the world, but rather they must exist uniquely in the common ground. That is, for an NP to be informationally unique, it must have a discourse referent antecedent which is weakly familiar, and furthermore, that discourse referent must be the only suitable discourse referent (under the NP's description) that exists in the common ground. Roberts' informal definition is as follows:

(16) Given a context C, use of a definite description NP, presupposes that there is a discourse referent i in the Domain of C which is the unique familiar discourse referent contextually entailed to satisfy the (possibly liberalized) descriptive content of NP._i_.

This theory can successfully account for all of the examples given thus far. Let us first examine the more straightforward ones.
I met a man yesterday. The man told me a story.

Everyone who bought a sage plant or a rosemary planted the sage plant with extra bone-meal or the rosemary in a well-limed soil (and if it was a sage plant, bought eight others along with it).

I went to a bar last night. The bartender was friendly.

(Driving home during a rain storm.) The rain is sure slowing things down, isn't it?

I opened the box and pushed the button I found inside.

In both (8) and (11), informational uniqueness is satisfied because the NP is strongly familiar (familiar in Heim's sense, and thus weakly familiar, since the former entails the latter), and there are no other strongly familiar discourse referents which satisfy the relevant descriptive content. In (11), it is not relevant that the sage plant fails semantic uniqueness, because the indefinite description introduces a unique strongly familiar file card, to which the definite description anaphorically refers. Informational uniqueness is also satisfied in examples (13) and (14) because the NP in each of these discourses is uniquely weakly familiar. Notice that (13) is felicitous only if there is one and only one bartender who served you when you went to the bar. If this condition is not met, informational uniqueness fails. Thus, not knowing the facts, the hearer must accommodate the semantic uniqueness of the NP, provided that the hearer is under the assumption that the speaker is being cooperative and thus trying to be felicitous. This conversational implicature is responsible for what Roberts calls the 'uniqueness effects' which arise in definite descriptions. Heim's framework alone can adequately explain examples (8), (11), (13), and (14). The uniqueness implicature is needed to account for
(15). What is really meant by this sentence is that there is one and only one button that I found inside the box in question, and I pushed that button. This meaning arises from the failure of the NP to satisfy weak familiarity. By using a definite rather than an indefinite description, the speaker is expecting the hearer to accommodate the failed presuppositions of weak familiarity and informational uniqueness; however, it would be uninformative to expect the hearer to accommodate these directly. By accommodating semantic uniqueness instead, which entails weak familiarity and informational uniqueness, the speaker has conveyed and implicature in the form of information about that NP, namely that its referent is semantically unique.

This brings us back to Russell's famous example:

(6a)  The King of France is bald.
This is infelicitous not simply because uniqueness fails, but because the lack of existence entails that there can be no discourse referent in the common ground which satisfies the denotation of *King of France*. The hearer is forced to accommodate, but, since presumably the hearer knows that there is no such monarch, accommodation is impossible and infelicity results.

The last class of definite descriptions which needs to be analyzed here is titles (Roberts 2003, pp. 22-23). Chicago is often referred to as *The Windy City*; Chicago is not unique in being windy (or in having windbag politicians, if that is indeed the etymology), and presumably interlocutors will know this. Thus, there is no way for informational uniqueness to be satisfied, and yet we can talk about *The Windy City* with no problem. This is because the definite article is part of the title, which was presumably
coined by one who wanted to exploit the uniqueness implicature in order to convey a superlative meaning, distinguishing Chicago all other cities which could be called windy. This results from the existence of uniqueness effects, and is a pragmatic phenomenon whereby the definite article is being used to distinguish one entity from all of the others which share that entity's descriptive content. In other words, Chicago is not unique in being a city which experiences a great amount of wind, but it is unique in bearing the title The Windy City.

3.6 Demonstratives

Roberts (2002) proposes that demonstratives and definite descriptions share an informational uniqueness presupposition. This account formalizes the intuitive relationship which exists between these two forms, and accounts for the observation that they are often interchangeable, as in (17):

(17a) My friend has a dog and a cat. She can’t seem to keep those pets under control.
(17b) My friend has a dog and a cat. She can’t seem to keep the pets under control.

In many contexts, though, either the demonstrative or definite article is unavailable. Consider the following sentences:

(18a) My friend visited the Great Wall of China last week.
(18b) #My friend visited that Great Wall of China last week.
(19a) That picture (pointing to picture A) is prettier than that picture (pointing to picture B).
(19b) #The picture (pointing to picture A) is prettier than the picture (pointing to picture B).
While (18a) and (19a) are perfectly ordinary sentences of English, the other two are infelicitous (except perhaps in some extreme contexts). The demonstrative in English presupposes informational uniqueness, but this is not a sufficient statement of its meaning; it must be differentiated from the definite descriptions to account for the above examples. Roberts does this by incorporating the notion of an accompanying demonstration into its meaning:

(20) Given a context C, use of a (non-)proximal demonstrative NP₁ presupposes (a) that there is an accompanying demonstration δ whose unique demonstratum, correlated with a weakly familiar discourse referent by virtue of being demonstrated, lies in the direction indicated by the speaker at a (non-)proximal distance to the speaker, and (b) that the weakly familiar discourse referent for the demonstratum is the unique familiar discourse referent contextually entailed to satisfy the (possibly liberalized) descriptive content of NP₁. (p.29).

This analysis accounts for both proximal and non-proximal demonstratives. While there may be more than one possible demonstratum which satisfies the descriptive content of an NP, a demonstrative, when used successfully, will single out the one suitable referent lying the direction indicated by the speaker which is at a distance corresponding to the proximity of that demonstrative. Of course the criteria with which we define a demonstration must be relaxed to include more than merely physical gestures as in (19). The felicity of (17a) must also be explainable in these terms.

Roberts proposes that a demonstration gives “adequate evidence to enable a hearer to infer the speaker’s intended demonstratum.” (p. 32). In the case of (19), the
pointing gesture allows the referent to be identified. In the case of what Lyons (1977) calls 'textual deixis', which one may view as a sort of metaphorical extension of deictic usages like in (19), the demonstratum is part of the discourse itself, as below:

(21) This sentence illustrates textual deixis.

Related yet distinct is discourse deixis, where the discourse referent of an antecedent is intended (Roberts 2002, p. 34). The use of *former* and *latter* is an example of this. Anaphoric uses as in (17a) are a special case of discourse deixis. It is in these cases, which stray further from the gestural use of the demonstrative, where we find overlap in function with the definite article. Generally, demonstratives differentiate; that is, they select from all suitable discourse referents that which is identified by an accompanying demonstration, which can be physical or part of the discourse. This function necessitates a uniqueness presupposition, because if there were more than one discourse referent which could be intended by the speaker, the referent would not be identifiable and the utterance would be uninformative. Similarly maximality must be presupposed by plural demonstrative constructions.

(22) All of the students are doing well in the class, but it is those students who do the extra credit assignments who learn the most.

The above example shows a relative clause being used to differentiate one group of students from a larger one (I call this the 'contrastive' use of the demonstrative). The utterance must be taken to mean that all of the students who do the extra credit learn from it. Note that it is because there is no physical demonstration, but rather a demonstration in the discourse, that a mere definite description would be felicitous as well. In the next
section I show how this overlap in function resulted in the loss of the demonstration presupposition of the OE demonstrative determiner se.
SECTION 4

THE OE DEMONSTRATIVE & THE OUTCOME OF THE MASCULINE

4.1 The *se* Paradigm

The *se* paradigm in Old English is the non-proximal demonstrative determiner paradigm. While it is said to do the duty for both *the* and *that* (Mitchell and Robinson 1982, p. 105), I argue that it is a demonstrative, rather than a definite article, with an analysis similar to that of MnE *that*. The demonstration presupposition of *se*, I argue, was broadened slightly to include titles, resulting in a form which is used in many of the same contexts where MnE would use the definite article. The paradigm is laid out below, taken from Mitchell and Robinson (1982, p. 15):

(23)

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<th>Singular</th>
<th>Plural</th>
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<tbody>
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<tr>
<td><strong>Masc.</strong></td>
<td></td>
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</tr>
<tr>
<td>Nom.</td>
<td><em>se</em></td>
<td>ṣæt</td>
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<tr>
<td>Acc.</td>
<td>ṣone</td>
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<tr>
<td>Gen.</td>
<td>ṣæs</td>
<td>ṣæs</td>
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<tr>
<td>Dat.</td>
<td>ṣæm, ṣam</td>
<td>ṣæm, ṣam</td>
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<tr>
<td>Inst.</td>
<td>ṣy, ṣon</td>
<td>ṣy, ṣon</td>
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</table>

It was the nominative masculine form *se* which evolved into the MnE definite article (via an analogical form *pe*). Although all forms of the paradigm at one point shared article-
like uses, most non-nominative and plural forms were eventually lost\(^1\), while the neuter \textit{pæt} ended up as the non-proximal demonstrative \textit{that}, and the feminine \textit{seo} replaced the feminine personal pronoun \textit{heo}, eventually yielding \textit{she}.

The demonstrative's history suggests that its use broadened over time. The paradigm is descended from the Proto-Indo-European demonstrative forms \*\textit{so} (masc.), \*\textit{seh}\(_2\) (fem.), and \*\textit{tod} (neut.), which Fortson (2004, pp. 129-130) claims could mean "'this, that', or 'the'". This paradigm is also the ancestor of the Greek definite article, which may be a basis for reconstructing a PIE demonstrative with the same article-like qualities which compelled speakers to reanalyze se as a marker of definiteness; however, evidence from Gothic, a Germanic language much earlier attested than Old English, suggests otherwise. While there are many examples in the Gothic Bible (c.350 AD) of the Gothic demonstrative \textit{sa} paradigm being used to signify titles and to contrast, these instances overwhelmingly reflect the tendency of the translator to mirror exactly the syntax of the Greek source material. Upon examining the \textit{Skeireins}, a piece of Gothic biblical commentary and one of the few Gothic texts available which was not translated from Greek, I found mostly anaphoric uses of the determiner-- titles and contrasted NPs usually appear bare. Perhaps more importantly, there are some instances in the Gothic Bible where an NP which in the Greek source contains an article appears bare in the Gothic. Consider the following from Luke 4:3:

\footnote{1 The instrumental \textit{py} evolved into the article found in constructions like \textit{the more the merrier}.}
and said to 3sg.masc.dat devil.masc.nom

"and the Devil said unto him..."

said and 3sg.masc.dat dem.masc.nom devil.masc.nom

In (24a) we see that the title *diabulus* 'Devil' appears bare, while the Greek in (24b), which is the source material for (24a), uses a determiner. This contrast suggests that the use of the demonstrative in titles was less common in Gothic than in OE.

Furthermore, a comparison between Ælfric's sermon *Nativitas Domini* (c.1000 AD) and the epic poem *Beowulf* (c.800 AD) provides evidence that earlier OE texts reflect more conservative use of the *se* paradigm, implying that earlier usage was closer to the canonical, deictic core of a demonstrative's meaning. Though the manuscripts of both of these texts date to around 1000 AD, *Beowulf* may have been composed as many as two hundred years before this time (Chickering 1977, p. 247, Butcher 2006). Because it is older and in the traditional Anglo-Saxon poetic style, it is likely that the epic reflects older usages of *se* than *Nativitas Domini*. One would expect to find fewer instances of the demonstrative in *Beowulf* if it were still at a stage in its development where the canonical deictic usage was more prevalent. This is exactly what we find; when comparing Ælfric's homily to a passage of roughly equal length in *Beowulf* we find that the former has more than six times the number of *se* forms than the latter:
Thus, on the basis of evidence from Gothic and Old English, I conclude that the contrastive and title-marking uses of *se* are 'extensions' of the core meaning, i.e. innovations which expand the meaning of what it means to be 'demonstrated' beyond the older notions of gestural deixis and discourse deixis. Below I lay out the semantic details of the *se* paradigm, focusing on its three non-gestural uses: anaphoric use, contrastive use, and use in titles.

4.2 Anaphoric *se*

When the demonstrative is being used anaphorically, it is marking strong familiarity, referring back to a discourse referent which was introduced earlier in the same sentence or passage. In MnE both the definite article and the demonstrative can serve this function, as in example (17) from section 3.6:
(17a) My friend has a dog and a cat. She can’t seem to keep those pets under control.

(17b) My friend has a dog and a cat. She can’t seem to keep the pets under control.

In OE, the se paradigm alone served this function-- there was no definite article as it is defined in MnE. Although some grammars of Old English refer to se as a definite article, recall that MnE the is required with all semantically unique NPs due to the uniqueness effects outlined in section 3.5. These uniqueness effects do not arise in OE, as NPs with semantically unique referents often appear bare. Consider the following passage from Ælfric's Nativitas Domini, in which discourse referents are introduced by bare NPs with semantically unique referents, and then referred back to with a form of the demonstrative:

(25)

In principio erat Verbum, ET RELIQUA: þæt is on

In principio erat Verbum, ET RELIQUA: which is in

Engliscre spræce, On angynne wæs Word,

English.fem.dat language.fem.dat, In beginning.neut.dat was Word.neut.nom,

& þæt Word wæs mid Gode, & þæt

and dem.neut.nom Word.neut.nom was with God.dat, and dem.neut.nom

Word wæs God. Dis wæs on anginne mid

Word.neut.nom was God.nom. This was in beginning.neut.dat with

þam ælmihtigan Gode. Ealle þing syndon

dem.masc.dat almighty.masc.dat God.dat. All.pl.nom things.pl.nom are

gesceapene þurh þæt Word, & butan þam

shaped through dem.neut.acc Word.neut.acc, and without dem.neut.dat
"...'In the beginning there was the Word, and the Word was with God, and the Word was God.' This existed in the beginning with the Almighty God. All things are shaped by the Word, and without it nothing exists. That which is created was life in himself, and that life truly was the light of man. And that light shone in the darkness, and the darkness did not receive that prophesied light." (Nativitas Domini, c.1000 AD, lines 27-36, as printed in Pope (1967)).

Note the absence of a determiner in the PP on angynne 'in the beginning'. Four other discourse referents are introduced by bare NPs: Word 'Word', lif 'life', leoht 'light', anddeostru 'darkness' (which carries plural inflection, but is used in a singular sense). These four NPs, in their biblical senses, happen to denote things which are unique in the world;

---

2 I used Butcher's (2006) MnE translation of Ælfric's sermon as a guide to glossing and translating the OE text. I also used Toller (1898) as an aid to glossing and translating the rest of the texts used in this paper. All glosses and translations, unless otherwise noted, are my own, and I alone am responsible for any mistakes that may be found in them.
*Word*\(^3\) refers to 'the Word of God', *lif* refers to the condition of life rather than to any individual life, *leoht* refers to 'the light of man', and *deostru* refers to the darkness surrounding the light. The introduction of these referents leaves us with four file cards, which are then updated with new information as the sermon progresses. Each time a file card is updated, i.e. each time a discourse referent is intended, the appropriate form of *se* is used. Note also the appearance of the demonstrative in *pam ælmihtigan Gode* 'The Almighty God'. It is unclear whether this is referring anaphorically to *God*, or if its presence is marking a title.

In example (26) from the Anglo-Saxon Chronicle there are three instances of anaphoric *se* with proper names (the occurrence of the demonstrative with *aldormon* reflects the contrastive use, which I discuss below):

(26)

<table>
<thead>
<tr>
<th>Her</th>
<th>Cynewulf</th>
<th>benam</th>
<th>Sigebrýht</th>
<th>his</th>
<th>rices</th>
</tr>
</thead>
<tbody>
<tr>
<td>here</td>
<td>Cynewulf.nom</td>
<td>deprived</td>
<td>Sigebrýht.acc</td>
<td>3sg.masc.gen</td>
<td>kingdom.neut.gen</td>
</tr>
<tr>
<td>ond</td>
<td>Westseaxna</td>
<td>wiotan</td>
<td>for</td>
<td>unryhtum</td>
<td>dædum,</td>
</tr>
<tr>
<td>and</td>
<td>West Saxon</td>
<td>counsel.pl.nom</td>
<td>for</td>
<td>unjust.pl.dat</td>
<td>deed.pl.dat</td>
</tr>
<tr>
<td>Hamtunscire, ond</td>
<td>he</td>
<td>hæfde</td>
<td>ða</td>
<td>ofslog</td>
<td></td>
</tr>
<tr>
<td>Hamptonsire</td>
<td>and</td>
<td>3sg.masc.nom</td>
<td>had</td>
<td>that.acc</td>
<td>until</td>
</tr>
<tr>
<td>þone</td>
<td>aldormon</td>
<td>þe</td>
<td>him</td>
<td>lengest</td>
<td>wunode.</td>
</tr>
<tr>
<td>dem.masc.acc</td>
<td>nobleman.masc.acc</td>
<td>who</td>
<td>3sg.masc.dat</td>
<td>longest</td>
<td>resided</td>
</tr>
</tbody>
</table>

\(^3\) It is important to note that the syntax of the Latin Vulgate passage which is the source for the opening line of (25) does not appear to have any effect on Ælfric's language; while *Verbum*, as with *Word*, is not preceded by a demonstrative or definite article when it is introduced, no such forms are present in the Vulgate even when referring anaphorically to *Verbum.*

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"Here Cynewulf and West Saxon counselors deprived Sigebrýht of his kingdom for unjust deeds, except for Hamptonshire, which he had until he slew the nobleman who had lived the longest in his court. At that point, Cynewulf exiled him to Andred, where he lived until a swineherd stabbed him to death at Privett; he had avenged the death of the nobleman Cumbra. Cynewulf often fought great battles against the Welsh, and about 31 years after he had his kingdom, he wanted
to exile a prince who was named Cyneheard, who was the brother of Sigebrht."

(Anglo-Saxon Chronicle, entry for 755, c.890 AD, as printed in Baker (2007)).

This is the beginning passage of this chronicle; the three main characters of the story, *Cynewulf*, *Sigebrht*, and *Cyneheard* are introduced in this passage in the absence of a determiner, and then referred to anaphorically with *se*. Note the departure here between OE and MnE uses of the demonstrative. MnE *that* does not normally appear with proper names in an anaphoric context; however, in OE such constructions like *se Cyneheard* are not unusual.

The following example from *Beowulf* illustrates anaphoric *se*. Earlier in the poem we are introduced to a *gæst* 'spirit', and in this line that spirit is being given a name:

(27)

\[
Wæs \quad se \quad grimma \quad gæst \quad Grendel \quad haten
\]

was \quad dem.masc.nom \quad horrible.masc.nom \quad spirit.masc.nom \quad Grendel \quad called

“That murderous spirit was named Grendel” (*Beowulf*, c.800 AD, line 102, translation from Chickering (1977)).

I now turn to the innovative uses of the OE demonstrative determiner, beginning with what I call the 'contrastive' use.

4.3 Contrastive *se*

When the demonstrative is used contrastively, it marks that an NP is being differentiated from other NPs which share its descriptive content via an adjunct or other descriptive phrase. The contrastive use of *se* is similar to the MnE use of the demonstrative reflected in (22) above. Note that the differentiating factor requires that the resulting NP is informationally unique (or maximal). Thus, in these cases, MnE *the* is
often a more natural translation. The passage below shows how a maximality implication follows from plurality and the contrastive use of the demonstrative:

(28)

"The three other evangelists wrote their gospels about Christ’s humanity, and how he came to men, and also about the miracles that he performed in his life."

(Nativitas Domini, lines 17-19).

Here, the 'demonstration' requirement is being expanded beyond the canonical notion of a gesture or an antecedent in the discourse. The demonstrative is used in ḍa ḫry oðre godspelleras 'the three other evangelists' to differentiate the evangelist John, who is the topic of this particular sermon, from the three other evangelists, Matthew, Mark, and Luke. In this context ḍa ḫry godspelleras 'the three other evangelists' would fail to select a set of referents, but with the adjective oðre 'other' being used as a demonstration, a maximal set of referents becomes identifiable. In ḫam wundrum ḫe he geworhte on lifē, 'the miracles which he performed in his life' the relative clause ḫe he geworhte on lifē is acting as the demonstration, singling out from the set of all miracles known to Ælfric and
his audience the subset of those which Jesus purportedly performed in his lifetime. For purposes of identifiability, *pam wundrum þe he geworhte on life* must refer to *all* of the miracles he performed. Consider also the following, from the West Saxon Gospels:

(29)

```
Forðam þe wytodlice manega þohton þæræ
for that surely many.pl.nom thought dem.pl.gen
Þinga raca geendebyrdan þe on us gefyllede
thing.pl.gen account.pl.acc set in order which among 1pl.dat fulfilled
synd...
```

"Forasmuch as many have taken in hand to set forth in order a narration of the things that have been accomplished among us..." (Luke 1:1, c.990 AD, as printed in Grünberg (1967), Gospel translations from the Douay-Rheims Bible)

Here we have another case of a relative clause demonstration. Although it is separated syntactically by the infinitival VP, the relative clause *þe on us gefyllede synd* 'that have been accomplished among us' modifies *þæra þinga* 'the things' to allow the hearer to identify the intended demonstratum. A prepositional phrase can also be used to demonstrate, as in (30).

(30)

```
odþæt him æghwylc þæra ymb-sittendra
until 3sg.masc.dat every one dem.pl.gen bordering.pl.gen
ofer hron-rade hyran scolde
over whale-road.fem.dat heed must
```
“until every last one of the bordering nations beyond the whale-road had to heed him” (*Beowulf*, lines 9-10).

The PP *ofar hron-rade* 'over the whale-road (lit. over the ocean)' selects a set of *ymb-sittendra* 'bordering nations'. Example (31), also from *Beowulf*, introduces a character (who is later given the name Grendel) whose discourse referent antecedent is referred to by the demonstrative NP in (27). It is similar to (29) in that the demonstrating relative clause, *se þe in þystrum bad* 'who waited in the darkness' is separated syntactically from the demonstrative NP *se ellen-gast* 'the great monster'.

(31)

```
Da  se  ellen-gast  earfodlice
then  dem.masc.nom  strong-creature.masc.nom  with difficulty
prage  gepolode,  se þe  in  þystrum  bad
time.fem.dat  suffered  which  in  darkness.pl.dat  waited
```

“Then the great monster in the outer darkness suffered fierce pain” (*Beowulf*, lines 86-87).

The *se* paradigm's use as a contrasting or differentiating device, as well as its use as a marker of anaphora, reflect functions that are shared among the OE demonstrative, the MnE demonstrative, and the MnE definite article. Where the OE demonstrative differs from the MnE demonstrative, and where it shares function with the MnE definite article, is in its use in titles.

4.4 The Use of *se* in Titles

It is due to its use in titles that the OE demonstrative often looks like a definite
article. Titles generally refer to semantically unique entities; however, as previously mentioned, and as (32) clearly illustrates, it cannot be the uniqueness of the NP's referent which licenses the use of *se*. In the example below, the indisputably semantically unique NP *ancenned Sunu* 'only-begotten Son' appears bare, while the demonstrative determiner is used with *ælmihtigan Fæder* 'Almighty Father', similarly to (25) and (35), to mark a title.

(32)

\[
\begin{array}{ll}
\text{Crist} & \text{is} \quad \text{ancenned} \quad \text{Sunu} \quad \text{of} \quad \text{pam} \\
\text{Christ.nom} & \text{is} \quad \text{only-begotten.masc.nom} \quad \text{Son.masc.nom} \quad \text{of} \quad \text{dem.masc.dat} \\
\text{ælmihtigan} & \text{Fæder}... \\
\text{almighty.masc.dat} & \text{Father.masc.dat}...
\end{array}
\]

"Christ is the only-begotten son of the Almighty Father…" (*Nativitas Domini*, line 386).

With this extension of the demonstrative's meaning, the demonstration presupposition starts to become opaque; in these examples, the demonstration is nothing more than the existence of a title in the common ground, and the quality of being important or noteworthy which the speaker and hearer assign to entities with titles. This certainly broadens the definition of demonstration beyond its MnE counterpart; however, it is an important requirement, because in cases where no title exists in the common ground (e.g. *ancenned Sunu* 'only-begotten son'), the OE demonstrative is not likely to be used. It is very common for a form of *se* to be used with religious figures, as above, and with kings, as in (33) and (34).
(33)

\[ Swa \ was \ iu \ Pharao, \ pe \ wann \ ongean \ God, \]

thus was formerly Pharaoh.nom, who struggled against God.acc

\[ se \ Egiptisca \ cyning... \]

dem.masc.nom Egyptian.masc.nom king.masc.nom

"And thus was the Pharaoh of old, who fought against God, the Egyptian King..."

(\textit{Nativitas Domini}, line 228).

(34)

\[ Her \ on \ þissum \ geare \ sende \ se \ cyning \ and \]

here in this.neut.dat year.neut.dat sent dem.masc.nom king.masc.nom and

\[ his \ witan \ to \ ðam \ here \ and \ gyrndon \]

3sg.masc.gen counsel.pl.nom to dem.masc.dat army.masc.dat and asked

\[ friðes... \]

peace.masc.gen

"In this year, the king and his counsel sent to his army and asked for peace..."

(Anglo-Saxon Chronicle, 1011 AD).

Both of the above examples illustrate use of the demonstrative with \textit{cyning} 'king'. While \textit{se} appears in titles less frequently in older texts, it is not absent. It appears with \textit{ælmihtiga} 'Almighty' in Beowulf:

(35)

\[ cwæð \ ðæt \ se \ Ælmihtiga \ eorðan \ worhte \]

said that dem.masc.nom almighty.masc.nom earth.fem.acc created
“told how the Almighty had shaped the earth” (*Beowulf*, line 92).

All of the above examples are in the West Saxon dialect; however, the uses described here are not unique to West Saxon. It is more difficult to find data from other dialects, as West Saxon was the written standard for much of the relevant timespan, but there are some examples from Northumbrian. The Northumbrian examples which are cited in section 5 below as evidence of a redeployment of the neuter form *æt* reflect these usages. Also, in Old Northumbrian, as early as 695 AD, we find what appears to be a use of *se* in a title, *se ueta uong* 'the wet Earth':

(36)

\[
\text{Mec} \quad \text{se} \quad \text{ueta} \quad \text{uong}, \quad \text{uundrum} \quad \text{freorig}.
\]

\[
\begin{array}{llllll}
1\text{sg.acc} & \text{dem.masc.nom} & \text{wet.masc.nom} & \text{earth.masc.nom} & \text{wondrously} & \text{cold} \\
\text{ob} & \text{his} & \text{innaðæ} & \text{aerest} & \text{caendæ}.
\end{array}
\]

“The wet Earth, wondrously cold, first produced me from its womb” (Leiden Riddle, c.695 AD, as printed in Sweet (1935, p.150)).

Taking gestural deixis to be the most basic use of the demonstrative (see Lyons 1977, p. 636), we can see how the uses outlined above are mere metaphorical extensions of this meaning; anaphora, title-marking, and contrasting are all ways of achieving that same goal which is achieved by a physical gesture. In the simplest of terms, demonstratives differentiate. Although a confident formal analysis of the OE *se* paradigm is difficult without native speakers' intuitions from which to draw conclusions, there is ample evidence that its use presupposed, as does MnE *that*, that the discourse referent of its NP was able to be determined by the hearer on the basis of accompanying
information. As a result of its broadened range of functions, the demonstration presupposition became opaque, after which the demonstrative was reanalyzed as presupposing mere informational uniqueness. In the following section I outline this change in terms of pragmatic inferencing.

4.5 From *se* to *the*: A Pragmatic Account

In this section I propose a scenario whereby definiteness in English arose from an invited inference. Recall the three steps of IITSC:

Step 1: Invited Inference (IIN) not generalized, situation-specific

Step 2: Generalized Invited Inference (GIIN) inference is preferred, but cancellable

Step 3: Coded Meaning second natural meaning becomes available, original meaning is no longer available in certain contexts

Below I apply these steps to the OE demonstrative, giving an account of how the definite article likely arose from an invited inference:

(37) Step 0: Use of the demonstrative presupposes a discourse referent which is uniquely (or maximally) demonstrated by an accompanying demonstration; a demonstration is a piece of information which allows the hearer to select a referent for the demonstrative NP. It can either be a physical gesture, an antecedent in the discourse, a descriptive phrase which contrasts the intended referent with other possible referents, or a title held by an individual in the common ground. Mere informational uniqueness is not sufficient to satisfy the
presupposition, and thus uniqueness effects do not arise, allowing for bare nouns whose denotations are unique.

Step 1: In those cases where the demonstrative is used with a descriptive phrase or with a title, uniqueness (or maximality) is necessarily satisfied, as otherwise no single demonstratum could be determined, and the demonstration requirement, having been extended far beyond the notion of a deictic gesture, becomes less salient to the interlocutors. This makes available the invited inference (IIN) that mere informational uniqueness is presupposed.

Step 2: In titles, such as *se Ælmihtige Fæder*, the demonstration requirement is especially opaque; for this reason, the IIN comes to be the preferred meaning— it becomes a generalized invited inference (GIIN). A polysemy has not yet arisen, and thus the inference is cancellable. Uniqueness effects still do not arise in NPs which are not titles, and bare unique NPs (as in *on angynne*) are still allowed.

Step 3: The GIIN becomes an encoded meaning of the demonstrative, giving rise to the implicature that requires all semantically unique NPs to be marked by what is now solely a marker of mere informational uniqueness, i.e. a definite article.

The data given in this paper illustrate a GIIN (Step 2). The demonstrative's frequent use in titles suggests that the inference in question had progressed beyond the situation-specific nature of an IIN by the OE period, yet the paradigm's behavior suggests that it had not yet undergone the reanalysis of Step 3.
I now give a formalization of the reanalysis which gave rise to the MnE definite article. Recall Roberts' (2002) informal analyses of definites and demonstratives (respectively):

(16) Given a context C, use of a definite description NP<sub>i</sub> presupposes that there is a discourse referent i in the Domain of C which is the unique familiar discourse referent contextually entailed to satisfy the (possibly liberalized) descriptive content of NP<sub>i</sub>.

(20) Given a context C, use of a (non-)proximal demonstrative NP<sub>i</sub> presupposes (a) that there is an accompanying demonstration δ whose unique demonstratum, correlated with a weakly familiar discourse referent by virtue of being demonstrated, lies in the direction indicated by the speaker at a (non-)proximal distance to the speaker, and (b) that the weakly familiar discourse referent for the demonstratum is the unique familiar discourse referent contextually entailed to satisfy the (possibly liberalized) descriptive content of NP<sub>i</sub>.

Below are Roberts' formalizations of these analyses:

(38) For context C = <Sat<sub>C</sub>, Dom<sub>C</sub>>, if a definite NP with (possibly liberalized) descriptive content Desc is felicitous in C then

(i)  ∃i ∈ Dom<sub>C</sub> [∀<w,g> ∈ Sat<sub>C</sub> [Desc(w)(g(i))] &

(ii) ∀k ∈ Dom<sub>C</sub> [∀<w,g> ∈ Sat<sub>C</sub> [Desc(w)(g(k)) → k=i]],

where Desc(w)(g(i)) is true iff the individual assigned to i by g has the property denoted by Desc in world w.
Given a context of evaluation $C$, with common ground $CG$ s.t. $\text{Dom}_{CG} \subseteq \text{Dom}_C$, and discourse referent $S$ s.t. $\forall i \in \text{Dom}_{CG} \ \forall <w,g> \in \text{Sat}_{CG} [\text{speaker}(w)(g(i)) \rightarrow i=S]$, if a $[+(-)\text{proximal}]$ demonstrative NP, is felicitous in $C$, then

(i) $\exists \delta [\delta \in \text{Dom}_{CG} \land \forall <w,g> \in \text{Sat}_{CG} [\text{demonstration}(w)(g(\delta)) \land \text{accompanies}(w)(g(\delta), \text{utterance}(\text{NP}_i))] \land$

(ii) $\exists j \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [(-)\text{proximal}(w)(g(j),S) \land \text{demonstratum}(w)(g(j),S,\delta)] \land \forall k \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [(-)\text{proximal}(w)(g(k),S) \land \text{demonstratum}(w)(g(k),S,\delta)] \rightarrow k=j] \land$

(iii) $j=i$,

where $[+(-)\text{proximal}(w)(g(j),S) \land \text{demonstratum}(w)(g(j),S,\delta)]$ is true iff the individual assigned to $j$ by $g$ is in the set of entities (non-)proximal to $S$ and is the demonstratum intended by $S$ for the demonstration $\delta$.

We can derive the semantic reanalysis of $se$ using these formalizations:

(40) Crist is ancenned Sunu ṣam Ǽlmihitgan Fæder.

PRESUPPOSITIONS OF Crist is ancenned Sunu ṣam Ǽlmihitgan Fæder:

(i) $\exists x [\text{name}(\text{Crist}, x)] \land$

(ii) $\exists \delta [\delta \in \text{Dom}_{CG} \land \forall <w,g> \in \text{Sat}_{CG} [\text{demonstration}(w)(g(\delta)) \land \text{accompanies}(w)(g(\delta), \text{utterance}(\text{am Ṣam Ǽlmihitgan Fæder}))] \land$

(iii) $\exists j \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [(-)\text{proximal}(w)(g(j),S) \land \text{demonstratum}(w)(g(j),S,\delta)] \land \forall k \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [(-)\text{proximal}(w)(g(k),S) \land \text{demonstratum}(w)(g(k),S,\delta)] \rightarrow k=j] \land$

(iv) $j=i$

INFERRED PRESUPPOSITIONS:

(i) $\exists x [\text{name}(\text{Crist}, x)] \land$

(ii) $\exists i \in \text{Dom}_C [\forall <w,g> \in \text{Sat}_C [\text{ALMIGHTY–FATHER}(w)(g(i))] \land$

(iii) $\forall k \in \text{Dom}_C [\forall <w,g> \in \text{Sat}_C [\text{ALMIGHTY–FATHER}(w)(g(k))] \rightarrow k=i]$}

PRESUPPOSITION CONTRIBUTED BY Crist: $\exists x [\text{name}(\text{Crist}, x)]$

PRESUPPOSITIONS CONTRIBUTED BY is: NONE

PRESUPPOSITIONS CONTRIBUTED BY ancenned Sunu: NONE

MISSING MEANING => INFERRED PRESUPPOSITIONS (ii) and (iii)

REMNANT MATERIAL => ṣam Ǽlmihitgan Fæder

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Because inferences arise at the sentence level we start with the presuppositions carried by the entire sentence. The example sentence prior to the reanalysis is encoded with four presuppositions: (i) there exists an individual for whom Crist is a proper name, (ii) there exists in the common ground a demonstration that accompanies the utterance *pam Ælmihtigan Fæder*, (iii) that demonstration signifies a unique demonstratum that is non-proximal w.r.t. the speaker, and (iv) that demonstratum satisfies the descriptive content of *Ælmihtigan Fæder*. The GIIN, as described in (37), contains three presuppositions: (i) there exists an individual for whom Crist is a proper name, (ii) there exists a discourse referent contextually entailed to satisfy the descriptive content of *Ælmihtigan Fæder*, and (iii) there is only one such discourse referent. The reanalysis begins when the hearer takes the GIIN to be the encoded presuppositional content of the sentence. The hearer will assume that the presupposition contributed by Crist is the same and that the non-contributing forms remain non-contributors, at which point he or she is left with the inferred weak familiarity and informational uniqueness presuppositions ((ii) and (iii), respectively) which can only be analyzed as the contribution of *pam Ælmihtigan Fæder*. The final step of the reanalysis is the extraction of *Ælmihtigan Fæder*, which leads to the conclusion that the use of *pam* is contributing the presuppositions outlined in (16) and (38).

I claim that this is a semantically natural change, and thus it is unsurprising that there are multiple instances of this type of change occurring across languages. I support
this claim by showing that the inferences which led to this reanalysis follow logically from the meaning of the demonstrative.

4.6 Naturalness Revisited

Recall the definition of 'semantic naturalness' from section 2:

(4) Given two synchronic grammars of a language at times, $t_1$ and $t_2$, where $t_1 < t_2$, and given two linguistic forms $F_X$ and $F_Y$, where $F_X$ has a semantic meaning $X$ at $t_1$ and $F_Y$ has a semantic meaning $Y$ at $t_2$, and where $F_X$ is the ancestor form of $F_Y$, the change $F_X > F_Y$ is semantically natural if:

For all pairs of propositions $<P, Q>$, where $P$ is the proposition denoted or presupposed by a well-formed sentence $S$ at $t_1$ containing $F_X$, and where $Q$ is the proposition that would be denoted or presupposed by that sentence if $F_X$ contributed meaning $Y$ rather than meaning $X$, $P$ entails $Q$.

It can be shown that, assuming the informational uniqueness analysis of definite descriptions, the change from $se$ to $the$ is semantically natural:

(41) $F_X = se$ $X = \exists \delta [\delta \in \text{Dom}_{CG} \& \forall <w,g> \in \text{Sat}_{CG} [\text{demonstration}(w)(g(\delta)) \& \text{accompanies}(w)(g(\delta), \text{utterance}(\text{NP}))] \& \exists j \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [\neg \text{proximal}(w)(g(j),S) \& \text{demonstratum}(w)(g(j),S,\delta)] \& \forall k \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [\neg \text{proximal}(w)(g(k),S) \& \text{demonstratum}(w)(g(k),S,\delta)] \rightarrow k=j] \& j=i]$ $F_Y = the$ $Y = \exists i \in \text{Dom}_C [\forall <w,g> \in \text{Sat}_C [\text{Desc}(w)(g(i))]] \& \forall k \in \text{Dom}_C [\forall <w,g> \in \text{Sat}_C [\text{Desc}(w)(g(k))] \rightarrow k=i]$ $S = Crist is ancenned Sunu žam Ælmigtgan Fæder.$
To show that this change is natural by the definition in (4), it is sufficient to show that for any example sentence S, the corresponding P proposition will entail the corresponding Q proposition. Let us first examine (41). In this example P reflects the encoded presuppositions found in (40), while Q reflects the inferred ones. The first conjunct of P is identical to the first conjunct of Q, and thus will have no effect on whether P entails Q. What must be shown is that the remaining three presuppositions in P together entail the remaining two presuppositions in Q.

P is true only if there exists in the common ground a demonstration (δ) that accompanies the utterance *pam Ælmihtigan Fæder*, which signifies a unique demonstratum that is non-proximal w.r.t. the speaker, and if that demonstratum satisfies the descriptive content of *Ælmihtigan Fæder*. By Roberts' formal definitions, given in (38) and (39), the common ground is a subset of the context of evaluation; therefore, it is true that δ is in the domain of the context as well. The demonstration is correlated with a discourse referent which is unique in being demonstrated and satisfying the appropriate descriptive content. Since δ is in the domain of the context of evaluation, it is true that the context entails the existence of a discourse referent which is unique in satisfying the
appropriate descriptive content. Thus, P entails that there is a unique familiar discourse referent contextually entailed to satisfy the descriptive content of Ælmihtigan Fæder. P entails Q.

In this case the demonstration that satisfies the presupposition is a title-- one can assume that this utterance was felicitous because the existence of the title in the common ground of Ælfric and his audience was sufficient to identify the Judeo-Christian God as the intended discourse referent. However, the entailment relationship between P and Q exists regardless of what form the demonstration takes. Furthermore, the entailment follows solely from the contributions of the determiner; the specific descriptive content of the NP is irrelevant. One could substitute any NP for Ælmihtigan Fæder, and the resulting P would entail the resulting Q. That is, for any P and Q derived from the same sentence S, it is the case that P entails Q. Thus, the change from se to the, under the analysis that se was similar in its meaning to MnE that, is indeed semantically natural. However, the evolution of the se paradigm involves an unnatural semantic change as well: the 'redeployment' of the neuter form þæt to a more deictic form. In the following section I apply the same formal tools used above to this unnatural change, and I give a possible motivation.
SECTION 5

GENDER LOSS & THE REDEPLOYMENT OF THE NEUTER

5.1 An Unnatural Change

Just as unnatural sound changes require an explanation of the factors which may have motivated them, so too must one explain the occurrence of unnatural semantic changes. Cross-linguistic data shows numerous cases of a demonstrative broadening its meaning and becoming a marker of definiteness, while it is not as common for the same mechanisms of change, acting upon an article-like form, to result in something that looks more like a demonstrative. This, I argue, is what we find in the case of the OE neuter demonstrative determiner āet.

In 4.6 I showed that the presuppositions of the demonstrative entail the presuppositions of the definite article. This is a one-way relationship---the existence of a unique, weakly familiar discourse referent does not entail the existence of a demonstration. This is clear from examples of uniqueness effects (as in (15) above). In these cases the hearer must accommodate semantic uniqueness in order to satisfy informational uniqueness, but he or she does not need to accommodate the existence of a demonstration in the common ground in order for the utterance to be felicitous. For this reason I claim that the developments affecting āet involve an unnatural semantic change.
However, I have not claimed that all unnatural changes are unlikely; I have only claimed that the notion of naturalness has explanatory power with regard to many grammaticalization phenomena. The question remains: why is there no tendency for demonstratives to develop a narrower meaning? More specifically, why isn't it common for the use of a demonstrative to invite an inference of a more specific deictic meaning?

The demonstrative presupposes that there is sufficient information to identify the intended discourse referent. Grice's Maxim of Quantity (Grice 1975) states that one should "make [one's] contribution as informative as required, and imply no more thereby." (Traugott and Dasher 2005, p. 18). Imagine a felicitous OE sentence with a demonstrative NP and an accompanying pointing gesture. While this pointing gesture satisfies the demonstration requirement and selects a unique demonstratum, no such physical gesture is specifically presupposed by the OE demonstrative. In this context, an inference could arise that there is an accompanying physical gesture, however, this would be more informative than needed-- the presupposition of a demonstration in the broader sense is sufficient to select a referent. Thus, the hearer, assuming that the speaker is not violating the maxim of Quantity, is unlikely to make such an inference. It is for this reason that the semantic development of *æt* seems unusual.

The motivating factors for unnatural semantic changes can be extralinguistic. In the case of English *bead*, external contextual factors contributed to a semantic change that is so unusual, it may never happen again. The change from 'prayer' to 'little round object' was motivated by and dependent on a fact about the world-- that little round objects were once used to count prayers. This sort of context-dependence, however, is
not a necessary condition for such changes. The factors can also be linguistic. Changes from article-like forms to strict demonstratives are not motivated by the forms' meanings; however, in the case of *paet*, there is an explanation to be found in the larger linguistic system within which the determiner operated. I now discuss the details of the neuter form's semantic redeployment⁴, before arguing that the motivating factor for this development was the loss of grammatical gender in English, and its replacement by a natural (or semantic) gender agreement system, a phenomenon which I refer to simply as 'gender loss'.

5.2 The Redeployment of *paet*

Over the course of time the nominative neuter form *paet* came to serve a novel discourse function. Jones (1988) analyzes the occurrences of 'wrong' (i.e. unetymological) gender assignments in Northumbrian texts dating from 950 to 1250, concluding that, "unhistorical 'neuter' forms were being used as discourse tracking mechanisms and as a means of expressing the extent of shared knowledge between reader and writer concerning individual nominal items." (p. 103). This 'shared knowledge' includes titles, but examples of unhistorical neuter forms being used with titles number significantly fewer than examples of these forms being used to signal anaphora. Examining the Northumbrian Gloss of the Lindisfarne Gospels (c.950 AD), Jones concludes:

The single most common context where unhistorical gender <*p*>⁵ forms are to be found in the gloss is one where the nouns with which they are in construction

---

⁴ I use the term 'redeployment' to include examples of 'exaptation', as in Lass (1990). Lass adopted the term from biology, using it to describe situations in which so-called 'linguistic junk' is given new use.

⁵ *p* is shorthand for *paet*
have already been introduced (with the same phonological shape) in the immediately preceding "discourse" and usually with a zero determiner shape... (p. 45).

That is, of the other gender-related innovations that can be found in this text, the author most frequently redeployed the neuter to a new sense as a marker of strong familiarity. Consider the following, from the Northumbrian gloss of Mark 10:38-39 (Jones 1988, p. 47):

(42)

se hælend uutedlice cuoed him... hu magoge drinca

dem.masc.nom savior.masc.nom truly said 3pl.dat...may you drink of

done calic done ic drinco...
dem.masc.acc chalice.masc.acc which I drink of...

se hælend uutedlice cuoed him p calic
dem.masc.nom savior.masc.nom truly said 3pl.dat dem.neut.acc chalice.masc.acc

e c don done ic drinco gie drinca

indeed which I drink of 2pl.nom drink of

“And Jesus said to them... Can you drink of the chalice that I drink of?... And Jesus said to them: You shall indeed drink of the chalice that I drink of...”

The demonstrative paradigm is used four times in this passage. The first three instances reflect normal grammatical gender agreement. The demonstrative NP se hælend 'the Savior' appears twice, marking a title. The NP done calic done ic drinco 'the chalice that I drink of' instantiates the contrastive use of se-- the relative clause done ic drinco differentiates the intended referent of calic 'chalice' from other chalices. The discourse
referent of this masculine NP is then referred to anaphorically with a neuter determiner as *p calic*. Such examples are more numerous in later texts, such as the Peterborough Chronicle. In the following example *pet* is the neuter demonstrative form:

(43)

\[
\begin{align*}
\text{Crist ræde for } & \text{pa wrecce muneces of Burch} \\
\text{Christ provide for } & \text{dem.pl.acc wretched monk.pl.acc of Peterborough} \\
\text{& for pet wrecce stede!} & \text{and for dem.neut.acc wretched place.masc.acc}
\end{align*}
\]

"Christ provide for the wretched monks of Peterborough, and for that wretched place!" (Peterborough Chronicle, 1131 AD, as printed in Jones (1988, p. 136)).

In this case the place name *Burch* 'Peterborough' is introducing a discourse referent which satisfies the descriptive content of *stede* 'place'. The neuter determiner *pet* is unhistorical, modifying the masculine *stede* to signal anaphora. Examples (42) and (43) illustrate an innovative use which reflects a change from a broader meaning to a more restrictive one, a use which led to the semantic split between *se* and *æt*. This semantic development occurred against the backdrop of the loss of grammatical gender in English, a morphological restructuring which happened incrementally from late Old English through early Middle English.

5.3 The Loss of Grammatical Gender in English

Of gender loss Curzan (2003) says, "the exact nature of the shift-- of what stages it involves-- is complex and has never been described or understood in full detail." (p. 31). But there is much that we do know about this phenomenon. The complex system of noun inflections which existed in Old English was lost, while gender agreement remained
in determiner forms and adjective endings. This was in part due to the Germanic Stress Rule. Stress shifted in Proto-Germanic to fall chiefly on the first syllables of words, and the resulting stress patterns eventually brought about the reduction of final syllable vowels to -ə, as well as the loss of final nasals in many cases (Curzan 2003, p.43). Stress is not a sufficient explanation, however, because the stress shift occurred centuries before English began to lose grammatical gender. One hypothesis is that the loss of nominal inflectional endings was facilitated by contact with Old Norse. There is evidence that OE and ON shared at least some degree of intelligibility; however, the system of noun endings in ON was considerably different and may have caused speakers of OE to simplify their inflectional system for communicative purposes (Poussa 1982).

The shift from grammatical to natural gender agreement began in anaphoric third-person pronouns. The shift in pronoun agreement becomes apparent in Early Middle English. However, there is evidence from Heltveit (1958) and Curzan (2003) that shows that, although grammatical gender agreement was mostly intact in OE, an anaphoric reference to an inanimate antecedent would sometimes be expressed with the neuter personal pronoun hit, even when the grammatical gender of the antecedent was masculine or feminine. Consider the following, from the late OE period:

(44) *Saga me hwilc sy seo sunne. Ic þe secge,*
  *Astriges se dry sæde þæt hit*
  *wære byrnende stan.*

<table>
<thead>
<tr>
<th>Text</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saga</td>
<td>tell</td>
</tr>
<tr>
<td>me</td>
<td>1sg.acc</td>
</tr>
<tr>
<td>hwilc</td>
<td>which</td>
</tr>
<tr>
<td>sy</td>
<td>be</td>
</tr>
<tr>
<td>seo</td>
<td>dem.fem.nom</td>
</tr>
<tr>
<td>sunne</td>
<td>sun.fem.nom</td>
</tr>
<tr>
<td>Ic</td>
<td>1sg.nom</td>
</tr>
<tr>
<td>þe</td>
<td>2sg.acc</td>
</tr>
<tr>
<td>secge</td>
<td>say</td>
</tr>
<tr>
<td>Astriges</td>
<td>Atriges</td>
</tr>
<tr>
<td>se</td>
<td>dem.masc.nom</td>
</tr>
<tr>
<td>dry</td>
<td>sorcerer.masc.nom</td>
</tr>
<tr>
<td>sæde</td>
<td>said</td>
</tr>
<tr>
<td>þæt</td>
<td>that</td>
</tr>
<tr>
<td>hit</td>
<td>3sg.neut.nom</td>
</tr>
<tr>
<td>wære</td>
<td>were</td>
</tr>
<tr>
<td>byrnende</td>
<td>burning</td>
</tr>
<tr>
<td>stan</td>
<td>stone</td>
</tr>
</tbody>
</table>
"Tell me what the sun be. I tell you, Astriges the sorcerer said that it were burning stone." (Adrian and Ritheus 36, c. 1100 AD, printed and translated in Curzan (2003, p. 101)).

The NP seo sunne 'the Sun', while its referent is semantically neuter, is grammatically feminine, and is normally referred to anaphorically with a feminine personal pronoun. In (44) we see a neuter pronoun hit referring to seo sunne, reflecting natural gender but not grammatical gender. Curzan concludes that, inasmuch as written language is more conservative than spoken language, it was likely that the shift in pronoun agreement began during the OE period.

Jones (1988) sheds light on the further details of gender loss, giving evidence from Northumbrian and Early Middle English texts showing that speakers had begun to redeploy the remains of the grammatical gender system to other uses. Certain inflectional endings came to denote case regardless of gender, while other forms, such as ðæt, as illustrated in (42) and (43), came to serve discourse functions. These redeployments furthered the erosion of the grammatical gender system, and by time of Chaucer it was absent from the language altogether. In the concluding sections I show how the declining system of grammatical gender may have allowed an IIN to arise, I formalize the change, and I discuss its implications regarding the directionality of semantic change.

5.4 Gender Loss as a Motivating Factor

A new coded meaning of the neuter demonstrative form is not reflected in the OE data, as unhistorical gender assignments are outnumbered by correct gender assignments in the cited texts. Thus, I analyze the innovative use outlined above as an invited
inference. As noted in 5.2, this is not an inference which normally arises; however, the nature of the gender system and its ongoing restructuring make this a plausible account of how *æt* became MnE *that*. The neuter personal pronoun *hit* was often used, relatively early in the process of gender loss, to refer anaphorically to masculine and feminine nouns (as in example (44) above). This expanded use of *hit* may have created an association of neutered forms with anaphoric usage. Also, throughout late OE and into early ME, the agreement system was becoming increasingly opaque. With few phonological cues as to the grammatical gender of nouns, and with the pronoun agreement system already undergoing reanalysis, it is plausible that speakers began redeploying gendered forms out of a desire to assign meaning to extraneous morphological forms (i.e. 'linguistic junk'). There may have been other factors involved in the semantic development of the neuter, but it can indeed be accounted for in terms of pragmatic inferencing and reanalysis.

5.5 From *æt* to *that*: A Pragmatic Account

Below I give a plausible pragmatic account of the neuter form's reassignment to a more restrictive use:

(45) Step 0: Use of the demonstrative presupposes a discourse referent which is uniquely (or maximally) demonstrated by an accompanying demonstration; a demonstration is a piece of information which allows the hearer to select a referent for the demonstrative NP. It can either be a physical gesture, an antecedent in the discourse, a descriptive phrase which contrasts the intended
referent with other possible referents, or a title held by an individual in the common ground.

Step 1: In the cases where strong familiarity holds, there is an association between the anaphor and the neuter gender that stems from the frequency of unhistorical hit forms. The speaker, in an attempt to assign a different meaning to a morphologically different form, exploits that association and begins incorrectly using the neuter demonstrative determiner þæt in those contexts, inviting the inference that a specific kind of demonstration is presupposed. The hearer, realizing that the speaker is assigning the wrong gender to forms in a systematic way, assumes that the speaker is doing so intentionally in order to convey a meaning, and thus makes the inference.

Step 2: The IIN becomes generalized, and the more restrictive reading of þæt becomes more salient in appropriate contexts; the frequency of unhistorical neuter assignments increases.

Step 3: Reanalysis occurs, resulting in the semantic split of the se paradigm. The neuter form now presupposes the existence of a demonstration that is closer to the deictic core of a demonstrative's meaning--it presupposes either an accompanying physical gesture or an accompanying strongly familiar discourse referent.

The outcome of this change was still a demonstrative. The only change in meaning that occurred was a change in what it means to be a 'demonstration'. Since the post-reanalysis
demonstrative was used only in those cases labeled 'gestural deixis' and 'discourse deixis' (see section 3.6), I posit that it presupposed a 'deictic demonstration'. Below is a formalization of the reanalysis of Step 3, with the innovative meaning in bold:


PRESUPPOSITIONS OF Crist ræde for pa wrecce muneces of Burch & for pet wrecce stede:

(i) \( \exists x [\text{name}(Crist, x)] \) &
(ii) \( \exists \delta [\delta \in \text{Dom}_{CG} \& \forall <w,g> \in \text{Sat}_{CG} [\text{demonstration}(w)(g(\delta)) \& \text{accompanies}(w)(g(\delta), \text{utterance}(pa \ wrecce \ muneces)))] \) &
(iii) \( \exists j \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [\neg \text{proximal}(w)(g(j),S) \& \text{demonstratum}(w)(g(j),S,\delta)] \& \forall k \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [\neg \text{proximal}(w)(g(k),S) \& \text{demonstratum}(w)(g(k),S,\delta)] \rightarrow k=j] \) &
(iv) \( j=i \) &
(v) \( \exists x [\text{name}(Burch, x)] \) &
(vi) \( \exists \delta [\delta \in \text{Dom}_{CG} \& \forall <w,g> \in \text{Sat}_{CG} [\text{demonstration}(w)(g(\delta)) \& \text{accompanies}(w)(g(\delta), \text{utterance}(pet \ wrecce \ stede))] \) &
(vii) \( \exists m \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [\neg \text{proximal}(w)(g(m),S) \& \text{demonstratum}(w)(g(m),S,\delta)] \& \forall n \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [\neg \text{proximal}(w)(g(n),S) \& \text{demonstratum}(w)(g(n),S,\delta)] \rightarrow n=m] \) &
(viii) \( m=l \)

INFERRED PRESUPPOSITIONS: (i)–(v) ABOVE, PLUS:

(vi) \( \exists \delta [\delta \in \text{Dom}_{CG} \& \forall <w,g> \in \text{Sat}_{CG} [\text{deictic-demonstration}(w)(g(\delta)) \& \text{accompanies}(w)(g(\delta), \text{utterance}(pet \ wrecce \ stede))] \) &
(vii) \( \exists m \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [\neg \text{proximal}(w)(g(m),S) \& \text{demonstratum}(w)(g(m),S,\delta)] \& \forall n \in \text{Dom}_{CG} [\forall <w,g> \in \text{Sat}_{CG} [\neg \text{proximal}(w)(g(n),S) \& \text{demonstratum}(w)(g(n),S,\delta)] \rightarrow n=m] \) &
(viii) \( m=l \)

PRESUPPOSITION CONTRIBUTED BY Crist: (i)
PRESUPPOSITIONS CONTRIBUTED BY pa wrecce muneces: (ii)–(iv)
PRESUPPOSITION CONTRIBUTED BY Burch: (v)
PRESUPPOSITION CONTRIBUTED BY ræde, for, of, &: NONE
Items (45) and (46) illustrate how the same mechanisms of semantic change that account for grammaticalization changes as in (2), (37), and (40) can account for a change whose result is less grammatical, underlining the main problem of grammaticalization theory.

5.6 Semantic Change in Two Directions

If the Modern English definite article the is a more grammatical form which developed from the less grammatical Old English demonstrative, then the MnE non-proximal demonstrative determiner that is a less grammatical form which developed from the more grammatical and more article-like OE demonstrative. This semantic split typifies semantic change in two directions:

Figure 1: Bidirectional Semantic Change

The evolution of the se paradigm involves both a grammaticalization change and a counter-example to unidirectionality, illustrating how the same processes whereby grammaticalization phenomena occur are responsible for changes in both directions, with
certain tendencies arising due to naturalness\textsuperscript{6}. That is, the data support the view that, while strong tendencies may exist, language change does not follow any cline.

\textsuperscript{6} This is congruent with the findings of Joseph and Janda (1988), in which the authors conclude that movement into morphology, i.e. a grammaticalization change, is more common than movement out of morphology only because the conditions which give rise to the latter are more complex and less likely to occur, and not because there is any difference in the processes involved.
SECTION 6

CONCLUSION

In this paper I have provided a formal account of how the definite article in English developed from a demonstrative, and of why this change is a natural one. I have also shown that, by the same standards, the developments affecting the nominative neuter form of the OE demonstrative paradigm constitute an unnatural change and a counterexample to the hypothesis that semantic change is unidirectional. Finally, I have given an account of how this counterexample arose via the same mechanisms that caused the demonstrative > definite change. It is my hope that in making these arguments I have given greater support to the idea that the application of formal semantics and pragmatics to diachronic linguistics is worth pursuing.
LIST OF REFERENCES


