Borrowed derivational morphology in Late Middle English: A study of the records of the London Grocers and Goldsmiths
Borrowed derivational morphology in Late Middle English: A study of the records of the London Grocers and Goldsmiths*

Chris C. Palmer

In Present Day English (PDE), a number of affixes that were originally restricted to borrowings from other languages are now productively used to coin a variety of new words. The suffix -age, for example, has recently shown up in a number of innovations in a range of registers and communities. In the 1970s in North America, signage (‘signs collectively, esp. public signs on facia boards, signposts, etc.’) seems to have emerged in official, governmental contexts and spread to a more general usage.¹ In computer gaming communities, the word ownage has been coined to express one opponent’s strong victory over another: ‘The act or state of perpetrating fierce and unholy domination against another, typically in a videogame setting, resulting in shame and embarassment [sic] for the victim and his/her family until the end of time.’² Currently, the use of ownage has been extended beyond gamer communities; one now finds real-life instances of ownage (people pulling pranks on one another, people falling while skateboarding, etc.) on such sites as http://www.ownagevideos.com/ (October 2006). Even though they are less widespread, individual playful applications of -age appear. In 2005 the employees at a deli in Ann Arbor, Michigan labeled their tip jar with “TIPPAGE: Supporting Counter Intelligence since 1738.” While this specific example may not gain wider currency, these varied innovations demonstrate how much PDE speakers (particularly in North America) perceive -age to be a productive, useful affix.

In the history of the English language, -age did not always have the productive, morphemic status it has today. Indeed, like other derivational affixes such as -(c)ion, -ance, -ity, and -ment, it appeared on a restricted set of borrowings from Latin and French in the medieval period, such as baronage, frontage, and baggage (Marchand 1969: 234–6). Because these endings were likely seen initially as mere word-endings rather than potentially meaningful suffixes, they were not immediately combined with native
bases to produce innovative forms. How, then, did speakers and writers come to perceive -age and other endings as (potential) suffixes?

This small-scale analysis of the records of two medieval London communities adds to a small but growing set of studies that shed light on such diachronic morphological questions. Previous work on the subject has produced an impressive catalogue of the meanings and uses of derivational morphemes in the history of English (Gadde 1910, Marchand 1969, Miller 2006), as well as a thorough yet general overview of the frequency, combinability, and semantics of different forms within texts of the medieval portion of the Helsinki Corpus (Dalton-Puffer 1996). Fleischman details the history of the suffix -age in Romance languages and English, with particular attention to the sociolinguistic impact of medieval feudal relations on its morphological and semantic development (Fleischman 1977). Emphasizing that there has been “a shortage of detailed diachronic studies of individual affixes which measure changes in productivity,” Cowie (1998a: 38) provides an analysis of the varying productivities of -ness, -(t)ion, and -ity in Early Modern and Modern English, taking into account sociolinguistic features such as register. But less attention has been devoted to the identification and analysis of some of the mechanisms that might have led to the eventual productivity – and suffixal status – of different endings on borrowings coming into English during the medieval period. Furthermore, these large-scale studies attempt to explain morphological processes within the general grammar of English in different historical periods; little attention has been paid to the morphological developments of individual affixes within specific communities.

Hence, several critical questions about historical English morphology remain underexplored. What types of textual evidence potentially reveal the processes by which endings of borrowings became eventual suffixes? How do the records of individual communities help to complete the picture of such morphological developments? And which linguistic methods prove most useful in exploring such questions about borrowed derivational morphology? To address these questions, this article analyzes borrowings within two multilingual textual records in the late fourteenth to fifteenth centuries: the accounts of the London Grocers and the account/minute books of the London Goldsmiths.

Primarily, this study compares the use of native nominal affixes (-ness, -ship, and -hood) with borrowed, potential affixes (-cion, -ance, -ity, -age, and -ment) throughout the English portions of these texts. Attempting to locate evidence of the naturalization of these forms – the process by which
these endings become derivational morphemes in the general English lexicon – the paper develops the notion *local productivity*. This measure combines both quantitative and qualitative data to show that, even in smaller corpora, historical linguists can find evidence of the morphological status of different potential affixes for communities within particular historical moments. Specifically, this study finds that within these communities, the borrowed potential affixes were in the early stages of naturalization – they had limited productivity within a restricted subset of the lexis, though speakers were beginning to see them as individual units. There was a potential recognition of the similarity in form of these word-endings as well as their potential separability from their bases. Furthermore, the data indicate that there may in fact be variation in the derivational development of these affixes: *-age* is more productive and more naturalized for the Grocers than for the Goldsmiths.

This study not only adds to our understanding of borrowings and derivational morphology in the medieval period. It also argues for the necessity of analyzing smaller sets of texts closely – e.g., examining the local productivities of affixes – alongside our larger, computer-assisted corpus studies. And finally, it reflects on some of the theoretical implications for our understanding of productivity and language change when we (as present day historical linguists) read and interpret this sort of data in specifically *written* examples.

**Burnley's description of the naturalization of borrowed morphemes**

In his chapter on “Lexis and Semantics” from the 1066–1476 section of the *Cambridge History of the English Language*, David Burnley (1992) broadly describes this general process of naturalization of borrowed morphemes:

*Foreign words may be adopted with affixes as part of their structure, and these affixes may become productive in English. Here it is necessary to distinguish three successive stages. Firstly, the word containing affixes is adopted into English and assimilated into the grammatical systems of the language. Secondly, after analysis of the word structure, there follows a period during which the word is stylistically differentiated from the rest of the lexis. It is synchronically recognisable by speakers of the language as for-
eign, and its affixes may be used to produce new formations with a restricted set of bases also perceived to be foreign. Such affixes are productive only within a subset of the lexis. Finally, as coinages become more numerous, the affix ceases to be considered exotic, and is used to coin words on bases of any origin. At this point the affix has become part of the general derivational system of the language.

Burnley’s discussion of morpheme naturalization can be distilled into three primary stages. First, there is a period of adoption and assimilation of the borrowings containing the potential affix. Next, there is an analysis of the word structure, in which the ending formerly seen as merely a word ending is reanalyzed as an affix. This reanalysis is accompanied by the stylistic differentiation of these forms and the potential production of new forms within a foreign subset of the lexis. In the final stage, formations including the affix increase in frequency as the affix attaches to a wider set of bases, including native bases.

It is not immediately clear from this description, however, what “stylistic differentiation” would actually look like and how the “analysis of word structure” could be identified in real language use. In other words, what textual and contextual clues can the historical linguist identify in order to pinpoint when and how Middle English readers and writers were analyzing the complex structure of their own words? The qualitative section of this paper will address this question specifically.

Furthermore, Burnley writes that “as coinages become more numerous, the affix ceases to be considered exotic.” Implicit in this claim is that frequency of usage itself has a direct impact on the language user’s perceptions of words – their potential “nativeness” as well as their morphological structure. Both the quantitative and qualitative analyses in this paper will address the potential impact of frequent usage on derivational change.

**Working towards a methodology: Some key terms**

As is clear from Burnley’s description and the preceding discussion, linguists must rely on two critical concepts in order to discuss processes related to the borrowing of derivational morphology: *productivity* and *naturalization*.

Naturalization, as I use the term, refers simply to the increasing loss of speaker awareness of the foreignness of some loan words or morphemes.
Naturalization can perhaps be distinguished from nativization, in which borrowings begin to adopt native patterns of phonology. An example of a nativized form in PDE would be [hamadʒ] for homage, where the initial [h] is pronounced, the first syllable stressed, and the final vowel reduced. An example of a borrowing that has been naturalized without such overt nativization is tax, at one time considered a hard word needing to be glossed in Cawdrey’s Table Alphabetical in the Early Modern period. In PDE this word has lost its apparent hardness and foreignness, perhaps due to frequency of usage rather than to native phonological changes. The interesting diachronic question for this study, of course, is how this naturalization process took place historically for derivational morphemes. Unfortunately, affixes did not have entries like the words in Cawdrey’s table. Because of this lack of meta-data, linguists must infer medieval readers’ understanding of these affixes from actual textual usage in available written records. In the case of derivational morphology, we want to know how (and if) borrowed affixes such as -age, -(a)cion, and -ance become more naturalized and integrated into the broader derivational system of English.

Productivity has been variously defined, both on a theoretical/conceptual level and an empirical/operationalizable level. As Bauer (2005: 317) points out, Schultink provides one of the earliest attempts to theorize productivity: “By productivity we understand the possibility for language users, by means of a morphological process which underpins a form-meaning correspondence in some words they know, to coin, unintentionally, a number of new formations which is in principle infinite” (1961: 113, Bauer’s translation). This definition is not uncontroversial: it is virtually impossible to consistently and reliably distinguish creative, playful formations from unconscious applications of a word-formation rule. Moreover, Cowie (1998b) finds that nominalizations in -(t)ion were both productively and intentionally employed by scientific writers to construct the professional register of scientific discourse during the seventeenth to nineteenth centuries. In her study, intentionality clearly did not preclude productivity.

The notions of productivity and naturalization, while related, should not be conflated. Affixes might exhibit lexically restricted productivity, in which they produce coinages within a restricted sub-set of the lexis (e.g., Latinate terminology), or wider productivity, in which coinages are produced without restriction to few identifiable sub-lexicons. In the case of affixes restricted to Latinate lexical items, the endings of borrowings can potentially become productive suffixes without being fully naturalized (that
is, without becoming part of “the general derivational system” of English, in Burnley’s terms). Morphological productivity can occur without full naturalization, but any assessment about the naturalization of a borrowed morpheme should consider its level of productivity. A lexically restricted affix is considered less naturalized, while a widely productive affix – one that attaches to both native and non-native stems – is considered more fully naturalized in English. To characterize the level of naturalization and the types of productivity of different affixes, this paper will inspect hybrid formations, in which a Latinate affix attaches to a native base or vice versa. These lexical items will be discussed later in the qualitative analysis.

But how is one to quantify productivity, to measure the rate of coinages of a certain word formation pattern, particularly in a diachronic context? Harald Baayen (1992) has provided the most widely adopted and adapted measure of productivity. By examining very large corpora, he has found that the number of coinages in a language correlates strongly to the number of hapax legomena – words that occur exactly once in a large corpus. The assumption is that less productive processes create fewer words, all of which will eventually appear in a corpus, often more than once. More productive processes will generate a wider range of forms, many of which will only appear exactly one time in vast stretches of language. The primary formula Baayen provides is

\[ P = \frac{n_1}{N} \]

where \( n_1 \) is the number of hapaxes formed by a particular process (e.g., -able) within a large corpus, \( N \) is the total number of tokens formed by this same process in this corpus, and \( P \) is the productivity value. There are two important clarifications to note here about the actual meaning of this value. First of all, the measure is an indirect account of the productivity of a certain affix. By counting hapaxes, one is not necessarily tallying actual coinages. The theory is that the hapaxes merely correlate with coinages generated from a certain word formation process. Secondly, the productivity has no inherent value beyond the corpus from which it is generated. It must be compared to other values (for other word formation processes, for example) to determine a relational measure of productivity.

Up to this point, Baayen’s quantitative measure has never been successfully applied to historical corpora. One of the primary problems is the small size of available historical corpora such as ARCHER and the Helsinki Corpus. In small corpora, productive and non-productive processes alike produce so few hits that there will be an overgeneration of hapaxes, inflating
the productivity counts of all processes.\textsuperscript{6} At the same time, some less productive processes available in a certain time period may appear infrequently (if at all) in a corpus full of small samples. This undergeneration would lead a historical linguist to underestimate the productivity of a number of emergent, less common processes.

Clearly, to study the productivity of derivational morphemes historically, linguists must adjust their approach to measuring this phenomenon. One approach might involve applying Baayen's and other frequency-based measures to larger, unprincipled historical corpora, which have become increasingly available in recent years (e.g., the Middle English Compendium, Early English Books Online).

But linguists should not abandon the study of smaller corpora completely, especially since in some periods (such as Middle English) we must rely on the sparse resources we have available to us. In this study, I argue that the use of small corpora, a small body of texts, despite its apparent disadvantages, is a desirable, perhaps even necessary component to understand the development of derivational morphology in the history of English and the naturalization of borrowings. By focusing on the use of native and foreign derived nominalizations\textsuperscript{7} in the records of two medieval London communities, I attempt to discover – as much as possible – two Middle English communities’ understanding and usage of some potential affixes.

The importance of reading the records of multilingual communities

While studying large, digital corpora for linguistic research has its evident advantages, much can be gained by reading through entire texts with a careful eye.\textsuperscript{8} To illustrate the advantages of such slower, philological reading, I refer to the two corpora\textsuperscript{9} explored in the present study: (1) the records of the Grocers’ Company; and (2) the Wardens’ Accounts and Court Minute Books of Goldsmiths’ Mistery of London. These fourteenth to fifteenth century accounts appear in printed editions with direct transcriptions of all verbal material.\textsuperscript{10} A significant advantage of these texts – unlike the majority of available larger corpora – is that they are multilingual. Each community kept records either in French, Latin, or (increasingly) English. Because of the multilingual nature of these records, we can be certain that the scribes and some portion of the community were familiar with multiple languages and had the linguistic resources to employ borrowings from
French and Latin into their English usage. William Rothwell emphasizes the need to consider such texts for linguistic evidence, asserting that “the rise of English in the fifteenth century ... did not take place in a vacuum, but against the background of the dominant commercial, diplomatic and legal language of the time – French” (2001: 549). It is thus necessary for us to look at multilingual records to characterize how French (and even Latin) might have influenced English usage and grammar in particular communities, especially in the case of derivational morphology: French contact had an important impact on the morphology and the lexicon of Middle English. In addition to having some assurance about the language contact situation of these texts, there are other major advantages in choosing to analyze and compare these specific corpora. The editions of the texts both span approximately the same time period in the same location, mid-fourteenth to mid-fifteenth century London. They employ similar discourses, including much economic and legal lexis. Part of this lexical overlap is due to the daily business and record-keeping practices of both companies. The medieval Goldsmiths initially formed a guild in order to regulate the standards of gold and silver quality and exchange; over time, they began to take on such additional functions as renting and managing tenements. 11 The medieval Grocers performed several activities: they were involved in the import and export of traded goods, including their storage and inventory; they maintained weights and measures at the Port of London; and they participated in religious ceremonies. 12 The Grocers’ accounts include a number of ledgers with associated fees for different services; the Goldsmiths include such ledgers to a lesser extent. Both the Goldsmiths and Grocers also include a number of other genres, including inventories, defaults, ordinances, memoranda, and even occasional records of abuse. The range of genres allows for questions about the impact of register/discourse on derivational use. Furthermore, the records are precisely dated, allowing the researcher to track developments and changes throughout the textual history of each community. An individual year usually has several different entries, often in the same hand.

The use of an entire corpus from a community also invites questions about social network considerations of the membership of that community (Milroy 1980). Unfortunately, it is nearly impossible to construct a proper network analysis using historical texts from the medieval period. We are unable to determine the density and multiplexity of social ties, particularly when specific writers are unidentifiable. 13 Even so, historical information
about the Goldsmiths and Grocers provides some hints of their linguistic influences.

Reddaway and Walker (1975) describe the varied social forces that either constituted or else interacted with the Goldsmiths' Company of the early fifteenth century:

In a city as full of activity and combativeness as London in the forty years from 1404 to 1444 the Company's position could hardly remain static. It had rivals to watch, border-line trades such as the refiners of precious metals (the finers) and the jewellers to draw into their partnership or subjection, alien goldsmiths to seek out and bring within the Company's jurisdiction, and reasonable relations to maintain with a Crown and a parliament ... (95)

The community was in flux, its increasing membership and daily social contacts including not only native goldsmiths but a substantial number of Dutchmen, immigrants from the Low Countries, the Rhineland, several parts of Germany, France, and even Italy and Spain (120). To ensure craftsmanship and proper goldsmith-customer relations, the Company dealt with a growing number of individual immigrants and communities of immigrants throughout London (121–123). During the early fifteenth century, the network ties among the Goldsmiths' membership were becoming increasingly dynamic and multiplex. Their dealings throughout London with other crafts and communities may have increased their ability to absorb and spread linguistic innovations.

As for the Grocers, Pamela Nightingale (2005) explains how in the early fifteenth century they made an active effort to recruit merchants from provincial towns into their general membership. The company wanted to maintain social ties to different regions in order to maintain dominance over distributive trade within England (395). By the 1430s, the Grocers were building a new hall, but their community by this time was "dispersed so widely throughout the City" that, even after the hall was erected, "their personal ties with their parish church and with their families and friends outside the craft ... were much stronger than their business relationships within it" (429–430). The looser ties in the business community was a stark contrast to earlier centuries, when the Grocers had a more tight-knit community in which they "had lived, traded, and worshipped together in the neighborhood of Sopers Lane," their former home (431). These historical facts may have linguistic implications for this study, since the loosening of community ties among the London Grocers, alongside their increasing ties
to regions throughout the country, may have made the members more likely to take up, to introduce, and to spread innovations – including new borrowings or newly coined words.

Because specific network connections cannot be easily traced in these communities, any declarations about network influences must remain speculative at best. Even so, attention to such historical information provides a general sense of the possible linguistic influences of these communities in the larger geographic contexts of London and England.

Local productivity: A quantitative measure

As discussed above, it is unhelpful to calculate productivity scores for affixes in these communities’ records: the corpora are too small to rely on counts of hapax legomena. It is thus necessary to retool general productivity measures for smaller sets of texts. In this section I introduce the notion of local productivity, a quantitative and qualitative measure of the independence, use, and attachability of potential affixes in small, historical corpora. The qualitative measure considers the context and context of individual examples to establish relative productivities of potential affixes. As will be shown in the following section, when the qualitative measure is applied to borrowed (potential) affixes, linguists can more accurately evaluate the lexical status(es) of these forms and determine how naturalized they are for specific communities in specific historical moments.

The quantitative measure extends a methodology developed by Cowie and Dalton-Puffer in their article, “Diachronic word-formation and studying changes in productivity over time: Theoretical and methodological considerations” (2002). They emphasize that productivity measures of existing words, whether synchronic or diachronic, always rely on some account of the different types and tokens of a single affix (or other morphological process).\(^{15}\) In this sense, every productivity measure is quantitative. But the critical point is that this attention to type counts reveals an underlying assumption about productivity which is not entirely unproblematic:

This [reliance on type/token counts] reflects the intuition that the productivity of an affix correlates directly with the number of different types containing it. One of the problems is that the existence of a large number of types may of course not be the result of current productivity but of an aggregation through productivity in the past.

(416)
Here Cowie and Dalton-Puffer critique productivity studies that assume a direct correlation between type frequency counts and synchronic productivity. Consider a section of Dalton-Puffer’s study of the Middle English suffixes -ness, -ite, and -acioun:

Table 1. Types and Tokens for selected nominal derivatives from ME section of the Helsinki corpus (Dalton-Puffer 1996, and re-presented in Cowie & Dalton-Puffer 2002)

<table>
<thead>
<tr>
<th>Helsinki Corpus Subperiods</th>
<th>ME1: 1150–1250</th>
<th>ME2: 1250–1350</th>
<th>ME3: 1350–1420</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Corpus word count</td>
<td>113,010</td>
<td>97,480</td>
<td>184,230</td>
</tr>
<tr>
<td>-ness types/tokens</td>
<td>124/468</td>
<td>60/289</td>
<td>108/575</td>
</tr>
<tr>
<td>-ite types/tokens</td>
<td>7/12</td>
<td>20/57</td>
<td>71/365</td>
</tr>
<tr>
<td>-acioun types/tokens</td>
<td>4/10</td>
<td>20/56</td>
<td>138/533</td>
</tr>
</tbody>
</table>

The -ness types show a general decline in frequency over time (with a substantial drop-off in ME2), while the borrowed -ite and -acioun types show a consistent increase in frequency throughout the period. But can we conclude, based on these data alone, that -ness becomes less productive while -ite and -acioun become more productive? While this is likely the case, we do not have the complete picture here. It is impossible to know, for example, if -acioun is truly more productive than -ness by the ME3 period since we have no account of the new types appearing in each period. (The type counts of -ness may in fact consist of a higher number of innovative forms than the -acioun types.)

Cowie and Dalton-Puffer argue that diachronic studies can directly respond to the need to measure productivity by accounting for newly introduced types rather than type frequencies alone. They introduce the concept of “aggregation,” which tracks “in each subperiod [the] new types [that] are added to the types of the previous period” alongside general increases and decreases in overall type frequencies (428). The aggregation of new types in a body of texts over time, the general trends in the use of different types, provides some sense of what is and what is not productive. While it may be possible to extrapolate from the data drawn from small corpora, the aggregation measure more accurately reflects the local productivity of different forms within a specific body of texts – and within the community that has produced and received these texts.
Tokens, types, and new types

In my quantitative analysis of the Goldsmiths’ and Grocers’ records, which appear in Tables 2–5 below, I have counted the token and type frequencies (including new types) of nominal derivations in 5-year subperiods from 1415-1444, the overlapping time period in which both the Grocers and Goldsmiths used English in the published editions of these texts. Because these texts were not digitized, it was impractical to tabulate overall word counts.

In my study, a token is any one occurrence of a form containing the ending listed at the head of a column. A type corresponds to a lexeme – the set of possible orthographic and inflectional variations of one lexical item. Thus, because of orthographic variation and inflectional morphological change, multiple tokens will correspond to the same type: e.g., payment and payementes are two tokens of type PAYMENT.

Table 2. Token counts for selected nominal derivatives during 5-year periods of the Goldsmiths’ books

<table>
<thead>
<tr>
<th>Goldsmiths</th>
<th>-(c)ion</th>
<th>-ance</th>
<th>-ity</th>
<th>-age</th>
<th>-ment</th>
<th>-ness</th>
<th>-ship</th>
<th>-hood</th>
</tr>
</thead>
<tbody>
<tr>
<td>1415–19</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1420–24</td>
<td>1</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>1425–29</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>1430–34</td>
<td>4</td>
<td>8</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1435–39</td>
<td>9</td>
<td>10</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1440–44</td>
<td>8</td>
<td>12</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Total #</td>
<td>28</td>
<td>44</td>
<td>10</td>
<td>1</td>
<td>13</td>
<td>13</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Tokens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Token counts for selected nominal derivatives during 5-year periods of the Grocers’ books

<table>
<thead>
<tr>
<th>Grocers</th>
<th>-(c)ion</th>
<th>-ance</th>
<th>-ity</th>
<th>-age</th>
<th>-ment</th>
<th>-ness</th>
<th>-ship</th>
<th>-hood</th>
</tr>
</thead>
<tbody>
<tr>
<td>1415–19</td>
<td>9</td>
<td>10</td>
<td>30</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>1420–24</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>1425–29</td>
<td>24</td>
<td>26</td>
<td>7</td>
<td>13</td>
<td>22</td>
<td>2</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>1430–34</td>
<td>17</td>
<td>8</td>
<td>1</td>
<td>12</td>
<td>14</td>
<td>1</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>1435–39</td>
<td>16</td>
<td>1</td>
<td>0</td>
<td>18</td>
<td>21</td>
<td>0</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>1440–44</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>8</td>
<td>15</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total #</td>
<td>84</td>
<td>49</td>
<td>38</td>
<td>51</td>
<td>79</td>
<td>3</td>
<td>57</td>
<td>16</td>
</tr>
<tr>
<td>Tokens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Type and “new type” counts (# of newly occurring types in parentheses) for selected nominal derivatives during 5-year periods of the Goldsmiths’ books

<table>
<thead>
<tr>
<th>Goldsmiths</th>
<th>-(c)ion</th>
<th>-ance</th>
<th>-ity</th>
<th>-age</th>
<th>-ment</th>
<th>-ness</th>
<th>-ship</th>
<th>-hood</th>
</tr>
</thead>
<tbody>
<tr>
<td>1415–19</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>1 (1)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>1420–24</td>
<td>1 (1)</td>
<td>4 (3)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>3 (3)</td>
<td>3 (2)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>1425–29</td>
<td>5 (5)</td>
<td>3 (2)</td>
<td>2 (2)</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>3 (2)</td>
<td>3 (1)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>1430–34</td>
<td>3 (3)</td>
<td>3 (1)</td>
<td>2 (1)</td>
<td>0 (0)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>2 (1)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>1435–39</td>
<td>7 (6)</td>
<td>2 (0)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>3 (1)</td>
<td>0 (0)</td>
<td>1 (0)</td>
<td>1 (0)</td>
</tr>
<tr>
<td>1440–44</td>
<td>6 (5)</td>
<td>7 (4)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>2 (2)</td>
<td>4 (2)</td>
<td>2 (1)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Total #</td>
<td>21</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 5. Type and “new type” counts (# of newly occurring types in parentheses) for selected nominal derivatives during 5-year periods of the Grocers’ books

<table>
<thead>
<tr>
<th>Grocers</th>
<th>-(c)ion</th>
<th>-ance</th>
<th>-ity</th>
<th>-age</th>
<th>-ment</th>
<th>-ness</th>
<th>-ship</th>
<th>-hood</th>
</tr>
</thead>
<tbody>
<tr>
<td>1415–19</td>
<td>7 (7)</td>
<td>6 (6)</td>
<td>3 (3)</td>
<td>0 (0)</td>
<td>5 (5)</td>
<td>0 (0)</td>
<td>3 (3)</td>
<td>3 (3)</td>
</tr>
<tr>
<td>1420–24</td>
<td>0 (0)</td>
<td>1 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>1 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>1425–29</td>
<td>12 (8)</td>
<td>9 (6)</td>
<td>2 (2)</td>
<td>5 (5)</td>
<td>8 (7)</td>
<td>1 (1)</td>
<td>4 (1)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>1430–34</td>
<td>10 (4)</td>
<td>4 (1)</td>
<td>1 (0)</td>
<td>6 (2)</td>
<td>9 (3)</td>
<td>1 (1)</td>
<td>2 (0)</td>
<td>1 (0)</td>
</tr>
<tr>
<td>1435–39</td>
<td>6 (2)</td>
<td>1 (0)</td>
<td>0 (0)</td>
<td>6 (1)</td>
<td>8 (2)</td>
<td>0 (0)</td>
<td>2 (1)</td>
<td>1 (0)</td>
</tr>
<tr>
<td>1440–44</td>
<td>8 (3)</td>
<td>3 (1)</td>
<td>0 (0)</td>
<td>4 (0)</td>
<td>7 (3)</td>
<td>0 (0)</td>
<td>2 (0)</td>
<td>1 (0)</td>
</tr>
<tr>
<td>Total #</td>
<td>24</td>
<td>14</td>
<td>5</td>
<td>8</td>
<td>20</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

I have included both borrowed forms (-(c)ion, -ance, -ity, -age, and -ment) alongside native ones (-ness , -ship, and -hood.) Underneath the type heading in each column in Tables 4 and 5 appears the number of different types of each suffix during each 5-year subperiod alongside the number of “new” types in each period in parentheses. To clarify, in this study new does not necessarily nor even usually mean a neologism. Rather, it indicates the first use of a particular lexical item in English within each community’s entire records. So in this sense, each new type is a sort of “local neologism,” either the earliest diffusion of a borrowing into English writing for the Grocers or the Goldsmiths, or else a new derivation with an affix within these communities. As Cowie (1998a) emphasizes, for Latinate lexical items, there is unfortunately “no way of distinguishing between a loanword and a
derivation in a Latinate affix" (75–6). Even with the help of a historical
dictionary, one cannot reliably identify these new types as either borrow-
ings or derivations.

It should be noted that my methodology here diverges from Cowie and
Dalton-Puffer in two significant ways. First, the authors encourage the use
of a longer range for subperiods (e.g., 50 years each). This is of course not
possible for these specific texts: not only is the material in publicly avail-
able editions limited in time span, but even if these texts spanned several
centuries, a long-range count could not be feasibly accomplished by em-
ploying a slow, full reading of texts. Second, Cowie and Dalton-Puffer
recommend using a "starting lexicon," deriving forms from a dictionary or
an earlier period of a corpus, to determine whether a type is new to the
corpus in later periods. Such a starting lexis was not necessary for the pre-
sent study, since in the Grocers' and Goldsmiths' records there is a com-
plete record of their emergent English usage. It is thus not too difficult to
track local neologisms, the first uses of each type within the English sec-
tions of each community's records.\footnote{17}

Tables 2 and 3 provide a general sense of the usage of each form in dif-
ferent periods within these records. One immediately apparent difference is
the Grocers' high use of -age forms and the Goldsmiths' infrequent usage.
But as the discussion above has emphasized, the important trends in this
quantitative analysis can be seen more clearly by considering the trends in
new-form usage over time. Aggregation trends are useful in understanding
some general derivational patterning within these texts, but because the
numbers are so small, one must be careful not to overextend the analysis.
Even so, by looking up and down individual columns in Tables 4 and 5 –
focusing particularly on the type frequencies of individual affixes as well as
the (in)consistent aggregation of new types over time – we can draw sev-
eral tentative conclusions:

- -(c)ion and -ance consistently aggregate throughout this period in both
  communities. The form -(c)ion continues to follow the trend seen in
  earlier ME (cf., Dalton-Puffer's study, Table 1) as it outpaces
  -ity, which shows little (if any) aggregation or productive growth.
- The native forms show little aggregation in either community. This is
  unsurprising, except for how little -ness is employed compared to the
  borrowed suffixes (especially for the Grocers). The general trend in ME
  (as seen in the Helsinki corpus, Table 1) previously shows -ness to be
  eventually slightly outpaced by -(c)ion during 1350–1420. But in terms
of overall frequency in the larger corpus study, -ness is clearly more frequent than -ity in every single subperiod from 1150–1420. Perhaps the multilingual nature of the Grocers’ and Goldsmiths’ communities explains their divergence from the more general trends in the ME period. Their knowledge of Latinate or French nominals ending in -(c)ion or -ite certainly gave them more opportunities to employ borrowed forms rather than nominals ending in -ness. This is not to say that for every -(c)ion form the Grocers and Goldsmiths had available a competing native nominal form, although we do find rebelions in the Goldsmiths’ records and rebelness in the Grocers’. But even in this case, the terms are not remotely synonymous: rebelion signifies an event, whereas rebelness conveys a general characteristic or personality trait. The effects of genre and their related lexical sets – as well as the wide availability of borrowed lexical items due to language contact – must have driven these communities’ use of non-native nominals over the native ones. The Goldsmiths use -ness in characterizing the occasional misdeeds of individuals (e.g., falsnesse, cursidnesse from 1425). But even in these very records of complaint they use many more legal and economic terms (e.g., axion, allegiance, juggement, seurtee, from the same 1425 entry). The Grocers use only two -ness types during this entire period, perhaps because there were fewer records of complaint.

A curious difference in the derivational uses of these communities is the differences in -ment and -age. These are fairly aggregating forms for the Grocers. For the Goldsmiths, -ment shows a very slight aggregation, but -age is almost entirely absent. In fact, their only usage of -age is usage. If we consider the everyday business of the Grocers, we find some explanation as to why their use of -age makes social sense. The Grocers Company, as part of their mercantile commitments, had to deal regularly with transport, storage, and the bookkeeping of inventory. Hence, in their records we commonly see forms such as cariage, portage, wharfage, and surplusage. According to Marchand, many of these -age forms suggest not only the physical amount of goods (the inventory), but also the toll or duty associated with the privilege or service in transporting and storing them (234–6). Thus the Grocers’ accounts reveal a sublexis of -age formations that signal the use of mercantile discourse, an emergent professional economic discourse in the late Middle English period. Similarly, -ment seems to function as a marker of economic and legal discourse for the Grocers: lexical items include inventory of capital (ornaments, vestiment, tenement), financial transactions
(payement, mersyms), and legal actions (judgement, amendment, arbeterment, testament, agrement).

It should be noted that, because the overall period covered in this study is relatively small, these results cannot expose larger trends in morphological change. Even so, the analysis of the aggregation of nominals within the records reveals much about the local productivity of these forms within these communities. According to this quantitative account, the borrowed nominal forms are more productively employed than the native ones, almost across the board. The most consistently aggregating forms are clearly -(c)ion and -ance, and to a lesser extent, -age (for the Grocers) and -ment. An additional analysis of the -age and -ment types themselves reveals that social and discursive forces have promoted their increasing use.18

Local productivity and naturalization: A qualitative analysis

As shown in the previous section, a quantitative analysis focused on the aggregation of new morphological types in two small corpora can provide generally useful information about the relative productivity of different affixal forms. But one of the big questions that this quantitative analysis has not answered, and perhaps cannot answer, is the following: how do we know if medieval people – or more specifically, these Grocers and Goldsmiths and their scribes – recognized a potential affix as an affix rather than just part of a borrowing? Are these foreign forms naturalized, marked as borrowed, or somewhere in between? And what are our criteria for making this decision?

In order to answer these questions, the linguist cannot rely on quantitative data alone: s/he must conduct a qualitative analysis of specific textual examples. Interpreting data from the entire English records of the Grocers and Goldsmiths, I examine the internal morphological structure of individual lexical items, their co-text, and their wider context to ascertain the local productivity and naturalization of borrowed derivational morphemes.

Individual complex lexical items: Hybrid formations

As Dalton-Puffer demonstrates, one way to evaluate the productivity and naturalization of borrowed morphemes is to examine hybrid formations,
“complex words which mix elements from the native Germanic part of the vocabulary with elements from the borrowed Romance part of the vocabulary” (1996: 211). Hybrid formations qualitatively demonstrate which affixes are productive beyond a lexis restricted by source language – a key component of the final stage of Burnley’s description of naturalization. In Middle English, hybrid formations are primarily of two types: (a) Romance base + Germanic suffix; or (b) Germanic base + Romance suffix. Dalton-Puffer reminds us that each type conveys a different characteristic of the language contact scenario, even a different conclusion we can draw about the derivational system of English:

... there is a qualitative difference between a language adopting from another language names for objects, concepts or actions (often with their extralinguistic referents) which can then serve as derivational base [sic], and that language borrowing elements (suffixes) that more properly belong to its "mechanics." In other words, there is a qualitative difference between the two types of hybrids. Type [(a)] (with a borrowed derivational base) is much more common and the result of "ordinary" borrowing. Type [(b)] (borrowed affix) is generally assumed to be the result of much closer language contact (cf. Thomason-Kaufman 1988) 

(211)

In other words, type (a) hybrids demonstrate the naturalization of borrowed bases, which integrate further into English as native derivational morphology begins to attach to them. Type (b) hybrids reveal the naturalization of borrowed affixes themselves, which begin to attach to a wider lexis than a smaller, borrowed sub-lexis. Both hybrid types indicate affixal productivity unrestricted by differences in the Latinate or native etymology of the base.

While hybrids tell us much about the naturalization of borrowings and productivity of different affixes, they are unfortunately relatively infrequent in the Middle English period – particularly type (b) hybrids. Having searched all borrowed suffixes throughout the entire ME portion of the Helsinki Corpus (608,570 words), Dalton-Puffer finds only 14 type (b) hybrids. Miller (1997), however, finds a significant number of type (b) hybrids in Middle English by examining a wider range of texts than those in the Helsinki Corpus, at least 100 different types before 1450. In the multilingual records of the Grocers and Goldsmiths, we might expect to find a higher proportion of type (b) formations. But this is not the case. The set of hybrid forms from the English sections of the Goldsmiths’ and Grocers’ records in this period is listed below:
Goldsmiths: faithful, prively, maisterschip, dispitously, unbuxunesse, apprentishood, effectuely, duely, vilenously, generally, wardeynschipe, rentership, entirely, notably

Grocers: quarterly, maisterschipe, Flaundrissh, curteysly, rebelness, prentyshody, unresonable, grevously, condissonally, Remembrancer, Indyfferently, lynyally, wharfage, cranage

Note that the sheer infrequency of hybrids in this period, particularly tokens of type (b), precludes a larger quantitative account of different hybridization patterns. But by inspecting these few formations individually, we can draw several conclusions about the naturalization of borrowings and the productivity of the derivational morphology in these communities:

- The widely productive affixes are primarily native: -ful, -ly, -ship, -ness, and -hood. This conclusion is particularly important since the earlier quantitative analysis suggested -ship, -ness, and -hood had low local productivity relative to the borrowed forms. In this case, the qualitative data help to temper any conclusions drawn from the earlier quantitative data about the lack of new types produced by native affixes. In the list of hybrids -ness is clearly a productive form, active in coinages such as the infrequently unattested unbuxunsesse 'disobedience?'; the OED provide only six citations for this item (and does not include the Goldsmiths' use).
- Conversely, the non-native forms are clearly not widely productive, almost entirely restricted to borrowed lexis.
- Because we have so many type (a) hybrids, we can conclude much about the naturalization of several borrowed stems and bases. Items such as faith, priv-, due, and reasonable have taken native derivational morphology, further integrating them into the English language.
- The only type (b) forms we get are wharfage and cranage, which occur in the Grocers' records.

What can we determine about the productivity and naturalization of -age from these data? As mentioned above in the quantitative analysis, -age showed small but consistent aggregation for the Grocers. Because it is the only borrowed form that attaches to native stems, -age must be more widely productive than its borrowed nominal peers (at least for the Grocers). Attaching to a base other than a borrowing, it is in the final stages of the naturalization process.
Even so, -age appears in only two hybrid types in these records: one must be careful not to assume it was widely productive for these communities. Here I diverge from Burnley, who claims simply that -age is "fully assimilated in Middle English" (449). There is not enough data in the records of these communities to indicate full assimilation, particularly since most -age formations are restricted to borrowed bases. Even though (according to Burnley) other hybrid forms such as barnage ‘infancy’ appear elsewhere as early as 1325, these records indicate that the Grocers use -age almost entirely within a restricted borrowed sub-lexis – namely, Anglo-French economic terminology. The evidence from the Grocers’ records corroborates Fleischman’s general contention that -age was used widely in the Middle Ages for deriving or borrowing words designating taxes, fees, and dues, with the suffix exhibiting “a decided affinity for commercial and nautical terms” (148, 407). And this fact is perhaps unsurprising since the records left by the medieval Grocers deal mostly with their financial transactions surrounding commercial trade via ports and wharves. In any case, rather than claiming full assimilation (i.e., complete naturalization and/or wide productivity) for -age in this period, it is perhaps more accurate to state that in certain medieval communities (such as the Grocers), the suffix -age is only partially assimilated and moderately productive.

Co-text

The co-text and wider context of individual examples of borrowed deriva- tional forms reveal more crucial information about the medieval readers’/writers’ awareness (most reliably among those in the Grocers’ and Goldsmiths’ mysteries) of the potential morphological status of such borrowed suffixes as -age, -ance, -(c)ion, -ment, and -ous. In attempting to analyze writers’ and readers’ understanding of potential affixes, I interpret examples of formal arrangement and textual cohesion as evidence for a paradigmatic recognition of similar forms. I argue that this recognition of formal similarity must be in place cognitively – that is, in speakers’ linguistic consciousness – in order for a borrowed ending to be perceived as a potentially productive suffix.

Consider the following example: in the ledgers of the Grocers’ accounts, the scribes sometimes include -age forms within the same noun phrase on the same ledger line:
(1) Grocers (1427): Item for stapulton stoon Cranage Wharuage and cariage ... Summa xxj li xijd

Here the scribe has brought together three words of similar shape – Cranage, Wharuage, and cariage. All three have the same endings, perform the same syntactic function, and belong to a similar semantic/lexical class of -age formations. Moreover, the physical shape of their presentation – their juxtaposition on the same ledger line – highlights their similarities. But the question of linguistic choice is critical here: has the scribe intentionally written the ledger in this fashion due to a consciousness about words containing -age? That is, does he have a mental paradigm that links these -age formations together?

Amanda Pounder (2000) summarizes how and why the lining up of similar formations in texts often indicates word-formation paradigmaticity:

In addition to psycholinguistic and historical evidence, a number of researchers have shown that paradigmatic relations between word-formations sharing a lexemic root are exploited as a cohesive device in texts... the distribution and order of occurrence of words related through word-formation can be consciously manipulated as a stylistic device or as support of the development of an argument or thought ... the “usual”, lexically fixed form-meaning combination can be replaced by another in order to obtain a series of similarly sounding formations (e.g., all stems with the same affix, with the same “ablaout” etc.); this strategy is connected to another sort of word-formation paradigmaticity, namely that of the set of lexemes in the same lexico-semantic class created by the same operation or at least by means of the same form rule.

(83–4)

Pounder’s description of paradigms assumes that word-formation rules (i.e., rules that dictate the attachability of affixes to bases) pre-exist the creation of the text. They are a pattern a writer can exploit for different textual effects. In the case of Middle English morphology, we do not necessarily know a priori that the forms including -age from the ledger above were necessarily driven by a word-formation rule. In other words, since we have little direct evidence of -age existing as a productive suffix in this or earlier periods, it is unwise to interpret this ledger entry as an instance of creative application of a productive word-formation rule. It is not as if the scribe had a number of synonyms to choose from, and he merely picked those ending in -age to convey the pricing. In fact, these may have been the only linguistic options available.
However, it is probable that the writer has recognized the similarity of form in writing *Cranage, Wharuage*, and *cariage*. And even if he has not, the *readers* of this text will likely see the formal resemblance, especially because the pragmatics of the ledger make the similarity so salient. The use of these forms creates a moment for potential re-analysis: even if the *-age* forms are not produced by a word-formation rule, these words suddenly look to a reader *as if they might have been*. Rather than perceiving these words as whole borrowings, readers may instead take them to be part of one suffixal paradigm – that is, the same suffix attached to three different stems. The recognition of analogous forms, as written and received in such textual examples, helps to solidify *-age* forms as a mental paradigm, a crucial step in the development of a productive affix.

In 1436, the Grocers provide another example in which the ledger lines highlight the similarity of form of *-age*:

(2) Grocers (1436): Also payde for Caryage of Ragge chalk and aschler ...
Also payde for Warvage of Ragge aschler chalk ....

In this juxtaposition of lines, the reader can visually see the analogous form and function of these two *-age* forms. This instance increases the likelihood that readers could interpret these words as part of the same suffixal paradigm.

Elsewhere in the manuscript, the *-age* paradigm is even coordinated with a native, morphologically complex nominal within the same noun phrase. An entire ledger line at the top of one page reads as follows:

(3) Grocers (1436):
Also paid For costis Freigh[t] cariage Wharuage and pilyng up of ij shippes

Because the nouns *cariage*, *Wharuage*, and *pilyng* are syntactically parallel, the writer (and perhaps his readers) may intuit that the ending *-age*, like the proximate native suffix *-yng*, functions grammatically as a nominal marker. In syntactically parallel co-occurrences of borrowed and native forms, any
transparency in the productive, native form may reinforce (or at least suggest) the transparency and potential productivity of the borrowed ending.

Similarly, we can read outward from other textual examples to try to reconstruct the mental lexical status of other potential affixes in borrowings. Consider the following example from the Goldsmiths:

(4) Goldsmiths (1436): ... Robert Bosoun, citecein and goldsmyth of London, vilenously with malicious, sclandrous and heynous wurdis revylid and lyed John Pattyslee ... . (italics mine)

On one hand, the Goldsmiths consistently employ -ous lexemes with negative semantic associations, most often in accounts of abuse. With one exception – the use of gracious in a copy of a letter from King Henry VI – the Goldsmiths employ -ous forms strictly to mark the abuse genre. In the example above, the -ous lexemes help the text cohere, linking the adverbial hybrid form vilenously with the adjectival series malicious, sclandrous, and heynous. Ultimately, though, the employment of these discourse-motivated lexemes and textually cohesive effects reveals a recognition of -ous forms similar in syntactic function, semantic sense, and morphological shape.

These co-textual examples reveal a certain paradigmaticity for similar endings in borrowings. There are two possible implications of the recognition of analogous forms as seen in these texts: (1) English writers already had these forms mentally stored in a paradigm and were employing them because of their similar semantics and syntactic functions; and/or (2) readers of these records were encouraged to see the words as part of the same paradigm, even if they weren’t already mentally stored in this way. In this sense, these texts were part of a dynamic, diachronic force which helped readers within this community construct the linguistic consciousness of these borrowed word-endings as potential suffixes. This is an essential step in the analysis of suffixes – the awareness that a repeated form may potentially be a suffix.20

Context

In addition to co-text, we can also look at the wider context of derivational examples to locate additional evidence for the potential affixal status of borrowed morphology. Consider the following examples from the Gold-
smiths, the first of which occurs early in a 1436 memorandum and the second of which occurs many sentences later in the same text [italics mine]:

(5) Goldsmiths (1436): ... Þe same Robert Bosoun Þanne & Þere submiyttid & putte hym to stonde & obeye to Þe warde, ordinaunse, determinacion & dome of Þe said John Sutton, John Waryn, Robert Boteler with Þe assent & good avyce of Þe good men of Þe said cumpanye for Þe offense aforesaid.

(6) Goldsmiths (1436): The said John Sutton, John Waryn, Robert Boteler, by assent and good avyce of many goode men of Þe cumpanye aforesaid, warde, ordeyne, determine & deme Þat Þe saide Robert Bousoun ... .

Clearly the italicized forms have been stylistically ordered according to early legal rhetorical conventions. But the repetition of different formations involving the same bases, while helping different portions of the same text lexically cohere, also provides the modern reader with some insight into the status of the nominal endings for this medieval community. In examples (5) and (6) we see a series of nominals contrasted with their lexically equivalent verbal “roots,” indicating different word-formation processes: warde (n.) matches with warde (v.) (conversion), ordinaunse and determinacion complement ordeyne and determine (affixation), and dome contrasts with deme (vowel change). The implication here is that -aunse and -acion must be suffixes – they are detachable and directly linked to their bases through textual cohesion. More subtle contextual examples appear throughout these records: paymente appears within the same account as payde, meyntene appears in the same text as meytenantence, etc. Such examples suggest that these English speakers had a mental paradigm built around the same lexeme. The ordeyne paradigm, for example, includes both the verb ordeyne and its nominalization ordinaunse. The presence of this paradigm not only allows for the exploitation of cohesive textual effects, but it also reveals that -aunse has some sort of lexical status as a detachable unit.

The Grocers’ records provide a similar example for -ment and -aunce, although it occurs in 1448 (slightly outside of the bounds of the quantitative study presented earlier). In the middle of a ledger, the scribe writes [italics mine]:

(7) Grocers (1448): Item Payed to John Plomer for Alowauce ...
Then, further down the page, one sees the following written in smaller handwriting (though likely by the same hand probably after the page was finished):

(8) Grocers (1448): Item Resseyued of the sayd John Blanche and John Plomer that was disalowed In the paymentes afore sayd ... 

In examples (7) and (8) the writer has employed textual cohesion for a significant additional entry not only with the metadiscursive *afore sayd* but also by employing two derivational paradigms: *Payed* gets linked to *paymentes*, and *Allowaunce* contrasts with *disalowed*. From this example the modern reader can infer the detachability of *-ment, -aunce*, and also the potential prefix *dis-*.

This sort of evidence demonstrates another type of analysis of borrowings – the detachability of affixes. This analysis relies on a different sort of paradigm than the earlier co-textual examples: the repeated endings suggest a suffixal paradigm, whereas detachability of affixes depends on a lexeme-driven paradigm, multiple words which share the same stem. While it is clear that the writer must be aware that these words are part of the same paradigms, these examples must also impact readers’ consciousness of the detachability of these endings. As language users increasingly see such endings as detachable, they are more likely to see them as re-attachable to different bases. Hence, potential detachability must be another analytical criterion in place for an ending to gain the status of a (productive) affix.

**The lexical status of borrowed derivational endings for the Goldsmiths and Grocers**

Having considered the qualitative and quantitative analysis of different potential affixes in the records of these two communities, we are left with the following question: what is the lexical status of these (potential) borrowed affixes? The local productivity analysis above – which considered the aggregation of forms alongside their analyzability by medieval writers in specific contexts – suggests that *-ance, -ment, -(c)ion, and -ous* are in the middle stages of naturalization. They are limitedly productive within their restricted borrowed realms, but they are seen as analyzable, patterned, paradigmatic – not merely the random endings of borrowed words. These
endings unmistakably have some sort of lexical status as morphological, or perhaps premorphological units. The ending -ity may have a premorphological status similar to its nominal peers within these communities, but this study did not find enough data to support this claim.

Nevertheless, within the Grocers' community, it is possible that -age, compared to its borrowed peers, is in fact further along the naturalization process and the path towards a wider domain of productivity. The ending has a fairly consistent aggregation, it has its own paradigm (realized in textual examples as stylistic parallelism and lexical cohesion) and, most interestingly, it is seen attached to two different native stems. For the Grocers it seems that -age is the most advanced in its potential as a suffix.

There is a crucial implication to this conclusion about -age. I am not only arguing that -age is more naturalized and productive than the other nominal endings. I am also claiming that its lexical status in this time period differs in each community. There is evidence that it is recognized as a potentially productive ending for the Grocers, while there is no real evidence that it is anything other than part of a borrowing for the Goldsmiths.

This claim is critically dependent on the notion of usage and its impact on grammar and the lexicon, especially as seen in Cognitive Grammatical (CG) accounts of language. In "Cognitive Approach to Word-Formation," David Tuggy argues that

The units of a language are conventional. That is, they are established by usage as shared by a community of people. All of language is in this sense usage-based, and usage is a central, not a peripheral concern of linguistics. (2005: 234)

He adds in a footnote, "Besides being central for conventionality, usage is crucial for the establishment of units in individuals' minds." According to CG, sheer frequency of use has a direct impact on the likelihood that a certain word-form will be stored as a unit in the speaker's mind. Furthermore, Hay (2003) finds that the relative frequencies of derived forms to their base forms correlate strongly with the transparency and parsibility of complex words as well as the potential productivities of individual affixes. And Bybee (2007) argues that both token and type frequencies have direct effects on cognitive representations of morphology and, consequently, morphological development in language. Noting that "repetition strengthens memory representations for linguistic forms and makes them more accessible," she asserts that high token frequency encourages forms to resist analogical
change and remain less interconnected in paradigmatic organizations within the mental lexicon (2007: 10–14). High type frequency is claimed to be a major determinant in the productivity of forms:

The contribution of type frequency to productivity is the fact that when a construction is experienced with different items occupying a position, it enables the parsing of the construction. If happiness is learned by someone who knows no related words, there is no way to infer that it has two morphemes. If happy is also learned, then the learner could hypothesize that –ness is a suffix, but only if it occurs on other adjectives would its status as a suffix become established. (2007: 15)

According to Bybee, whenever a reader or listener encounters a suffixal paradigm in a text, s/he is further compelled to perceive the ending as a potentially productive suffix. Each written use of a lexical and suffixal paradigm has the potential to effect change in the status of relevant affixes in the minds of readers and listeners.

Any assessment of the morphological status and productivity of affixes in different historical periods should thus consider usage patterns and token/type frequencies in available records, and not simply because these texts reflect the grammar and lexicon of the literate individuals and communities who first produced them. Observable frequency patterns in written texts can be treated either as direct evidence of literate language use or, more cautiously, as indirect/hypothetical evidence of the types of lexical items available in certain forms of spoken discourse within a community at a particular point in time. The records of the Grocers and Goldsmiths are, after all, less "literary" and at times more colloquial than those of Chaucer and Gower. As such, accounts of frequency in non-canonical written material may also indicate the potential effects of usage not only on readers, but also on others in oral contact with the communities who have produced and used those texts.

Under the light of these theories on usage and frequency, the potential affixes in the records of the Grocers and Goldsmiths may be examined with the following assumption: the more frequent and apparent a certain form is, the more likely it will achieve an independent status in the minds of medieval speakers within those communities. In the case of -age, it is hence not insignificant that the Goldsmiths use the form far less than the Grocers, who employ 51 -age tokens with 8 different types. Because the Grocers use the form more often – and because their ledgers emphasize the similarities
in different types ending in -age – their texts are more likely to make -age salient as a potentially meaningful and/or productive unit in the lexicon. The Goldsmiths' written records cannot have this impact on their readers, even if their spoken practice includes more common -age usage. The dissimilarity in written usage between these communities strongly suggests a different lexical status for this ending.

**Final considerations**

Applying both quantitative and qualitative methods to study the local productivity of potential derivational affixes in two medieval economic records, this article draws the following conclusions:

1. The endings -(c)ion, -ance, -ity, and -ment are not fully naturalized as affixes in the English of the Grocers and Goldsmiths. But even though they are not yet seen as suffixes, -cion, -ance, and -ment are beginning to be analyzed as independent endings. In this period, they are premorphemes.

2. For the Grocers, -age is even closer to becoming a widely productive suffix than the other nominal endings. For the Goldsmiths, -age is less likely to be perceived as a potentially productive affix.

3. Productivity itself is a wider historical notion than the simple application of rules or the creation of words or, methodologically, counts of neologisms or hapax legomena as a surrogate for neologisms. The productivity of borrowed derivational morphology must begin in its early stages primarily via the processes of reanalysis and analogy on the part of speakers, listeners, writers, and readers. In the early stages of productive processes – the premorphological stages – the linguist must ask: how did this particular form come to be seen as a potentially meaningful unit? In later morphological stages, s/he would then ask: what kinds of stems or other morphemes can this form attach to, and can these combinatorial properties be explained? Descriptions and explanations of the (pre)morphology of different forms can be illuminated and expanded by studies of the local productivities of forms in different textual communities.

4. In determining the (pre)morphological status of affixes, it is hard to deduce earlier speakers’ perception of the status of these word-endings with quantitative data alone. But token, type, and new type counts are
critical in showing the general trends in usage of these forms. And usage, of course, must be active in a community in order for a certain form to be perceived as potentially productive, as part of the same suffixal paradigm.

(5) Whereas the quantitative analysis reveals historical trends in the individual types used within a community, the qualitative analysis is necessary for describing the level of naturalization and productivity of these endings. The types of evidence that help to characterize these endings’ morphological status include: (a) the structure and types of hybrid forms; (b) the textual linking of forms with the same ending (suffixal paradigms); and (c) the textual linking of forms with the same stem (lexemic paradigms), indicating the potential detachability of the endings.

(6) This study provides a methodology in which the evidence for the morphological status of affixes derives primarily from qualitative data and is reinforced by usage trends observed in the quantitative analysis. Nevertheless, there is a degree to which qualitative analyses should also inform future quantitative studies of such questions. To further study borrowed derivational morphemes, a next step might include statistical counts of suffixal and lexical paradigm occurrences themselves, to determine the aggregate impact of these larger discursive structures in texts as a whole.

(7) The analysis of the local productivity of potential suffixal forms has the most explanatory power for these specific communities within this time period. One should not immediately assume that the results can be generalized to every other community in the fifteenth century. However, linguists can certainly employ a similar methodology to investigate in other communities’ texts the sorts of specific evidential types outlined above. That is, a variety of close readings of texts may help us complete – albeit in small steps – the overall picture of the diachronic development of borrowed derivational morphology.

(8) Historical (written) texts not only reflect linguistic consciousness; they effect it.

This final point has important implications for how historical linguists think of language change as a more general phenomenon. Because all we have from earlier stages of history is written records, we must assume in some way that these written usages of language reflect the consciousness (and grammar) of the writer. But we must not overlook the impact writing can
have on shaping linguistic consciousness. While the readership of such records is likely small, we do know that the Grocers read regularly from their records to the entire membership: the ordinances written in English "were read to the assembled members of the Company on every quarter day" (Nightingale 385). When a scribe writes three forms of -age together on a ledger, or links determine to determinacion in a rhetorical flourish, we can assume that he is writing his recognition of the detachability and similarity of word-endings onto the page, even if this is not his primary intent. But when readers view or audiences hear these examples, they are given the chance to reanalyze and rethink these forms—to recognize, even in an intuitive sense, that these endings may actually be meaningful, independent units in the language.

Notes

* I would like to thank the editors and readers for their suggestions for revising this article. The readers' comments resulted in an extension of the discussion of the social context of the Grocers' and Goldsmiths' texts, including considerations of social network theory. Elizabeth Traugott referred me to the excellent study by Fleischman (1976) on the cultural dimensions of -age usage. And David Denison's comments encouraged further discussion of the impact of token frequency on the lexical status of morphological forms, including references to Hay (2003) and Bybee (2007).

1. Oxford English Dictionary (OED)
3. Burnley does not provide a label for this general process, so I have referred to it as naturalization.
5. And furthermore, intentional formations do provide some sense of the domain of applicability of a certain morpheme. The playful formation tippage (listed above) shows semantic and morpho-syntactic similarities to the more widely used signage.
6. A related problem with small corpora is the case in which one particular text or author exhibits a particular form in larger-than-usual numbers, possibly skewing the results of a supposedly "representative" study of this form in a certain period.
7. There will be occasional reference to verbal, adverbial, and adjectival affixes as well.

9. Here I deliberately define corpus in the more traditional sense of any "body of texts," whether they are in digital, print, or manuscript form. This terminological choice reinforces my commitment to rethinking corpus linguistics as a discipline that considers all sorts of textual uses of language.

10. The Grocers' accounts also provide accompanying mimeographs of the original manuscript folios.

11. While their records make these functions clear in a general sense, the company's website also provides confirmation of their history:
http://www.thegoldsmiths.co.uk/company/index.htm

12. http://www.grocershall.co.uk/company.html (March 2006). According to the company site, the "grossers" were originally the wholesale keepers of inventory, and the small shopkeepers bought from them and sold to customers at retail. Eventually, these smaller store owners came to be known as grocers.

13. Alexander Bergs (2005) has managed to adapt social network theory to examine morphosyntactic questions in the case of the Paston Letters. But the genre of letters is singular in its allowance of analysis of non-anonymous, individual uses of language within a community context.

14. The "provincial members were from places as far afield as Banbury, Shrewsbury, Ipswich, Cambridge, Cornwall, Essex, and Conventy, while later there was one from Bristol" (Nightingale 1995: 395).

15. In this context, suggestion and reparacioun are considered two different types of the affix -(c)tion since the lexemes are different. Under this schema, reparacioun, reparacion, reparaciouns are considered tokens of the same type, since each form is an orthographic or inflectional variation of the same lexeme (i.e., each has the same stem).

16. The OED explains that endings -ance and -ence are Latinate orthographic variants of the same form. While it may be possible that some speakers perceived these endings as distinct morphemes, in this study I have presented all tokens of these endings under one heading: -ance. Furthermore, occurrences of almost every type in the entire chart appeared as word-endings within these records — in rare cases (Grocers: Worshipfull), the suffix was followed by an additional suffix.

17. While dictionaries such as the Oxford English Dictionary (OED) or the Middle English Dictionary (MED) are useful in dating occurrences of new words in English, they are not necessary for tracking newly introduced forms within a community's records. Of course, historical dictionaries offer early attestation dates for lexical items and could provide, in theory, a general picture of the Grocers' and Goldsmiths' neologisms relative to occurrences of the same or similar forms in other texts within the same period. However, as Cowie
(1998a: 71–72) argues, dictionaries do not reliably reflect all text types, nor do they exhaustively catalogue all instances of productive word-formation patterns available in the language of different periods and communities. Hence, in this study dictionaries were consulted for incidental evidence and for background information on selected (especially ambiguous) types.

18. The effect of individual scribes, with varying idiolects and idiosyncracies, must have also impacted the use of these borrowings. Nevertheless, it is difficult to paint a clear picture of the exact impact a scribe would have in the aggregate patterning of word-endings.

19. In the MS, the ledger line is broken so that cariage continues onto the next line. Even though all three -age derivations are not collinear, their immediate co-occurrence on the ledger line is still salient.

20. We must acknowledge, however, that the readership for these texts was likely small, restricted to the communities that produced them. But it is still significant to point out the potential local effects for this community, particularly if other Middle English texts employed similar uses of analogous forms. Historical linguists will need to consider the aggregate effects of these texts on English speakers’ perceptions of these endings of borrowed words.

21. At present, this assumption needs more theoretical backing from language processing studies that specifically investigate the cognitive status of derivational morphemes. Much of Bybee (2007) treats inflectional morphology with far less attention to derivational morphology. Moreover, her claims about the effects of token frequency on mental representations and the autonomy of forms revolves much more around the status of words and phrases than the mental status of individual bound affixes.

22. The added difficulty, of course, is that speech exhibits different grammatical features than does writing. Cf. Biber et al. (1999). At some point, though, all historical linguists must assume that some features from writing must have occurred in speech as well. But ultimately, we must be comfortable with our fundamental inability to know the grammar of speech in times past. We should in fact be more attuned to the specifics of writing as a distinct and viable form of language.
References

Baayen, Harald

Bauer, Laurie

Bergs, Alexander

Biber, Douglas, Stig Johansson, Geoffrey Leech, Susan Conrad and Edward Finegan

Burnley, David

Bybee, Joan

Cowie, Claire


Cowie, Claire and Christiane Dalton-Puffer
Curzan, Anne and Chris C. Palmer

Dalton-Puffer, Christiane

Fleischman, Suzanne

Gadde, Frederik

Goldsmiths' Mistery

Grocers’ Company

Hay, Jennifer

Marchand, Hans

Miller, D. Gary

Milroy, Lesley

Nightingale, Pamela

Pounder, Amanda
Reddaway, T. F. and Lorna E. M. Walker

Rothwell, William

Schultink, Henk

Thomason, Sarah Grey and Terrence Kaufman

Tuggy, David