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Predicative and markedness bias in loan adjectives: Dutch and Middle English

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Abstract Previous research on loan word accommodation has shown that English-origin verbs in Present-day Dutch and French-origin verbs in Late Middle English are subject to usage biases. In both language-contact settings, loan verbs are disproportionally frequent in non-finite and morphologically unmarked forms as compared to native verbs. The present study demonstrates that accommodation biases are also found in loan adjectives. Concretely, loan adjectives are more prevalent in predicative than in attributive syntactic position as compared to native adjectives (PREDICATIVE bias), and they are more prevalent in uninflected than in inflected forms (MARKEDNESS bias). The predicative bias is found to rank stronger than the markedness bias, which is consistent with the findings for verbs. Additionally, biases are more pronounced in the French-Middle English than in the English-Dutch contact setting. The findings indicate that direct insertion of loanwords, despite being the cross-linguistically most frequent strategy for loan word integration, is not free of obstacles, possibly due to processing costs specifically associated with loan words.

Keywords adjectives; borrowing; English-Dutch contact; French-Middle English contact, loan word accommodation

1. Introduction and hypotheses[1]

A common conception in loan word accommodation research is that loans entering a recipient language accommodate to the grammatical structures of that language (e.g., Poplack, Sankoff & Miller 1988: 52). In their typological study on loan verb accommodation, Wichmann and Wohlgemuth (2008) and Wohlgemuth (2009) found that 'direct insertion' is cross-linguistically the most frequent accommodation strategy compared to the other three strategies: 'indirect insertion' (loan verb only becomes fully functional after

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addition of an affix onto the loan stem), the 'light verb strategy' (loan verb nominalisation and a light verb carrying the grammatical information), and 'paradigm insertion' (loan verb carrying its source-language inflections in the recipient language). In direct insertion, native inflections are added directly onto the loan stem, as in *replyen* (English verb *reply* + native Dutch infinitival *en*-marker). Since direct insertion is the most common accommodation strategy cross-linguistically, and inflections often cannot be avoided in this strategy, Wohlgemuth's (2009) resulting argument is that inflection does not hinder borrowing. In previous work on English-origin verbs in Dutch and French-origin verbs in Late Middle English we found indeed that loan verbs have the same usage potential as native verbs (Shaw & De Smet 2022). However, loan verbs are biased towards specific usage categories — a tendency which we referred to as 'loan word accommodation biases', and which might be ascribed to the processing cost that comes with borrowings (De Smet & Shaw subm.). The first bias showed that loan verbs are more frequent in non-finite than in finite forms compared to native verbs (FINITENESS bias). The English loan verb *updaten* ('update') in Dutch is, for instance, more prevalent in (1a), an infinitive, than in (1b), a past form.

1a.   hij zal zijn computer morgen *updaten*
         'he will update his computer tomorrow'
1b.   hij *updatete* zijn computer gisteren
         'he updated his computer yesterday'

The second bias was that loan verbs are more common in morphologically unmarked than in marked forms compared to native verbs (MARKEDNESS bias), which is consistent with the literature (e.g., Harris & Campbell 1995; van der Sijs 2005: 56–57; Schultze Berndt 2017: 265). This implies, for instance, that Dutch *checken* (from English check) is avoided more in *check-te-n* (i.e., the doubly marked past plural) than in *check* (i.e., first person present singular). An additional observation was that the finiteness and markedness biases strongly interact with each other, but that the finiteness bias ranks consistently stronger than the markedness bias.

     This two-fold study continues this line of research on loan word accommodation biases by trying to assess whether such biases can also be found in

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adjectives. The category of adjectives is frequently borrowed, more so than verbs (see e.g., Muysken 1981; Mugglestone 2006: 74; Winford 2010: 178). Depending on the language, adjectives bear markings for both gender and, in the plural, number (e.g., Poplack *et al.* 1988), and they most commonly occur in attributive or predicative position. According to Hollmann (2020: 3), prototypically attributive adjectives resemble nouns, while prototypically predicative adjectives align more with verbs. Predicative adjectives are indeed predicates which therefore have verbal properties, and particularly those of non-finite verbs, since both predicative adjectives and non-finite verbs occur with an auxiliary verb carrying any functional information. This evokes the light verb strategy (Wichmann & Wohlgemuth 2008; Wohlgemuth 2009), where loan verbs entering in their recipient language are accompanied by a verb carrying the inflections. Predicative adjectives (2a) and non-finite verbs (2b) are, therefore, syntactically less complex than attributive adjectives and finite verbs.

2a.   predicative adjective: hij <u>is</u> *relaxed*
        'he is relaxed'
2b.   non-finite verb: hij <u>heeft</u> *gerelaxed*
        'he has relaxed'

Based on the resemblance between predicatives and non-finites, we hypothesise that loan adjectives, like loan verbs, will be subject to statistical accommodation biases. First, loan adjectives may be more frequent in predicative than in attributive position (PREDICATIVE hypothesis): although attributive position is generally more frequent (e.g., Burrow & Turville-Petre 1992: 44–45 for Middle English), predicative position is syntactically less complex, as syntactic integration of the adjective is typically achieved through a separate function word, the copula. Second, we hypothesise that loan adjectives may be disfavoured in contexts with compulsory inflection (MARKEDNESS hypothesis), as loans are easier to integrate in categories with fewer or no inflectional markings. Note that the term 'markedness bias', previously used for loan verbs, is now also used for loan adjectives. For both word classes, the markedness bias refers to a preference of language users to use loans without any type of inflection.

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The remainder of this paper deals with the phenomenon of loan adjective accommodation, following the structure and methods developed in Shaw and De Smet (2022): we examine English-origin adjectives in spoken Present-day Dutch (2.) and French-origin adjectives in Late Middle English (3.). Although the French-Middle English contact setting is in some ways similar to the English-Dutch one (e.g., typologically similar recipient languages), the intensity of contact in Middle English was considerably stronger. For both case studies we first provide concise contextualisation of the contact setting (2.1./3.1.) and a description of the analysed data, including data selection and the followed methodology (2.2./3.2.). Data for Dutch were extracted from the *Corpus Gesproken Nederlands*, and for Late Middle English from the *Penn-Parsed Corpus of Middle English*. The findings and supplementary observations are presented in sections 2.3 and 3.3. Section 4 is a discussion of the findings as well as their wider relevance.

2. English loan adjectives in Dutch

2.1. The contact setting

According to de Swaan (2002, 2010), English is the world's hyper-central language: it is not only omnipresent in its slang forms, but also in its written, standard forms and as a *lingua franca* in the academic world (Mair 2019: 20). This is no different in the Netherlands and Flanders (i.e., the Dutch-speaking northern part of Belgium) (cf. Thomason 2001), where most people have a good command of English (as illustrated in Stern 1977) and the English language increasingly influences the Dutch lexicon (Zenner 2013: 75). Associations such as *De Stichting Taalverdediging* ('Foundation Language Defence') and *De Bond Tegen Leenwoorden* ('Association Against Loan words') consider English loans a threat to the Dutch language (Smans 2011: 15). Then again, it should be borne in mind that the intensity of contact between English and Dutch is rather weak and stays nonreciprocal (Zenner 2013). What is more, the *Eurobarometer* reveals that the community in the Low Countries is largely monolingual or weakly bilingual (Zenner & Van De Mieroop 2017: 78). In 2012, van der Sijs estimated that roughly 4% of the Dutch vocabulary was of English

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origin, although approximately ten years later that number has undoubtedly increased due to the ongoing exposure to English in the Low Countries.

Like loan verbs, English-origin loan adjectives in Dutch are generally accommodated through direct insertion: a native suffix can be added directly onto the loan stem, as in (3), where *unfaire* consists of the English stem *unfair*, followed by a Dutch *e*-suffix[2].

3.   een   *unfaire*   aanval   zeggen   ze
       an   *unfair*.ATTR.ADJ   *attack   say   they*
       'an unfair attack, they say' (CGN)

The following sections will provide evidence that English-origin adjectives are biased towards predicative and uninflected structures (2.3.). Before doing so, we will describe our data selection and methodology (2.2.).

2.2. Data and methods

Data for this corpus study were retrieved from the *Corpus Gesproken Neder-lands* (CGN; Nederlandse Taalunie 2004), which is a lemmatised database for Present-day Dutch comprising spoken data in Belgian and Netherlandic Dutch. The corpus contains 9,000,000 words in total, transcribed from 1,000 hours of adult speech. For this study, the data extraction procedure was identical to the one for loan verbs in Shaw and De Smet (2022): we created a set of native Dutch adjectives, which was extracted from the CGN and which served as a control set throughout the study. We also compiled a set of English loan adjectives, which included a random sample of items marked as adjectives in the part-of-speech annotated *British National Corpus* (BNC; Bodleian Libraries 2007). Based on a Perl script, we then identified the potential English loan adjectives in the CGN. This method allows to retrieve loan adjectives which may not have been included in standard dictionaries of Dutch yet.

We only included adjectives which can occur in both attributive and predicative structures: adjectives such as *allang* 'already, by now', and *overstuur*

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2   The adjectival inflectional system in Table 1 presents an overview of all the contexts where *e*-suffix is used.

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'upset' are typically predicative, while adjectives such as *gans* 'entire, whole' and *luxe* 'luxury' are typically attributive. We excluded clippings (*aso*, from *asociaal* 'antisocial'), adjectives which are predominantly used as adverbs (*eventueel* 'possibly', *hopelijk* 'hopefully', *waarschijnlijk* 'probably'), and adjectives/adverbs belonging to separable infinitives, such as *vasthouden* 'hold on'. Intensifying prefixes (*kei-* 'boulder', *reuze-* 'giant', *super-* 'super'), the lemma *half* 'half' as in *half tien* (lit. 'half ten', meaning 'half past nine'), fixed expressions (e.g., *zeker en vast* lit. 'sure and fixed', meaning 'definitely'), lexicalised sequences (e.g., *bitter lemon*), verb forms such as past participles, and comparatives and superlatives were eliminated as well. Cognates with Dutch (e.g., *wild* 'wild') were filtered out of the loan adjective dataset, as well as false friends, i.e. English-origin adjectives which are homographs of existing Dutch adjectives. *Glad*, for instance, can be interpreted as a Dutch adjective meaning 'slippery', but it can also be interpreted as an English loan adjective meaning 'happy'. Loans which are not (exclusively) English (*grand* 'big' as in *grand prix* 'big prize') and loans with two or more different source languages were excluded as well. Since Saugera (2012: 234) showed for Present-day French that English adjectives in -y "are characterized by non-adaptation to French inflectional paradigms", adjectives ending in a vowel were not analysed either[3].

After excluding the above-mentioned attestations, the loan adjective dataset retained 447 attestations, and for the native Dutch adjectives we took a random sample of 830 attestations, corresponding to 2% of all tokens (e.g., *bekend* 'well-known', *gezellig* 'cosy'). Sample distribution of native Dutch and English loan adjectives was thus 65% versus 35%. Both high-frequency (e.g., *cool*, *gewoon* 'ordinary', *leuk* 'nice') and low-frequency adjectives (e.g., *Bourgondisch* 'Burgundian', *tumultueus* 'tumultueus', *unfair*) were included in our sample.

The automatic annotations from the CGN were corrected wherever needed and manual annotations were added for syntactic position and inflectional ending. For syntactic position, we distinguished among attributive, non-attributive and other positions. The category of 'other positions' comprises adverbial use (where an adverb accompanies an adjective or action verb), nominal use (where the adjective is nominalised: e.g., *het leuke (X)* 'the nice

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3   English loan adjectives ending in vowels (e.g., *extra, happy, heavy*) are categorically not inflected in Dutch either.

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(X)', *we eten warm* 'we eat hot food', senses of taste such as *bitter*), and sentence adverbials (where the adverb puts a scope over the entire sentence: e.g., *ik zou beter meer water drinken,* meaning 'I had better drink more water'), yet only attributive and non-attributive position were considered in the analysis. Attributive use, first, comprises adjectives used on the immediate left of their heads, as in *er zit een* compleet *kind in je buik* 'you have an entire child in your belly'. Non-attributive position, then, entails purely predicative constructions used with *zijn* ('be') or other copulas (e.g., *blijven* 'stay', *lijken* 'appear', *schijnen* 'seem', *worden* 'become'), as well as the occasional post-position (*iets* serieus 'something serious') or secondary predicate (*Ik vind het* jammer 'I find it regretful'), where the adjective is predicated of the patient argument of a higher verb. For ellipses, paraphrasing and contextual features were consulted. For inflectional ending, then, we verified whether inflection was expected in the usage categories under investigation, and whether that corresponded to the inflectional endings applied by the speaker. Note that the Dutch adjectival inflectional paradigm is syntactically defined: syntactic position, gender of the head noun (common and neuter) and number determine which article is used and whether inflection is compulsory, impossible, or optional. In Dutch, only attributives are inflected, with the exception of adjectives modifying neuter singular nouns in indefinite NPs (see Table 1). We, therefore, annotated hits for zero and *e*(*n*)-inflection, *-n* being added in rare dialectal attestations, as in in *zijne* vrijen *tijd* 'in his spare time'. We also distinguished between adjectives with invariable *-e* (e.g., *safe*), which are not part of the envelope of variation between zero and inflection and, therefore, could not be included in the analysis of adjectival inflectional endings. An overview of the Dutch adjectival system, based on the electronic version of the *Algemene Nederlandse Spraakkunst* (E-ANS; Coppen, Haeseryn & de Vriend 2002), is given in Table 1 for the adjective *klein* ('small').

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Table 1. Overview of the adjectival inflectional system in Present-day Dutch.

Syntax	Number	Gender	Definiteness	Inflection	Example
Attributive	Plural			Compulsory	*klein-e*
	Singular	Common			
		Neuter	Definite	Optional	*klein(-e)*
			Indefinite	Impossible	*klein*
Non-attributive					

Data visualisations were created using the R-packages "ggmosaic" (Jeppson *et al.* 2021) and "ggplot2" (Wickham 2016), which are described in Levshina (2015: Chapter 9). We compared the frequencies of native adjectives and loan adjectives (i) in attributive vs. non-attributive position and, if applicable, (ii) when inflected vs. uninflected.

2.3. Findings

The distribution of English- and Dutch-origin adjectives in non-attributive and attributive syntactic position are visualised in the mosaic plot below (Figure 1). For attributives, we additionally visualised whether they are inflected (*-e*), uninflected (zero), or whether inflection is optional. Whereas the vertical division represents the frequency distribution of English-origin verbs and Dutch verbs in the different usage categories, the width of the horizontal bars reflects the number of observations for each usage category. As the vertical dotted line indicates the division of English- (447) and Dutch-origin (830) adjectives, the adjectives only coincide with the 35%-mark in case of a perfectly bias-free distribution. However, this is not the case, which means that the loan adjectives are over- or underrepresented in some of the usage categories.
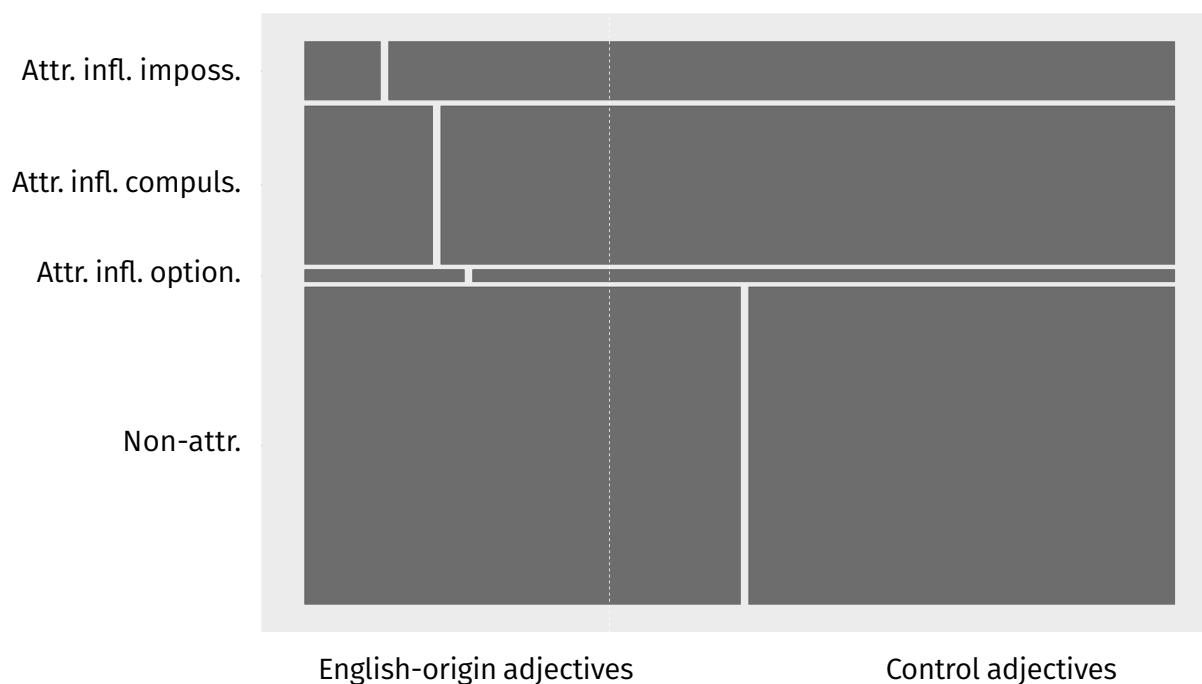
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Figure 1. Distribution of syntactic position and inflection for English-origin and Dutch-origin adjectives (n = 1,277).

As for syntactic position, the horizontal bars in Figure 1 illustrate that the English-origin adjectives in the sample are disproportionally frequent in non-attributive structures (4a) and the Dutch-origin adjectives in attributive structures (4b).

4a. ja ik denk dat dat iets   heel *basic* <u>is</u> hoor
   yes I   think   that that something very basic   is   you know
   'Yes, I think that that is something very basic, you know.' (CGN)

4b. maar nou   't is wel   een *leuk-e*   <u>uitdaging</u> misschien
   *but   well   it is though a   fun-*INFL   *challenge   perhaps*
   'But well, it may be a fun challenge, though.' (CGN)

The predicative hypothesis is confirmed in Table 2, since 83.9% of the loan adjectives occur in non-attributive position, as opposed to only 44.2% of the native adjectives. The effect is significant (with p < 0.05 as significance threshold, using a Fisher's exact test).

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**Table 2. Distribution of native adjectives vs. loan adjectives
in attributive and non-attributive syntactic position (Fisher, p < 0.00001).**

	Attributive position	**Non-attributive position**
Native adjectives (n = 830)	463 (55.8%)	367 (44.2%)
Loan adjectives (n = 447)	72 (16.1%)	375 (83.9%)

However, the visualisation in Figure 1 is less straightforward for inflectional endings. Table 3 allows closer inspection of inflection in loan and native adjectival attestations in attributive position.[4]

**Table 3. Distribution of attributive native adjectives vs.
loan adjectives with -*e*, zero or optional -*e* (Fisher, p = 0.8764).**

	-*e*	**Zero**	**Optional -*e***	
Native adjectives (n = 463)	316 (68.3%)	125 (27%)	22 (4.8%)	
			-*e* 19 (86.4%)	Zero 3 (13.6%)
Loan adjectives (n = 52)	35 (67.3%)	12 (23.1%)	5 (9.6%)	
			-*e* 0 (0%)	Zero 5 (100%)

Loan adjectives (67.3%) are slightly less prevalent with -*e*-inflection than native adjectives (68.3%), but the difference is minimal. In contexts with zero-inflection, loan adjectives (23.1%) are again less frequent than native adjectives (27%). However, loan adjectives (9.6%) are more prevalent when inflection is optional than native adjectives (4.8%). Overall, whereas an English loan adjective is slightly less common with inflection, as in (5a), a native Dutch adjective is slightly more common with inflection, as in (5b).

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4   The Fisher's exact test compares syntactic positions where the adjective is inflected with positions where the adjective is uninflected or inflection is optional (since schwa is/can be deleted in both cases).

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5a. | ’k | denk | niet | dat | ze | zo | *unfair* Ø | | gaan | zijn |
| *I* | *think* | *not* | *that* | *they* | *so* | *unfair*.PRED.ADJ | | *go* | *be* |

‘I do not think that they will be that unfair.’ (CGN)

5b. | iets | Naar | beneden | daar | is | een | *rode* | deur |
somewhat	*To*	*below*	*there*	*is*	*a*	*red*.ATTR.ADJ	*door*
en	daar	woon	Ik				
and	*there*	live	I				

‘A bit down (there) there is a red door, and that is where I live.’ (CGN)

Although the trend runs in the expected direction, the effect of the markedness bias is not significant (Fisher, $p = 0.8764$). A strongly significant effect (Fisher, $p = 0.0007$) can be found for those cases in Table 3 where inflection is optional ($n = 22$ for native adjectives and $n = 5$ for loan adjectives). Closer investigation of the cases where inflection is optional (cf. right column in Table 3) shows that Dutch native adjectives are inflected in 86.4% of the cases, whereas English loan adjectives are not inflected at all (0%). However, this claim cannot be generalised due to the small number of attestations.

3. French loan adjectives in Late Middle English

3.1. The contact setting

Contact between French and English started after 1066, when William the Conqueror won the Battle of Hastings (e.g., Mugglestone 2006; Brinton & Arnovick 2011). Admittedly, French[5] lexical loans had already entered the English language even before the Conquest due to "continuing naval and military relations" between France and England, as well as France's "leadership in social and cultural life" (Strang 1970: 122). The first decades after the Conquest there was little contact between Middle English (substrate) and Anglo French (superstrate) — the contact variety spoken by the Norman elite in England (e.g., Mugglestone 2006; Brinton & Arnovick 2011). However, Anglo

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5   The umbrella term 'French' used throughout this paper includes Anglo French, Continental French, and Norman French.

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French soon developed into a prestigious written governmental and administrative language (e.g., Short 2007; Matras 2009). As of the 13th century, Anglo French started making way again for English in writing. Despite the decline of the use of Anglo French, the borrowing rates, surging to 30%, had never been higher than during this period. This was true in particular for the second half of the 14th century (Mugglestone 2006; Baugh & Cable 2013), the so-called 'borrowing peak', with an estimated 28% of the English vocabulary of that time being of French origin (Finkenstaedt & Wolff 1973; Dalton-Puffer 1996).

Opinions are divided as to how far-reaching the contact effects in medieval England actually were. Some researchers state that — overall — Anglo-French influence on Middle English remained quite weak, and was limited to the lexicon (e.g., Thomason & Kaufman 1991; Fischer 2013). More recently, some researchers state that borrowing was "much more frequent and important than some scholars have thought in the past" (e.g., Campbell 1998: 230; Stein & Trips 2012: 227; Ingham 2020: 452) and that syntactic influence has not been granted full attention (e.g., Brinton & Arnovick 2011; Baugh & Cable 2013; Fischer, De Smet & van der Wurff 2017: 73). It is against this background that we will now present an overview of the used data and methods (3.2.), after which we will elaborate on the findings (3.3.): we will home in on the predicative bias (3.3.1.) and the markedness bias (3.3.2.), and describe an additional head bias (3.3.3.).

3.2. Data and methods

This study entails an investigation of three late 14th-century prose texts, viz. *The Parson's Tale* (c1390), *The Old Testament* (c1398), and *Mandeville's Travels* (c1400). Prose has the advantage of being more representative of real-life speech than poetry, where metre and rhythm could influence word order and syntactic structures (cf. van Kemenade 1987; Fischer *et al.* 2017). *The Parson's Tale* (PT; 30,626 words) is one of Geoffrey Chaucer's *Canterbury Tales*. It is a religious treatise based on two Latin sources, and although it is prose, Chaucer uses the iambic pentameter throughout the entire text (Encyclopædia Britannica n.d.). *The Old Testament* (OT; 9,910 words) is a substantial part of the Wycliffite Bible and a translation of the Latin vulgate. It was presumably edited by John Purvey. *Mandeville's Travels* (MT; 51,715 words) is a French-

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based translation of two fictional travelogues, and was written by an anonymous author. The texts were selected based on some similarities: they were written around the same period, i.e., at the time of the borrowing peak, but also in the same (East Midlands) dialect. Apart from *The Old Testament*, the texts have a high incidence of French lexical loans. It has been reported elsewhere, as well, that Chaucer was found to adopt a higher concentration of French loans than most of his contemporaries (Jespersen 1905; Lumiansky 2019). *The Parson's Tale* and *Mandeville's Travels* were retrieved from the *Penn-Parsed Corpus of Middle English* (*version 2*) (PPCME2; Kroch & Taylor 2000), a diachronic corpus consisting of roughly 1.6 million words, and we conducted a full-text analysis. For *The Old Testament*, however, we analysed the 9,910-word text sample available from the *Helsinki Corpus of English Texts* (HC; Rissanen *et al.* 1991).

We excluded some of the attestations parsed as adjectives in the MED, such as grammatical items (*all*, *such*, *thilk*, etc.) which typically occur in (pre) determiner position, and adjectives which only occur predicatively or attributively. Within the confines of this study, we took a 50% subset of our sample and retained 1,601 adjectival attestations of English origin (84.9%) and 286 of French origin (15.1%).

We lemmatised and annotated the adjectives for their origin, syntactic position and inflectional ending. This was done manually, as Middle English is characterised by ample spelling variation. We consulted the *Middle English Dictionary* (MED; Lewis 1952–2001) to distinguish between French-[6] (e.g., *diverse* 'diverse', *merveillous* 'marvellous') and Germanic-origin adjectives (e.g., *gret* 'great', *sik* 'sick'). Proper names, Latin-origin adjectives and adjectives with mixed (Germanic + French/Latin/Romance) or unclear origin (e.g., *Christen*) were excluded. Since adjectives depend on nouns, head nouns were equally annotated for their origin. For syntactic position, we distinguished between attributive, predicative, adverbial and nominal (e.g., colours and materials) use; however, adverbials and nominals were only integrated in the mixed-effects model. For adjectival inflections, "[t]he distinction in usage between the strong and weak declensions of adjectives is not found in ME, even

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6   The category 'French' also includes attestations of both Latin and French origin, such as *contrarie* ('contrasting, opposite').

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in the earliest texts" (Brunner 1963: 51), although Burrow and Turville-Petre (1992: 29) argue that it was retained by authors such as Chaucer. However, dialectal and temporal variation in Middle English was across the board, and our sample texts were written in a phase of ongoing deflection in which the inflectional apparatus was rapidly changing into allowing for more reduced forms. Therefore, our focus is solely on the inflectional variation encountered in our sample. Although predicatives in Old and Middle English were often uninflected (Brunner 1963), our sample shows variation between zero- (a) and schwa-inflection (b) in both attributive (6) and predicative position (7).

6a. And þere is a *greatØ* hill þat men clepen Olympus
   'And there is a large hill called Olympus.' (MT)
6b. And Before the Emperoures table stonden *grete* lords
   'And in front of the Emperor's table stood great lords.' (MT)
7a. The cytee is *gretØ* & full of peple
   'The city is large and full of people.' (MT)
7b. And þer ben summe [dyamandes] of the gretness of a
   bene & summe als *grete* as an hasell note
   'And there are some diamonds the size of a
   bean and some as large as a hazelnut.' (MT)

Apart from zero and schwa, our sample contains a few rare attestations in -*en* (nominal position) and -(*e*)*s* (frequent in French plural adjectives, cf. Mustanoja 1960: 277). Adjectives in invariable -*e* (e.g., French origin *horrible* and *noble*) were annotated as well, yet they were not taken into account in the statistical analysis since they cannot be inflected.

The analysis compared the frequencies of native adjectives and loan adjectives (i) in attributive vs. predicative position and (ii) in inflected vs. uninflected forms. Using the R-packages "ggmosaic" (Jeppson *et al.* 2021) and "ggplot2" (Wickham 2016), the data were visualised as a mosaic plot, a type of bar chart which shows the relationship with two (or more) categorical variables at the same time. For inflection, we carried out an additional mixed-effects logistic regression model, which may reveal any correlations between the dependent (i.e. inflection) and independent variables.

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3.3. Findings

The mosaic plot in Figure 2 visualises the distribution of French- and English-origin adjectives in predicative and attributive position, further distinguishing between cases where the adjective is inflected, uninflected, and cases where inflection is invariable. The vertical dotted line which represents the baseline is set at the 15%-mark, reflecting the overall share of French-origin loan adjectives in the data.
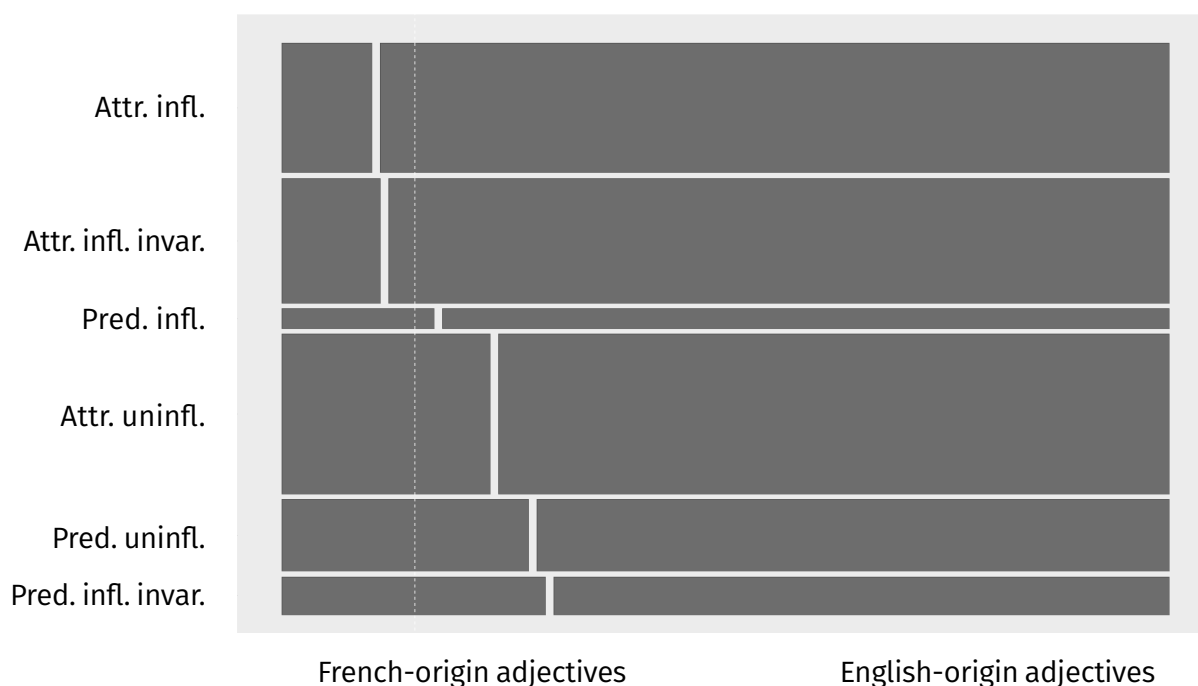

Figure 2. Distribution of syntactic position and inflection for French-origin and English-origin adjectives (n = 1,887).

The predicative and markedness hypotheses appear to be confirmed at first glance. The horizontal divisions for each usage category reveal that French-origin adjectives are overrepresented in predicative and uninflected attributive structures and they are underrepresented in inflected attributive structures. However, let us now look into the data in further detail.

3.3.1. Predicative bias

While 34.9% of the French-origin adjectives are used predicatively, that is the case for only 21.3% of the English-origin adjectives (Table 4). The effect for

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the predicative bias is strongly significant given $p < 0.00001$ (with $p < 0.05$ as significant threshold, using a Fisher's exact test).

Table 4. Distribution of native adjectives vs. loan adjectives in attributive and predicative syntactic position (Fisher, $p < 0.00001$).

	Attributive position	Predicative position
Native adjectives (n = 1,171)	922 (78.7%)	249 (21.3%)
Loan adjectives (n = 264)	172 (65.2%)	92 (34.9%)

Thus, French loan adjectives are proportionally more frequent in predicative forms (8a) than English native adjectives, which are in turn more frequent in attributive forms (8b).

8a. *Inobedient* <u>is</u> he that disobeyeth for despit to the comandementz of God
    'Disobedient is he who disobeys despite God's Commandments.' (PT)
8b. And þerfore men clepen it the *rede* <u>see</u>
    'And therefore it is called the red sea.' (MT)

The question arises whether the predicative bias for loan adjectives may relate to inflection being less prevalent in predicative than in attributive position (cf. Brunner 1963). That is studied in further detail in the following section.

3.3.2. Markedness bias

Since attributive and predicative adjectives have different inflectional properties, they are separated in the upcoming analyses. Table 5 reports the distribution of inflected, uninflected and invariable *-e* (e.g., *some*) attributives, both in native and loan adjectives.

Table 5. Distribution of native adjectives vs. loan adjectives with or without inflection in attributive syntactic position (Fisher, $p < 0.00001$).

	Inflected	Uninflected	Invariable *-e*
Native adjectives (n = 922)	307 (33.3%)	322 (34.9%)	293 (31.8%)
Loan adjectives (n = 172)	35 (20.4%)	100 (58.1%)	37 (21.5%)

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Since p < 0.00001 for inflected versus uninflected adjectives, the inflection rates for loan adjectives (20.4%) are significantly lower than those for native adjectives (33.3%).

For predicative adjectives, the distribution of inflectional use is displayed in Table 6.

**Table 6. Distribution of native adjectives vs. loan adjectives with
or without inflection in predicative syntactic position (Fisher, p = 0.1516).**

	Inflected	Uninflected	Invariable *-e*
Native adjectives (n = 249)	43 (17.3%)	136 (54.6%)	70 (28.1%)
Loan adjectives (n = 92)	9 (9.8%)	53 (57.6%)	30 (32.6%)

Here again, loan adjectives (9.8%) occur less often with inflection than native adjectives (17.3%), yet the trend for inflected versus uninflected adjectives is not significant (Fisher, p = 0.1516). An additional observation is that predicative adjectives (17.3% for native adjectives and 9.8% for loan adjectives) are generally less often inflected than attributive adjectives (33.3% for native adjectives and 20.4% for loan adjectives), which confirms the literature (e.g., Brunner 1963).

Although French loan adjectives are subject to a markedness bias, a considerable number of loans is inflected with apparent ease (e.g., *fructuous* in a *fructuouse lond* 'a fructuous country'). (9) exemplifies an inflected loan adjective, but in this case it receives a French-origin *es*-suffix. According to Mustanoja (1960: 277), French-origin adjectives adopting *-s* in the plural are quite frequent — an imitation of French.

9. And vnder this grees is a chapel in þat chapel syngen prestes *yndyenes*
    'And down this staircase there is a chapel (and) in that chapel sing
    priests of India.' (MT)

Since *indien* keeps carrying its source-language inflections even in its recipient language, it is an example of paradigm insertion (cf. Wichmann & Wohlgemuth 2008; Wohlgemuth 2009; section 1.). Also note that *yndyenes*

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'Indian' is postposed to its head *prestes* 'priests'. Several researchers (e.g., Jespersen 1949; Mustanoja 1960; Mossé 1991; Wright 2011; Trips 2014) argued that the rise of postposed rhematic adjectives in Middle English may be due to Old-French influence, although postposition in Old French was marked (Attali & Monsonégo 1997).

In any case, the question remains whether adjectival origin affects inflectional use, and if not, what variables then do. Also, lemma frequency has not been included in the analyses so far, while we had demonstrated in Shaw and De Smet (2022) that lemma frequency significantly affected accommodation biases in verbs, with biases stronger in low-frequency than in high-frequency loan verbs. To that end, we conducted a mixed-effects logistic regression model using the R-package "lme4" (Bates *et al.* 2015). Regression analyses (glmer() function[7]) can reveal whether the dependent and independent variables correlate: the dependent variable in the model was the absence (0) or presence (1) of inflection; the independent variables under investigation were adjectival origin and syntactic position, and lemma frequency. Text (MT, OT and PT) was included as a random effect to prevent inflectional variation from being erroneously ascribed to any idiosyncratic authorial and textual features. Table 7 displays the regression model output with the coefficient estimates for the fixed effects (i.e., predicted values of the dependent variable in relation to a certain independent variable). If the coefficient estimate is positive, it means the value of the dependent variable will increase as the value of the independent variable increases; reversely, a negative coefficient estimate means that the dependent variable will decrease as the value of the independent variable increases. Apart from coefficient estimates, the model also displays standard errors and confidence intervals, which provide information on how reliable the significance effects and the method are. The lower the standard error, the more reliable the finding is. Last, Table 7 shows the p-values given the z-score, which show how likely it is that the sample data would have occurred under the null hypothesis. The lower the p value, the less likely it is that the effect arises due to mere coincidence, and the higher

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7   We used the glmer() function instead of lmer() since the outcome of the dependent variable in the model was binomial, and not Gaussian.

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its significance. Significance for p is set to < 0.05, and confidence intervals (CI) are at 95%.

Table 7. Fixed effects of mixed-effects model for choice between presence and absence of inflection in native adjectives and loan adjectives (n = 1,887). (Reference levels for Origin: English-origin vs. French-origin; Position: attributive vs. adverbial, nominal, predicative).

	Estimate	Std. Error	CI Lower bound	CI Upper bound	Pr(>|z|)
(Intercept)	0.30	0.11	0.08	0.52	0.00663
Frequency	−0.00	0.00	−0.01	−0.00	2.66e−06
Origin (French-origin)	−1.47	0.29	−2.06	−0.91	4.94e−07
Position (predicative)	−1.16	0.18	−1.52	−0.82	8.67e−11
Frequency: Origin (French-origin)	0.05	0.04	−0.03	0.13	0.19233

A first strongly significant effect is found for the variable frequency, with low-frequency adjectives being less likely to be inflected than high-frequency adjectives (p = 2.66e−06). This is in line with our earlier findings on verbs. However, it should be noted that the findings are not exclusively due to those frequency effects, since adjectival origin has an effect on inflection as well: the negative coefficient estimate (−1.47) reveals that inflection is, as hypothesised, significantly less prevalent in French-origin than in English origin adjectives (p = 4.94e−07). This confirms the findings based on Tables 5 and 6. For adjectival syntactic position, the negative coefficient estimates showcase that attributives are significantly more often inflected than predicatives (p = 8.67e−11). That inflection is avoided in predicative position (cf. Brunner 1963) may be a supplementary explanation as to why French loan adjectives are more common in predicative position. Last, there is no significant interaction effect between adjectival origin and lemma frequency (p = 0.19233), which means that the two variables combined do not have a significantly larger effect on the use of inflection than the individual variables alone. This is in contrast with the study on loan verbs, where verbal origin and lemma frequency interacted, which means that the "tendency for

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speakers to avoid French-origin loan verbs in finite forms becomes stronger with lower verb frequencies" (Shaw & De Smet 2022: 11).

3.3.3. Head bias

Closer inspection of the attributive adjectives in the sample reveal an additional observation for head origin: French origin adjectives (43%), such as noble, occur more often with French origin heads than English origin adjectives (38.3%), such as highborn (Table 8).

Table 8. Distribution of native adjectives vs. loan adjectives in attributive syntactic position with English-origin and French-origin heads (Fisher, p = 0.2685).

	English-origin native heads	French-origin loan heads
Native adjectives (n = 918)	566 (61.7%)	352 (38.3%)
Loan adjectives (n = 172)	98 (57%)	74 (43%)

Although this tendency is not significant (Fisher, p = 0.2685), it suggests that French adjectives are sometimes integrated in the Middle English language by drawing on larger French-origin phrasal units. An example of this phenomenon is given in (10), where both the adjective (*princypall*) and noun (*cytees*) are of French origin.

10. Cypre is right a gode Ile and a fair & a gret and
    it hath .iiij. *princypall cytees* within him
    'Cyprus is a good isle and a beautiful and a great one, and
    it has four main cities.' (MT)

4. Discussion and conclusion

The above analyses have shown that, in the two contact situations under investigation, loan adjectives are subject to a predicative and markedness bias, which means that they are favoured in predicative and uninflected structures. We also found tentative evidence for French loan adjectives occurring more often with French loan heads than native English adjectives. This

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corroborates our initial claim that, in some constructions, loan words are subject to accommodation biases, and that those biases manifest themselves in loan adjectives, as well as in loan verbs. Interestingly, for both English-origin adjectives in Dutch and French-origin adjectives in Middle English, the predicative bias was found to rank stronger than the markedness bias. This is in line with our previous findings for loan verbs, where the finiteness bias ranked consistently stronger than the markedness bias. However, the predicative and markedness biases are deeply intertwined, inflection frequently being absent in predicative position. The findings add to our correction of Wohlgemuth's (2009) argument that inflection is not an obstacle to loan word accommodation, since loan words enter a language under constraints.

Although the biases detected for the two contact situations are similar, they manifest themselves to slightly different degrees, as previously found for loan verbs. For instance, the markedness bias for French-origin loans in Middle English is slightly more pronounced than for English-origin loans in Dutch. This difference in strength may be due to differences in duration and intensity of contact between both language-contact situations. Also, the two contact settings differ in terms of what proportion of the population had active access to the source language, the situation in medieval England having been described by Ingham (2020: 452) as "a bilingual speech community, at least among higher status and/or educated individuals". This is vastly different in the Low Countries, where the population has so far stayed monolingual to weakly bilingual (Doğruöz & Zenner 2013), and where contact with English is indirect (Booij 2001). Apart from differences relating to the contact situations, more language-internal differences between both language pairs may be involved in the difference of strength of biases as well.

Avenues for future research are numerous: this study could be replicated for alternative contact settings (e.g., English influence on Afrikaans), parts of speech (e.g., nouns) and with other types of data (e.g., experimental data, such as acceptability tasks). We may also want to assess how far-reaching the consequences of accommodation biases on the history of the English language have been. 🄽

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KU LEUVEN

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