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Introduction

- ¹ This paper reports on findings from our project *Technical language and semantic shift in Middle English*.¹ The project aims to address unanswered questions about word borrowing, obsolescence and semantic shift by looking at a large corpus of terms arranged in a semantic hierarchy. One of our aims is to examine the effects on Middle English vocabulary of the contact between French and English following the Norman Conquest. The main focus is on the levels of the semantic hierarchy at which French borrowings are found. In particular, we are interested in the technical register; that is, whether the contact with French impacted on English at the lowest levels, where the terms with most precise senses are found.
- ² Early discussions of the motives for lexical borrowing tended to highlight speakers' perceptions of gaps, "the need for names for certain objects, concepts, etc. with which a language community is newly faced in a changed cultural situation" [Weinreich 2011: 53] (see also Weinreich [1953: 60]; Emeneau [1962: 431]; Grosjean [2010]). The second commonly discussed motivation is that of prestige attached to the source language (Weinreich [2011: 53]; Matras [2009: 168]; Campbell [2013: 58]). A third reason, not relevant to our data, is stylistic, the need to create special effects or to avoid homonymic clash (Weinreich [1953: 60]; [2011: 54]; Matras [2009: 168]).
- ³ A further reason for focusing on technical lexis is that the later Middle Ages saw numerous innovations in many occupational domains, including metalworking, construction and domestic work, leading to the potential need for new conceptualisations. At this stage in its history, English had not yet reached the level of linguistic development characterising an Ausbau language; that is, "an autonomous

standard variety together with all the nonstandard varieties from the dialect continuum which are heteronomous with respect to it” [Trudgill 1992: 169]. One of the markers of the final level of an Ausbau language is a technical register (Kloss [1967: 29]), and the Middle English period sees the emergence of a precise vocabulary, pointing to the emergence of a technical register fuelled by the multilingual situation of medieval Britain (Sylvester forthcoming)². Arguing that words of low frequency are less stable than frequently used terms, and are thus more subject to obsolescence and replacement, Weinreich offers an example of a technical term: the word denoting ‘the place on a scythe where the blade is attached to the handle’ in dialectal Russian. He reported that “the infrequent and unstable designations for parts of tools, which vary greatly from one locality to the next, are, in the Finnish contact area, represented by Finnish loanwords” [Weinreich 1953: 53]. This example is in line with early suggestions that a significant proportion of the French borrowings in Middle English were technical terminology (Serjeantson [1935]; Prins [1941]). A question worth addressing, then, is the role of a technical register in speakers’ everyday lives. There is evidence that “concepts pertaining to the immediate surroundings: orientation in space, time and quantity, the private domain of mental and physical activity, and the nearest human environments (body and close kin)” have a greater stability, while those involving negotiation with other people are more open to borrowing. Matras’s investigation of Romani and studies of other languages including Selice, Maltese and Old English, suggest the likelihood of a proximity constraint on borrowing that overrides other motivations such as fashion and prestige (Matras [2009: 169-172]). This paper takes a new approach to these issues through the examination of the semantic hierarchical levels at which loanwords are found.

- 4 Use is made here of Laura Wright’s [1995] suggestion that technicality equates to greater specificity of meaning and we investigate the levels at which French borrowings occur. A pilot study (Sylvester [2018]) found that the impact of French on the native lexicon in a small set of data relating to the semantic domain field of Building was most evident at the higher (superordinate and basic) levels of the lexicon, which had almost equal numbers of native and borrowed terms, while at the hyponymic level native terms were in the vast majority. This finding indicated resistance to borrowed vocabulary not at the lowest section of the social stratum, but rather by the class of skilled workers who would have made use of technical vocabulary in their work. This suggests that the most technical vocabulary (within the occupational domain of BUILDING) was understood by speakers as forming part of their intimate, everyday lexis and was thus resistant to French borrowing, despite the prestige of French in this period. It was clear, however, that a larger set of data was needed for further investigation of the levels of the semantic hierarchy in which French impacted the vocabulary of Middle English.

1. Methodology

1.1. Measuring technicality

- 5 Our dataset totals 5276 words and 2307 senses from the augmented corpus of the *Bilingual Thesaurus of Everyday Life in Medieval England* (BTh). These have been arranged into an extensive semantic hierarchy, modelled on the taxonomic categories devised for the *Historical Thesaurus of English* (HT).³ This organisational system is made up of

seven broad divisions or Hierarchical Levels (HLs) which arrange words on the basis of hyponymic relations – the most general, or superordinate terms, are found at the top and the most technical, or most specific in meaning, are found at the bottom.

- 6 In the example below from the domain of MANUFACTURE, we can see thirteen words with the sense **Worker with skins/hides** which are found at HL7 within the hierarchy. Each HL is then further sub-divided into a maximum of five Category Levels (CLs), with hypernyms at CL0, at the very top, and hyponyms found underneath at CL1 through to CL4. Below we can see the same thirteen words arranged across the CLs within HL7, allowing us to identify increasing levels of technicality within the overall sense of **Worker with skins/hides**. *Skinner(e)*, *pelliper* and *pelter* are the most general at CL0 with *coveiser* one level below at CL1, meaning **Worker with leather**. This sense is then split into different kinds of leather workers (**Tanner, One who tans leather** and **One who dresses leather**), giving us additional lexis at CL2: *tanner(e)*, *barker*, *tauier*, *teuer(e)*, *curr(e)ieur*. Finally, the most technical vocabulary in this sub-category of the hierarchy is found at CL3 under senses designating specific kinds of leather tawers who work with white leather or grey pelts: *soudere*, *whit-tawier(e)*, *whit-lether teure*, and *grei-tauier*.

Hierarchy example 1. Extract from MANUFACTURE showing HLs and CLs

2. Society	[HL1]
2.6. Occupation and work	[HL2]
2.6.1. Worker	[HL3]
2.6.1.1. Workers according to type of work	[HL4]
2.6.1.1.1. Manual/industrial worker	[HL5]
2.6.1.1.1.3 Workers with specific materials	[HL6]
2.6.1.1.1.3.1. Workers with skins/hides	[HL7] [CL0]
skinner(e) 1255-1450+ <i>Old English</i>	
pelliper 1391-1450+ <i>Latin</i>	
pelter 1318-1450+ <i>Old French</i>	
.Worker with leather	[CL1]
corveiser c1130-1450+ <i>Anglo-French</i>	
..Tanner	[CL2]
barker 1250-1450+ <i>Old Scandinavian</i>	
tanner(e) a1325-1450+ <i>Old English;Old French;Anglo-French</i>	
..One who taws leather	[CL2]

tauier 1320-1450+ <i>Old English</i>	
teuer(e) 1440-1450+ <i>Old English</i>	
...One who prepares or dresses white leather	[CL3]
scoudere 1287 ? <i>Latin</i> ;?Old French	
whit-tawier(e) 1333-1450+ <i>Old English-Old English</i>	
whit-lether teure 1384 <i>Old English-Old English Old English</i>	
...One who prepares or dresses grey pelts	[CL3]
grei-tauier 1381 <i>Old English;Old Scandinavian-Old English</i>	
..One who dresses leather	[CL2]
curr(e)iour 1286-1450+ <i>Old French</i>	

- 7 For the purposes of this study, we will be focusing on CLs as indicators of technicality, rather than on HLs. Clearly, moving from **Worker** (HL3) to **Worker with skins/hides** (HL7) involves increased specificity of reference, but HLs are not a consistent or quantitative indicator of technicality in individual cases and at any specific level.⁴ This is because they were designed to cover a huge range of lexis (i.e. every word in OED2) across the whole diachrony of English, as well as providing a taxonomy for the semantic fields within the HT. Overall, the broader the domains become, the greater the number of possible ways to organize them and, as the HT's editor highlighted, there is "no perfect or inevitable way of classifying the world or the lexis which refers to it" [Kay 2004: 67]. Therefore, we should avoid attributing much inherent meaning to the fact that words under **Ploughing Equipment** and **Equipment for Food Preparation** are classed as HL5 in the hierarchy whereas those under **Metal-working Equipment** and **Hunting Equipment** are apparently less technical at HL4. The differences in HL value in these cases are simply due to the hierarchy's wider framework. When carrying out cross-domain analysis of technicality of meaning, it is much more useful to compare CLs independently of HLs – e.g. *plough-gere* ('ploughing equipment') and *harneis* ('hunting equipment') are both general CL0 terms at the very top of their sub-category under **Ploughing Equipment** and **Hunting Equipment** respectively, and *peni-bred* ('bread board for penny loaves') and *led panne* ('pan for melting lead') are both found at CL3 and are the most technical in their sub-categories under **Equipment for Food Preparation** and **Metal-working Equipment**, respectively. We recognise that CLs do not offer a flawless solution as it is impossible to create an entirely objective and quantitative system to measure technicality – the HT framework we are using was created to fit the data it houses and not the other way around. However, we believe that CLs offer the best available method of comparing technicality across different domains, irrespective of their HL.

1.2. Delimiting French-origin lexis in the dataset

- 8 In order to focus on the proportions of French loanwords in the dataset, it was first necessary to categorise all words in the corpus according to their language(s) of origin. Our hierarchy contains 231 different language tags based on the etymologies given in the *Middle English Dictionary* (MED). These tags have been retained in our project database, but each word has now also been allocated to one of twenty language origin sub-groups to enable analysis (see Table 1, below). For example, 537 words have been included in the ‘Latin and / or French’ sub-group (‘L + OF / AF’) and they include words with any of one of nineteen language tags, containing various combinations of Latin, Old French and Anglo-French, e.g. ‘Latin;Anglo-French’, ‘Latin;Old French;Anglo-French’, ‘Latin;Old French-Old French’, etc.

Table 1. Number and percentage of words per language origin sub-group across the corpus⁵

Language origin	No.	%
OE	2187	41.5%
OF / AF	1245	23.6%
L + OF / AF	537	10.2%
L	340	6.4%
OE + OS	217	4.1%
OE + OF / AF	168	3.2%
OS	133	2.5%
OE + L + OF / AF	117	2.2%
Germanic	107	2.0%
OE + Germanic	42	0.8%
OE + L	25	0.5%
OF / AF + Germanic	11	0.2%
Other Romance	5	0.1%
Celtic	4	0.1%
OF / AF + OS	3	0.1%
OS + Germanic	3	0.1%
OS + L	2	0.04%
Arabic	1	0.02%

Uncertain	69	1.3%
Other	60	1.1%
Total	5276	100%

- 9 Once all words had been divided amongst the language origin sub-groups, results were analysed to see if there were French-specific trends at the general, hypernymic levels of the hierarchy (defined for the purposes of this study as CL0 and CL1 combined) and the technical or hyponymic levels (CL2-CL4 combined), as well as at individual CLs. Comparisons were made across the corpus as a whole and between the nine semantic domains. In each case, calculations are based on the percentage of words belonging to a particular language origin group at a particular CL in one domain or the corpus, or across all CLs in one domain or the corpus. This allows us to compare the relative proportions of French borrowings at the various levels of the hierarchy.

2. Results

2.1. Overview of Category Level distribution

- 10 Within the nine semantic domains, words are distributed proportionately across the five CLs in the hierarchy as follows in Table 2:

Table 2. Number and percentage of words at each CL per domain

Domain	CL0	CL1	CL2	CL3	CL4	Total
BUILDING	141	291	193	41	7	673
	21.0%	43.2%	28.7%	6.1%	1.0%	100%
DOMESTIC ACTIVITIES	132	158	80	25	0	395
	33.4%	40.0%	20.3%	6.3%	0.0%	100%
FARMING	222	384	267	53	3	929
	23.9%	41.7%	28.6%	5.5%	0.3%	100%
FOOD PREPARATION	56	218	62	6	0	342
	16.4%	63.7%	18.1%	1.8%	0.0%	100%
HUNTING	98	287	89	7	0	481
	20.4%	59.7%	18.5%	1.5%	0.0%	100%
MANUFACTURE	109	323	162	38	2	634
	17.4%	50.8%	25.6%	6.0%	0.3%	100%

MEDICINE	222	487	94	20	3	826
	26.9%	59.0%	11.4%	2.4%	0.4%	100%
TRADE	146	254	103	31	1	535
	27.1%	47.9%	19.1%	5.8%	0.2%	100%
TRAVEL BY WATER	134	231	78	18	0	461
	29.1%	50.1%	16.9%	3.9%	0.0%	100%
Corpus	1260	2633	1128	239	16	5276
	23.9%	50.0%	21.4%	4.4%	0.3%	100%

- 11 In all domains, the pattern is the same. CL1 (the second most general) is always the highest populated category, and half of all words in the corpus overall are found at this level. Words at CL0 and CL2 account for 23.9% and 21.4% of the corpus, respectively, whereas the percentage of words at CL3 and CL4, the most specific, is much lower and accounts for just under 5% of the corpus. CL4 lexis is especially rare with only sixteen words, or 0.3% of the corpus, found at this, the most technical level of the hierarchy. BUILDING (35.8%), FARMING (34.4%) and MANUFACTURE (31.9%) clearly stand out as the domains with the highest relative proportions of vocabulary at the technical levels (CL2-4).
- 12 It is also very useful to analyse the distribution of senses up and down the hierarchy to see how fine-grained the distinctions are across the corpus and within each domain (see Table 3, below). Once again, CL1 is the most popular category overall and half of all senses are categorised at this level, but we have more senses at CL2 than we do at CL0. This means that whilst only a quarter (26.1%) of words overall are technical in our dataset (i.e. found at CL2-4), technical senses make up over a third (36.2%) of the hierarchy.

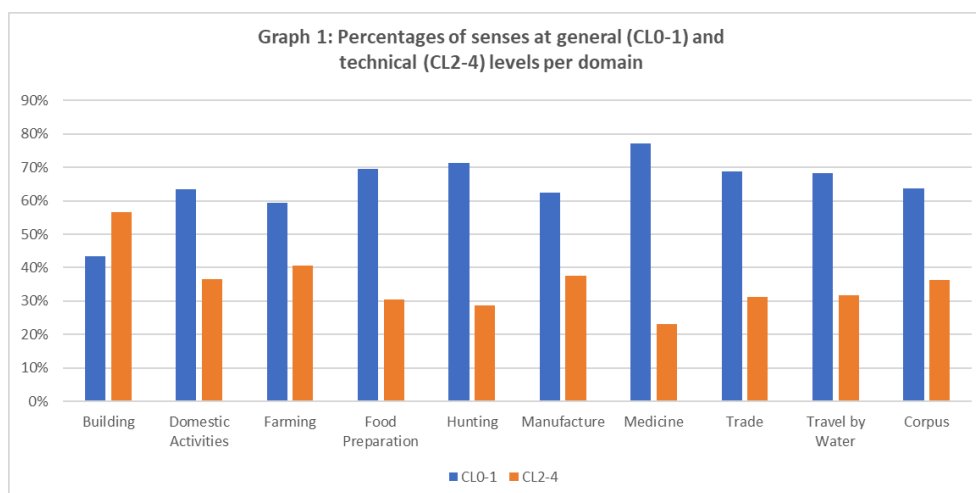
Table 3. Number and percentage of senses at each CL per domain

Domain	CL0	CL1	CL2	CL3	CL4	Total
BUILDING	26	108	139	31	5	309
	8.4%	35.0%	45.0%	10.0%	1.6%	100%
DOMESTIC ACTIVITIES	40	69	46	17	0	172
	23.3%	40.1%	26.7%	9.9%	0.0%	100%
FARMING	69	166	122	36	2	395
	17.5%	42.0%	30.9%	9.1%	0.5%	100%
FOOD PREPARATION	12	88	38	6	0	144

	8.3%	61.1%	26.4%	4.2%	0.0%	100%
HUNTING	22	151	63	7	0	243
	9.1%	62.1%	25.9%	2.9%	0.0%	100%
MANUFACTURE	34	173	101	21	2	331
	10.3%	52.3%	30.5%	6.3%	0.6%	100%
MEDICINE	47	184	56	11	2	300
	15.7%	61.3%	18.7%	3.7%	0.7%	100%
TRADE	33	128	55	17	1	234
	14.1%	54.7%	23.5%	7.3%	0.4%	100%
TRAVEL BY WATER	35	87	47	10	0	179
	19.6%	48.6%	26.3%	5.6%	0.0%	100%
Corpus	318	1154	667	156	12	2307
	13.8%	50.0%	28.9%	6.8%	0.5%	100%

- 13 However, the same three domains with the highest proportions of hyponymic words also have the most hyponymic senses: BUILDING (56.6%), FARMING (40.5%) and MANUFACTURE (37.4%). Graph 1 (below) shows the split between CL0-1 and CL2-4 senses across all nine domains and clearly highlights the fact that BUILDING is the only domain where technical senses outnumber general ones. Conversely, there are fewer technical senses compared to the corpus average (36.2%) in the following domains: MEDICINE (23.1%),⁶ HUNTING (28.8%), FOOD PREPARATION (30.6%), TRADE (31.2%) and TRAVEL BY WATER (31.9%).

Graph 1. Percentages of senses at general (C0-1) and technical (C2-4) levels per domain



- 14 The hierarchy extract below shows numerous examples of technical vocabulary and senses from BUILDING (seemingly our most fine-grained domain), listed under the superordinate sense, **Stone/rock**. For example, we find *ornel* ('inferior building stone') at CL2, *robel* ('small stones used in making mortar') at CL3 and *sconchoun creste* ('splayed building stone for the top of a gate') at CL4.

Hierarchy example 2. Extract from BUILDING with examples of technical lexis at CL2, CL3 and CL4

Stone/rock
ston a1150-1450+ <i>Old English</i>
.Stone as material for paving
..A paving stone
paving(e)-ston 1400-1450+ <i>Old English-Old English</i>
...Cobble
ston c1300-1450+ <i>Old English</i>
cobel-ston a1425-1450+ <i>uncertain-Old English</i>
cogel c1450-1450+ <i>uncertain</i>
cogel-ston 1450+ <i>uncertain-Old English</i>
.Building stone
ston a1150-1450+ <i>Old English</i>
stene kin c1275 <i>Old English Old English</i>
werk ston 1364 <i>Old English Old English</i>
fir-ston 1399-1415 <i>Old English Old English</i>
docenelette 1428 ? <i>Old French</i>
min(e) ?1440 <i>Latin;Old French</i>
crop ston 1441 <i>Old English Old English</i>
moder ston 1442 <i>Old English Old English</i>
ende ston 1444-1446 <i>Old English Old English</i>
heth-ston 1445-1448 <i>Old English;Old Scandinavian-Old English</i>
pier c1450 <i>Old French</i>
..Stone for constructing a wall

wal ston 1424-1450+ <i>Old English Old English</i>
..Stone for building a gutter
goter ston 1427-1450+ <i>Latin;Old French Old English</i>
..Small building stone
...Small stones used in making mortar
robel ?1440 ? <i>Anglo-French</i>
..Inferior building stone
ornel 1338-1450+ <i>Old French</i>
ornel ston 1349-1432 <i>Old French Old English</i>
..Foundation stone
ground table ston 1434 <i>Old English Old English;Latin;Old French Old English</i>
..Support stone
somer 1288-1428 <i>Old French;Anglo-French</i>
..Stone used to lay a horizontal course along the base of a building (nouns)
bench-tableston 1434 <i>Old English-Old English;Latin;Old French</i>
..Flat building stone
platener ston 1399 <i>Old French Old English</i>
...Flat stone for the top or ridge of a wall
cres-table 1427 <i>Latin;Old French-Old English;Latin;Old French</i>
..Hewn or shaped stone
ston c1300-1450+ <i>Old English</i>
assheler 1339-1450+ <i>Old French</i>
assheler ston 1423-1450+ <i>Old French Old English</i>
...Hewn stone for corners or buttresses
assheler coin 1369 <i>Old French Old French</i>
...Wedge-shaped stone for building a vault or arch
vousour 1288-1450+ <i>Old French;Anglo-French</i>

...Splayed building stone
sconchoun 1293-1450+ <i>Old French</i>
sconchoun asshele 1430 <i>Old French Old French</i>
....Splayed stone forming a quoin
sconchoun angler 1422-1443 <i>Old French Old French</i>
....Splayed building stone for the top of a gate
sconchoun creste 1372-1429 <i>Old French Latin;Old French</i>
..Hewn stone or rough stone to be cut or hewn
heu(e)-ston 1432-1448 <i>Old English Old English</i>
..Stone of the nature of slate
...For roofing
sclat 1307-c1425 <i>Old French</i>
sclat ston 1361-1450+ <i>Old French Old English</i>
....Individual piece of slate for roofing
rof til 1361-1450+ <i>Old English Old English</i>
sclat ston 1361-1450+ <i>Old French Old English</i>
sclat a1382-1450+ <i>Old French</i>

- 15 This extract from BUILDING also illustrates the way in which the vocabulary was classified. Componential analysis, considered a cognitively salient tool in the lexicographer's toolkit (Kay [2000: 56]), is used so that each time a new component is added to a definition, we move down a level in the hierarchy. The length of some of the defining headings in the extract shows how precise and technical the senses of the terms collected below them are. We move, for example, from .Building stone to ..Small building stone down to the very particular ...Flat stone for the top or ridge of a wall and ...Wedge-shaped stone for building a vault or arch, in which both the shape of the stone and its purpose are specified.

2.2. Focus on French loanwords at general vs technical levels

- 16 When we analyse the etymology of all words in the corpus (see Table 4, below), the 'French' category is the second largest after 'Old English' and accounts for 23.6%. A further 10.2% of lexis is classed as 'Latin and/or French', giving us a total of 33.8% for 'French +' (this equates to 'French' and 'Latin and/or French' combined). Our French loanword results are noticeably higher than those found in previous analyses of BTh

data⁷ and there are two main reasons for the increase. The first is the inclusion of three new semantic domains into this project dataset: DOMESTIC ACTIVITIES,⁸ HUNTING and MEDICINE. Whilst the first of these domains exhibits near average levels of borrowing from French (compared to our project corpus), HUNTING and MEDICINE have significantly higher than average percentages of either 'French only' or 'French+' lexis, as we shall see in more detail below. Secondly, in order to examine semantic shift, this project has added the contiguous higher levels in the hierarchy to the data from the BTh for which only strictly domain-specific lexis was collected (cf. Sylvester, Marcus & Ingham [2017]; Sylvester & Marcus [2017]). As we discuss in our analysis below, this increased number of general senses may also have contributed to an increase in the percentage of French borrowings in the dataset.⁹

Table 4. Number and percentage of language origin sub-group per domain (condensed version)¹⁰

Domain:	B	DA	F	FP	H	Man.	Med.	T	TbW	Corpus
OE	289	211	536	117	161	268	210	193	202	2187
	42.9%	53.4%	57.7%	34.2%	33.5%	42.3%	25.4%	36.1%	43.8%	41.5%
OF / AF	118	83	155	129	218	129	154	165	94	1245
	17.5%	21.0%	16.7%	37.7%	45.3%	20.3%	18.6%	30.8%	20.4%	23.6%
L + OF / AF	72	32	52	28	34	42	204	42	31	537
	10.7%	8.1%	5.6%	8.2%	7.1%	6.6%	24.7%	7.9%	6.7%	10.2%
L	15	12	23	18	2	27	203	26	14	340
	2.2%	3.0%	2.5%	5.3%	0.4%	4.3%	24.6%	4.9%	3.0%	6.4%
OE + OS	27	3	67	7	22	45	11	18	17	217
	4.0%	0.8%	7.2%	2.0%	4.6%	7.1%	1.3%	3.4%	3.7%	4.1%
OE + OF / AF	24	14	22	14	11	31	10	28	14	168
	3.6%	3.5%	2.4%	4.1%	2.3%	4.9%	1.2%	5.2%	3.0%	3.2%
OS	27	6	34	7	12	19	9	2	17	133
	4.0%	1.5%	3.7%	2.0%	2.5%	3.0%	1.1%	0.4%	3.7%	2.5%
OE + L + OF / AF	33	5	13	6	5	24	10	10	11	117
	4.9%	1.3%	1.4%	1.8%	1.0%	3.8%	1.2%	1.9%	2.4%	2.2%
Germanic	13	13	6	1	2	19	4	16	33	107
	1.9%	3.3%	0.6%	0.3%	0.4%	3.0%	0.5%	3.0%	7.2%	2.0%

All other	55	16	21	15	14	30	11	35	28	225
	8.2%	4.1%	2.3%	4.4%	2.9%	4.7%	1.3%	6.5%	6.1%	4.3%
Total	673	395	929	342	481	634	826	535	461	5276
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

- 17 The main stage of our investigation focused on the distribution of French loanwords across the hypernymic and hyponymic levels of the hierarchy to see if any specific trends emerged. A wide variety of examples of French-origin borrowings from all domains, and from the most general level of technicality (CL0) to the most specific (CL4), are set out in Table 5, below. Each box of the table shows the contiguous levels of meaning that make up a loanword's position in the hierarchy, with the sense highlighted in bold corresponding to its CL. As we can see from the final column where 'n/a' is indicated, there are no French-origin words found at CL4 in five of our domains: DOMESTIC ACTIVITIES, FARMING, HUNTING, FOOD PREPARATION and TRAVEL BY WATER.

Table 5. Examples of French-origin loanwords at each CL from each domain

CL0	CL1	CL2	CL3	CL4
BUILDING				
A building <i>edifice</i> c1390-1450+	Builder .Plasterer <i>plasterer</i> 1286-1450+	Wood in specific form .Wooden beam or timber ..Horizontal beam <i>traversein</i> 1277-1348	Stone/rock .Building stone ..Stone of the nature of slate ...For roofing <i>sclat</i> 1307-c1425	Stone/rock .Building stone ..Hewn or shaped stone ...Splayed building stoneSplayed stone forming a quoin <i>sonchoun angler</i> 1422-1433
DOMESTIC ACTIVITIES				
Clothing <i>coverture</i> a1325-1450+	Garden .Kitchen/herb garden <i>herber</i> c1400-c1450	Brewing .Vat/vessel used in brewing/fermenting ..Device for boiling wort <i>furnais(e)</i> 1369-1450+	Manufacture of thread .Winding ..Winding on spool/bobbin ...Spool / bobbin <i>roket</i> 1440	n/a

FARMING				
Farmer <i>gaineier</i> c1450	General Equipment .Harness of draught animal <i>harneis</i> 1333-1450+	Herding/pasturing/ confining .Herding ..Herdsman <i>wardein</i> c1300-1450+	Ploughing equipment .Plough ..Plough beam ...Fastening device on front of plough beam <i>clivie</i> a1325-1450+	n/a
FOOD PREPARATION				
Providing/receiving food <i>sustenaunce</i> c1300-1450+	General preparation processes .To sift <i>bulten</i> ?c1175-1450+	Equipment for food preparation .Baker's equipment ..Rolling pin <i>roller(e)</i> a1399-1450+	n/a	n/a
HUNTING				
Hunting <i>chace</i> ?c1250-1450+	Hunter .Hunter using ferret/weasel <i>fereter</i> c1275-1450+	Trap/snare .Net for hunting ..Net for hunting rabbits/hares <i>hai(e)</i> 1389-1450+	Hunting with hounds .Pack of hounds ..First group of hounds ...Member of first group of hounds <i>vaun-chasour</i> c1410	n/a
MANUFACTURE				
Metal <i>metal</i> c1230-1450+	Metalworker .Worker in ironware <i>lorimer</i> c1230-1450+	Alloy .Brass ..Types of brass <i>latoun</i> c1325-1450+	Glass and glass-like material .Glass ..Pane ...Diamond shaped pane <i>quarrel</i> 1450+	Containers for drink .Large container for drink ..Barrel/cask for liquor ...Barrel/cask for wineBarrel/cask for rumney wine <i>romenei(e)</i> 1450+

MEDICINE				
To heal/cure <i>amenden</i> c1300-1450+	Process of healing of an injury etc. .To heal a wound <i>souden</i> a1400-c1425	Medicines .A medicine/medicament ..Prescribed medicine <i>receit(e)</i> a1398-1450+	Surgeon .Surgeon performing specific operations ..Blood-letter ...Blood-letter who uses a cupping glass <i>ventoser</i> c1350	Treatments uniting/replacing parts .Uniting fractures/wounds etc. ..Uniting a wound ...Uniting a wound by stitchingA stitch <i>pointe</i> a1400-1450+
TRADE				
Merchant <i>marchaunt</i> c1225-1450+	Seller .Itinerant/pedlar <i>pe-poudre</i> 1376-1450+	Coins collectively .A coin ..A debased coin <i>bas(e)lard</i> a1253-c1400	Sellers of specific things .Seller of provisions ..Seller of fruit ...Female seller of fruit <i>fruitestere</i> c1390	n/a
TRAVEL BY WATER				
Sailor <i>mariner</i> c1300-1450+	Vessel/ship/boat .Small vessel <i>spinace</i> 1342-1450+	Transportation by water .Loading /unloading cargo ..To load cargo <i>chargen</i> c1300-1450+	Part of vessel above water .Deck superstructure ..Deck-house ...Types of deck-house <i>somer-huche</i> 1346-1434	n/a

- 18 When average results for the corpus as a whole are analysed (see Table 6, below), French vocabulary is found clearly in higher proportions at the higher, more general levels: 25% ('French') / 36% ('French+') at CL0-1 compared to 20% ('French') / 28% ('French+') at CL2-3. This pattern mirrors that found in Sylvester [2018], which analysed a small subset of tool names in BUILDING and found a lower concentration of French loanwords at the hyponymic levels than at the hypernymic levels. However, when results are examined individually per domain, we find that there are considerable differences in the distribution of borrowings. Note that CL4 words were excluded from

this section of the analysis as they count for only sixteen out of 5276 words (or 0.3% of the corpus) overall and they only feature in any language in five out of the nine domains.¹¹

Table 6. number and percentage of 'French' and 'French+' loanwords at hypernymic (CL0-1) and hyponymic (CL2-3) levels per domain

		All words	French	French+	French	French+
BUILDING	CL0-1	432	76	125	18%	29%
	CL2-3	234	40	62	17%	26%
DOMESTIC ACTIVITIES	CL0-1	291	72	98	25%	34%
	CL2-3	104	11	17	11%	16%
FARMING	CL0-1	609	106	142	17%	23%
	CL2-3	317	49	65	15%	21%
FOOD PREPARATION	CL0-1	274	112	134	41%	49%
	CL2-3	68	17	23	25%	34%
HUNTING	CL0-1	385	167	196	43%	51%
	CL2-3	96	51	56	53%	58%
MANUFACTURE	CL0-1	432	89	119	21%	28%
	CL2-3	200	39	50	20%	25%
MEDICINE	CL0-1	709	135	307	19%	43%
	CL2-3	114	18	49	16%	43%
TRADE	CL0-1	401	129	162	32%	40%
	CL2-3	133	36	45	27%	34%
TRAVEL BY WATER	CL0-1	365	81	107	22%	29%
	CL2-3	96	13	18	14%	19%
Corpus	CL0-1	3897	967	1390	25%	36%
	CL2-3	1363	274	385	20%	28%

- ¹⁹ Firstly, HUNTING (our sole 'elite' domain) stands out. Not only does it have the highest overall saturation of French loanwords of any domain (cf. Table 4, above), but it also exhibits the reverse pattern from the corpus average, with proportions of 'French'

being 10% higher at the CL2-3 (43%) than at CL0-1 (53%). The same is true of 'French+' which is 7% higher at the technical level. In contrast, the following domains clearly have more French hypernyms than hyponyms: FOOD PREPARATION (16% more), DOMESTIC ACTIVITIES (14% more), TRAVEL BY WATER (8% more) and TRADE (5% more). The same trend is observed when we focus on 'French+' results for all these domains.

- 20 Results for MEDICINE are inconclusive. There is a small preference for 'French' borrowing at the general (19%) over the technical level (16%) but the proportions of 'French+' at CL0-1 and CL2-3 are identical at 43%. The marked differences (the greatest in any domain) in the amount of lexis classed as 'French' as opposed to 'French+' is due to the particularly high level of 'Latin and/or French' vocabulary in MEDICINE.¹²
- 21 In BUILDING, FARMING and MANUFACTURE, the differences between proportions of general and technical loanwords (in both the 'French' / 'French+' categories) range from only 1-3%. The figure for CL0-1 is always slightly higher in each case but it is also true to say that French lexis is evenly spread out in these domains with almost the same proportions of hypernyms as hyponyms. Note that these three domains all have lower than average levels of French overall (cf. Table 4, above), as well as a higher than average proportions of technical senses overall (cf. Table 3, above).

2.3. Focus on French loanwords at individual category levels

- 22 Next, we broke down the French loanword data further into individual category levels of the semantic hierarchy. Giving the overall finding that borrowings seem to dominate at the general levels of meaning, we were particularly interested to see if there was a higher concentration at CL0 or CL1. Similarly, would borrowing decrease as we moved down the technical levels, from CL2 to CL3? For reasons discussed above, CL4 results have been excluded from the analysis.

Table 7. Number and percentage of 'French' and 'French+' loanwords at individual CLs per domain

		All words	French	French+	French	French+
BUILDING	CL0	141	28	46	20%	33%
	CL1	291	48	79	16%	27%
	CL2	193	33	53	17%	28%
	CL3	41	7	9	17%	22%
	CL0-3	666	116	187	17%	28%
DOMESTIC ACTIVITIES	CL0	132	42	52	32%	39%
	CL1	158	30	46	19%	29%
	CL2	80	7	10	9%	13%
	CL3	25	4	7	16%	28%

	CL0-3	395	83	115	21%	29%
FARMING	CL0	222	45	58	20%	26%
	CL1	387	61	84	16%	22%
	CL2	266	45	59	17%	22%
	CL3	51	4	6	8%	12%
	CL0-3	926	155	207	17%	22%
FOOD PREPARATION	CL0	56	30	34	54%	61%
	CL1	218	82	100	38%	46%
	CL2	62	17	23	27%	37%
	CL3	6	0	0	0%	0%
	CL0-3	342	129	157	38%	46%
HUNTING	CL0	98	34	38	35%	39%
	CL1	287	133	158	46%	55%
	CL2	89	47	52	53%	58%
	CL3	7	4	4	57%	57%
	CL0-3	481	218	252	45%	52%
MANUFACTURE	CL0	110	25	32	23%	29%
	CL1	322	64	87	20%	27%
	CL2	162	35	44	22%	27%
	CL3	38	4	6	11%	16%
	CL0-3	632	128	169	20%	27%
MEDICINE	CL0	222	43	95	19%	43%
	CL1	487	92	212	19%	44%
	CL2	94	12	38	13%	40%
	CL3	20	6	11	30%	55%
	CL0-3	823	153	356	19%	43%
TRADE	CL0	145	54	62	37%	43%

	CL1	256	75	100	29%	39%
	CL2	102	30	37	29%	36%
	CL3	31	6	8	19%	26%
	CL0-3	534	165	207	31%	39%
TRAVEL BY WATER	CL0	134	26	33	19%	25%
	CL1	231	55	74	24%	32%
	CL2	78	11	15	14%	19%
	CL3	18	2	3	11%	17%
	CL0-3	461	94	125	20%	27%
Corpus	CL0	1260	327	450	26%	36%
	CL1	2637	640	940	24%	36%
	CL2	1126	237	331	21%	29%
	CL3	237	37	54	16%	23%
	CL0-3	5260	1241	1775	24%	34%

- 23 As we can see in Table 7 (above), the overall pattern for the corpus as a whole is clear and we do indeed see a consistent decrease in 'French' borrowing as we move down the semantic hierarchy – 26% at CL0, 24% at CL1, 21% at CL2 and 16% at CL3. Once again, HUNTING bucks this trend and we see the opposite – a consistent increase in the levels of 'French' loans as we move down through the category levels.
- 24 When we look at the individual eight remaining domains, however, matters are less clear cut. Only FOOD PREPARATION conforms to a clear pattern with a consistent decrease in 'French' at each level from CL0-CL3. However, most domains do have a higher proportion of 'French' lexis at CL0 than at CL1. The difference is most striking in FOOD PREPARATION (16% more), DOMESTIC ACTIVITIES (13% more) and TRADE (8% more). BUILDING (4% more), FARMING (4% more) and MANUFACTURE (3% more) all have smaller but still noticeably higher proportions at CL0 than CL1. The difference in French-origin lexis at CL0 and CL1 in MEDICINE is negligible at under 1%. TRAVEL BY WATER is the only domain, apart from HUNTING, which has relatively more 'French' borrowing at CL1 (24%) than at CL0 (19%) for reasons which are not entirely clear.
- 25 It is also important to note that while decreases may not be consistent down through the category levels, nearly all the domains have more 'French' loanwords at CL0 than at CL3. The only exceptions are HUNTING (as expected) and MEDICINE which has an especially high percentage of 30% for French-origin lexis at CL3.¹³ In addition, the same three domains which have higher than average levels of 'French' overall compared to the

corpus average (cf. Table 4, above) also maintain higher than average levels of 'French' across all four levels from CL0-CL3: HUNTING, FOOD PREPARATION and TRADE.

- 26 When analysis was carried on a CL by CL basis for the 'French+' language category, results were virtually identical (see final column in Table 7, above). Proportions of 'French+' lexis were higher at CL0 than CL1 in all domains except HUNTING and TRAVEL BY WATER. Overall, the corpus showed a decrease in 'French+' borrowing as we move down through the levels, but HUNTING results move in the opposite direction. Patterns in the remaining eight individual domains vary but all have a higher level of 'French+' at CL0 than at CL3 except MEDICINE (which, again, has very high proportion of 'Latin and / or French' words at CL3).

2.4. Proportion of French loanwords and number of words per sense

- 27 The final stage of our analysis focuses on hyponymic density (i.e. the number of co-hyponyms listed under any one sense in the hierarchy) and whether this seems to be linked to borrowing from French.
- 28 As Table 8 (below) shows, the project dataset comprises 2307 senses of which 52.8% are single-item (i.e. have one word only). A further 36.8% have 2 to 4 co-hyponyms, 10.2% of senses have 5 or more co-hyponyms and only 1.9% have ten or more.

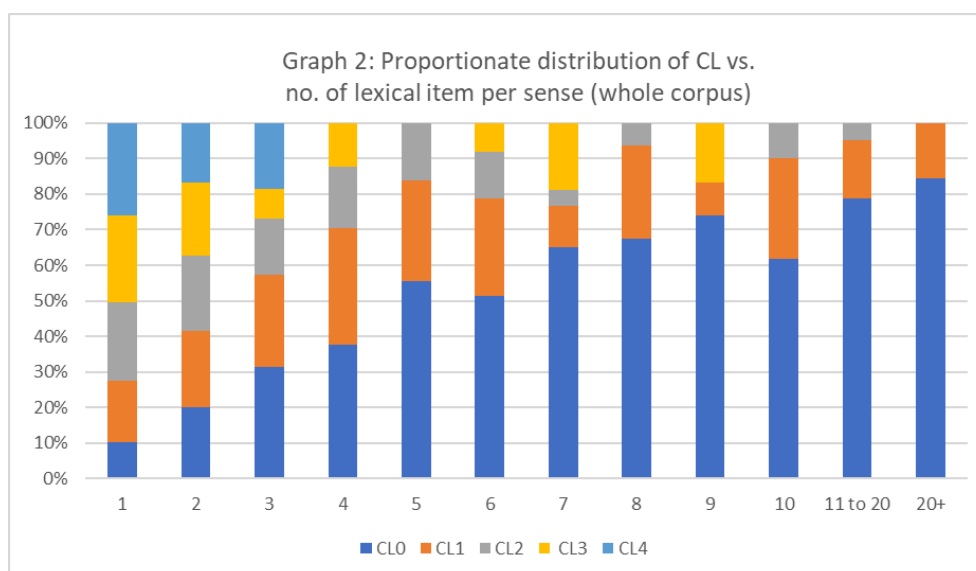
Table 8. Number and percentage of lexical items per sense in corpus

No. of items per sense	CL0	CL1	CL2	CL3	CL4	Total
1	93	581	425	110	9	1218
	4.1%	25.2%	18.4%	4.8%	0.4%	52.8%
2	64	247	143	32	2	488
	2.8%	10.7%	6.2%	1.4%	0.1%	21.0%
3	45	135	47	6	1	234
	2.0%	5.9%	2.0%	0.3%	0.0%	10.1%
4	25	79	24	4	0	132
	1.1%	3.4%	1.0%	0.2%	0.0%	5.7%
5	24	41	14	0	0	79
	1.0%	1.8%	0.6%	0.0%	0.0%	3.4%
6	13	25	7	1	0	46
	0.6%	1.1%	0.3%	0.0%	0.0%	2.0%
7	14	9	2	2	0	27

	0.6%	0.4%	0.1%	0.1%	0.0%	1.2%
8	10	14	2	0	0	26
	0.4%	0.6%	0.1%	0.0%	0.0%	1.1%
9	9	4	0	1	0	14
	0.4%	0.2%	0.0%	0.0%	0.0%	0.6%
10	3	5	1	0	0	9
	0.1%	0.2%	0.0%	0.0%	0.0%	0.4%
11 to 20	15	12	2	0	0	29
	0.7%	0.5%	0.1%	0.0%	0.0%	1.3%
20+	3	2	0	0	0	5
	0.1%	0.1%	0.0%	0.0%	0.0%	0.2%
Total	318	1154	667	156	12	2307
	13.8%	50.0%	28.9%	6.8%	0.5%	100%

- 29 Another way of looking at these data is to examine the number of lexical items when senses are grouped under CL across the corpus. Results are shown in Graph 2 (below) which demonstrates that 1-item / 2-item / 3-item senses are found throughout the hierarchy, in all five CLs from CL0-CL4. We can see that the first three columns of the graph are made up of five different colours, representing all the levels of technicality. As the level of co-hyponymic density increases however, we find that senses becoming increasingly restricted to the hypernymic, general levels at CL0 and CL1 (shown in dark blue and orange).

Graph 2. Proportionate distribution of CL vs. no. of lexical item per sense (whole corpus)



- 30 We wanted to find out if there were variations in individual domains when compared to the pattern of the corpus of a whole and if this seemed to be linked to the presence and/or position of French loanwords in the hierarchy. From our discussions above, we know that French lexis dominates at the hypernymic levels and that these levels have, on average, more words per sense. So, will HUNTING, for example, show a markedly different pattern? We have seen that this domain has a higher proportion of French loanwords at technical senses – will these senses show comparatively higher levels of lexical richness (i.e. have a higher proportion of senses with multiple co- hyponyms)? Or can we find a link between the extent of penetration of French into an individual domain and its relative lexical richness – will BUILDING and FARMING, which exhibit the two lowest percentages of French borrowings overall in our corpus, exhibit greater or smaller co-hyponymic density than other domains?
- 31 To this end, we analysed proportions of co-hyponymic density (defined as 1 / 2+ / 5+ and 10+ lexical item subsets) for each domain as a whole, and for each domain divided by category level. However, results were inconclusive.

Table 9. Proportions of single (1) and multiple (2+ /5+ /10+) item senses at each CL per domain

CL	No. of items per sense	B	DA	F	FP	H	Man.	Med.	T	TbW	Corpus
CLO No.	1	5	13	25	1	10	11	15	4	9	93
	2+	21	27	44	11	12	23	32	29	26	225
	5+	10	7	14	6	8	8	13	13	12	91
	10+	3	1	2	0	3	1	7	3	1	21
	Total	26	40	69	12	22	34	47	33	35	318

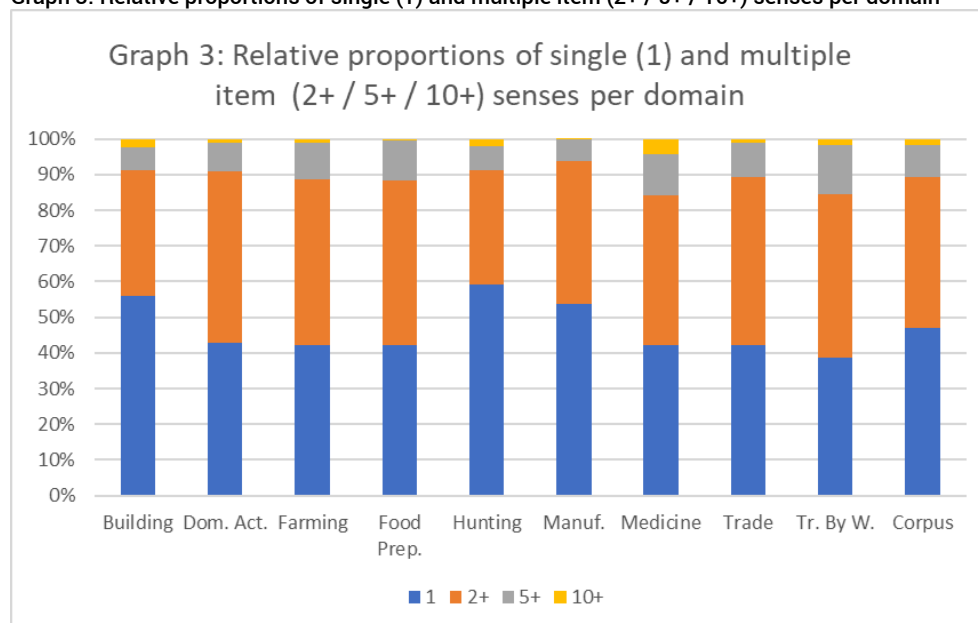
CL0 %	1	19%	33%	36%	8%	46%	32%	32%	12%	26%	29%
	2+	81%	68%	64%	92%	55%	68%	68%	88%	74%	71%
	5+	38%	18%	20%	50%	36%	24%	28%	39%	34%	29%
	10+	12%	3%	3%	0%	14%	3%	15%	9%	3%	7%
CL1 No.	1	53	28	78	38	97	98	85	66	38	581
	2+	55	41	88	50	54	75	99	62	49	573
	5+	9	4	20	9	10	10	26	9	15	112
	10+	5	1	2	1	2	0	6	0	2	19
	Total	108	69	166	88	151	173	184	128	87	1154
CL1 %	1	49%	41%	47%	43%	64%	57%	46%	52%	44%	50%
	2+	51%	59%	53%	57%	36%	43%	54%	48%	56%	50%
	5+	8%	6%	12%	10%	7%	6%	14%	7%	17%	10%
	10+	5%	1%	1%	1%	1%	0%	3%	0%	2%	2%
CL2 No.	1	105	28	60	24	43	61	41	32	31	425
	2+	34	18	62	14	20	40	15	23	16	242
	5+	3	3	12	3	0	1	2	2	2	28
	10+	0	0	1	0	0	0	2	0	0	3
	Total	139	46	122	38	63	101	56	55	47	667
CL2 %	1	76%	61%	49%	63%	68%	60%	73%	58%	66%	64%
	2+	24%	39%	51%	37%	32%	40%	27%	42%	34%	36%
	5+	2%	7%	10%	8%	0%	1%	4%	4%	4%	4%
	10+	0%	0%	1%	0%	0%	0%	4%	0%	0%	0.5%
CL3 No.	1	23	12	24	6	7	17	9	8	4	110
	2+	8	5	12	0	0	4	2	9	6	46
	5+	0	0	0	0	0	2	1	1	0	4
	10+	0	0	0	0	0	0	0	0	0	0
	Total	31	17	36	6	7	21	11	17	10	156

CL3 %	1	74%	71%	67%	100%	100%	81%	82%	47%	40%	71%
	2+	26%	29%	33%	0%	0%	19%	18%	53%	60%	29%
	5+	0%	0%	0%	0%	0%	10%	9%	6%	0%	3%
	10+	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CL4 No.	1	4	0	1	0	0	2	1	1	0	9
	2+	1	0	1	0	0	0	1	0	0	3
	5+	0	0	0	0	0	0	0	0	0	0
	10+	0	0	0	0	0	0	0	0	0	0
	Total	5	0	2	0	0	2	2	1	0	12
CL4 %	1	80%	0%	50%	0%	0%	100%	50%	100%	0%	75%
	2+	20%	0%	50%	0%	0%	0%	50%	0%	0%	25%
	5+	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	10+	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
All CLs No.	1	190	81	188	69	157	189	151	111	82	1218
	2+	119	91	207	75	86	142	149	123	97	1089
	5+	22	15	46	18	18	21	42	25	29	236
	10+	8	2	5	1	5	0	15	3	3	42
	Total	309	172	395	144	243	331	300	234	179	2307
All CLs %	1	61%	47%	48%	48%	65%	57%	50%	47%	46%	53%
	2+	39%	53%	52%	52%	35%	43%	50%	53%	54%	47%
	5+	7%	9%	12%	13%	7%	6%	14%	11%	16%	10%
	10+	3%	1%	1%	1%	2%	0%	5%	1%	2%	2%

- 32 When all the CLs in a domain are grouped together, (see bottom row in Table 9, above), HUNTING, a French-heavy domain, stands out as displaying a lower than average co-hyponymic density overall (i.e. it has a higher proportion of 1-item senses than the corpus average). Its proportion of 5+ item senses is also lower than the corpus average. However, these statistics are almost identical to those for BUILDING which has low levels of French loanwords overall (cf. Table 4, above).
- 33 Indeed, there is no obvious link between amounts of French in a domain and its rates of single or multiple item senses. TRADE, FOOD PREPARATION, DOMESTIC ACTIVITIES and FARMING

have virtually identical proportions of single-item senses but the first two domains have higher than average rates of borrowing from French and the second two have lower than average rates (cf. Table 4, above). This is further demonstrated by Graph 3 (below), which shows that relative proportions of single (in blue) and multiple (in orange, grey and yellow) item senses per domain – we can see that overall there is little deviation from the corpus average (final column) by any of the nine domains. In addition, results for 10+ items (in yellow) at all CLs are very close with senses with 10 or more co-hyponyms being rare at between <1-5% or less in any given domain.

Graph 3. Relative proportions of single (1) and multiple item (2+ / 5+ / 10+) senses per domain



- 34 When we separate the data even further into CLs for each domain (see again Table 9, above), results are still inconsistent. Once again, HUNTING stands out as having a higher than average rate of single item senses (and hence fewer multiple item senses) at the most general levels of meaning, CL0 and CL1. In the corpus overall, 71% of CL0 senses and 50% of CL1 senses have 2+ lexical items compared to 55% of CL0 senses and 36% of CL1 senses in HUNTING. However, the domain does not display a higher than average number of co-hyponyms at the more technical levels of meaning; in fact, it displays lower than average numbers (even though French loanwords are more common at this level of technicality in this domain). In the corpus overall, 36% of CL2 and 29% of CL3 senses have 2+ lexical items but only 32% of CL2 and 0% of CL3 senses in HUNTING have more than one lexical item. We cannot say that the normal pattern for other domains is reversed for HUNTING (as we might expect).
- 35 When we analyse the eight remaining domains, there seems to be no discernible pattern that allows us to link co-hyponymic density at the hypernymic and hyponymic level with the rate of borrowing from French in any domain. e.g. BUILDING (low rates of French) has a low rate of single word senses at the most general level of meaning, CL0, but so do TRADE and FOOD PREPARATION (high rates of French). In addition, FARMING (low rates of French) has higher than average rates of multiple item senses at the technical level, CL2, whereas BUILDING (low rates of French) has the opposite – high levels of single-item senses and lower co-hyponymic density at CL2. Based on these results, we

would suggest, therefore, that any differences in the domains in terms of lexical richness in the corpus is independent of the presence of French loanwords.

3. Discussion of main results

- 36 When our corpus is taken as a whole, proportions of French loanwords are clearly higher at the hypernymic level (CL0-1) rather than at the hyponymic level (CL2-3), replicating the findings of the pilot study on a micro-domain in BUILDING for the *Technical Language and Semantic Shift in Middle English* project (Sylvester [2018]). When corpus results are further broken down into individual CLs, we also see a consistent decrease in French borrowings as we move down the hierarchy from CL0 to CL3. The inclusion of HUNTING and MEDICINE plus contiguous, general senses to the occupational domains appears to have increased the overall levels of French-origin lexis in the dataset compared to that of the BTh.
- 37 However, the extensive analysis carried out so far on the thousands of words in this much larger dataset has also brought to light significant variations in the distribution of French-origin hypernyms and hyponyms in individual semantic domains. HUNTING displays strikingly different results to the occupational domains. Given that it was deliberately selected to add culturally elite lexis to the project, it is unsurprising that it has by far the greatest proportion of French-origin vocabulary. The proliferation of a complex noble jargon associated with hawking and *venery* (especially hunting with hounds) following the Norman Conquest has been examined at length by historical linguists and literary scholars (e.g. Rooney [1993]; Marvin [2006]; Hunt [2009]). It is also unremarkable that French dominates in this domain at the technical level with proportions of French borrowing increasing consistently as we move down the hierarchy from CL0 to CL3.
- 38 Nevertheless, in this dataset, it seems that there is no simple link between the penetration of French lexis in a domain overall and the division of that lexis between technical and general senses. All of the occupational domains, regardless of their rate of borrowing from French, exhibit the opposite pattern to HUNTING with hypernyms outweighing hyponyms. FOOD PREPARATION and TRADE also have significantly higher than average amounts of French loanwords, but these tend to cluster at the general level. It seems likely that there were bilingual speakers at the top social strata of these professional speech communities (in the guilds or in the manorial kitchens, for example) and a class of skilled workers beneath them, with a high level of knowledge and expertise in their field. It could be (as is postulated in Sylvester [2018: 260-261]) that there was a collective urge to resist foreign borrowings at a certain level of technicality to protect craftsmanship or ideas.
- 39 It should be noted that the findings for MEDICINE (added as an emerging profession to the database) are inconclusive and they do not fit in to the patterns exhibited by either the aristocratic HUNTING or the occupational domains. Results are no doubt skewed by the very high numbers of 'Latin and/or French' words. The domain contains lower than average levels of 'French' loanwords but higher than average of 'French+'. These 'French+' loanwords are spread evenly across general and technical levels but 'French' loanwords are slightly more dominant at the general level. The domain also has, surprisingly, a lower than average number of hyponymic words and senses overall.

- 40 Overall, however, there may be a correlation in our data between the margin of difference between the relative proportions of French hypernyms and hyponyms and either the levels of French overall or the number of technical senses (or perhaps both). The most French-heavy domains in the corpus seem to have a greater imbalance in the spread of loanwords across the hierarchy (as we have seen) whereas those with the lowest proportions of French (i.e. BUILDING, FARMING and MANUFACTURE)¹⁴ have a much more even spread. These three domains also have the highest proportions of technical senses (and words) in the corpus. Our findings run counter to the orthodox view that innovation led to French-origin loans being used to fill lexical gaps for terms for new technology in a semantic field.
- 41 One key variable in our data is the sources from which the vocabulary is drawn and, by implication, the audiences towards which the different texts were aimed. The difference in permeability to borrowing seems to reflect the social class difference. The hunting vocabulary, for example, comes almost exclusively from manuals written for the English aristocracy. Much of the lexis of the occupational domains collected for the BTh are early examples of code-switching found in administrative texts. We suggest that in this text-type, the code-switching is downwards, from Latin (the chief language of record) into the vernacular, recording terms in use in what had been an L variety, restricted almost exclusively to the spoken medium. The hunting manuals, by contrast, introduce French-origin terms in their translations into English from French originals as seen in the *Livre de chasse*, written between 1387 and 1391 by Gaston de Foix and translated (and adapted) into English by Edward of Norwich, 2nd Duke of York, between 1406 and 1413 (Baillie-Grohman & Baillie-Grohman [2005: xi-xii]), presumably for an English aristocratic audience that was by then less literate in French.¹⁵ This is code-switching (or borrowing foreign-language lexical items) upwards. The title of the English version, *The Master of Game*, itself contains a suggestion of aspiration. It is tempting to see a suggestion of distance between the aristocratic class and the accoutrements of its pastimes, and a sense of intimacy between the users of the tools and materials of the occupational domains such as building and manufacture. In that case, our data would support Matras's observation about a proximity constraint on borrowing [2009: 169-172]. Matras's suggestion that this constraint appears to override other motivations, such as prestige, would seem to apply more to the social classes that were further from the French ruling élite, and this distance is reflected in their attitudes in relation to the language expressing the tools of their trades. This interpretation would refine the early suggestions that much of the French borrowing was technical terminology, since the proportions of French borrowing at the technical levels in our data do not differ markedly from the numbers of French loanwords we find at the more general levels of the semantic hierarchy. It is noticeable, too, that Weinreich's suggestion that the terms such as those denoting parts of tools are unstable and therefore subject to obsolescence and replacement [1953: 53] does not seem to be borne out by the lexis in the occupational domains where we find more survival of native terms than might be expected from many accounts of lexical borrowing in the later medieval period.
- 42 Our final main finding is that there seems to be no link between levels of French borrowing in any given domain and the number of words per sense, either across that domain as a whole or at individual CLs. This again suggests that it is not the case that borrowing fills perceived gaps in the lexicon. It also appears to confirm that

lexicalisation is a function of speakers' needs: where a term is richly lexicalised it is further enriched by borrowing and where there is a small amount of vocabulary, speakers do not seek to amplify it by drawing on available foreign-language material.

4. Conclusion and future prospects

- 43 The *Technical Language and Semantic Shift in Middle English* project aims to look at the contact effects on the technical terminology of ME using hypernymic frameworks – these semantic hierarchies were established by the *Historical Thesaurus* but have not yet been used to analyse the impact of loanwords at various levels of specificity. This has allowed us to examine the language ecology of later medieval English society from an entirely new angle.
- 44 We have found that, overall, French-origin terms dominate at the more general levels of meaning, with the clear exception of HUNTING. The cultural prestige attached to French in the late medieval period does not seem to have been a strong motivating factor in promoting its use as part of the most technical terminology in the occupational domains. This is possibly as a result of the different text types from which the vocabulary items were drawn, reflecting different target audiences for that lexis. French loanwords also tended to occupy semantic spaces where there was more, not less, lexical choice (i.e. a greater number of co-hyponyms per sense). Both these findings suggest we may need to develop a new conceptualisation of how French borrowings inhabit semantic spaces in Middle English.
- 45 Future investigations will expand on these findings by mapping the outcomes of borrowings and any corresponding native terms from the Middle English period to PDE, including narrowing and broadening,¹⁶ figurative and metonymic use, rates of polysemy and obsolescence. Consequently, we hope to be able to develop of model of lexical and semantic development in Middle English that is not based on competition as a leading idea and show that the achievement of standardisation in vocabulary depended on increased technical specification linked to borrowing history.

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Corpus

BTh = *Bilingual Thesaurus of Everyday Life in Medieval England*: <https://thesaurus.ac.uk/bth/>.

HT = *Historical Thesaurus of English*: <https://ht.ac.uk/>.

MED = *Middle English Dictionary*: <https://quod.lib.umich.edu/m/middle-english-dictionary/dictionary>.

OED = *Oxford English Dictionary*, 2nd / 3rd ed., www.oed.com.

TOE = *Thesaurus of Old English*: <https://oldenglishthesaurus.arts.gla.ac.uk/>.

NOTES

1. We are grateful to the Leverhulme Trust for funding this project across 2017-2020.
2. I argue elsewhere that multilingualism seems to be key to standardisation of the lexicon, since it enabled the possibility of synonyms that have different sociolinguistic connotations (such as prestige) or functions (such as technicality). Old English is, rather, marked by polysemy: a glance at the *Thesaurus of Old English* (TOE) shows the large number of semantic domains in which individual lexical items appear, showing how hard terms in Old English have to work to express a wide range of meanings (Sylvester forthcoming).
3. We would like to express our grateful thanks to Dr Harry Parkin (Research Fellow for the first half of the project and now at the University of Chester) for all his work on the creation of the hierarchy.
4. To take just two examples from the wider hierarchy: 'duck' (HL4) and 'egg' (HL6) which we would consider to be both Basic Level Terms are found at different HLs; 'a seller of feathers' is found at HL4 whereas a 'seller of bread' is one HL lower down, at HL5.
5. Notes on the language labels used are as follows: OE = Old English; OF = Old French, including 'Continental French' tags in the MED; AF= Anglo-French, including 'Anglo-Norman' tags in the MED; L = Latin; OS = Old Scandinavian, including 'Old Danish', 'Norse', 'Old Norse', 'Old Swedish', 'Norwegian' and 'Old Icelandic' tags in the MED; Germanic = 'Middle Dutch', 'Flemish', 'Middle Low German', 'Middle High German', 'Old High German' and 'Low German' tags in the MED; Celtic = 'Welsh', 'Irish' and 'Scottish Gaelic' tags in the MED; Other Romance = 'Old Italian', 'Italian', 'Old Provençal' and 'Spanish' tags in the MED; Other = the small minority of words (sixty) which have MED tags which combine 3+ major language groups, e.g. 'Middle Dutch;Middle Low German;Latin;Anglo-French'; Uncertain = Etymology given as unknown in the MED of which there are sixty-nine examples in the hierarchy. Note that a further 152 etymologies are flagged up as 'unsure' by the MED and the source language is preceded by a question mark. These have been included here within the relevant language group e.g. '? Middle Dutch' is categorised under Germanic.
6. MEDICINE has both the lowest proportion of hyponymic words (14.2%) and hyponymic senses (23.1%) in our dataset. This raises interesting questions about modern views on what constitutes

‘technical language’; anachronistically, we may have assumed this to be a domain with the largest number of highly specific terms.

7. For example, a previous study on the penetration of French-origin lexis in six Middle English occupational domains from the BTh has shown that 26.1% of words can be classed as ‘French+’ loans: 17.8% ‘French’ plus 8.3% ‘Latin and/or French’ (Ingham, Sylvester & Marcus [2019: 469]). These figures mirror those found by Durkin [2014: 255] in his analysis of borrowings from French in the MED. His results were 16% (‘French’) plus 11% (‘Latin and/or French’), giving a total of 27% (‘French+’).

8. The occupational domain of DOMESTIC ACTIVITIES was added later than the others to the BTh project corpus and was not included in the analysis in Ingham, Sylvester & Marcus [2019].

9. Fifty-one contiguous senses (with 212 words) were added to the occupational domains in the dataset, for example: ‘Animals’ above ‘Domestic Animals’ in FARMING, ‘Providing/receiving food’ above ‘Supplying food/catering’ in FOOD PREPARATION, ‘Brushing/sweeping’ above ‘One who sweeps’ in DOMESTIC ACTIVITIES and ‘Stone/rock’ above ‘Stone as material for paving’ in BUILDING.

10. Eleven sub-groups (including Arabic, Celtic languages, Romance languages other than French, and words of uncertain origin) contain very small numbers of words and account for only 4.3% of the corpus when added together. These have been collated under ‘All other’ in the bottom row of the table to give a simpler, condensed overview. Note also the abbreviations for domain names in the table as follows: B = BUILDING; DA = DOMESTIC ACTIVITIES; F = FARMING; FP = FOOD PREPARATION; H = HUNTING; Man. = MANUFACTURE; Med. = MEDICINE; T = TRADE; TbW = TRAVEL BY WATER.

11. The following are the seven ‘French’ or ‘Latin and/or French’ words found at CL4 in our hierarchy: *sconchoun angler* (‘Splayed stone forming a quoin’), *sclat* (‘Individual piece of slate for roofing’), *sconchoun creste* (‘Splayed building stone for the top of a gate’) in BUILDING; *romenei(e)* (‘Barrel/cask for rumney wine’), *cedre scobe* (‘Sawdust from cedar wood’) in MANUFACTURE; *pointe* (‘A stich to unite a wound’), *cicatrizen* (‘to unite fractures/wounds etc. by forming a cicatrice’) in MEDICINE. The tiny amount of CL4 lexis overall means the presence of a single loanword from the ‘French’ or ‘French+’ category can significantly skew the results; e.g. out of seven CL4s in BUILDING, two are ‘French’, giving a relatively high proportion of 29%. Similarly, when we look at ‘French’ borrowings at CL4 across the corpus, we get a very large percentage: 44%. But this calculation is based on just seven lexemes out of sixteen. For this reason – while it is, of course, important to note the presence of French loanwords at the most technical level of the hierarchy – we have chosen to exclude CL4 from this part of the analysis.

12. Some examples of the 204 words with a ‘Latin and/or French’ language tag in MEDICINE include: *cirurgie* (‘surgery’), *cure* (‘a cure/remedy’), *defensif* (‘preventative treatment’), *experiment* (‘medical treatment’), *farmacie* (‘a medicine/medicament’), *fissure* (‘an incision’), *phisik(e)* (‘art/science of Medicine’), *restoren* (‘to heal/cure’), *pronosticioun* (‘prognosis’), *valerian(e)* (‘valerian’).

13. MEDICINE has only twenty words at CL3, six of which are classed as ‘OF / AF’: *overture* (‘opening made in an abscess’), *regendren* (‘causing a wound to heal over’), *ventoser* (‘blood-letter who uses a cupping glass’), *fermeresse* (‘female officer in charge of a religious infirmary’) and *maldrie / meselri(e)* (‘specific leper-house’).

14. It is important to re-iterate that these ‘French-light’ occupational domains still have higher than average proportions of French when compared to MED corpus (cf. Durkin [2014: 255]).

15. Note that thirty-two out of the fifty-six French technical terms in our dataset under HUNTING are found in first attestations in the MED from this aristocratic manual.

16. A preliminary study for this project on the domains of FARMING and TRADE has suggested that autohyponyms (i.e. words which narrow or broaden in sense) are more likely to be of French than Old English origin.

ABSTRACTS

This paper analyses a large dataset of Middle English vocabulary from nine domains which has been arranged into a semantic hierarchy. It focuses on the distribution of French-origin borrowings at various levels of technicality and at various levels of co-hyponymic density (i.e. the number of words per sense). Overall, results show that French loanwords are concentrated in higher proportions at the hypernymic (or more general) level rather than at the hyponymic (or more technical) level. These findings run counter to the orthodox view that borrowings are used to fill lexical gaps for new technical terms in a semantic field.

Cette contribution analyse un important ensemble de données comprenant du vocabulaire moyen anglais de neuf domaines, organisé en hiérarchie sémantique. Notre recherche se concentre sur la distribution des emprunts d'origine française parmi les niveaux de technicité et les niveaux de richesse lexicale (à savoir le nombre de cohyponymes par sens). Globalement, nos résultats montrent que les emprunts français se trouvent en plus grande proportion au niveau hyperonymique (ou plus général) plutôt qu'hyponymique (ou plus technique). Ces observations vont à l'encontre du point de vue orthodoxe que les emprunts comblent les lacunes lexicales en fournissant de nouveaux termes techniques dans un champ sémantique.

INDEX

Mots-clés: moyen anglais, français, emprunt lexical, hiérarchie sémantique, langage technique, contact linguistique

Keywords: Middle English, French, lexical borrowing, semantic hierarchy, technical language, language contact

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