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# Stress Placement in French Loanwords in English: A Dictionary Study

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# Outline

French loanwords in English

Aims

Corpus building and data annotation

Results

Discussion

# French loanwords in English

## Determining parameters in the stressing of loanwords in English:

- syllable weight / segmental structure.
- loanwords have stress properties which are distinct from those of the rest of the English lexicon:

*“It is clear (...) that the stress of Italian loans is not dependent on the weight of the penultimate syllable (...) I believe that speakers of English adopt what I like to call a pseudo-foreign accent. That is, when speakers want to communicate that a word is non-native, they modify certain parameters of the English stress rules in simple ways that produce bizarre ‘foreign sounding’ outputs” (Church 1985).*

- when confronted with words of foreign origin, the productions of English native speakers tend to be influenced by the phonological sensitivity of speakers with the source languages of the adopted words (Fitt 1996).

→ Loan Phonology

# Loan phonology

Whatever the prosodic prominence in each language may be, some properties of source languages may be reproduced in the target language and some target languages may use the rules which account for the whole lexicon while some target languages have specific treatments for loanwords (Davis, Tsujimara & Tu 2012).

Stress patterns – along with specific orthographic structures – are actually indicators of the foreign origin of items.

**Italian loanwords** are perfect examples of the transmission of stress properties from source languages into target languages.

→ 95% of Italian loanwords are stressed on the exact same syllable in both Italian and English, whatever the Italian stress pattern may be (i.e. final, penultimate or antepenultimate stress patterns) (P. Fournier 2018).

The stress analysis of **Japanese loanwords** in English shows that the principles of the Japanese stress system are so specific and divergent from those of English that the massive proportion of penultimate stress patterns cannot be accounted for by the reproduction of Japanese prosodic prominence but rather by the application of a preferential stress pattern for foreign words, which is penultimate (P. Fournier 2016).

# Stress in French

French is classified in the category of “languages with dominant final syllable stress” (Hyman 1985).

French has a “rhythmic group stress” (Posner 1996) and this stress falls on the last syllable of the group.

French stress is a final demarcating one, whose function is to segment intonation units (Eggs & Mordellet-Roggenbuck 1990; Léon & Léon 2009).

The French stress system is very different from that of English, which is classified in the category of “languages with no dominant stress placement” (Hyman 1985). Hence this characteristic of stress assignment in English made it possible to stress the last syllables of words as in French.

# Historical perspective on the stressing of French loanwords in English

- 1450 = turning point in the pronunciation of French loanwords in English (Serjeantson 1935).
- **Castanier (2016)** reports a pivotal date around 1660 in the stressing of French loanwords, after **Görlach (1997)** and **Danielsson (1948)**.
  - The more ancient French loanwords are, the more likely they are to adopt stress patterns inherited through Germanic logic, i.e., root-initial stress.
- **J.-M. Fournier (2007)** shows that the influx of French loanwords deeply reshaped the English phonological system and that the Germanic logic was then counterbalanced by the Romance logic.
- Old English: primary stress was root-initial, as is common in Germanic languages.

The influx of French loanwords was so massive and this lexicon was more and more used among native speakers, that the principles of Romance phonology – according to which stress is computed from the right edge, began to reshape the English phonological system. The two stress logics blended to create this unique stress system, which ends up being the result of two apparently contradictory principles (**Minkova 2009**)

# Determining parameters in the stressing of French loanwords in contemporary English

## ➤ **Syllable weight / segmental structure**

Hammond (1999) claims that the stressing of words of foreign origin is not different from the pronunciation of the rest of the English lexicon: “In some languages, borrowed words exhibit rather different phonological patterns from those of native words, but this does not appear to be the case in the stress system of English.”

## ➤ **Morphology**

- J.-M. Fournier’s classification (2007) with strong and neutral endings.
- the influence of micro-paradigms (P. Fournier 2016).

## ➤ **Frequency of use:** Castanier (2016).

# Determining parameters in the stressing of French loanwords in contemporary English

- **Varietal differences (GB/US):** Schultz (2012), Svensson (2004), P. Fournier (2016).  
Poldauf & Lee (1984): “the tendency to domesticate these words by giving them initial stress or by stressing them after contributive prefixes is stronger in British English than in American English”.
- **Sociolinguistic hypotheses:** prestige and geographical proximity (Chadelat 2000).
- **Common noun vs proper noun distinction:** P. Fournier (2016).



# Aims

To test the influence of major parameters which are said to be determining to account for the stressing of French loanwords: segmental structure, syntactic category and morphology.

+ word complexity and syllable count which have not been tested so far.

But given that aforementioned studies point to differences between British and American English, and that the English system has gained some autonomy in the stressing of such words, it is useful to evaluate the influence of the parameters in British English and American English separately.

Quantitative treatment to determine the exact influence of each parameter and the prevalence of factors over other ones.

# Corpus building and data annotation

Manual extraction from the *Longman Pronunciation dictionary* (3<sup>rd</sup> edition) whenever French phonetic transcriptions appear in entries.

Initial extraction = 1332 entries.

No distinction is made between the varieties of French, and so French words from Quebec, Belgium or Côte d'Ivoire can be found in the corpus.

Words which are not kept:

- **monosyllabic words** (141 entries).
- **words with two source languages** (18 entries; e.g. *Aragon* from Spanish or French)
- **words with commentaries such as** “this is not a true French expression” (e.g. *beche-de-mer* entry) or “not actually a French word” (e.g. *epergne* entry) (7 entries)
- **hybrid formations** (10 entries; e.g. *Bordeaux mixture*)
- **redundant entries** (7 entries; e.g. *Yaunde* for *Yaoundé*; *chateaux* for *château*)

# Corpus building and data annotation

- **entries with different syllable counts** within or across the two varieties (57 entries; e.g. *Corbusier* /kɔ:'bu:ziɛɪ, -'bju:z-/ (BrE) and /,kɔ:rbu:z'jeɪ, -u:s-/ (AmE); *oeil-de-boeuf* /,ɜ:ɪdə'bɜ:f, -jə-/ (BrE) and /,ʌdə'bʌf/ (AmE))
- **entries with an extra English syllable** to adapt final sequences such as French /vʁ/ or /bl/ as /vrəl/ and /bəl/, respectively (36 entries; e.g. *amour-propre*, *enfant terrible*, *chypre*, *timbre*)

The added syllable may never be stressed and so the absence of final stress cannot be said not to reproduce the stress pattern of French.

- **words with missing phonetic details** (13 entries).
  - *bouillon cube* or *cordon* for which French phonetic transcriptions are missing.
  - *eau de toilette* for which only the English stress pattern appears with no associated phonetic transcription.

**Final corpus: 1043 items**

# Corpus building and data annotation

1- **ENDING** - Entries were annotated as containing an ending, suffixal or non-suffixal, if that ending appears in at least 10 entries in the corpus. Sixteen endings were identified in that way: -age, -aire, -ant, -ard, -C'C'e , -é(e), -el, -et, -eur/euse, -i, -ie, -ier, -in, -on, -que, -y.

2- **SYNTACTICCATEGORY** - Taken from the online edition of the Merriam Webster's.

3- **COMPLEX** - When either spaced (e.g. bon appetit, coup d'état, déjà vu, en route, Moulin Rouge) or hyphenated (e.g. aide-de-camp, beaux-arts, passepartout, Port-au-Prince).

4- **FINALSYLLABLE** - Mora counts were calculated as follows: the short vowels /æ, e, ɪ, ʊ, ɒ, ʌ/ and the reduced vowels /ə, i, u/ were assigned one mora and the tense vowels /aɪ, eɪ, i:, u:, əʊ, ɔ:, aʊ, ɑ:, ɜ:/ were assigned two moras. As for consonants, two counts were tested, one in which each coda consonant was assigned a mora and one in which final /sC/ or /NC/ clusters were only assigned one mora (following [Hammond 1999](#)).

# Corpus building and data annotation

5- **SYLLABLECOUNT** - Entries were annotated for their number of phonetic syllables.

The five variables are included in a binary logistic regression model, in which the dependent variable is the stress pattern of the main pronunciation given in [Wells \(2008\)](#), coded as **FINAL** or **NON-FINAL**.

# Two problematic classes

Two categories of entries have to be taken out of the dataset in order to be able to conduct the regression analysis because they raise issues on how their weight should be measured.

➤ **Entries which end in BrE /əʊ/ / AmE /oʊ/**

e.g. *bureau, escargot, Peugeot, St Malo, Truffaut*

This vowel has been argued to be underlyingly lax when unstressed (Chomsky & Halle 1968; Hammond 1999) and therefore should be interpreted as monomoraic when unstressed, but bimoraic when stressed. As this would potentially bias our overall results.

→ 71 entries which end with this vowel, whether stressed or unstressed.

# Two problematic classes

Examples: *bon vivant, croissant, Dijon, Le Mans, vin blanc*

These vowels reproduce the nasal vowels of French.

Should they be analysed as short vowels or as underlying vowels + nasal sequences?

The second analysis is supported by the fact that several entries show an alternation between realisations with one or two segments:

Example: *parfum* /pɑ: 'fɫ̃ ~ /-'fɫm/

→ 69 entries contain such final elements in British English.

# Results

Binary logistic regression is then conducted on 903 entries.

All factors are included, and non-significant factors are taken out following standard model simplification procedures.

For the **ENDING** factor, endings are progressively excluded, and entries are reintegrated in the **NOENDING** category until only the endings with a relationship with the position of primary stress are kept in.

Seven endings are preserved for the British English model while only five are preserved in the American English model.

All factors except **SYNTACTICCATEGORY** are found to be significant predictors of the position of primary stress in both varieties.



## Binary logistic regression model for British English

	95% C.I.			p-value
	Lower	OR	Higher	
COMPLEX-YES	10.04	17.21	30.81	< 2e-16
ENDING-AIRE	0.00	0.06	0.35	0.010016
ENDING-C'C'E	0.03	0.09	0.18	3.17e-09
ENDING-É(E)	7.17	18.44	63.15	7.51e-08
ENDING-ET	2.27	6.62	24.98	0.001668
ENDING-EUR/EUSE	0.00	0.03	0.14	0.000646
ENDING-IN	1.80	8.03	59.14	0.015267
ENDING-ON	2.40	5.79	16.49	0.000289
SYLLABLECOUNT	1.38	1.78	2.31	1.01e-05
FINALSYLLABLE	0.23	0.33	0.46	1.97e-10

# Binary logistic regression model for American English

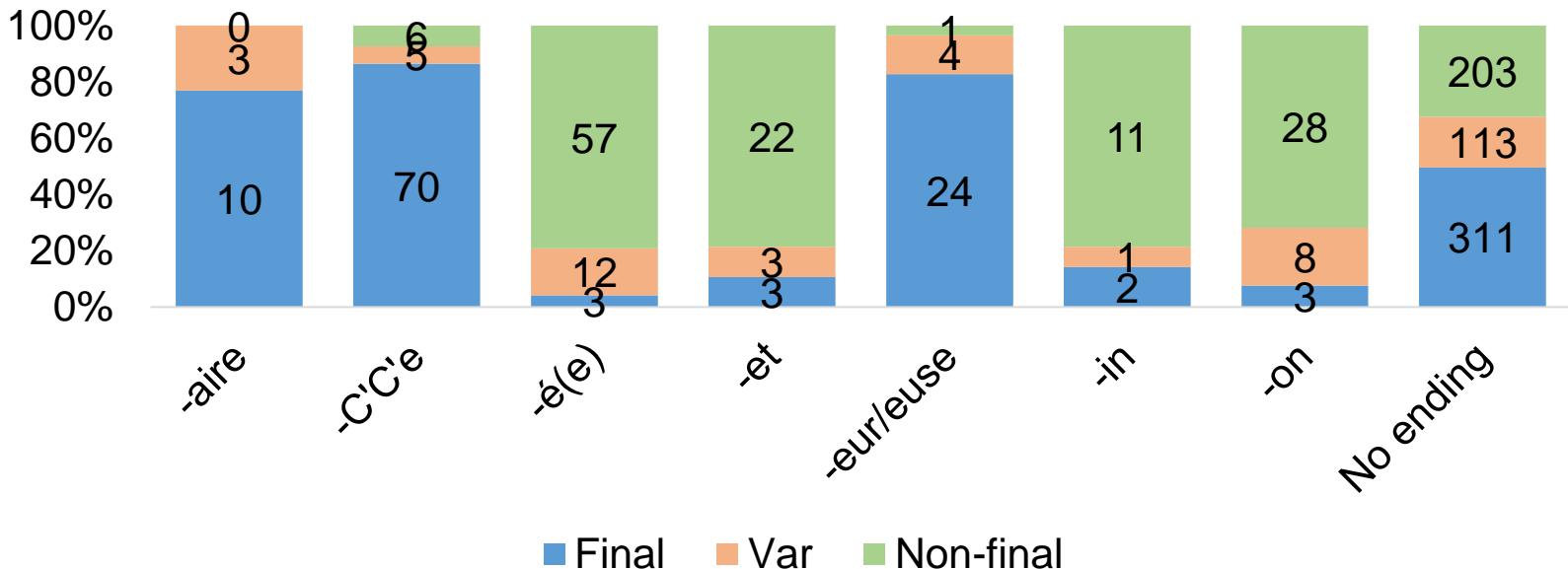
	95% C.I.			p-value
	Lower	OR	Higher	
COMPLEX-YES	16.35	39.44	115.26	2.15e-10
ENDING-C'C'E	0.12	0.30	0.63	7.51e-14
ENDING-É(E)	0.12	0.29	0.59	0.003719
ENDING-EUR/EUSE	0.00	0.08	0.42	0.001739
ENDING-IN	1.75	6.06	25.27	0.017017
ENDING-ON	2.86	5.87	12.40	1.46e-06
SYLLABLECOUNT	1.64	2.14	2.78	1.17e-08
FINALSYLLABLE	0.40	0.55	0.74	0.000144

# The role of endings: British English

The regression analysis has allowed us to identify which endings have a significant relationship with the position of stress in the data.

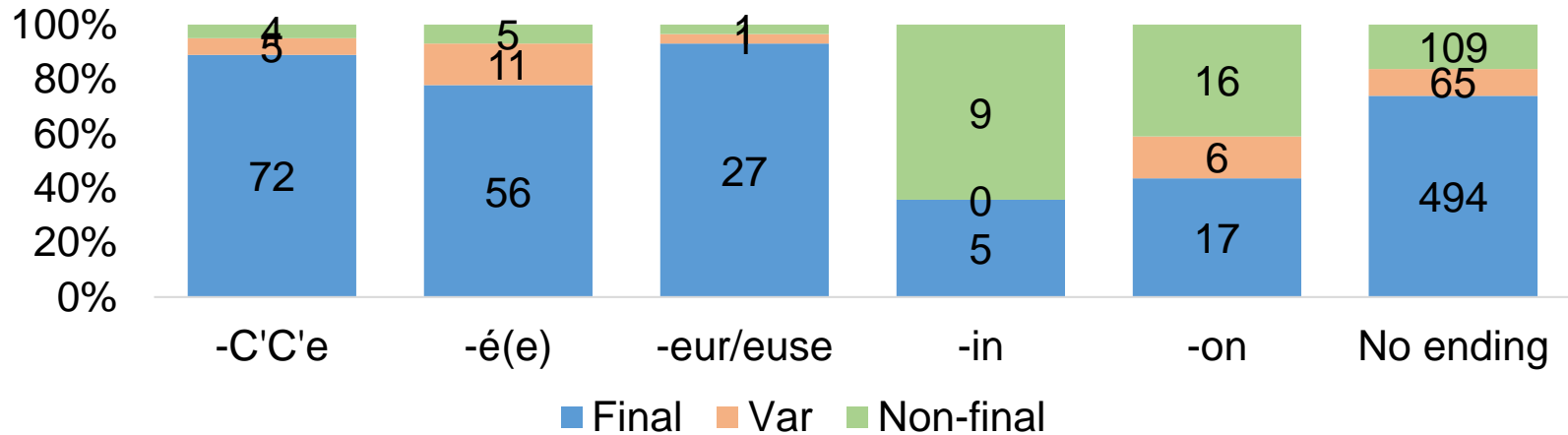
In **British English**, there are seven such endings, for a total of 276 entries, which can be said to have an impact on the position of stress, which overrides any effect of syllable count, complexity or syllable weight.

# The role of endings: British English



- 3 endings are associated with more **final stress** (*-aire*, *-C'C'e* and *-eur/euse*; *Voltaire*, *cocotte*, *douceur*).
- 4 endings are associated with **non-final stress** (*-é(e)*, *-et*, *-in* and *-on*; *crème brûlée*, *filet*, *Gobelin*, *Bourbon*).

# The role of endings: American English



Two endings are not found to be significant: *-aire* and *-et*

General tendency to have more final stress than BrE

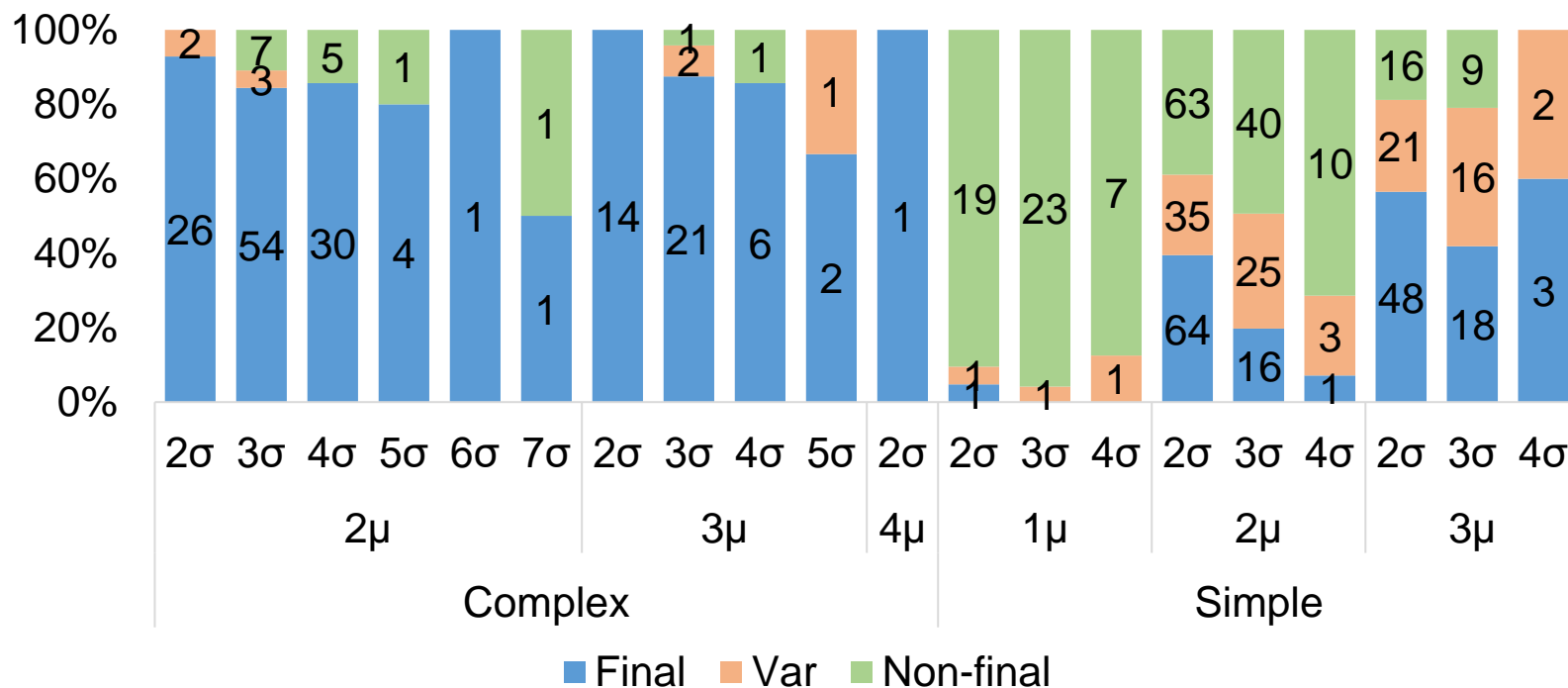
Same effect on stress for *-C'C'e*, *-eur/euse*, *-in* and *-on*, although there is less non-final stress for the latter two endings than in BrE

*-é(e)* has the opposite behaviour than in BrE → strongly associated to final stress

# Syllable weight, complexity and syllable count

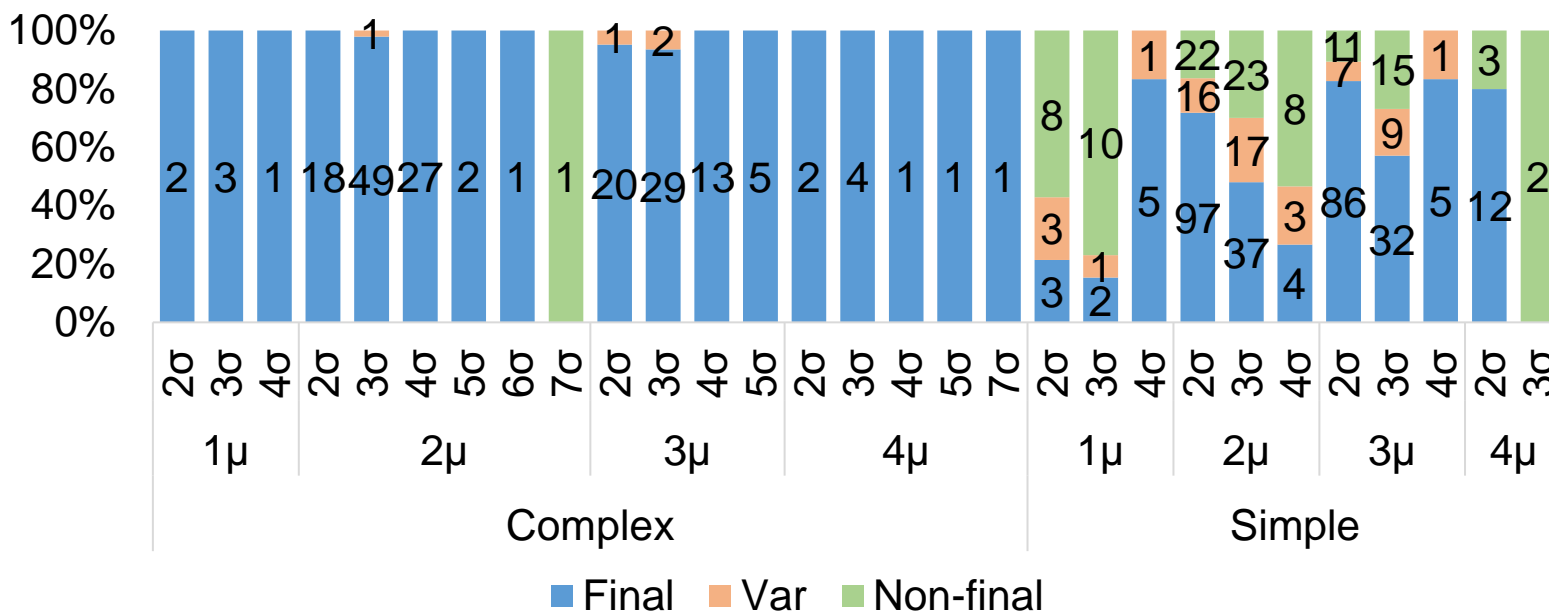
In order to deal with the same dataset for both varieties, we now only deal with the 627 entries which do not contain one of the seven endings identified in the previous section for British English.

# Syllable weight, complexity and syllable count: British English



- For simple entries, we observe a tendency to have more final stress:
- if the syllable count is lower (e.g. *brioche*, *Limoges*, *montage*).
  - if the final syllable is heavier (e.g. *artiste*, *farouche*, *Montaigne*).

# Syllable weight, complexity and syllable count: American English



Once again, stronger tendency to have **final stress**, with several categories which have systematic final stress, particularly among complex entries (e.g. *beau geste*, *cordon bleu*, *De Beauvoir*), in which only four entries may have non-final stress.

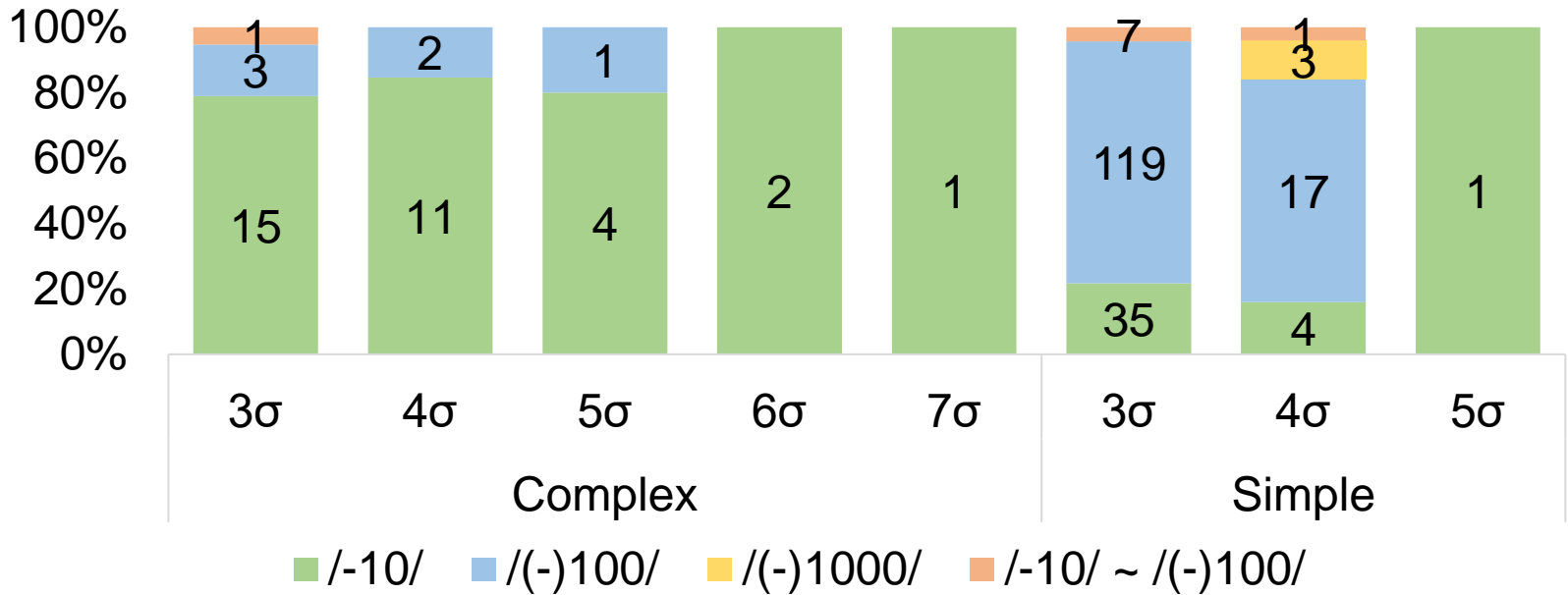


# Entries with non-final primary stress

Let us now focus on words which do not have primary stress on their last syllable, and which may or may not contain one of the seven endings identified previously.

Only entries longer than two syllables are considered  
→ 228 entries for British English

# Entries with non-final primary stress in British English



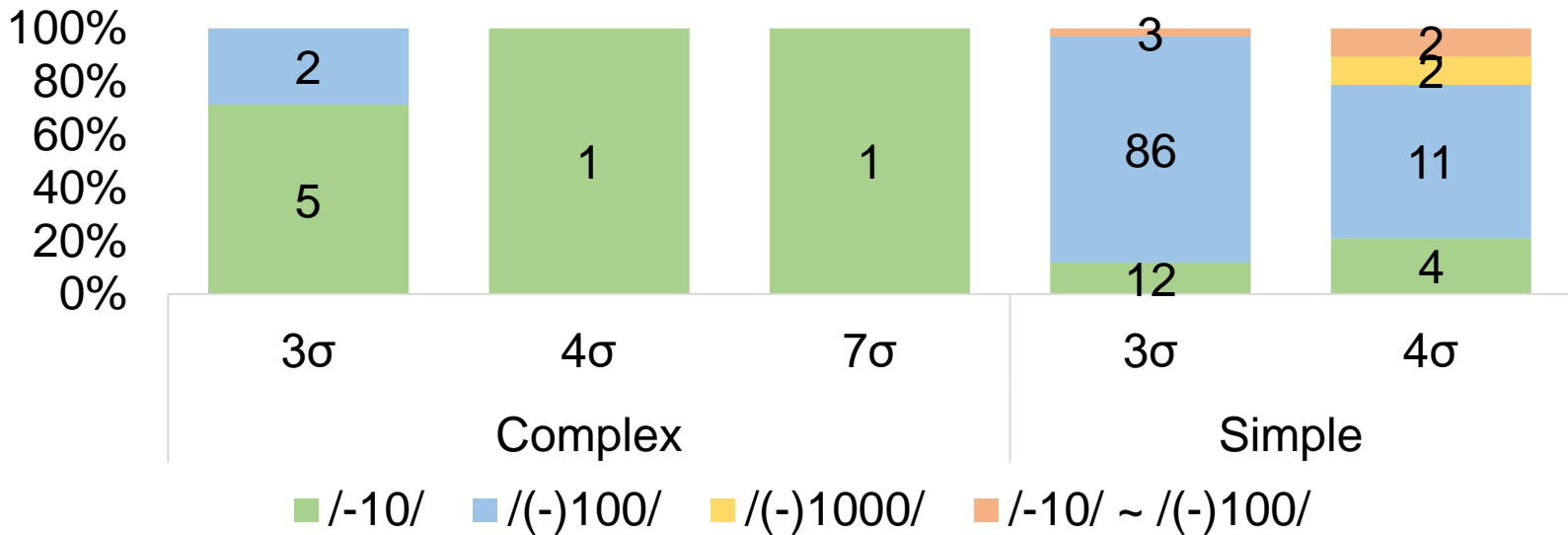
Once again, a difference between complex and simple entries, as the former are more often stressed on their penultimate syllable than the latter.

# Entries with non-final primary stress in British English

This difference can probably be attributed to the fact that many complex entries in this inventory have a final disyllabic constituent:

	/-10/	/(-)100/	/-10/ ~ /(-)100/
X + disyllable	27 <i>au gratin, aide-mémoire, Arc de Triomphe, bon voyage, folie de grandeur, prêt-à-porter...</i>	1 <i>passé-partout</i>	1 <i>crème brûlée</i>
Other	3 <i>appellation contrôlée, Champs Elysées, fait accompli</i>	8 <i>Cyrano de Bergerac, nom de plume, cul-de-sac, par excellence, pain au chocolat...</i>	0

## Entries with non-final primary stress in American English



Comparable results for the 129 words with non-final primary stress which are longer than two syllables:

- in this variety too, the difference between complex and simple entries may be attributed to the presence of final disyllabic constituents in complex entries.

# Entries with non-final primary stress

Antepenultimate stress more frequent than penultimate stress in simple entries which are longer than two syllables (along with the non-final stresses observed in disyllabic words).

→ “Strong Retraction” (Lieberman & Prince 1977; Hayes 1982)

Significant proportion of entries with non-final primary stress, especially in British English.

It would seem to contradict the idea that French loanwords generally have final stress in English. But, although the final syllable may not be primary stressed, it often contains a full vowel which, in certain approaches, would be analysed as having secondary or tertiary stress.

# Entries with non-final primary stress

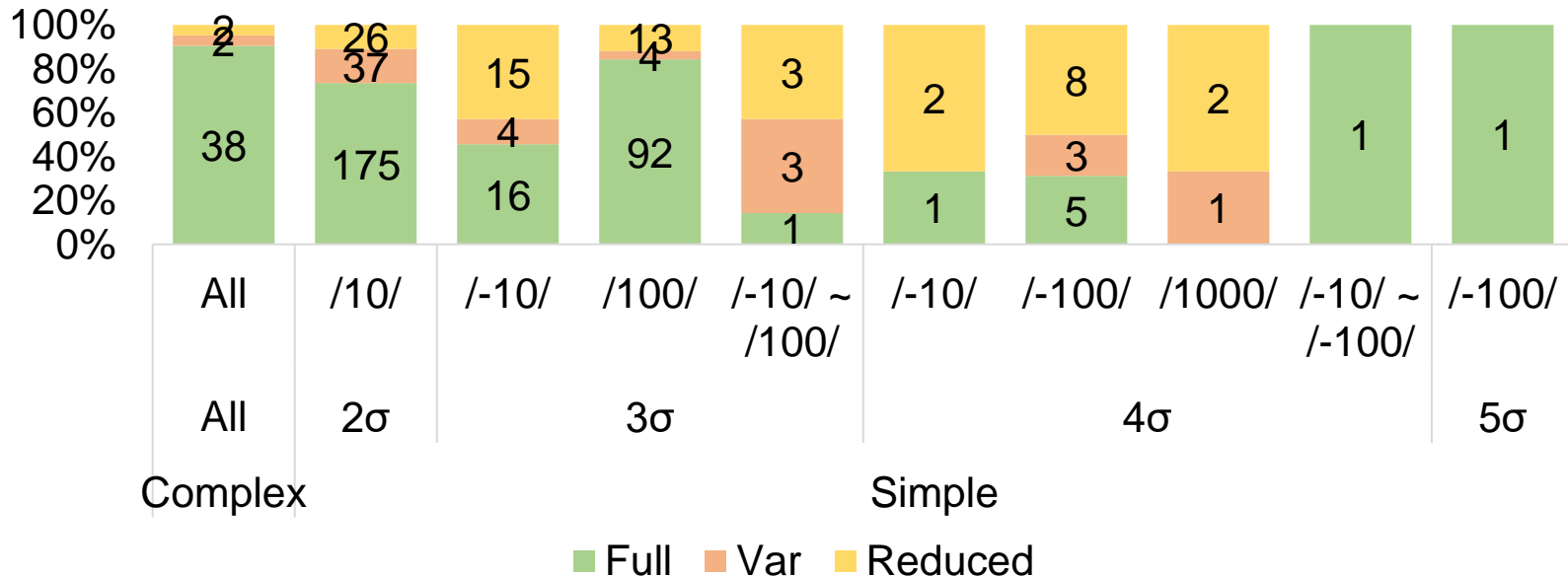
To quantify the presence of such final full vowels, we classified the vowels found in the last syllable of entries with non-final primary stress as reduced if they contained one of the five vowels identified as “weak” by Wells (2008) and Cruttenden (2014): /ə/, /i/, /ɪ/, /ʊ/ or /u/.

/ɪ/ and /ʊ/ may correspond to full vowels too, and so the 22 entries with these vowels are excluded from the present counts. All the other vowels are treated as full, and entries which alternate between a full and a reduced vowel are coded as ‘Var’.

We only consider BrE here because there is previous research on this variety of English and so our results can be compared to these previous findings.

**Complex entries** are collapsed into a single category because they almost systematically have full vowels (e.g. *bon voy/a:/ge*, *Cyrano de Berger/æ/c*, *prêt-à-port/eɪ/*)

# Entries with non-final primary stress: vowel reduction in British English



In **simple entries**, there is more variation, but we still find high rates of full vowels:

- For the final syllable of disyllabic words with initial stress = **89,1%** (Full + Var) vs. **33,9%** in **Dahak (2011)**
- For the final syllable of longer words with penultimate primary stress = **55.3%** of non-reduced vowels vs. **26.6%** in **Dahak (2011)**

# Entries with non-final primary stress: vowel reduction in British English

Much higher proportion of entries with antepenultimate stress which may have a non-reduced final vowel (**83.3%**).

Examples: *actualit/eɪ/*, *entour/a:ʒe*, *Valér/i:/*

The lower proportion of non-reduced vowels in words with penultimate stress is probably attributable to the proximity of primary stress and to what analyses in Optimality Theory capture using the \*CLASH constraint (see e.g. *Pater 2000*).

Overall, French loanwords are less likely to undergo vowel reduction in their last syllable when it does not bear primary stress than other words in English.



# Discussion

This study confirms that:

- There is a significant **difference** between **British English** and **American English**. If we take the whole dataset and consider only the main pronunciation given in LPD, we find that the proportions of final stress are:

**50%** in BrE vs. **78%** in AmE

- **Certain endings have a regulatory role**
  - Final stress for -C'C'e, -eur/euse and -aire and final stress (only in British English for the latter)
  - “Stress-repelling” for -in, -on and -et (only in British English for the latter)
- There is a probabilistic effect of the **weight of the final syllable**, as entries with heavier final syllables show higher rates of final primary stress
- The **common noun / proper noun** distinction **does not seem to be determining** in British English contrary to what is found in **P. Fournier (2016)**

# Discussion

**New observations** regarding the relationship between the **length** and **complexity** of French loanwords and the position of primary stress in these words are brought forward:

- More final stress in shorter entries
- More final stress in complex entries

The entries which have been classified as “complex” constitute a heterogeneous group, but the fact that their spelling clearly points to their complexity might lead speakers to interpret them as phrases.

- If this is indeed the case, the strong predominance of final stress in these entries is quite unsurprising as phrases usually have right prominence.

# Discussion

In entries with non-final stress, there is an effect of constituent size in complex entries as those which have final disyllabic constituents almost systematically have penultimate stress, while this is not true of other complex entries.

For simple entries, the most common non-final pattern is antepenultimate stress, which may be attributed to Long Retraction.

There are lower rates of less vowel reduction in the final syllable of the words of our dataset as compared to what is observed in the English lexicon.

# Future research

There are still many issues to solve regarding stress in French loanwords in English. There are certain variables which we did not consider in this study which may turn out to be of interest:

## **frequency, semantic connotations, analogy**

For analogy, for example: is the antepenultimate stress of *par excellence* or *cinéma vérité* to be attributed to the stress of the English words *excellence* and *verity*? Or the penultimate stress of *fait accompli* to the stress pattern of *accomplish*?

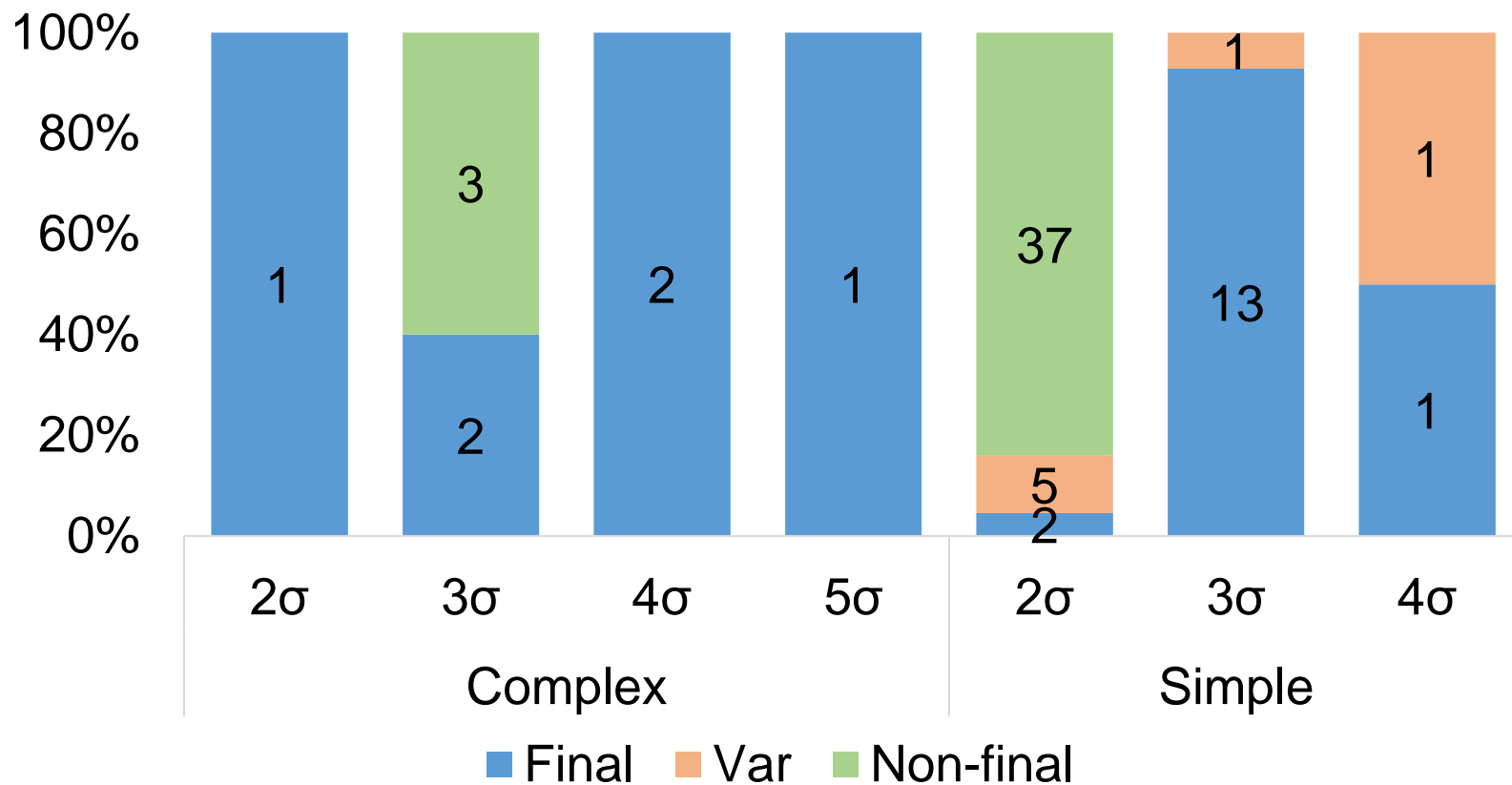
Dictionary data, like any kind of data, has its limitations, and so it might be informative to study these words in **judgement or elicitation tasks** and study what the preferences of English natives are and whether there are differences between speakers with different levels of proficiency in French, as **P. Fournier (2018)** reports for Italian.

**Thank you for your attention!**

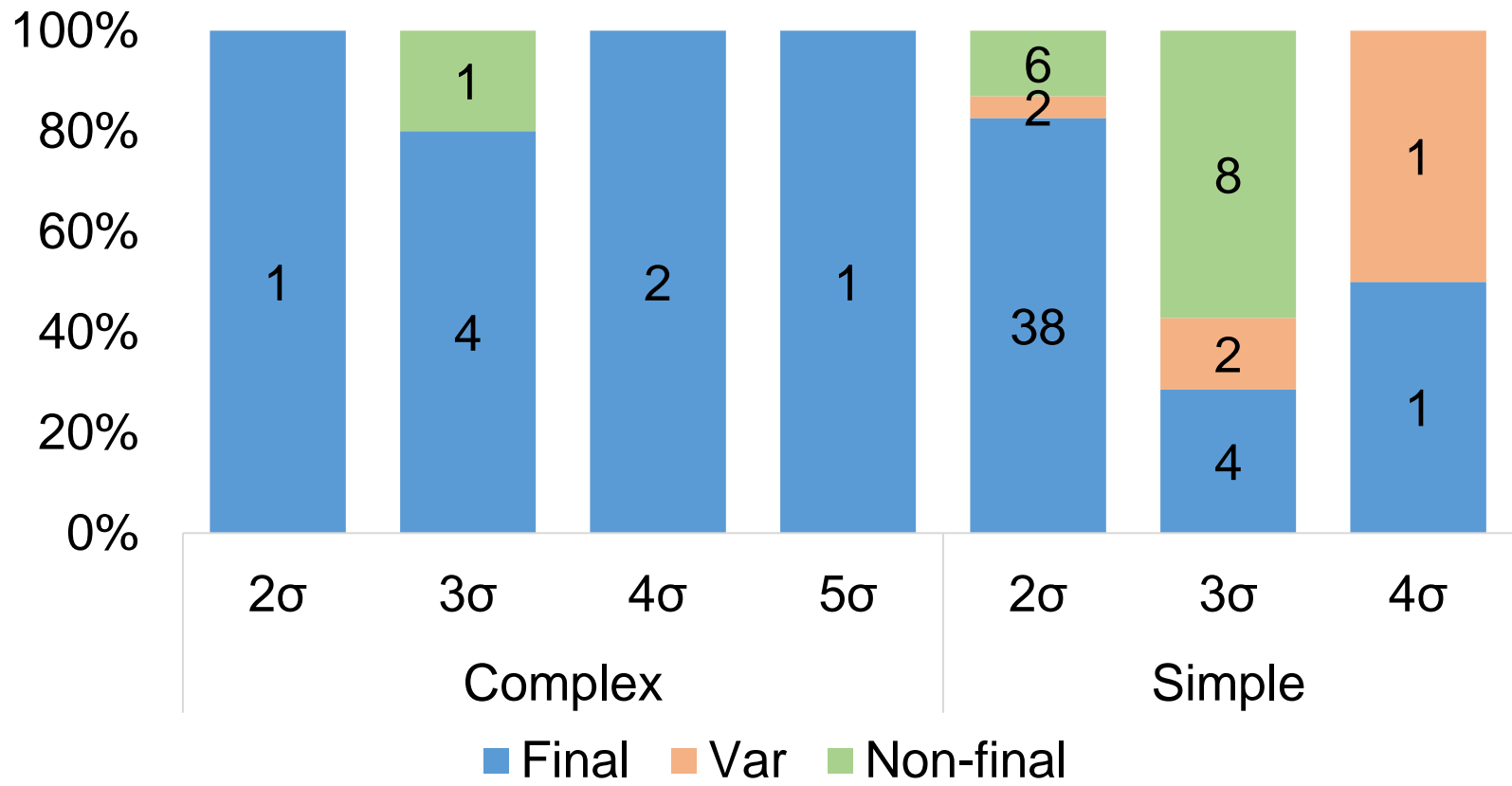
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## Position of primary stress in entries ending in /əʊ/ in British English

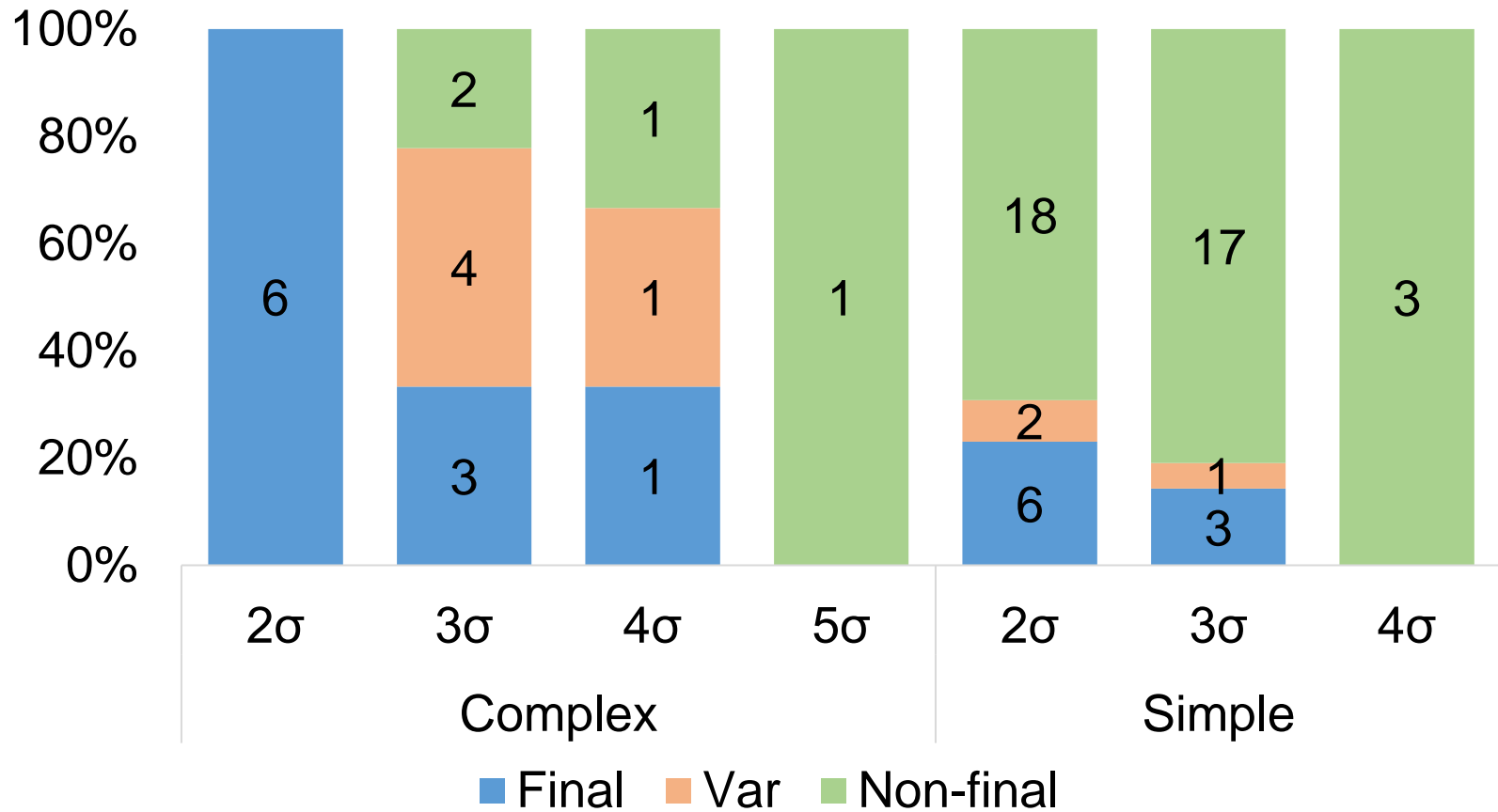


# Position of primary stress in entries ending in /oʊ/ in American English





## Position of primary stress in British English for entries which may end with a nasal vowel



# Position of primary stress in American English for entries which may end with a nasal vowel

