

## **Romance Loanwords and Stress Shift in English: A Quantitative Approach**

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### **1. Introduction**

A major change in the history of English stress was a shift in directionality (or edge orientation) from the Germanic practice of computing stress from the left edge of the word to the right edge (Halle & Keyser 1971). All writers on the topic attribute this shift to the massive influx of Romance loanwords into English but there has been no agreement as to when the shift began.

Some (Halle & Keyser 1971; Lass 1992) have proposed that parsing from the right gained a foothold in the Middle English period exemplified by Chaucer (c1343–1400), though it did not become the main stress rule until some time later. We take the view of those who argue that this wave of loanwords, mostly via French, did not have any lasting impact on English stress (Jordan 1974: 199; Minkova 1997, 2006; Redford 2003; Dresher & Lahiri 2005; Dresher 2012). Rather, we follow those who associate the change in directionality with the accumulation of words with Latinate stress-affecting suffixes in Early Modern English. We estimate that the shift in directionality occurred around 1570.

In this talk we will investigate the above claims by looking at the data from a quantitative point of view. We will compare the distribution and composition of Romance loanwords in two periods: up to 1400 and up to 1570. We argue that the profiles of the two periods are radically different in ways that support our analysis of the causes of the directionality shift.

### **2. The native Old English stress system**

Apart from unstressed prefixes, main stress in Old English is on the initial syllable (1a). Certain prefixes do not receive a stress (1b); we assume these are lexically marked as extrametrical. We have proposed (Dresher & Lahiri 1991; Lahiri, Riad & Jacobs 1999; Fikkert, Dresher & Lahiri 2006) that the Old English metrical system is as in (2).

- (1) Old English main stress
  - a. Main stress falls on the initial syllable of a word.
  - b. Certain prefixes do not receive a stress.
- (2) Old English stress: metrical analysis (Dresher & Lahiri 1991)
  - a. Germanic Foot: From left to right, construct a resolved and expanded moraic trochee of the form (|head| dependent), where the head must consist of at least two moras and the dependent may have at most one mora.
  - b. Main stress is on the leftmost foot.
  - c. Defoot a foot ( $\text{⌘}$ ) that does not carry the main stress, is final in the word, and has no dependent.

Some sample parsings are given in (3). In (3a), the initial heavy syllable, H, occupies the head of the foot, indicated by vertical lines on the lower grid line. The second syllable is light (L), and occupies the dependent branch of the foot, which is delimited by parentheses. In (3b), the initial syllable is light, and so the second light syllable joins it to make up the head position of the foot. It is not necessary to discuss each case: the important thing to take away is that stress is

computed from the left, and that the leftmost foot is assigned main stress, as indicated by the higher grid line.

- (3) Old English stress: sample parsings (the head of the foot is indicated by |x |)
- |                         |                          |                      |
|-------------------------|--------------------------|----------------------|
| a. 'head, GEN. PL.'     | b. 'troop, GEN. PL.'     | c. 'king, DAT. SG.'  |
| x                       | x                        | x                    |
| ( x  .)                 | ( x   .)                 | ( x   .)             |
| [H L] <sub>ω</sub>      | [L L L] <sub>ω</sub>     | [L H L] <sub>ω</sub> |
| wór da                  | wé ru da                 | cý nin ga            |
| d. 'dwelling, NOM. PL.' | e. 'other, NOM. SG.'     | f. 'other, ACC. SG.' |
| x                       | x                        | x                    |
| ( x  )                  | ( x ) (  <del>æ</del>  ) | ( x ) ( x  .)        |
| [L L] <sub>ω</sub>      | [H H] <sub>ω</sub>       | H H L                |
| ló fu                   | ó þer                    | ó þèr ne             |

Old English had many unstressed prefixes, more commonly on verbs than on nouns; hence, there are pairs like in (4) (Hogg 1992: 48–9). We assume that an unstressed prefix is marked as extrametrical, as shown in (5).

- (4) Old English prefixes: noun ~ verb pairs
- |   |  |
|---|--|
| <i>án-gín</i> 'beginning' ~ <i>án-gínnan</i> 'to begin'   | <i>bí-gènga</i> 'inhabitant' ~ <i>be-gǎn</i> 'to occupy'     |
| <i>ín-stæpe</i> 'entrance' ~ <i>in-stæppan</i> 'to enter' | <i>wípèrsàca</i> 'adversary' ~ <i>wípèrsácan</i> 'to refuse' |

- (5) Old English prefixes: Sample parses

- |                         |                         |
|-------------------------|-------------------------|
| a. 'inhabitant'         | b. 'to occupy'          |
| x                       | x                       |
| ( x ) ( x  .)           | ( x  )                  |
| [H H L] <sub>NOUN</sub> | [<L> H] <sub>VERB</sub> |
| bí - gèn ga             | be - gǎn                |

### 3. Romance loanwords in Middle English

#### 3.1. Stress patterns of Romance loanwords in Middle English

After the Norman conquest of 1066 many Romance words, mainly Anglo-Norman and Old French, were borrowed into English. These words were stressed according to the rule in (6) (Halle & Keyser 1971: 100–1). The key point, for our purposes, is that the stress has to be oriented to the right edge of the word. A metrical analysis is given in (7).

- (6) Romance main stress
- Stress the final vowel unless it is a schwa: *abbót*, *chanóun*, *degréé*, *honóur*, *vertú*.
  - Otherwise, stress the penultimate vowel: *divíne*, *Egípte*, *exiled*, *gòvérne*, *servíce*.
- (7) Romance stress: metrical analysis
- Construct iambs from right to left.
  - A final light syllable is extrametrical.
  - Main stress is on the rightmost foot.

### 3.2. *Effects of Romance loanwords on Middle English stress*

Based partly on the evidence of doublets like in (8), some writers, notably Halle & Keyser (1971) and Lass (1992), have proposed that the Romance right-edge oriented stress rule gained a foothold in English in this period. However, this wave of loanwords did not have any lasting impact on English stress. Thus, the descendants of most of the doublets in (8) have initial stress in Present Day English (PDE), as shown in (9a).

- (8) Stress doublets in Chaucer  
*citée ~ citee; comfórt ~ cómfort; divérs ~ díverse; fortúne ~ fórtune; geáunt ~ géant; licóur ~ lícour; Plató ~ Pláto; présént ~ préSENT; serváunt ~ sérvant.*
- (9) PDE reflexes of doublets in (6)
- Initial stress: *city, comfort, fortune, giant, liquor, Plato, present* (NOUN), *servant*.
  - Final stress: *diverse, present* (VERB).

Some words in (8) retain final stress in PDE (9b). Such words would not have been entirely anomalous with respect to Old English stress patterns. As we have seen, Old English had many unstressed prefixes. Therefore, Romance words—particularly verbs, but also adjectives and nouns—with initial unstressed syllables that look like prefixes could fit into this native English pattern, as proposed by Minkova (2006: 114). But the vast majority of Romance words borrowed in this period survive in PDE with initial stress (Lahiri & Fikkert 1999; Svensson & Hering 2005). Consider the sampling of disyllabic Romance loans borrowed before the fifteenth century, shown in (10).

- (10) Disyllabic Romance loanwords borrowed before 1500
- Initial stress (stem vowel short in PDE)  
*talent* (893), *baron* (1200), *senate* (1205), *jealous* (1250), *palace* (1290), *channel* (1300), *gallon* (1300), *panel* (1300), *coral* (1305), *profit* (1325), *metal* (1340), *satín* (1366), *moral* (1380), *volume* (1380), *second* (1391), *Latin* (1391).
  - Initial stress (stem vowel long in PDE)  
*basin* (1220), *moment* (1240), *vacant* (1290), *odour* (1300), *process* (1330), *paper* (1374), *raisin* (1382), *patent* (1387), *famous* (1400).
  - Final stress  
*diverse* (1297), *reward* (1340), *divine* (1374), *degree* (1380).

Of course, PDE has many words of Romance origin that have retained final stress, as shown in (11); as can be seen from the dates of their earliest attestations, these words tend to have been borrowed later than the words in (10).

- (11) Disyllabic Romance loanwords with final stress in PDE  
*cement* (1300) (but ME *síment* had initial stress until the 19th c.), *canal* (1449), *bourgeois* (1564), *gazelle* (1582/1700), *moustache* (1585), *gazette* (1605), *hotel* (1644), *champagne* (1664), *ballet* (1667), *salon* (1715), *bouquet* (1716), *brochure* (1765), *beret* (1850).

Why didn't the Anglo-Norman loanwords effect a change in the Middle English stress pattern? We observe that many loanwords with non-initial stress would have conflicted with the native patterns. Minkova (2006) argues that the stress in loanwords in (12a), with original stress on either the final or penult, would have conflicted with the pattern of native words in (12b).

- (12) Trisyllabic words with medial heavy syllables
- a. Romance loanwords with final or penultimate stress  
*harbinger* (1175), *character* (1315), *interval* (1300), *manacle* (1350), *galaxy* (1384).
  - b. Native words  
*máryrdom*, *máidenhod*, *tónneful*, *stédefast(e)*.

Similarly, Romance disyllables with final stress like those in (10) would have run up against many native disyllables with initial stress, such as *water*, *herring*, *thousand*, etc. Therefore, despite the influx of a substantial number of Romance loanwords, the grammar of English stress was not altered by them; rather, the loanwords were assimilated to the native pattern.

#### 4. Romance loanwords in Early Modern English

Between the Middle English period discussed above and Early Modern English, something tipped the balance in favour of the loanwords. Borrowing from Latin began on a large scale in late Middle English and increased in Early Modern English (Dalton-Puffer 1996; Nevalainen 1999; Kastovsky 2006: 167). Latin words were stressed by the rule in (13) (Roca 1999); a metrical analysis is given in (14).

- (13) Latin main stress
- a. Stress the penultimate syllable if it is heavy: *amícus* ‘friend’, *omítto* ‘I lose’, *reféctus* ‘restored’.
  - b. Otherwise, stress the antepenultimate syllable, if there is one: *dóminus* ‘master’, *fēmina* ‘woman’, *refíciunt* ‘they...restore’.
  - c. Otherwise, stress the first syllable: *vénīs* ‘you-SG. come’, *cónsul* ‘consul’, *méns* ‘mind’.
- (14) Latin stress: metrical analysis
- a. Build quantity-sensitive trochees from the right edge of the word.
  - b. A final syllable is extrametrical.
  - c. Main stress falls on the rightmost foot in the word.

Dresher & Lahiri (2005) propose that the grammar of stress did not change all at once from ‘Germanic’ to ‘Latin’; rather, the transition to right-oriented stress came in two stages, as set out in (15).

- (15) Approximate dates of changes in English metrical structure
- |          |   |
|----------|---|
|          | Foot type = Resolved moraic trochee throughout.                           |
| a. –1570 | Foot direction <i>left</i> , main stress <i>left</i> (as in Old English). |
| b. 1570  | Foot direction <i>right</i> , main stress <i>left</i> .                   |
| c. 1660  | Foot direction <i>right</i> , main stress <i>right</i> .                  |

Here we will focus on the first shift, which we estimate to have occurred around 1570 (amended from Dresher & Lahiri's 2005 estimate of 1530).

#### 5. Shift in directionality (edge orientation)

Following Danielsson (1948) and Poldauf (1981), we associate this change with the accumulation of words with Latin and French suffixes such as *-abl/-ible*, *-ation*, *-ator*, *-ic(al)*, *-ity*, etc. Latin words had been borrowed into English in the earlier periods as well. Minkova &

Stockwell (1996) and Lahiri & Fikkert (1999) argue, however, that Latin words were originally borrowed as morphologically simplex, as is typical for borrowing crosslinguistically. Thus, *réverence* was not initially derived from *revére*, nor *ábstinence* from *abstáin*. Often, the ‘derived’ word was borrowed earlier, as can be seen from the word pairs in (16). Notice that the ‘derived’ words all have initial stress consistent with the native English pattern.

(16) ‘Derived’ words borrowed earlier than ‘underived’ words

*abstáin* (1380) ~ *ábstinence* (1300); *confide* (1455) ~ *cónfidence* (1430); *reside* (1460) ~ *résident* (ADJ.) (1382); *finite* (1493/1597) ~ *ínfinite* (1385); *potent* (1500) ~ *ímpotent* (1390); *preside* (1611) ~ *président* (1375); *revere* (1661) ~ *réverence* (1290).

What appears to have made the difference is that in this later period Romance borrowings were so common that their morphological composition could be recognized by English speakers.

### 5.1. Learnability considerations

At that point English speakers could identify recurring morphemes, such as derivational suffixes. The rightward directionality of stress in words with these suffixes could then become apparent. Consider in this regard the words in (17). Note that the dates of first attestation in the *Oxford English Dictionary (OED)* are accurate, but the stress marks are modern: the *OED* does not systematically indicate original stresses, and some words might have originally been borrowed with different stress, as we will see shortly.

(17) Alternations with suffix *-al* that point to right-edge orientation of stress in PDE

*accidéntal* (c1400) ~ *áccident* (c1400); *instruméntal* (1398) ~ *ínstrument* (c1290); *matrimónial* (1449) ~ *mátrimony* (1357); *medicinal* (1384) ~ *médicine* (?c1225); *original* (a1325) ~ *óorigin* (c1450); *philosóphical* (a1425) ~ *philósophy* (c1325); *poétical* (c1450) ~ *póet* (a1382); *sacraméntal* (c1400) ~ *sácrament* (c1175); *satírical* (a1529) ~ *sátire* (1509); *univérsal* (a1393) ~ *úniverse* (a1425).

Once native speakers could decompose these words into their constituent morphemes (at least into stems and suffixes), then a learner could arrive at right-edge computation of stress along various paths. Thus, a comparison of a derived word with its base would show stress being moved to the right under the influence of the suffix: for example, *áccident* ~ *accidéntal*, *úniverse* ~ *univérsal*, etc. Alternatively, a comparison of words with the same suffix would show the same thing: for example, *accidéntal*, *univérsal*, with stress on a penultimate heavy syllable, contrast with *medicinal*, *satírical*, which have light penults and stress on the antepenultimate syllable.

Unlike earlier periods, the English native words did not provide robust conflicting evidence with respect to this aspect of stress. Monomorphemic words were metrically short, and many were ambiguous with respect to directionality (cf. Rice 2006 for loanword influence on the stress pattern of Norwegian).

### 5.2. Empirical evidence: Levins’ Manipulus Vocabulorum

Nevertheless, the absorption of these words was not straightforward, as we can see from the sixteenth and seventeenth century literature. Peter Levins’ *Manipulus Vocabulorum*, published in 1570, is perhaps most important for the study of change in stress patterns in English. It is a reverse (rhyming) dictionary, indicating the location of stress. A fairly large number of stresses

do not conform to present day stress placements or to a straightforward Latin stress rule. Some words are shown in (18).

(18) Levins' *Manipulus Vocabulorum* (1570): indicated main stresses

	Non-initial Stress			Initial Stress	
FINAL	PENULT	ANTEPENULT	2 $\sigma$	4, 5 $\sigma$	3 $\sigma$
quarrél (v)	orientall	antíquité	quárel (n)	díuisible	túrpentine
rebéll (v)	aduénture	seuérítie	rébel (n)	húmidítie	défectiue
lamént (v)	recógnise	memóriall	députe (n)	bárbarítie	cánonise
flagón (n)	conféssour	opínion	récorde (n)	príncipalítie	mármalad

Levins' remarkable list leaves little doubt that the grammar of stress was still in flux. But which parameters were changing during Levins' period? We propose that there remains a very strong main stress parameter associated with the left edge, and that much of the variability in Levins can be accounted for by two interacting reanalyses taking place.

First, we perceive an increase of morphologically governed stress-alternating doublets in the synchronic grammar, building on and extending the older pattern inherited from Old English and reinforced by Romance (19a). When disyllabic verbs are marked with final stress, the first syllable functions like an Old English stressless prefix: *depúte*, *recórd*, *contráct*, *rebéll*, *quarrél*, *rewárd*. Four corresponding nouns have initial stress, suggesting that this analysis is on the right track: *députe*, *rébel*, *quárel*, *récord*. This principle accounts for many disyllabic words that are stressed on the final syllable. An analysis of one such pair is given in (20).

(19) Changes in Levins' grammar of stress (Lahiri 2015)

- a. An increase in the number of morphologically governed stress-alternating doublets in the synchronic grammar. When disyllabic verbs are marked with final stress, the first syllable continues to function like a prefix: hence, we find verbs *depúte*, *recórd*, *contráct*, *rebéll*, *quarrél*, *reward* versus nouns *députe*, *rébel*, *quárel*, *récord*. Exceptions are a few nouns like *flagón* that bear final stress.
- b. Words with Latin stress-affecting suffixes show variation: words like *díuisible* and *húmidity* must be parsed from the left edge; words like *sevérity* and *opínion* must be parsed from the right; and words like *bárbarity* and *príncipality* are ambiguous as to direction. These facts suggest that the direction of parsing is changing from *left* to *right*, while main stress remains set to *left*.

(20) Noun~verb pairs in Levins

a. 'rebel VERB'

x  
(x |)  
[<L> H]<sub>VERB</sub>  
re bél

b. 'rebel NOUN'

x  
(x |)  
[L L]<sub>NOUN</sub>  
ré be<l>

The second factor (19b) concerns the analysis of the morphology of complex Latin words that were borrowed into English. During the earlier period, morphologically complex words had come in as simplex forms, and were assimilated to the native pattern of stress assignment from the left. Such words remained in the grammar. Hence, we find words like *díuisible* and *húmidity* which must be parsed from the left edge (21); there is no plausible way to get main stress on the first syllable parsing from the right.

(21) Words in Levins with Main stress *left*, Direction *left* (older grammar)

a. 'divisible'

x  
 (|x | .) .  
 [L L L L]<sub>ADJECTIVE</sub>  
 di ui si ble

b. 'humidity'

x  
 (|x | .) .  
 [L L L L]<sub>NOUN</sub>  
 hu mi di tie

Nevertheless, unlike the earlier period where all words were parsed from the left, we now find words like *sevéritie* and *opínion* which must be parsed from the right (22).

(22) Words in Levins with Main stress *left*, Direction *right* (newer grammar)

a. 'sevéritie'

x  
 . (|x | .)  
 [L L L L]<sub>NOUN</sub>  
 se ve ri tie

b. 'opínion'

x  
 . (|x | .)  
 [L L L L]<sub>NOUN</sub>  
 o pi ni on

Note that many words with initial stress are ambiguous as to their directionality, because the main stress parameter remains set to *left*: therefore, words like *bárbaritie*, *príncipalitie* can be parsed from either direction (23).

(23) Words in Levins with Main stress *left*, Direction ambiguous

a. 'bárbarity' from the *left*

x  
 (|x| .) |x |)  
 [H L L L]<sub>NOUN</sub>  
 bar ba ri tie

b. 'bárbarity' from the *right*

x  
 (|x|) (|x | .)  
 [H L L L]<sub>NOUN</sub>  
 bar ba ri tie

## 6. Romance loanwords in English: Quantitative considerations

Let us attempt to apply quantitative considerations to the effects of the Romance loanwords on different stages of English. As a first approximation, we will consider the initial attestations of words and suffixes as recorded in the *OED* using the advanced search resource provided by the online *OED*. Of course, such measures are relatively crude and should eventually be supplemented with corpus studies of texts from different periods.

We will focus here on two periods. The first period is from Old English up to 1400, when some commentators consider that the effects of Romance loanwords were already beginning to be felt on English stress. We will compare it with that in 1570. If we are correct in our dating of the directionality change, then we ought to see some major differences in the profiles of the Romance vocabulary in the English of 1400 versus 1570.

According to the *OED*, as shown in (24), by 1400 English had borrowed around 6,580 words of Romance (mostly French and Latin) origin, which comprised about 21.5% of the 30,568 total number of words in English to that time. By 1570, the Romance words increased by 93%. However, the total words in 1570 increased by 127%; the result is that the percentage of Romance words in the English vocabulary in 1570 was 18.3%, *less* than it was in 1400.

## (24) The Romance vocabulary in English in 1400 and 1570

	1400	1570	% $\delta$ (change)
a. All words	30,568	69,364	127%
b. All Romance words	6,580	12,727	93%
c. % Romance/All words	21.5%	18.3%	-3.2%

These numbers suggest that the overall percentage of Romance words in the language is not a decisive factor in triggering a change in the stress system, because there was no increase in the overall proportion of Romance words in the period of interest. If our hypothesis is correct, we should however see a significant change in the *composition* of the Romance loanword vocabulary in the relevant period. In particular, we expect to see a significant increase in the number of words with stress-affecting Latinate suffixes.

As displayed in (25), the changes in this part of the loanword vocabulary are quite dramatic. From 1400 to 1570, words with *-able* went from 204 to 906, an increase of 344%; words with adjective-forming *-al* went from 163 to 745 (357%); and words with *-ity* increased from 144 to 563 (291%).

(25) Latinate words with stress-affecting suffixes in English (*L*) in 1400 and 1570

	<i>L</i>	1400	1570	% $\delta$
a.	<i>-able</i>	204	906	344%
b.	<i>-al</i> (adj)	163	745	357%
c.	<i>-an</i> (adj)	64	313	389%
d.	<i>-ar</i> (adj)	41	104	154%
e.	<i>-ation</i>	242	957	295%
f.	<i>-efy</i>	3	10	233%
g.	<i>-etude</i>	2	3	50%
h.	<i>-ety</i>	19	40	111%
i.	<i>-ible</i>	40	146	265%

		1400	1570	% $\delta$
j.	<i>-ic</i>	87	279	221%
k.	<i>-ify</i>	26	80	208%
l.	<i>-ile</i>	35	69	97%
m.	<i>-ion</i>	507	1,717	239%
n.	<i>-ison</i>	34	52	53%
o.	<i>-itude</i>	9	41	356%
p.	<i>-ity</i>	144	563	291%
q.	<i>-ous</i>	168	657	291%

These numbers lend *prima facie* support to the notion that the relevant data for learners in 1570 was very different from that in 1400. The question arises: how many words are needed to cause a change in the grammar? This question is similar to asking how many exceptional forms are tolerated before learners conclude that they are not exceptions but rather a part of the rule. Charles Yang (2005; in press) proposes a theorem he calls the Tolerance Principle, given in (26).

## (26) Tolerance Principle (Yang in press: 51)

Let  $R$  be a rule that is applicable to  $N$  items, of which  $e$  are exceptions.  $R$  is productive if and only iff

$$e \leq \theta_N \text{ where } \theta_N := \frac{N}{\ln N}$$

Extrapolating a bit, we can interpret the Tolerance Principle as marking the threshold (henceforth, the Yang Threshold,  $Y$ ) beyond which the right side directionality of the Latinate suffixes can no longer be dismissed as exceptions, but must be treated by a rule. Since the native English words do not provide equally robust evidence for a contradictory directionality, the consequence is that the default directionality of the English stress system changes from left to right.

Let us assume the words favouring a shift in directionality are the words with Latinate stress-affecting suffixes. According to the Tolerance Principle, these words can affect the directionality of the stress rule when their number is greater than  $Y = N/\ln N$ , where  $N$  is the total number of forms relevant to the stress rule. Which forms are those? As a first approximation, let us simply assume that this number is equal to the total number of words. This is no doubt an oversimplification; however, it provides an initial baseline that we can hope to refine at a later time. On these assumptions, we have the figures shown in (27).

(27) The Romance vocabulary in English in 1400 and 1570

		<i>1400</i>	<i>1570</i>			<i>1400</i>	<i>1570</i>
a.	All words ( $N$ )	30,568	69,364	e.	$L/Y$	60.4%	107.4%
b.	$\ln N$	10.33	11.15	f.	All Romance	6,580	12,727
c.	$N/\ln N = Y$	2,960	6,223	g.	% Romance	21.5%	18.3%
d.	Latin suffix ( $L$ )	1,788	6,682				

The natural logarithm ( $\ln$ ) of the total words attested up to 1400 and 1570 is 10.33 and 11.15, respectively. Therefore, the number of Latinate rightward-oriented forms required by the Tolerance Principle is 2,960 in 1400 and 6,223 in 1570. The actual number of such forms is 60% of this number in 1400, the year that Chaucer died, but 107% in 1570.

## 7. Conclusion

We cannot take these numbers too literally, given the approximate nature of all the calculations that produced them. Nevertheless, as far as they go the figures support our hypothesis that the stress data presented to learners of English in 1570 was quite different from that in 1400. In particular, they are different with respect to what is predicted by the Tolerance Principle. In 1400, words with stress-affecting Latinate suffixes fall considerably below the Yang Threshold, meaning the English stress rule can continue to treat them as exceptions. By 1570, the year of Levins' book, the Latinate suffixes have crossed the Yang Threshold, meaning they are numerous enough to have provoked a change to the directionality of the English stress rule. Therefore, Shakespeare, who was 6 years old in 1570, acquired a grammar of English that still had main stress *left*, but directionality of parsing set to *right*.

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