

Bede the Venerable

- Born c.672-3
- Died 735
- Wrote *The Ecclesiastical History of the English Church and People*



- The Oxford English Dictionary defines a clausula as ‘ the close or end of a period, especially one in ancient or medieval Latin having a definable cadence.’ (*OED*, 2nd edition, 1989)

Clausulae forms

- Metrical, based on syllable length
- *cursus mixtus*, where metre and stress accent coincide
- *cursus*, which is stress accent (or purely rhythmical) only

Metrical forms

- Ēssē cōrōnāndum
- fōrmă vērbōrum

Cursus mixtus forms

- Planus: /xx/x tractibus trudit
- tardus: /xx/xx fidens pernicious
- velox: /xx/x/x agminibus circumsaeptus
- medius: /x/xx exercere studeat
- trispondaicus: /xxx/x iaculorum catapulta
- dispondaicus: /xxx/xx feliciter perfruitur

Cursus forms

- Tractibus trudit = pp2
- fidens pernicious = p4pp
- agminibus circumsaeptus = pp4p
- exercere studeat = p3pp
- iaculorum catapultas = p4p
- feliciter perfruitur = pp4pp

Methods

- Oberhelman: uses control texts with known rhythmical or non-rhythmical properties
- Janson: uses internal comparison

Sample

- 367 sentence endings taken from Bede's homilies
- Quotations from other authors were excluded
- Short sentences, and sentences which ended in a possible elision were also excluded
- 'esse educatum' might be an elision

Final cadences in Bede

	1	p	pp	Total
6p	0	2	3	5
5p	0	5	1	6
5pp	1	2	0	3
4p	3	39	14	56 *
4pp	1	61	11	73
3p	5	94	31	130
3pp	3	20	12	35
2	17	9	24	50
1	0	9	0	9
Total:	30	241 *	96	367

Producing the expected value

$$241/367 = 0.656$$

$$56/367 = 0.152$$

$$0.656 \times 0.152 = 0.0997$$

$$0.0997 \times 367 = 37$$

χ^2 test using Janson's method

forms	o	e	(o-e)^2/e		p value	adjusted p	
14p	3	4.577657	0.543728		0.460892		
14pp	1	5.967302	4.134882		0.042008	0.756144	
13p	5	10.6267	2.979267		0.084337	1.518075	
13pp	3	2.861035	0.00675		0.934522		
"12"	17	4.087193	40.79586		1.69E-10	3.04E-09	sig
1 other	1	1.880109	0.411993		0.52096		
p4p	39	36.77384	0.134764		0.713543		
p4pp	61	47.93733	3.559509		0.059205	1.065695	
p3p	94	85.36785	0.872859		0.350165		
p3pp	20	22.98365	0.387326		0.533708		
p2	9	32.83379	17.30076		3.19E-05	0.000574	sig
p other	18	15.10354	0.555464		0.456094		
pp4p	14	14.6485	0.02871		0.865451		
pp4pp	11	19.09537	3.431983		0.063945		
pp3p	31	34.00545	0.265626		0.606281		
pp3pp	12	9.155313	0.883885		0.34714		
pp2	24	13.07902	9.119019		0.00253	0.045534	sig
pp other	4	6.016349	0.675769		0.411047		
total	367	367					

McNemar's test

$$\chi^2 = \left\{ \frac{|p_2 - p_1| - 1/n}{\text{s.e.}(p_2 - p_1)} \right\}^2 = \frac{(|b - c| - 1)^2}{b + c}$$

Where $p_1 = \frac{a + c}{n}$ and $p_2 = \frac{a + b}{n}$

McNemar's test

	Factor Present	Factor Absent	Totals
Factor Present	a	b	a+b
Factor Absent	c	d	c+d
Totals	a+c	b+d	n

McNemar's test in Stata

Symmi 3 53 \27 284, contrib

For 1 4p cadences

chi2 = 8.45, Prob>chi2 = 0.0037

0.0037 x 18 = 0.067, >0.05

Bede

Prefers

- 1 4p
- 1 4pp
- 1 3p

Avoids

- p 4p
- p 4pp
- p 3p
- p 3pp
- p 2
- p other
- pp 4p
- pp 3pp
- pp 2 and pp other

Control authors

Author	Rhythmical?	Metrical?
Cicero	No	Yes
Descartes	No	No
Polydore	No	No
Dante	Yes	No
Gilbert	Yes	No
John	Yes	No

Cursus mixtus in Bede and controls

	planus	tardus	velox	trispond.	medius	dispond.	other	total
Bede	135	85	20	35	72	8	12	367
Descartes	293	117	130	213	68	144	35	1000
Polydore	296	119	96	203	132	100	54	1000
Cicero	276	136	133	236	99	85	35	1000
Dante	93	50	93	0	2	10	0	248
Gilbert	210	141	142	133	31	27	23	707
John	84	259	356	153	45	37	23	1260

Bede vs. non-rhythmical authors

χ^2 test on *planus*, *tardus* and *velox* forms in Descartes, Polydore and Cicero against Bede:*

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. tabi 1665 240 \1335 127, chi2 expec
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row	1	2	Total
1	1,665	240	1,905
	1,697.4	207.6	1,905.0
2	1,335	127	1,462
	1,302.6	159.4	1,462.0
Total	3,000	367	3,367
	3,000.0	367.0	3,367.0

Pearson $\chi^2(1) = 13.0325$ Pr <0.0005

Bede vs. rhythmical authors

χ^2 test on *planus*, *tardus* and *velox* forms in John against Bede:

. tabi 1037 240 \223 127, chi2 expec

row	1	2	Total
1	1,037	240	1,277
	988.9	288.1	1,277.0
2	223	127	350
	271.1	78.9	350.0
Total	1,260	367	1,627
	1,260.0	367.0	1,627.0

Pearson $\chi^2(1) = 48.1141$ Pr <0.0005

Bede's rhythmicity

- No significant difference between the frequency of *trispondaicus* forms in Bede and the control texts
- Bede uses significantly more *trispondaicus* forms than Dante and John of Salisbury
- Therefore, Bede used rhythmical forms.

Metrical forms

- Cretic spondee: LsLsx
- dicretic: LsLLsx
- ditrochee: xxxLsLx
- cretic-tribrach: LsLssx
- dispondee: LLLx
- spondee-cretic: LLLsx
- cretic-iambus: LssLsx

Bede's metrical forms

- No significant differences were found for Descartes, Polydore, Cicero, Dante & John, after application of the Bonferroni adjustment
- Significant difference (lower) than Gilbert

Conclusions

- Bede did use some *cursus* rhythms.
- It is unclear whether he used *cursus mixtus* forms.
- The statistical methods used require further refinement; analysing a large corpus of Latin prose may help provide control texts for further analysis