The dating of *Beowulf* revisited:

Investigating the syntax of Old English poetry

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Beowulf

- Old English epic poem consisting of 3182 alliterative lines
- written sometime between the 8th and the early 11th century
- Summary (from Wikipedia): "The poem is set in Scandinavia. Beowulf, a hero of the Geats, comes to the aid of Hrothgar, the king of the Danes, whose mead hall in Heorot has been under attack by a monster known as Grendel. After Beowulf slays him, Grendel's mother attacks the hall and is then also defeated. Victorious, Beowulf goes home to Geatland and later becomes king of the Geats. After a period of fifty years has passed, Beowulf defeats a dragon, but is fatally wounded in the battle. After his death, his attendants cremate his body and erect a tower on a headland in his memory."

Background: Old English syntax

- Called a V2 language, but it differs from the standard V2 languages
- Alternation between head-initial and head-final structure / word order in IP, VP, NP
- Lots of syntactic head and phrasal movement, e.g. V-to-I (obligatory), verb (projection) raising, scrambling and postposition of arguments and adjuncts, weak (clitic?) pronoun scrambling
- Result: lots of syntactic variation, as well as lots of structural ambiguity, but very few (if any) syntactic changes went to completion during the period.

Background: V2 in Old English

- V-to-C movement only in special clause types
  - Direct main clause questions
  - V1 declarative clauses
  - clauses with initial *þa*/*þonne* 'then' and some other light adverbs (e.g. *swa* 'so', *þus* 'thus', etc.)
- 'Normal' V2 clauses are V-to-I
- Diagnostic: position of pronominal subject

(1) eall ðiss [$_{I}$ aredað] se reccere suiðe ryhte (cocura,CP:22.169.3.1145)
all this arranges the ruler very rightly
"The ruler arranges all this very rightly."

V2 in Old English (cont.)

(2) æfter his gebede he [$_{I}$ ahof] þæt cild up (cocathom2,+ACHom_II,_2:14.70.320)
after his prayer he lifted the child up
"After his prayer, he lifted the child up."

(3) On hwylcen heowe [$_{C}$ steah] he up (coeluc2,Eluc_2_[Warn_46]:40.31)
In what form rose he up
"In what form did he rise up?"

(4) Ða [$_{C}$ cwædon] hi amen (coaelive,+ALS[Forty_Soldiers]:255.2647)
Then said they 'amen'
"Then they said 'amen' "

Background: Structural ambiguity in Old English 1 (headedness)

(5) a. God ascunað leasunga (coaelive,+ALS[Ash_Wed]:128.2768)
God hates lies

b. [$_{IP}$ God [$_{I}$ ascunað$_{i}$] [$_{VP}$ t$_{i}$ leasunga]] (head-initial IP/VP)

c. [$_{IP}$ God [$_{I}$ ascunað$_{i}$] [$_{VP}$ leasunga t$_{i}$]] (head-initial IP, head-final VP)

d. [$_{IP}$ [$_{IP}$ God [$_{I}$ ascunað$_{i}$] [$_{VP}$ t$_{i}$ t$_{j}$]] [$_{NP}$ leasunga$_{j}$]] (head-initial IP/VP)

e. [$_{IP}$ [$_{IP}$ God [$_{I}$ ascunað$_{i}$] [$_{VP}$ t$_{j}$ t$_{i}$]] [$_{NP}$ leasunga$_{j}$]] (head-initial IP, head-final VP)

f. [$_{IP}$ [$_{IP}$ God [$_{VP}$ t$_{j}$ t$_{i}$] [$_{I}$ ascunað$_{i}$]] [$_{NP}$ leasunga$_{j}$]] (head-final IP/VP)

Background: diagnostic elements

(6) þæt þu t$_{i}$ geswican wylle [þinre reðnusse]$_{i}$ (coaelive,+ALS_[Vincent]:153.7895)
that you abandon will your fierceness
"... that you will abandon your fierceness"

(7) * … Vnf Vf diagnostic
where diagnostic = particle, pronoun, negative argument/adverb, stranded P

(8) unambiguous head-initial IP: … Vf diagnostic

(9) unambiguous head-initial VP: … Vf (…) Vnf diagnostic

Background: Structural ambiguity in Old English 2 (Verb (Projection) Raising)

(10) Þa se cyng þas word hæfde [$_{V}$ gehered] (cogregdC,GD_2_[C]:14.133.1.1602)
When the king these words had heard
"When the king had heard these words …"

(11) his lif to biesene bið [$_{VP}$ oðrum monnum geset] (cocura,CP:28.193.19.1293)
his life as example is (to) other men set
"his life is set as an example to other men"

(12) Se is [$_{V}$ geutlagod] (coaelive,+ALS_[Cecilia]:130.7193)
He is outlawed

(13) Þis wæs [$_{V}$ þus geworden] (coaelive,+ALS_[Abdon_and_Sennes]:189.4832)
This was thus done

Background: Pronoun scrambling

(14) & God hit geþafað him (cowulf,WHom_4:17.112)
and God it allows him
"and God allows it (to/for) him"

(15) ðæt him God sende to fultome (cocura,CP:55.429.10.3017)
that (to) him God sent as help
"… which God sent as help to him …"

Background: Genitives within Old English NPs

(16) [$_{NP}$ [$_{NP\text{-}GEN}$ þæs fæder] wisdom] (coaelive,+ALS_[Christmas]:35.26)
the.GEN father.GEN wisdom
"the wisdom of the father"

(17) [$_{NP}$ heafod [$_{NP\text{-}GEN}$ lenctenes fæstenes]] (coaelive,+ALS[Ash_Wed]:1.2708)
head Lenten.GEN fast.GEN
"the head of the Lenten fast"

Background: Old English relativizers

(18) … sum heretoga … [$_{CP\text{-}REL}$ se cwæð to his leode …]
… a-certain leader … who said to his people …
(coaelive,+ALS_[Maccabees]:298.5031)

(19) … eowere handa [$_{CP\text{-}REL}$ þe æfre hetole wæran …]
… your hands that ever severe were … (coaelive,+ALS_[Vincent]:133.7880)

(20) … Petre [$_{CP\text{-}REL}$ se þe hæfð þa mihte …]
… Peter who that has the power … (coaelive,+ALS[Peter's_Chair]:45.2294)

Using syntactic criteria for dating

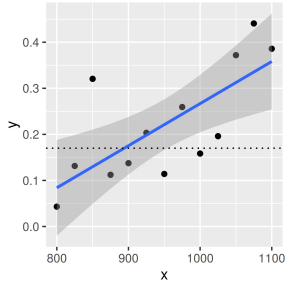
- Zimmermann (2014) developed a new method for using quantitative (as opposed to qualitative) information on syntactic changes to date texts
  a. Identify syntactic markers which change over the time period of interest
  b. Measure these markers in the texts to be dated, and in a large control sample of texts with known date
  c. Compare the measurements in the undated texts to the known texts to determine the date of the former
- We adopt Zimmermann's identification of markers relevant to OE texts (a, with some slight reorganization), and his general approach to steps (b) and (c)
- However, we have developed a new method for implementing step (c), as an improvement (for our purposes) on that deployed by Zimmermann

Integrating quantitative information

- Zimmermann used a *naive Bayes classifier* to assign texts to periods. This method has drawbacks
  - It only assigns a text to a period, which for Z could be between 50 and 110 years in length. There is no reason in principle why more specific estimates could not be produced, and intervals of uncertainty given dependent on the strength of the estimate not an *a priori* periodization
  - The method can't cope with texts that are outside the interval defined by the periodization, which me want to allow for the possibility that *Beowulf* is
  - The method doesn't incorporate our assumption that, except in rare cases, syntactic changes are unidirectional
- For these reasons, we are developing an alternative method for integrating the quantitative information about texts into a date estimate, based on regression

A regression-based method for dating texts

- Our method uses regression methodology to date texts



- (Next steps: more sophisticated regression method, integrating uncertainty from multiple estimates)

IP headedness criteria IP1-main, IP1-sub

- Position of the finite verb with relation to diagnostic elements

(21) his huse of þam þe he ut ferde
his house from which C he out went
"... his house, from which he went out" (coaelhom,+AHom_4:235.647)

(22) oþþæt ... þæt hors hine bær forð
until ... the horse him carried forth
"... until ... the horse carried him forth" (coaelive,+ALS[Ash_Wed]:50.2731)

- Measured for main and subordinate clauses separately

IP headedness criterion IP2

- The relative order of non-finite and finite (auxiliary) verbs

(23) þæt menn hit gehyran mihton
so.that men it hear might
"So that men might hear it" (coaelhom,+AHom_1:451.233)

(24) þanan heora nan ne mæg syððan ut aberstan
whence of.them none NEG may since out burst.forth
"Whence none of them has since been able to burst out" (coaelhom,+AHom_15:158.2219)
(NB this example illustrates the co-occurrence of Infl-medial and OV orders)

- For subordinate clauses only; main clauses are too far advanced (too few tokens of type (N, ie the first)

IP headedness criterion IP3

- Position of the finite verb in relation to nominal objects
  - When the object appears after the verb, we cannot (in general) rule out rightwards movement of heavy objects. Thus, a post-finite-verbal object is not a categorical diagnostic of head-medial status, nonetheless there is a noticeable trend we can exploit
  - We only measure in subordinate clauses to rule out the effects of T-to-C as well as the movement of objects to the left periphery of main clauses for information structural reasons. Thus a pre-finite-verbal object is decisively diagnostic of an Infl-final order

(25) buton he ðone gylt gebete on his life
Unless he the guilt amends on his life
"...unless he makes amends for his guilt during his life." (coaelhom,+AHom_16:15.2265)

(26) þæt þin broðor hæfð sum þing ongean þe
that your brother has some thing against you
"...that your brother has something against you." (coaelhom,+AHom_16:19.2266)

VP headedness criterion VP1

- Order of non-finite verbs relative to diagnostic elements

(27) ne ic nelle inn gan into Godes huse
nor I NEG+will in to.go into God's house
"Neither do I wish to go into God's house" (coaelhom,+AHom_27:111.3992)

(28) hi ongunnon teon ut þa munecas
they began to.draw out the monks
"They began to draw the monks out." (cogregdC,GD_1_[C]:4.42.25.469)

- Measured for main and subordinate clauses combined (because of low token count)

VP headedness criterion VP2

- The position of nonfinite verbs relative to their objects
  - Only objects immediately adjacent to the verb, or separated from it by another object, are used (non-adjacent objects have necessarily moved from their base position)
  - Following Zimmermann (2014), we considered only two-word objects to control for prosodic influences on object placement
  - We additionally restricted our criterion to positive (i.e. non-negative, non-quantified) objects
  - Main and subordinate clauses measured together

(29) & mannes muð ne mæg his naman fullcyðan
and man's mouth NEG may his name fully.proclaim
"And man's mouth cannot fully proclaim his name" (coaelhom,+AHom_1:119.77)

(30) and we willað geopnian eow þæt andgyt nu
and we will to.open you.DAT the knowledge now
"And now we want to open the knowledge to you." (coaelhom,+AHom_3:46.434)

Pronoun criteria Pro1-main, Pro1-sub

- Scrambling of object pronouns to subject-adjacent position
  - We took it to be diagnostic of scrambling if the pronoun is: (1) in a cluster of pronouns adjacent to the subject but not (2) adjacent to the verb

(31) and hyne Drihten arærð
and him the.lord raises.up
"And the Lord raises him up" (coaelhom,+AHom_6:292.1014)

(32) and he heom þus sæde
and he them.DAT thus said
"And thus he said to them…" (coaelhom,+AHom_10:131.1476)

- Measured separately for main and subordinate clauses

Pronoun criteria Pro2-main, Pro2-sub

- Pronoun scrambling to the left of T
  - Only in Infl-medial clauses: if and only if an object pronoun has moved to the left of the finite verb, it has scrambled

(33) Þæt wif him cwæð þa to
the woman him spoke then to
"The woman then said to him" (coaelhom,+AHom_5:21.690)

(34) and he cwæð him þa to
and he spoke him then to
"And then he said to him" (coaelhom,+AHom_21:57.3110)

Clause structure criterion CS2 (sic)

- (Lack of) verb movement to C in main clause declaratives
  - As measured by inversion of finite verb and subject pronoun

(35) Ne sprece ic nu na fela wið eow
NEG speak I now NEG much against you
"I won't say anything against you now." (cowsgosp,Jn_[WSCp]:14.30.7011)

(36) ic ne sprece næfre to ðæm
I NEG speak never to those
"I never speak to those people." (coboeth,Bo: 38.121.23.2421)

Nominal criterion NP-Gen

- The relative order of genitives and the head of the containing NP

(16′) þæs fæder wisdom (coaelive,+ALS_[Christmas]:35.26)
the.GEN father.GEN wisdom
"the wisdom of the father"

(17′) heafod lenctenes fæstenes (coaelive,+ALS[Ash_Wed]:1.2708)
head Lenten.GEN fast.GEN
"the head of the Lenten fast"

Nominal criterion NP-Rel

- Relative clause constructions
  - We counted *þe*-only relatives as the innovative form and relatives with *se* (alone or in combination with *þe*) as the conservative one

(18′) sum heretoga … se cwæð to his leode …
a-certain leader who said to his people (coaelive,+ALS_[Maccabees]:298.5031)

(19′) eowere handa þe æfre hetole wæran
your hands that ever severe were (coaelive,+ALS_[Vincent]:133.7880)

(20′) Petre se þe hæfð þa mihte
Peter who that has the power (coaelive,+ALS[Peter's_Chair]:45.2294)

Finding useful criteria

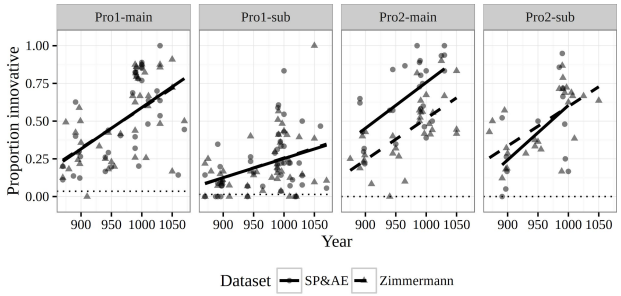
- The criteria thus defined were used by Zimmermann to date a collection of OE and eME prose texts
- Not all of them will be useful for examining *Beowulf*
- We defined four conditions that criteria must fulfill to be useful for us
  a. The criterion must show a consistent trend over the OE period
  b. There must be enough data in Beowulf to evaluate the criterion
  c. The value in *Beowulf* must fall within a plausible interval, based on the prose texts
  d. The criterion must not systematically differ between prose and poetic texts

Examining the criteria

- IP1-sub and IP2 were excluded from the analysis because they do not show a change in the OE period (condition a)
  - Another of Zimmermann's original criteria, related to the structure of subordinate clauses and not discussed in this presentation, was also omitted for this reason
- VP1 and VP2 were excluded because they do not appear in *Beowulf* (condition b)

Pronoun criteria – genre differences

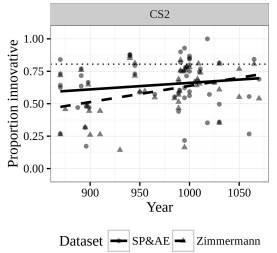
- The Pro1 and Pro2 criteria (in main and sub flavors) produced the following results



- That is, in *Beowulf* pronouns always scramble, whereas in the prose scrambling is less than categorical. Thus, these criteria violate condition c (except for Pro1-sub)
- This matches the behavior of pronouns in other poems (see handout) – that is, these criteria differ systematically between prose and poetry (condition d)

CS2 – another genre difference

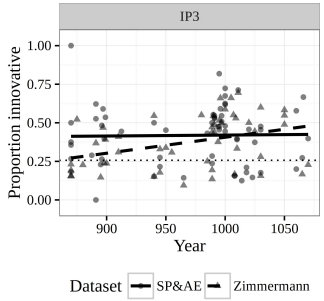
- A similar, though opposite, situation was observed for CS2 (inversion of pronoun subjects in main clause declaratives)
- *Beowulf* seems much more innovative than the average of the prose texts



- This once again is replicated in other poems (see handout), and we suggest that this genre difference derives from the use of T-to-C movement as a discourse linking construction in OE (Trips and Fuss 2009)

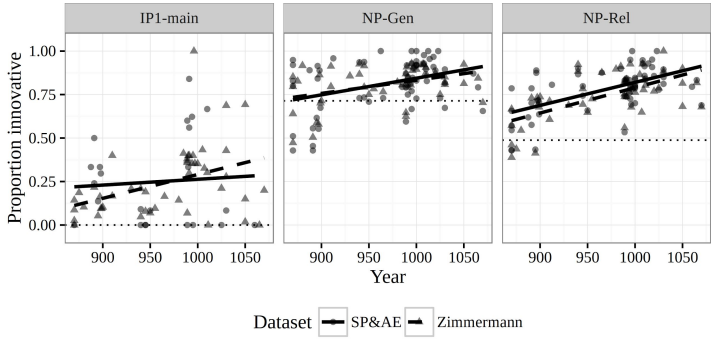
IP3 – a measurement issue

- For the IP3 criterion, our data differed from those of Zimmermann (2014)
- Zimmermann found a trend over time, while we did not
  - This difference was robust to our attempts to attenuate methodological differences
- Thus, we must exclude this criterion from our analysis for violating condition a



Usable criteria point to an early date

- This leaves three criteria available for comparison: IP1-main, NP1, and NP2
- Each points to an early date for Beowulf



On the independence of criteria

	IP1-main	NP-GEN
NP-GEN	0.16	–
NP-REL	0.11	0.35

- How much evidence are these three criteria, taken together, for an early date of composition for Beowulf?
  - One possibility is that texts can be “archaizing” or “innovating” – a single text departs from the trend in identical ways across different criteria. This would lessen our evidence, as *Beowulf* could be an “archaizing” text, rather than one which was in fact written early
- To test this hypothesis, we analyzed the correlation of the residuals for each of our three criteria (from the linear models used in the previous visualizations)
- High correlation = two criteria tend to move together; low correlation = they are independent evidence
  - The two NP criteria are not independent, but IP1-main is only slightly dependent on other 2
  - So there appears to be separate evidence for an early date from the NP and IP domain

Conclusions

- We have evidence from the syntax of NP and of IP that the text of *Beowulf* was composed early in the OE period -- most probably in the first half of the 9th century, or roughly as early as the earliest attested prose.
- We have also discovered evidence that the syntax of *Beowulf* differs systematically from prose texts (primarily where pronouns are concerned, in our data). These differences are not attributable to the temporal relationship between *Beowulf* and the prose texts, and are replicated in other OE poems as well.
- Quantitative evidence gathered through parsed corpora can contribute to the investigation of these questions

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References

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Table 8.1: Frequencies for pronoun-related criteria in the poetic texts

Text	*Date*	*Pro1-main*	*Pro1-sub*	*Pro2-main*	*Pro2-sub*	*ProInv*
Cædmon's Hymn	657–80	0/0	0/0	0/0	0/0	0/0
Bede's Death Song	735	0/0	0/0	0/0	0/0	0/0
The Leiden Riddle	8th century	0/3 = 0%	0/0	0/0	0/0	0/2 = 0%
Christ III	7th–8th century	0/0	0/0	0/0	0/0	2/2 = 100%
Genesis A (I and II)	8th century	1/30 = 3.3%	0/2 = 0%	1/3 = 33%	0/0	13/25 = 52%
Riddles	8th century	2/20 = 10%	0/18 = 0%	2/7 = 29%	0/1 = 0%	68/80 = 85%
Exodus	8th–9th century	0/9 = 0%	0/6 = 0%	0/0	0/0	8/15 = 53%
Elene	9th century	3/32 = 9.4%	0/20 = 0%	2/11 = 18.2%	0/3 = 0%	28/42 = 67%
Fates of the Apostoles	9th century	0/0	0/1 = 0%	0/0	0/0	1/3 = 33%
Juliana	9th century	2/28 = 7.1%	0/21 = 0%	0/9 = 0%	0/2 = 0%	20/36 = 56%
Phoenix	post-Cynewulf	1/8 = 12.5%	1/8 = 12.5%	1/3 = 33%	0/1 = 0%	3/6 = 50%
Christ II	9th century	1/5 = 20%	0/6 = 0%	1/1 = 100%	0/2 = 0%	3/9 = 33%
Andreas	9th century	0/19 = 0%	0/16 = 0%	0/6 = 0%	0/2 = 0%	17/39 = 44%
Meters of Boethius	897	1/7 = 15%	2/29 = 6.9%	0/2 = 0%	0/1 = 0%	28/45 = 62%
The Battle of Brunanburh	937	0/0	0/0	0/0	0/0	1/1 = 100%
Christ I	late 8th–mid-10th century	0/8 = 0%	2/14 = 14%	0/3 = 0%	0/1 = 0%	8/9 = 89%