Word order in the recent history of English: syntax and processing on the move

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UCREL Corpus Research Seminar (CRS)

Lancaster University, 19 Jan 2017
Research group LVTC (Language Variation and Textual Categorisation):

- diachronic variation (mainly, syntax): EModE>PDE
- diatopic variation (Word Englishes)
- diachronic text-type characterisation (speech-based/purposed vs written text types)
- textual linguistics (Systemic Functional Grammar)
- linguistic complexity: across time, L2 English
- empirical (corpus-based/driven) approach
Today

• Two pieces of research on the order of constituents in the clause (time permitting):
  • verb-object vs object-verb in the recent history of English:
    • People love British coffee.
    • *People British coffee love.
  • complement-adjunct vs adjunct-complement in the history of English:
    • People love British coffee in the morning.
    • People love in the morning British coffee.
Verb-object vs object-verb
in the recent history of English
Goal

• **OV** [Object-Verb] in (the recent history of) English:

  *The old men [young girls]_obj married.* (READE-1863,219.452)

• Kayne (1994):
  • **VO** is the basic (underlying) word order in English.
  • OV surfaces as the result of leftward movement.
  • Light elements (pronouns and particles), and not full NPs, can undergo leftward movement.
  • So... OV is a **marked** configuration of the clause
Outline

• Some history
• Goal
• Data
• Analysis of the data
• Conclusions
Some history

Old English (OE) (Pintzuk 1991, Moerenhout and van der Wurff 2010):

• Both OV and VO in OE (Fischer and van der Wurff 2006: 185: ‘OV with V2’ grammar).

OV₁: OvV:
    þe æfere on gefeohhte his handa wolde afylan
    who ever in battle his hands would defile
    ‘whoever would defile his hands in battle’
    (Ælfric’s Lives of Saints 25.858; Pintzuk 1999: 102)

OV₂: vOV:
    He ne mæg his agne aberan
    he not can his own support
    ‘He cannot support his own’ (CP 7.53.1; Moerenhout and van der Wurff 2005: 85)
Some history

VO:

Ælfric munuc gret ÆDelwærð ealdormann eadmodlice.
Ælfric monk greets Æthelweard nobleman humbly
‘The monk Ælfric humbly greets the nobleman Aethelweard.’ (ÆGenPref 1)

• Fischer and van der Wurff (2006: 185): “OE verbs are usually in clause-final position”, so VO would be a “complication” (“a finite verb is moved to second position in main clauses”)

• **OV was frequent:**
  - with pronominal objects ☀
  - with ‘particles’ ☀
  - in subordinate clauses ☀
  - in main clauses with auxiliaries ☀
Some history


- OV and VO:
  - Trips (2002): almost rigid VO
  - Fischer and van der Wurff (2006: 187): “steady decline” of OV
  - Moerenhout and van der Wurff (2000): OV is less frequent but it does not disappear

- Kroch and Taylor (2000):
  - end-weight role: postverbal objects tend to be somewhat longer than preverbal objects ⇒ pronominal objects tend to be preverbal
  - quantified objects tend to be preverbal
Some history

Late Middle English (LME) (van der Wurff 1997, Moerenhout and van der Wurff 2000, Ingham 2002):

• **OV and VO, the former limited in non-literary English** exclusively to these patterns:
  • clauses with auxiliaries, ie. vOV (Ingham’s 2002 ‘embraciated’)
  • with negated/quantified objects:
    Ingham (2002): 90% of OV clauses have negated objects, so Neg movement of the object to SpecNegP (between Infl and VP), a type of movement which is no longer available in PDE (Ingham 2000: 34: Neg movement is a form of A’-movement and thus optional)
  • (coordinated clauses)
  • nonfinite clauses)
Some history

..../..

• van der Wurff and Foster (1997a): OV survived “much more tenaciously than suggested”; van der Wurff and Foster (1997b: 147): not merely a survival or an archaism but fulfilled an information-packaging given-new function – “OV in late ME prose is anti-triggered by new objects”.

🔥
Some history

**Early Modern English (EModE)** (van der Wurff and Foster 1997, Fischer and van der Wurff 2006, Moerenhout and van der Wurff 2005: 187):

- 1500–1550: “OV survives productively” (van der Wurff and Foster 1997a: 84): 0.37/1,000w

- 1550–:
  - OV dwindles away outside poetry (Rissanen 1999: 267: “exceptional”) 🌟
  - van der Wurff and Foster (1997a): only 42% with pronominal objects, so... *given-new strategy* (“the association between OV and pronominal objects seem to be lost in the course of time”, p.451) 🌟
Some history

**Present-Day English (PDE):**

- van der Wurff and Foster (1997b): OV is an archaism
- Takizawa (2012): OV (only with *make*): 79 examples in the Bank of English (520 mio words)
Goal

• (initially:) OV in the recent history of English: EModE, LModE (and PDE)

• data from larger balanced multi-genre corpora:
  • previous studies were based on genre-specific corpora (eg. letters) or on small corpora
  • importance of balance since the distribution of OV is very different across genres – eg. in prose and in poetry in 14th and 15th century English:
    Foster and van der Wurff (1995):
    ~1340: OV is 6 times more frequent in poetry
    ~1400: OV is 10 times more frequent in poetry
    ~1470: OV is 20 times more frequent in poetry

• application of a widely accepted statistical model
Data

• Corpora:
  • for Early Modern English (EModE; 1500-1710), the Penn-Helsinki Parsed Corpus of Early Modern English or PPCEME – 1,737,853 words from the Helsinki directories of the Penn-Helsinki Parsed Corpus of Early Modern English, plus two supplements (Kroch et al. 2004)
  • for (Late) Modern English (LModE; 1700-1914), the Penn Parsed Corpus of Modern British English or PPCMBE – 948,895 words (Kroch et al. 2010)
Data

node: IP*

query: ((IP* idoms  *SBJ) 
    AND (IP* idoms  *OB*|CP-THT|CP-QUE) 
    AND (IP* idoms  VA*|VB*|BA*|BE*|DA*|DO*|HA*|HV*)) 
    AND (*SBJ precedes 
        VA*|VB*|BA*|BE*|DA*|DO*|HA*|HV*) 
    AND (*SBJ precedes *OB*|CP-THT|CP-QUE) 
    AND (*OB*|CP-THT|CP-QUE precedes 
        VA*|VB*|BA*|BE*|DA*|DO*|HA*|HV*))

• CP-THT (eg. Craig (that) it was going to rain in Lancaster announced), not bracketed as OB
• CP-QUE (eg. Craig when it is going to rain asked), not bracketed as OB
• participles: BA (of be), DA (of do), HA (of have), VA (of other verbs)
• verbs other than participles: BE, DO, HV, VB
Data

• OV frequencies

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<th>1500-1569</th>
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Data

• OV frequencies

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Data

- OV frequencies

n.f./1,000w
Data

So... (definitive goal:) focus on EModE.
RQ: forces shaping OV in EModE

• Determining the EModE database size:
  • examples of OV in PPCEME: 234
  • examples of VO in PPCEME: 49,047
  • examples VO+OV in PPCEME: 49,281
  • R (The R Project for Statistical Computing, https://www.r-project.org): function ‘n.for.survey’ (library epiDisplay) to determine the min. database size:
    \[
    \text{n.for.survey(p=.08, delta=.02, popsize=49281, alpha=0.05)}
    \]
    Sample size = 697 (min.)
Analysis of the data

• Determining the (initial) variables:
  • textual:
    • genre
  • linguistic:
    • patterns
    • co-occurrence with auxiliaries
    • discontinuity
    • particles
    • finiteness
    • main/subordinate clause
    • (c/)overt subject
    • subject length
  • object length
  • category of object
  • semantic, discourse-related:
    • quantified objects
    • negated objects
Analysis of the data

**Genre** (based on Culpeper and Kytö 2010):

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<td>phil</td>
<td>philosophy</td>
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Analysis of the data

VO patterns

• **SVO:**
  - **SVO:** but *the Trinity keep you.* (APLUMPT-E1-H,185.85)
  - **SvVVO:** when *he was building that admirable worke of his tombe* (ARMIN-E2-H,46.410)
  - **SVXO:** *He had no sooner the liberty of his tongue,* but that he curst and swore like a diuel: (DELONEY-E2-P2,51.297)
  - **SvVXO:** but by her cheeks *you might find guilty Gilbert* (ARMIN-E2-P2,39.298)
  - **SvXVO:** *the middle letter doth alwayes signifie the Angle propounded,* (BLUNDEV-E2-P2,57V.18)
  - **SvXvVO:** that *I shoulde thus haue refused the oth.* (MORELET2-E1-H,506.44)
  - **SvXVXO:** And if any one shall throughly weigh in his Mind the Force and Energy of the one and of the other, (BOETHPR-E3-H,191.376)
Analysis of the data

VO patterns

• SVO:
  • SXvVO: *I truly can accuse you of none.* (THOWARD2-E2-P2,101.55)
  • SXVXO: And in this yere *the kynge at the Request of the duke of Orleunce sent over the foresayd duke his sone* (FABYAN-E1-H,174V.C2.196)

• inverted subjects:
  • VSO: Ford. *Has Page any braines?* (SHAKESP-E2-P1,49,C1.876)
  • vSVO: And thus *do the best Divines expound the Place.* (JUDALL-E2-P2,1,175.312)
  • vSVXO: L. C. J. *Did my Lady Lisle ask you that Question?* (LISLE-E3-P2,4.118.337)
  • vSXVO: *should we therefore judg those who retain their Sight to be blind also?* (BOETHPR-E3-H,183.330)
Analysis of the data

VO patterns

- subjectless:
  - 0VO: and *0 saw great danger* on both hands: (BURNETCHA-E3-P1,2,171.260)
  - 0vVO: and *0 will emploie all other meanes possible*, (EDMONDES-E2-H,394.23)
  - 0VXO: and *0 kepe close such matters*. (LATIMER-E1-H,38L.351)
  - 0vXVO: and would eat as much at one time as *0 might very well serve four or five ordinary men*, (PENNY-E3-P1,33.196)
Analysis of the data

OV patterns

• OV:
  • SOV: This profe I trow may serue, though I no word spoke. (STEVENSO-E1-H,54.218)
  • SOXV: God all Rules by goodnes order (BOETHEL-E2-P2,71.256)
  • SXOV: who for like faulte out of the citie the name of kings abolisshed. (BOETHEL-E2-P1,34.464)
  • SXOXY: And Goodlucke I dare sweare, your witte therin would low. (UDALL-E1-P2,L1563.786)
Analysis of the data

OV patterns

• vOV:
  • SvOV: alledging that *he hath nothing done*, (WOLSEY-E1-H,2.2,21.17)
  • SvOXV: *I shall hir no more see*. (UDALL-E1-H,L.1111.442)
  • SvXOV: *We should therat such a sporte and pastime haue founde*, (UDALL-E1-P2,L1563.780)
  • SXvOV: Here *Martin luther for his shrewed brayne wyll some thyng wrastell agaynst vs*. (FISHER-E1-P2,337.68)

• vOV_inversion:
  • vSOV: C. Cust. *Will ye my tale breake?* (UDALL-E1-P2,L1469.671)
  • vSOXV: T. Trusty. *Do you that part wel play* (UDALL-E1-P2,L1594.797)
  • vSXOV: *So shall we pleasantly bothe the tyme beguile now, And eke dispatche all our workes ere we can tell how*. (UDALL-E1-H,L.297.196)
Analysis of the data

OV patterns

• subjectless:
  • 0OV: nor also 0 none can haue. (MORERIC-E1-P1,32.135)
  • 0OXV: and 0 hym myserably in his Chaumbre slewe (FABYAN-E1-H,170R.C1.85)
  • 0vOV: But I woulde be auenged in the meane space, On that vile scribler, that 0 did my wowyng disgrace. (UDALL-E1-H,L.1145.493)
  • 0XOV: And 0 by and by them opened, euen as they were before, (STEVENSO-E1-H,14.147)
  • 0XvOV: ich trust 0 soone shalt it see (STEVENSO-E1-P1,33.539)
Analysis of the data

**Pattern** simplification

• $vV > V$, to avoid interaction with *auxiliary/no_aux*
• $SXv$ or $SXV > S$, since we are focusing on $[(v)V...O]$
• No difference is made between subjectless examples and those with subjects to avoid interaction with *subj/subjectless*
• verb-first examples will not be considered specific patterns (interrogatives, exclamatives, inversions) to avoid interaction with *v_first/non-v_first*
• $VXO>VO$, to avoid interaction with *continuous/discontinuous*
Analysis of the data

**Pattern** simplification

- OV: collinearity with response variable (ov)
- VO: collinearity with response variable (vo)
- vOV: collinearity with response variable (ov) and auxiliary
- vXOV: only partial collinearity with response variable (ov)
- vXVO: only partial collinearity with response variable (vo)

To avoid collinearity with the response variable (ov/vo) and the variable auxiliary, the list of patterns were replaced with the variable:

- **intervening material** following v (mat): vXVO, vXOV
- no intervening material following v (no_mat)
Analysis of the data

**Auxiliary** (v)

- auxiliary
- no_aux

**Continuous** (X, between V and O [VXO], or O and V [OXV])

- continuous
- discontinuous

**Verb-first:**

- v_first
- non-v_first
Analysis of the data

Particles

• And there was a Justice of peace had taken away much of frends goods: (FOX-E3-P2,109.140)

Finiteness

• finite

• infinitive: And thus I desyre our Lorde to have you in his moste gratious tuytion. (GCROMW-E1-P1,209.9)

• ing clause: The Priest and the Tanner seeing the Taylor, mused what hee made there: (DELONEY-E2-P1,16.253)

• (no examples of ed clauses in the corpus)
Analysis of the data

Main/Subordinate/Coordinated clause

• main

• subordinate: for I thinke *so God me mende*, This will proue some foolishe matter in the ende. (UDALL-E1-P2,L751.17)

• coordination: “Then that is the top of felicitie, that stowtly rules & 0 gently all disposith.” (BOETHEL-E2-P2,71.264)

(C/)Overt subject

• with overt subject

• subjectless
Analysis of the data

**Subject length** (ordinalisation>factorising)
- average: 0-2 words (771 examples)
- long: 3-6 words (89 examples)
- very long: 7-22 words (13 examples)

**Object length** (ordinalisation>factorising)
- average: 1-3 words (628 examples)
- long: 4-9 words (187 examples)
- very long: 10-32 words (45 examples)
Analysis of the data

**Quantified object**
- definite
- indefinite (inc. zero)
- cardinal
- ordinal

**Negated object**
- non-negated
- negated: M. Mery. Nay fayth ye shall promise that he shall *no harme* haue, (UDALL-E1-H,L.1179.505)
Analysis of the data

**Category of object**

- pronominal: only a non-wh pronoun (*me, I, mine*)
- NP: NP including a noun
- other: eg. clauses (*, wh-elements*)
Analysis of the data

- response variable: ov/vo
- (definitive) variables:
  - textual:
    - genre (simplified)
  - linguistic:
    - intervening material
    - co-occurrence with auxiliaries
    - discontinuity
    - particles
    - finiteness
    - main/subordinate clause
    - (c/)overt subject
    - subject length (ordinal)
- object length (ordinal)
- category of object
- semantic, discourse-related:
  - quantified objects
  - negated objects
### Analysis of the data

#### Logistic regression analysis: R, functions glm and lmr

|                | Estimate   | Std. Error | z value | Pr(>|z|) |
|----------------|------------|------------|---------|----------|
| auxiliary [T.no_aux] | -1.064e+00 | 2.342e-01  | -4.543  | 5.55e-06 *** |
| continuous [T.discontinuous] | 3.563e-01 | 3.702e-01  | 0.962   | 0.335903  |
| finiteness [T.finite]     | -1.596e+01 | 1.075e+04  | -0.001  | 0.998816  |
| finiteness [T.inf]        | -1.884e+01 | 1.075e+04  | -0.002  | 0.998602  |
| finiteness [T.ing]        | -1.748e+01 | 1.075e+04  | -0.002  | 0.998703  |
| genre2 [T.speech]         | -1.506e+00 | 3.452e-01  | -4.363  | 1.28e-05 *** |
| genre2 [T.writ]           | -3.211e+00 | 3.955e-01  | -8.118  | 4.72e-16 *** |
| main_sub [T.main]         | 4.049e-01  | 3.430e-01  | 1.180   | 0.237833  |
| main_sub [T.sub]          | 8.972e-01  | 5.832e-01  | 3.317   | 0.000908 *** |
| mat [T.no_mat]            | 1.935e+00  | 5.832e-01  | 3.317   | 0.000908 *** |
| neg_obj [T.non-neg]       | -2.473e+00 | 5.320e-01  | -4.648  | 3.34e-06 *** |
| obj_length                | -2.698e-01 | 8.251e-02  | -3.270  | 0.001076 ** |
| object [T.other]          | -1.602e+01 | 9.188e+02  | -0.017  | 0.996089  |
| object [T.pro]            | 8.371e-01  | 2.684e-01  | 3.119   | 0.001818 ** |
| particles [T.particles]   | -2.378e+00 | 1.114e+00  | -2.135  | 0.032736 *  |
| quantif_obj2 [T.definite] | 1.851e+01  | 1.960e+03  | 0.009   | 0.992468  |
| quantif_obj2 [T.indefinite]| 1.650e+01  | 1.960e+03  | 0.008   | 0.993283  |
| subj_length               | 2.294e-01  | 8.593e-02  | 2.670   | 0.007590 ** |
| subjectless [T.subjectless]| 2.110e+00  | 3.746e-01  | 5.631   | 1.79e-08 *** |
| v_first [T.v_first]       | -1.806e+01 | 1.789e+03  | -0.010  | 0.991946  |

Signif. codes:  0 '***' 0.001  '**' 0.01  '*' 0.05  '.' 0.1  ' ' 1
Analysis of the data

Logistic regression analysis: R, functions glm and lmr

| Feature          | Pr(>|Z|)          |
|------------------|-------------------|
| genre            | <0.0001           |
| neg_obj          | <0.0001           |
| auxiliary        | 0.0001            |
| interv. material | 0.0005            |
| obj_length       | 0.0015            |
| object           | 0.0046            |
| particles        | 0.0327            |
| main_subord      | 0.4818            |
| subj_length      | 0.5118            |
| continuous       | 0.5132            |
| verb_first       | 0.8505            |
| quantif_obj      | 0.8570            |
| finiteness       | 0.9796            |

Discrimination indexes:
- (Nagelkerke) $R^2=0.540$ (very good if >.5)
- C (Concordance)=0.903 (outstanding if >.9)
Analysis of the data

Variable *genre*

written vs speech: $\chi^2(1)=73.73$, $p<.0001$

speech vs phil: $\chi^2(1)=12.04$, $p=.0003$
Analysis of the data

Variable **negated object**

\[ \chi^2(1) = 7.64, \ p = .0057 \]
Analysis of the data

Variable **auxiliary**

\[ \chi^2(1) = 25.05, \ p < .0001 \]
Analysis of the data

Variable *intervening material*

\[ \chi^2(1) = 11.18, \ p = .0008 \]
Analysis of the data

Variable **object length**

average vs long: $\chi^2(1)=36.21$, $p<.0001$

long vs very_long: Fischer(1), $p$(two-tailed) = .4221
Analysis of the data

Variable **object length** (recodified)

![Bar chart showing object length data](chart.png)
Analysis of the data

Variable **object type**

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</tbody>
</table>

`pro vs NP: χ²(1)=21.5, p<.0001`
Summary and conclusions

• Goal (I): study of OV in the recent history of English

• Frequency: statistically marginal in EModE =>
  => lack of evidence in LModE

• Goal (II): statistical analysis of the forces favouring OV in EModE

• Data: PPCEME
  • OV: 218 examples (234 inc. Bible)
  • VO: 655 randomised examples

• Analysis of 13 variables

• Logistic regression analysis: 6 sufficiently explanatory variables
Summary and conclusions

• OV is favoured in speech-based/related/purposed and ‘speechy’ (inc. Philosophy) text types.
• OV is favoured by negated objects.
• OV is favoured by auxiliaries in the verbal group.
• OV is disfavoured by lexical material between v and V/O (vXVO, vXOV).
• OV is favoured by short and average (in length) objects.
• OV is favoured by pronominal objects.
Summary and conclusions

(i) Textual (performance) issue as a trigger of OV: the speechier, the greater the frequency of OV

(ii) Prominence of end-weight as the triggering force of OV: preference for reduced lexical complexity of the object:

- objects:
  - shorter objects
  - pronominal objects

- verbal groups:
  - with auxiliaries (short objects and ‘expanded’ verbal groups)
  - without intervening material between auxiliary and rest of the predicate (vXOV) (maybe reinforces the desired effect of shortening of the object or the non-verbal part of the predicate)

- So... OV in EModE already accommodated within the principles ruling performance in Modern English (end-weight).
Complement-adjunct vs adjunct-complement in the history of English
Outline

• Assumptions
• Goals
• Data
• Analysis of the data:
  • complements-first
  • end-weight
• Conclusions and further research
• References
Assumptions

• Dependents in phrases: complements vs adjuncts
  • Complements:
    • reserved positions in the clause:
      Huddleston and Pullum (2002: 225): “[c]omplements are more restricted than most adjuncts as to what positions they can occupy in the clause. In general, there is a basic or default position for a given kind of complement”
    • semantically selected or subcategorized:
      Matthews (2007: 187): “unit in a construction either required or specifically taken by an individual member of a lexical category”
      Matthews (1981: 124-127): impossibility of dropping (if dropped, then latent)
Assumptions

• Dependents in phrases: complements vs adjuncts
  • Complements:
    • exclusion when the pattern is saturated
    • syntactic dependencies; eg. lexical restrictions or formal determination (Greenbaum et al. 1996: 76): \{deal, compliance\} + with-PP; \{assume, certain, hypothesis\} + that-clause
  • Adjuncts:
    • loose semantic connection between the adjunct and the head => not required
Assumptions

• Distribution of complements and adjuncts is governed by:
  
  • syntactic rule: complements precede non-complements (complements-first)
    • Quirk et al. (1985: 49-50): ‘Complements first’
    • Hawkins (2007): ‘Arguments precede X’
Assumptions

• processing: incremental constructionalisation of constituents (end-weight):
  • Quirk et al. (1985: 1398): End-weight
  • Hawkins’ (2004, 2007) ‘Minimize Domains (MiD)’: preference for short-long designs:
    “Given two or more categories A, B, [...] related by a grammatical rule R of combination and/or dependency, the human processor prefers to minimize the distance between them within the smallest surface structure domain sufficient for the processing of R.” (Hawkins 2004: 234)
    “[g]iven a structure {A, X, B} (...), the more relations of combinations or dependency that link B to A, the smaller will be the size and complexity of X” (Hawkins 2004: 37)
Assumptions

- **processing**: incremental constructionalisation of constituents (**end-weight**):
  - Temperly (2007: 315): “If a word has multiple dependent constituents and there is a choice as to their ordering, the shorter one(s) should be placed closer to the parent head”
  - **Psycolinguistic argument:**
    - Hawkins (2001: 7): “Less demands are made on working memory and there is less expenditure of effort in reaching these structural definitions” (similarly Wasow 2002: 32)
    - Gibson: “syntactic predictions held in memory over longer distances are more expensive (...), and longer distance head-dependents integrations are more expensive” (1998: 8); “each lexical item in a structure has an activation level (...). The lexical activation decays as additional words are integrated” (2000: 11)
Assumptions

• Examples:
  
  (1) I would take [some spending money] [with me].
  
  (2) I would take [with me] [some spending money].
  
    ['Heavy NP Shift'; see Wasow (2002: 5)]

(1) is claimed to be a better performance solution than (2) on syntactic grounds (complements-first).

(2) is claimed to be a better performance solution than (1) on processing grounds (MiD, end-weight).
Goals

• Account of the distribution of complements and adjuncts in phrases by using a corpus-driven methodology

• Connection between the distribution of complements and adjuncts in phrases and the process of word-order syntacticisation
Data

Connection between the distribution of complements and adjuncts and the process of syntacticisation of English word order:

“loose, paratactic, ‘pragmatic’ discourse structure develop -- over time -- into tight, ‘grammaticalized’ syntactic structures” (Givón 1979: 208-209)

So.. focus on post-ME (EModE, LModE and PDE)
Data

• [Old English: 1.5+ million words (Old English section of the Diachronic Part of the Helsinki Corpus of English Texts, with certain additions, c750–): Taylor et al. (2003) *The York-Toronto-Helsinki Parsed Corpus of Old English Prose.*]

• [Middle English: 1,155,965 words (Middle English section of the Diachronic Part of the Helsinki Corpus of English Texts, with certain additions and deletions, 1150–1500): Kroch and Taylor (2000) *Penn-Helsinki Parsed Corpus of Middle English, second edition.*]
Data


Data

• Present-Day English: approx. 2 mio words (1961–1989): *The Penn Treebank 3* (1 mio words of The Brown Corpus plus 1 mio words from 1989 Wall Street Journal; Switchboard corpus excluded)
Data

- parsed corpora, with (almost) identical similar parsing conventions
- parsed files (.psd/.mrg), using P&P-based part-of-speech and syntactic tags
- retrieval by means of CorpusSearch (differences among corpora):
  
  node: IP*
  
  query: (VB* iprecedes W*|QP|PP|RRC|ADJ*|ADV*|CP-*|IP-SUB)
  
  AND (W*|QP|PP|RRC|ADJ*|ADV*|CP-*|IP-SUB
  iprecedes NP-OB*)

- (extensive) manual revision
Data

but, if you approve of this, if you please to lett me know y=r= pleasure, I will tell it M=r= lsaac. (ANHATTON-E3-H,2,214.41)
((IP-MAT (CONJ but)
   (, ,)
   (PP (P if)
     (CP-ADV (C 0)
       (IP-SUB (NP-SBJ (PRO you))
         (VBP approve)
         (PP (P of)
           (NP (D this)))))))

((PP (P if)
   (CP-ADV (C 0)
     (IP-SUB (NP-SBJ (PRO you))
       (VBP please)
       (IP-INF (TO to)
         (VB lett)
         (IP-INF (NP-SBJ (PRO me))
           (VB know)
           (NP-OB1 (PRO$ y=r=)
             (NP$pleasure))))))

(, ,)
(NP-SBJ (PRO I))
(MD will)
(VB tell)
(NP-OB1 (PRO it))
(NP-OB2 (NPR M=r=) (NPR Isaac))
(, .))
VPs (see also Pérez-Guerra 2016)

• verb group immediately precedes an adjunct, and the adjunct immediately precedes a complement (object)
  
  neither will I againe smite {any more} {every thing liuing}, as I haue done. (AUTHOLD-E2-H,VIII,20G.466) [QP + OBJ]
  
  and sitting in some place, where no man shall prompe him, by him self, let him translate {into Englishe} {his former lesson}. (ASCH-E1-H,1V.22) [PP + OBJ]
  
  Lisle. My Lord, this Fellow that now speaks against me, broke {open} {my Trunk}, (LISLE-E3-H,IV,120C1.203) [Adjective + OBJ]
  
  Moreouer, there is no one thing, that hath more, either dulled the wittes, or taken {awaye} {the will of children from learning}, then the care they haue, to satisfie their masters, in making of latines. (ASCH-E1-H,1R.9) [Adverb + OBJ]
Data

VPs

• verb group immediately precedes a complement (object), and the complement (object) immediately precedes an adjunct

  Will tels {the king} {how Terrils Frith was inclosed}. (ARMIN-E2-H,44.338) [OBJ + W*]

  so this time will trouble {y=r= Losp} {no more} w=th= y=r= most obedient, duttyful daughter, A. Nottingham. (ANHATTON-E3-H,2,212.29) [OBJ + QP]

  I thoughte I wolde take {some spendyng money} {wyth me} (MERRYTAL-E1-H,31.148) [OBJ + PP]

  and cut {it} {not so close to the Body as to hurt it}, nor yet so long that it be a Stump, (LANGF-E3-H,122.269) [OBJ + AdjectiveP]
Data

VPs

But my Brother understood {the matter} {aright} (HOXINDEN-1660-E3-H,280.162) [OBJ + Adverb]
The post served {me} {just as it did y=r= Losp}. (ANHATTON-E3-H,2,211.4) [OBJ + CP]
$I $'ll ply {him} {that way}, (FARQUHAR-E3-H,9.326) [OBJ + NP-Adverb]
Beda writes {that he was dead long before}, {although if the time of his sitting Archbishop be right computed sixteen years, he must survive this action}. (MILTON-E3-H,X,150.77, 1670) [that cl + concessive adjunct]

Also I read {in Iohannes Libaulty, his Booke Intituled Le Meson Rustick, and also in other Learned Writers}, {that the dung of a Cow heated vnder the Ashes, betwixt Wine or Colwort leaues, & mingled with vineger, hath the property to bring Scrophulous swellings to ripenes, &c}. (CLOWES-E2-H,26.212, 1602) [place adjunct + that cl]
Data

NPs (see Pérez-Guerra 2016)

• noun immediately precedes an adjunct, and the adjunct immediately precedes a complement ((that- or) infinitive clause)

[The master shewyng us that by] neglygence {of some} {to belay the haylers}, (MADOX-E2-P1,112.434) [PP + IP]

in mind of the great Obligation {that lies on them} {to live suitably to their Profession:} (BURNETROC-E3-P2,122.170) [rel cl + IP]
Data

NPs

• noun immediately precedes a complement ((that- or) infinitive clause), and the complement immediately precedes an adjunct

  [King James sent a Person down to him, with] Offers {to mitigate his Fine upon Conditions of ready Payment}, {to which his Lordship reply'd, that if his Majesty pleas'd to allow him a little longer time, he would rather chuse to play double or quit with him}: (CIBBER-1740,44.134) [IP + rel cl]
Data

NPs

the duke had got a solemn promise {of the king} {that he would never speak to him of religion}. (BURNETCHA-E3-P2,2,180.98) [PP + that cl]

[He would not hearken to this, which made me inclined to believe] a report {I had heard}, {that the duke had got a solemn promise of the king that he would never speak to him of religion}. (BURNETCHA-E3-P2,2,180.98) [rel cl + that cl]

And there was a feeling {by no means uncommon, and very deadly}, {that India would be lost for ever, and with it all the glory of England}. (TROLLOPE-1882,177.356) [AdjectiveP + that cl]

There is a wise saying {that nine-tenths of the noble work done in the world is drudgery}, {which is often misused as if it meant that nine-tenths of the drudgery done in the world is noble work}. (BENSON-1908,46.109) [that cl + rel cl]
Data

APs (see Pérez-Guerra 2016)

• adjective immediately precedes an adjunct, and the adjunct immediately precedes a complement ((that- or) infinitive clause)

[And therefore the quickest wittes commonlie may proue the best Poetes, but not the wisest Orators:] readie {of tonge} {to speak boldlie}, (ASCH-E1-P1,4V.34) [PP + IP]
Data

APs

• adjective immediately precedes a complement ((that- or) infinitive clause), and the complement immediately precedes an adjunct

[none was] more willing {to resign} {than she}. (BEHN-E3-P1,163.135) [IP + than cl]
[I haue beene as] careful {to please her} {as euer I was to please mine own mother}, (GIFFORD-E2-H,B1R.60) [IP + as cl]
[He told him they were] fully resolv’d {to dye for their Country}, and ready {to fight it out to the last Man, if Occasion requir’d,} {at which Xerxes derided him, as he did before when he spake of the Valour of his Country-men; (HIND-1707,310.144) [IP + rel cl]
Data

APs

[yea I am] sorie, {with all my harte}, {that they be giuen no more to riding, then they be}: (ASCH-E1-P1,10R.186) [PP + that cl]

For we are no less certain {that there is a great Town called Constantinople, the seat of the Ottoman Empire}, {than that there is another called London}. (BURNETROC-E3-P1,79.231) [that cl + than cl]
Analysis of the data:
complements-first
Analysis of the data: complements-first

• Pérez-Guerra (2016):
  • object + adjunct:
    [I thoughte] I wolde take [some spendyng money]_{object} [wyth me]_{adjunct} (MERRYTAL-E1-H,31.148) [complement plus adjunct in a VP]
  • adjunct + object:
    [and sitting in some place, where no man shall prompe him, by him self,] let him translate [into Englishe]_{adjunct} [his former lesson]_{object}. (ASCH-E1-H,1V.22) [adjunct plus complement in a VP]
Analysis of the data: complements-first

• Pérez-Guerra (2016):

• Statistical significance for **full variation**: yes (P<.0001)
• Statistical significance for variation OE>ME: no (P=0.0949)
• Statistical significance for variation ME>EModE: yes (P<.0001)
• Statistical significance for variation EModE>ModE: yes (P<.0001)
Analysis of the data: complements-first

verb  adjective  noun

+PDE
Analysis of the data: complements-first

• Pérez-Guerra (2016):
  • ME>EModE seems to be the pivotal period as far as compliance with complements-first is concerned
  • Connection type of head and compliance with complements-first:
    \[ VP > AP > NP \]
    • VPs:
      • Most VPs are complement-first
      • Statistically significant increase of complement-first VPs from ME to LModE
    • Half of the APs are complement-first in LModE
    • Most NPs are complement-last
Analysis of the data: complements-first

• Another experiment:
  • also focuses on complements/adjuncts but only after word-order syntacticisation, that is, after ME (ME>EModE as the pivotal period)
  • focuses on only VPs
  • challenges the supremacy of complements-first by investigating its plausibility with structurally long and syntactically complex complements: *that* clauses
Analysis of the data: complements-first

Query example:

node: IP-MAT
query: (IP-MAT iDoms VBP) 
      AND (IP-MAT iDoms CP-THT) 
      AND (IP-MAT iDoms *P*) 
      AND (VBP iprecedes CP-THT) 
      AND (CP-THT iprecedes *P*)

with parsing differences among corpora
Analysis of the data:
complements-first

• Examples:

  • Beda writes\textsubscript{\textit{V}} [that he was dead long before,]\textit{that-cl} [although if the time of his sitting Archbishop be right computed sixteen years, he must survive this action.]\textit{adjunct} (MILTON-E3-H,X,150.77, 1670) [complement plus adjunct in a VP]

  • Also I read\textsubscript{\textit{V}} [in Iohannes Libaulty, his Booke Intituled Le Meson Rustick, and also in other Learned Writers,]\textit{adjunct} [that the dung of a Cow heated vnder the Ashes, betwixt Wine or Colwort leaues, & mingled with vineger, hath the property to bring Scrophulous swellings to ripenes, &c.]\textit{that-cl} (CLOWES-E2-H,26.212, 1602) [adjunct plus complement in a VP]
Analysis of the data: VPs

• Incidence of the type of complement:

only *that*-clauses (this experiment) all types of complements (objects) and adjuncts (Pérez-Guerra 2016)

• So... end-weight is a crucial factor
Analysis of the data

• So... tension between end-weight and compl-first
  • VPs:
    • with non-clausal objects, complements-first is the leading force in VPs, and increasing (70>+80% are compl-first)
    • with clausal (that cl) objects, complement-last is the leading design in VPs, and decreasing (<4% are compl-first in PDE)
  • NPs:
    • with clausal (that and infinitive cl) complements, complement-last is the leading design (0% are complement-first in PDE)
Analysis of the data: end-weight
Analysis of the data: end-weight

• Stowell (2006: 239):
  “it has consistently proved to be virtually impossible to define ‘heaviness’ in a satisfactory way”

• For summaries of proposals, see Wasow (1997) and Pérez-Guerra and Martínez-Insua (2010).
Analysis of the data: end-weight

• Metric:
  • Gries (2003: 83-84): no. of syllables, no. of words, no. of morphemes, with very similar results
  • Yaruss (1999: 339): “very strong, positive, significant correlations (...) among measures of length in words, syllables, morphemes, and clausal constituents”
  • Szmrecsányi (2004: 1038): “determining length in words (...) is by all means (...) nearly as accurate as the most sophisticated and cognitively, conceptually, or even psychologically ‘more real’ methods”
  • Shih and Grafmiller (2011): no. of words is a sufficient proxy for weight
Analysis of the data: end-weight

- Times 1st dependent is longer than 2nd in VPs
Analysis of the data: end-weight

• Times 1st dependent is longer than 2nd in NPs
Analysis of the data: end-weight

• End-weight is a major factor only in complement-last constructions in VPs and NPs: the 1st dependent is notoriously shorter than the 2nd dependent only in complement-last constructions.

• Most complement-first constructions do not comply with end-weight:
  • VPs: 1st dependents are progressively longer across time
  • NPs: 1st dependents are progressively shorter across time
Conclusions
Conclusions

• Two forces:
  • complements-first: complement as the first dependent
  • end-weight: second dependent is longer

• Application to phrases: VPs, NPs and APs

• This study:
  • (ME -) EModE - LModE – PDE, after the syntacticisation of word order in English
  • extreme scenario: (long, complex) *that*-clauses as complements
Conclusions

• Most patterns comply with end-weight (and increasing across time):
  Hawkins (2000: 232): “the biggest single predictor of relative orderings (...) is (...) weight”

We cannot argue in favour of:
  Traugott (1992: 276): “in general the light-heavy distribution [end-weight] is no longer a major factor in English word order”

• Complements-first is still a significant force in VPs:
  • evidence from other complements (all types of objects)
Conclusions

• Complements-first is more influential in VPs (than in APs) than in NPs=> connection type of Head / complements-first (the more verbal the head is, the more likely the structure of the phrase is governed by specifically the syntactic principle of complements-first).
Conclusions

• **VERBS ARE MORE PROTOTYPICAL HEADS THAN NOUNS**
  • frequency: fewer intransitive Vs (23.29% in PPCMBE) than intransitive Ns (56.04%)
  • paradigmatic versatility: wider with Vs (complementation options: monotransitive, intensive, ditransitive, complex-transitive, transitive-adverbal)
  • ellipsis: 4.09% of verbless VPs vs. 52.98% nounless NPs
  • morphological choices: number/person/tense/aspect in V; morphology contributes to syntactic integration, a feature of headedness (Givón 1993: 23,26; Noonan 2007: 101)
Word order in the recent history of English: syntax and processing on the move

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Thanks!