# Evidence for "underlying" XV word order in Early Old French 

Anthony Kroch and Beatrice Santorini
University of Pennsylvania
Yale Linguistics Monday Colloquium September 22, 2014

## VX and $X V$ word orders in Old French

(I) Rollant ad mis l' olifan a sa buche 'Roland raised the ivory horn to his mouth.'
(II I00-ROLAND-V,I33.I772)
(2) Li reis Marsilie out sun cunseill finet 'King Marsilla had adjourned his council.'
(II00-ROLAND-V,5.53)

Decline of OV with multi-word objects, quantified vs. non-quantified


Decline of OV with multi-word objects, by length, quantified and non-quantified combined


## Grammatical analysis of the decline, I

- Does the decline of $X V$ word orders involve competition between an XV grammar inherited from Latin and the modern French VX grammar?
- Or is there a discontinuity between Latin and French? In other words, does even the earliest French have only the VX grammar, and do the $X V$ word orders reflect a decline in scrambling?


## Grammatical analysis of the decline, 2

- Students of the decline of $X V$, including generative historical syntacticians, have favored the second view.
- However, there is a nagging feeling that Early Old French shows "too much" XV word order for a language with a VX grammar, even one with scrambling.

Decline of OV with one-word objects, quantified vs. non-quantified


## Roadmap

- Evidence for statistical independence of grammatical processes
- Synchronic: "Free" word order in Ancient Greek
- Diachronic: Phrase structure change in the history of Yiddish
- Quantitative evidence for "too much" XV order in Early Old French
I. Statistical independence in word
order patterns in Ancient Greek (Taylor 1994)
"Free" word order in Ancient Greek
 Kambyse:s ta do:ra edeksato Kambuses the gifts received

VSX: $̇ \delta \varepsilon ́ \xi a t o ~ K a \mu ß u ́ \sigma \eta ̧ ~ t a ̀ ~ \delta \omega ̂ p a ~$




| pattern | formula |
| :--- | :--- |
| $S, X \vee$ | $(1-s)(1-p)$ |
| $X, Y \vee$ | $(1-p)^{2}$ |
| $S \vee X$ | $p(1-s)$ |
| $X \vee S$ | $s(1-p)$ |
| $X \vee Y$ | $2 p(1-p)$ |
| $v S, X$ | $s p$ |
| $v X, Y$ | $p^{2}$ |

Formula for calculating distribution of clause types based on the probability of postposing of subjects and complements

|  | subject postposing | NP compl. postposing | N |
| :---: | :---: | :---: | :---: |
| 1 NP argument | .27 | .44 | 112 |
| 2 NP arguments | .23 | .48 | 109 |
| 3 NP arguments | .29 | .41 | 21 |
| 1 NP $/ 1 \mathrm{PP}$ argument | .28 | .48 | 58 |

Probability of subject and NP complement postposing in four Homeric data sets

| pattern | formula | observed distribution | expected distribution |
| :---: | :---: | :---: | :---: |
| $\mathrm{S} X \vee$ | $(1-\mathrm{s})(1-\mathrm{p})$ | 41 | 41 |
| $\mathrm{X} Y \vee$ | $(1-\mathrm{p})^{2}$ | 7 | 5 |
| $\mathrm{~S} \vee \mathrm{X}$ | $\mathrm{p}(1-\mathrm{s})$ | 31 | 31 |
| $\mathrm{X} \vee \mathrm{S}$ | $\mathrm{s}(1-\mathrm{p})$ | 13 | 12 |
| $\mathrm{X} \vee \mathrm{Y}$ | $2 \mathrm{p}(1-\mathrm{p})$ | 4 | 8 |
| $\vee \mathrm{~S} X$ | sp | 8 | 9 |
| $\vee \mathrm{X} Y$ | $\mathrm{p}^{2}$ | 5 | 3 |
| Total $\mathrm{N}=109 \quad \mathrm{~s}=.23 \quad \mathrm{p}=.43$ |  |  |  |
| N for clauses with subjects $=93$ |  |  |  |
| N for clauses without subjects $=16$ |  |  |  |
| $\chi^{2}=4.12, \mathrm{p}>.8$ |  |  |  |

Best fit of observed and expected distribution of clauses with 2 arguments in Homer

| pattern | formula | observed distribution | expected distribution |
| :---: | :---: | :---: | :---: |
| S X Y v | $(1-s)(1-p)^{2}$ | 4 | 5 |
| S XvY | $2 \mathrm{p}(1-\mathrm{s})(1-\mathrm{p})$ | 10 | 7 |
| $X Y \vee S$ | $s(1-p)^{2}$ | 2 | 2 |
| $S \vee X Y$ | $\mathrm{p}^{2}(1-\mathrm{s})$ | 1 | 3 |
| $X \vee S Y$ | $2 \mathrm{p}(1-\mathrm{p})(1-s)$ | 4 | 3 |
| v S X Y | $\mathrm{s}\left(\mathrm{p}^{2}\right)$ | 0 | 1 |
| $\begin{aligned} & \text { Total } \mathrm{N}=21 \quad \mathrm{~s}=.29 \quad \mathrm{p}=.41 \\ & \chi^{2}=3.66, \mathrm{p}>.8 \end{aligned}$ |  |  |  |

Best fit of observed and expected distribution of clauses with 3 arguments in Homer

## 2. Statistical independence in word order patterns in Early Yiddish (Santorini 1993)

# Variation in the position of T in Yiddish, I 

(I) ven der vatr es leyent if the father it reads
(2) ven der vatr leyent es if the father reads it

# Variation in the position of Tin Yiddish, 2 

(3) ven der vatr nurt doyts leyent if the father only German reads
(4) ven der vatr leyent nurt doyts if the father reads only German

## Noun phrase extraposition in Yiddish

(I) ven der vatr nurt doyts leyen kan if the father only German read can
(2) ven der vatr leyen kan nurt doyts if the father read can only German

## Prepositional phrase extraposition in Yiddish

(3) dz ikh reyn fun der ashin verde that I clean from the ash become
(4) dz ikh reyn verde fun der ashin that I clean become from the ash

## Frequency of DP and PP postposing in the history of Yiddish (Santorini 1993:275)

| Date | DP postposing |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Postposed | Not postposed | freq. | Postposed | Not postposed | freq. |
| $1400-1489$ | 1 | 12 | .08 | 9 | 12 | .43 |
| $1490-1539$ | 7 | 19 | .27 | 13 | 16 | .45 |
| $1540-1589$ | 7 | 24 | .23 | 52 | 21 | .71 |
| $1590-1639$ | 10 | 40 | .20 | 39 | 23 | $\mathbf{. 6 3}$ |
| $1640-1689$ | 4 | 19 | .17 | 17 | 30 | .36 |
| $1690-1739$ | 1 | 5 | .17 | 6 | 3 | $\mathbf{. 6 7}$ |
| $1740-1789$ | 1 | 2 | .33 | 8 | 7 | $\mathbf{. 5 3}$ |
| $1790-1839$ | 0 | 1 | .00 | 1 | 1 | $\mathbf{. 5 0}$ |
| $1840-1950$ | no INFL-final data | - | no INFL-final data | - |  |  |

Frequency of DP and PP postposing in the history of Yiddish


How many instances of the word order in (b) are underlyingly T-final?
(a) Subj XP V
(b) Subj V XP $\leftarrow$ ambiguous
$R($ ate of postposing $)=P /(P+N)$
$P=N * R /(I-R)$
$a_{\text {corr }}=a+P$
$\mathrm{b}_{\text {corr }}=\mathrm{b}-\mathrm{P}$

## An example

- 3 instances of Subj V XP, 9 of Subj XP V
- How many of the 3 instances are T-final?
- $\mathrm{P}=\mathrm{N} * \mathrm{R} /(\mathrm{I}-\mathrm{R})$
- $\mathrm{N}=9, \mathrm{R}=0.28$
- $P=9 * 0.28 / 0.72=2.5$
- So only 0.5 out of the 3 examples are T-final; the rest are T-medial


## Rise of various sentence types in Yiddish, I (Santorini 1993:270-275)

| Date | Unamb <br> med | Unamb <br> $\mathbf{N}$ | Amb <br> raw | Amb <br> $\mathbf{N}$ | Amb <br> corr |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1445 | 1 | 43 | 3 | 12 | 0.5 |
| 1515 | 7 | 79 | 13 | 26 | 6.8 |
| 1565 | 17 | 127 | 58 | 97 | 5.9 |
| 1615 | 12 | 150 | 41 | 70 | 17.0 |
| 1665 | 31 | 108 | 32 | 53 | 24.7 |
| 1715 | 40 | 88 | 21 | 32 | 10.0 |
| 1765 | 12 | 30 | 5 | 7 | 3.6 |
| 1815 | 133 | 136 | 58 | 61 | 57.0 |
| $1840+$ | 152 | 152 | 69 | 69 | 69.0 |

## Rise of various sentence types in Yiddish, 2



## Comparing rates of change of various sentence types in Yiddish (Santorini 1993:272-276)

|  | Slope | Chi-square | $p$ |
| :---: | :---: | :---: | :---: |
| Unamb | 1.11 | - | - |
| Amb, raw | 0.36 | 17.14 | $p<0.001$ |
| Amb, corr | 0.97 | 0.59 | n.s. |

## 3. XV vs. VX in Old French: Preliminaries

## Preliminaries, I

- Sentences where a target XP is a clitic or an empty category are excluded since their base position is either fixed or not recoverable.
- Sentences where a target XP moves further left than $T$ are excluded since their base position relative to the non-finite verb is not recoverable.
- With tensed sentences, only ones with non-finite VPs are considered to avoid interference from $V$ -to-T or $V$-to-C movement.


## Excluded clause types, I

(I) Je les ai __ vu(s)

I them have seen
(2) Qui veux-tu __ voir _ ?
who want you to-see
(3) Je les veux _ voir

I them want to-see

## Excluded clause types, 2

## Object > (Subject) $>$ Finite $V>$ Nonfinite $V$

(I) Sa grant honur a grant dol ad turnede (f. sg.) 'He has turned his great honor to great sorrow.'
(IOXX-ALEXIS-V,29.282)
(Subject) > Object $>$ Finite $V>$ Nonfinite $V$
(2) Li amiralz .X.escheles ad justedes (f. pl.)
'The admiral arranged ten batallions.'
(IIO0-ROLAND-V,234.3228)

## Excluded clause types, 3

## (Subject) $>$ Finite $V>$ Object

(I) Nostres Sires savoit tout bien
'Our Lord knew everything well.'
(II90-BORON-R,9.IIO)
(2) si avroiz molt grant aventage 'So you would have a very great advantage.' (II70-YVAIN-R,4I.136I)

## Excluded clause types, 4

## (Subject) > Object > FiniteV

(I) Uns viels prestre la porte garde 'An old priest is guarding the door' (I I6X-MARIE-DE-FRANCE-R, I6.276)
(2) et vos enor et joie rande 'and God give you honor and joy' (II70-YVAIN-R, I62.5687)

## Preliminaries, 2

Old French texts contain occasional examples of OVT(ense) word order, strikingly similar to the word order in German subordinate clauses:
(I) Quant I' ostes ce escouté eut when the army that heard had (II90-BORON-R,38.579)
(2) als das Heer das gehört hatte when the army that heard had

## Preliminaries, 3

However, the resemblance to German is only superficial. In Old French, OVT(ense) word order always arises from leftward movement of a VP to an A-bar position.

Seignur servir bien deit l'um tel lord serve well ought one such (II20-BRENDAN-R,55.666)

## Excluded clause types, 5

Pre-Tense VPs always precede any clitics associated with the finite verb.
des que vostant dit $\mathrm{m}^{\prime}$ an avez since that you so-much told me of-it have (II70-YVAIN-R,I5I.5230)

## Excluded clause types, 6

Pre-Tense VPs may be either OV or VO. In the latter case, they superficially violate the Final-Over-Final Constraint.

Ainz que trovét nule rien ait before that found any thing has (II20-BRENDAN-R,70.I085)

VO vs. OV word order: Avoir + participle
(I) Rollant ad mis l' olifan a sa buche 'Roland raised the ivory horn to his mouth.' (II00-ROLAND-V,I33.I772)
(2) Li reis Marsilie out sun cunseill finet 'King Marsilla had adjourned his council.'
(II00-ROLAND-V,5.53)

VO vs. OV word order: Modal + infinitive
(I) Je veul avoir mon loyer
'I want to have my pay.'
(I27X-CASSIDORUS-P,I64.I546)
(2) Kar ne poeit le jur choisir 'For he cannot choose the day.'
(II6X-MARIE-DE-FRANCE-R, I II.2262)

VO vs. OV word order: Other nonfinite clauses
(I) é pursievre David cessad 'and he ceased to pursue David' (II50-QUATRELIVRE-P,47.I793)
(2) Le abét e tuz baiser enprent 'He begins to kiss the abbot and everyone.'
(I I 20-BRENDAN-R,47.464)

## 4. Early Old French has "too much" XV

## $X V$ vs. VX word order in clauses with full DP direct and indirect objects in Early Old French (up to I250)

|  | V $>$ DO | DO $>\mathrm{V}$ | Row Totals | Estimated DO scrambling |
| :---: | :---: | :---: | :---: | :---: |
| V $>$ IO | 40 | 2 | 42 | .048 |
| IO $>\mathrm{V}$ | 5 | 5 | 10 |  |
| Column Totals | 45 | 7 | 52 |  |
| Estimated IO scrambling | .11 |  |  |  |

Expected DO,IO $>$ V order $=.11 * .048 * 52=.28$
Observed DO,IO $>$ V order $=5$
Chi-square $=81.14$

## $X V$ vs. VX word order in clauses with a full DP direct object and a clause-level PP in Early Old French (up to I250)

|  | $\mathrm{V}>\mathrm{DO}$ | $\mathrm{DO}>\mathrm{V}$ | Row totals | Estimated DO scrambling |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{V}>\mathrm{PP}$ | 237 | 54 | 291 | .19 |
| $\mathrm{PP}>\mathrm{V}$ | 24 | 38 | 62 |  |
| Column totals | 261 | 92 | 353 |  |
| Estimated PP scrambling | .092 |  |  |  |

Expected DO,PP $>$ V order $=.092^{*} .19^{*} 353=6.0$
Observed DO,PP $>$ V order $=38$
Chi-square $=169.8$

## $X V$ vs. VX word order in clauses with full DP direct and indirect objects in later Old French (1250-1400)

|  | $\mathrm{V}>\mathrm{DO}$ | $\mathrm{DO}>\mathrm{V}$ | Row totals | Estimated DO scrambling |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{V}>\mathrm{IO}$ | 41 | 3 | 44 | .068 |
| $\mathrm{IO}>\mathrm{V}$ | 6 | 1 | 7 |  |
| Column totals | 47 | 4 | 51 |  |
| Estimated IO scrambling | .13 |  |  |  |

Expected DO,IO $>$ V order $=.13^{*} .068^{*} 51=.44$
Observed DO,IO $>$ V order $=1$
Chi-square $=0.6966$

## $X V$ vs. VX word order in clauses with a full DP direct object and a clause-level PP in later Old French (1250-I400)

|  | $\mathrm{V}>\mathrm{DO}$ | $\mathrm{DO}>\mathrm{V}$ | Row totals | Estimated DO scrambling |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{V}>\mathrm{PP}$ | 200 | 58 | 258 | .22 |
| $\mathrm{PP}>\mathrm{V}$ | 3 | $\boxed{3}$ | 6 |  |
| Column totals | 203 | 61 | 264 |  |
| Estimated PP scrambling | .015 |  |  |  |

Expected DO,PP $>$ V order $=.015^{*} .22^{*} 264=.88$
Observed DO, PP $>\mathrm{V}$ order $=3$
Chi-square $=5.21$

## References

- Martineau, France, Anthony Kroch et al. 2010. MCVF corpus of historical French. Modéliser le changement: Voies de français. http:// www.voies.uottawa.ca/
- Santorini, Beatrice. 1993. The rate of phrase structure variation in the history of Yiddish. Language variation and change 5:257-28I.
- Taylor, Ann. 1994. The change from SOV to SVO in Ancient Greek. Language variation and change 6:1-37.

Finis

Avoir + participle with object agreement
(I) Li emperere ad prise sa herberge (f. sg.)
'The emperor has taken his lodging.'
(II00-ROLAND-V,I82.2486)
(2) Vos li avez tuz ses castels toluz (m. pl.) 'You have taken all his castles from him.'
(II00-ROLAND-V,I6.208)

Avoir + participle with object disagreement
(I) Li nostre deu i unt fait felonie (m. sg. - f. sg.) 'Our gods have committed a felony there.'
(IIOO-ROLAND-V,I88.2595)
(2) ... avoit tous les autres vaincu (m. sg. - m. pl.) '... (the emperor) had vanquished all the others.'
(I37X-PRISE-R,.639)

## Avoir + participle with agreeing and disagreeing clitic objects

(I) Forment l'(= la prison) ont fermee et serree (f. sg.) 'They closed and sealed it securely.'
(I 190-BORON-R,25.398)
(2) tuz les i ad perdut (m. pl. - m. sg.) 'He lost them all there.'
(I IO0-ROLAND-V,I52.2053)

Decline of OV word order by clause type


## Object-participle agreement by DP type



## Avoir + participial small clause

(I) s' avoient les espees traites desos les capes (f. pl.) 'So they had their swords drawn under their capes.' (I22X-AUCASSIN-I4-P..2I)
(2) $\mathrm{N}^{\prime}$ ot drap vestu fors la chemise. (m. sg.) 'He had no clothes on except for his shirt.' (II6X-MARIE-DE-FRANCE-R,99.2003)

## Possible cases of avoir + participial small clause with postposed DP

(I) out vestue sa brunie (f. sg.)
'He had put on his body armor.'
(II00-ROLAND-V,29.364)
(2) s' avoient bien liez de cordes les piez (m. pl.) 'So they had their feet tightly bound with cords.'
(II70-YVAIN-R,I25.43I4)

Decline of OV word order in clauses with avoir + participle


Decline of OV word order: agree-marked versus neutralized avoir + participle

agree 3
$\sim$ agree-marked

- neutr
total ${ }^{\wedge} 0.5$
- 2.5
- 5.0
- 7.5
- 10.0
- 12.5
- 15.0

Decline of OV word order by clause type:
all avoir + participle versus others


Cases of raising of a nonfinite verb across an adverb
(I) En celui temps Bruthus avoit congneue charnelment Ynogen sa femme (f. sg.) 'During this time Brutus had had intercourse with his wife Ynogen.'
(I33X-PERCEFOREST-P,87.443)
(2) il $n$ ' avoit pas mis encores son consel ensamble 'He had not yet assembled his council.'
(I373-FROISSART-P,402.8059)

Frequency of the raising of nonfinite verbs over adverbs by date


Decline of OV word order by clause type:
all avoir + participle versus others

www.ling.upenn.edu/~kroch/handouts/digs 16 .pdf

