The independence of information status and syntactic change:

The case of OV to VO in the history of English and Icelandic

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introduction

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word order variation

- Old English exhibits variation in the position of objects and verbs
- in clauses with an auxiliary and main verb, the object can appear between the verbs or following the main verb

þurh þa heo sceal **hyre scippend** understandan **Aux-O-V**
through which it must its creator understand
'through which it must understand its creator' (coaelive,+ALS_[Christmas]:157.125)

hi habbaþ him gegoten **an gilden cealf** **Aux-V-O**
they have themselves cast a golden calf
'they have cast for themselves a golden calf ' (cootest,Exod.32.8.3448)

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information status

- a **cross-linguistic generalisation**: given/old information comes early in the clause, new information towards the end (e.g. the 'Given Before New Principle' of Gundel 1988).
- in languages like Present-Day English, the position of arguments is largely fixed
  - there is little scope for information structure to influence argument position in basic SVO clauses
- in languages with freer word order, information structure has been shown to be one factor (of a number) which influence the positioning of sentence elements

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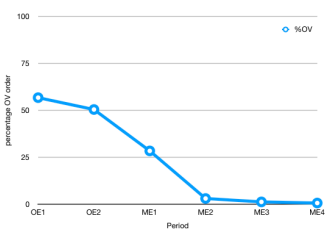
syntactic change

in the history of English, variation between object-verb (OV) and verb-object (VO) order appears in written texts for several hundred years.



the frequency of VO gradually increases over time until OV is finally lost in Late Middle English (Pintzuk & Taylor 2006)

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OV/VO variation

- two factors that affect OV/VO order:
  - information status - given objects favour OV while new objects favour VO
  - time - the frequency of VO order increases over time
- are these two processes related? and if so, how?
- we (Taylor & Pintzuk 2011) claim that information structure constraints are constant over time and independent of the change from OV to VO
- arguing against Hróarsdóttir (2009), who claims that the loss of OV in Icelandic is the result of a change in information structure strategies: i.e. there is a rise in focussed (primarily new) objects in the post-verbal field which leads to VO order replacing OV order

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aims of this talk

1. to demonstrate a quantitative model in which the syntactic change from OV to VO proceeds independently of synchronic OV/VO variation due to information status
2. to test the model against data from historical English and Icelandic

Outline

- data and methodology
- build a model in which information structure constraints remain constant during the OV > VO change
- test the model against data from OE/ME texts
- test the model against data from older Icelandic
- conclusions

data and methodology

data

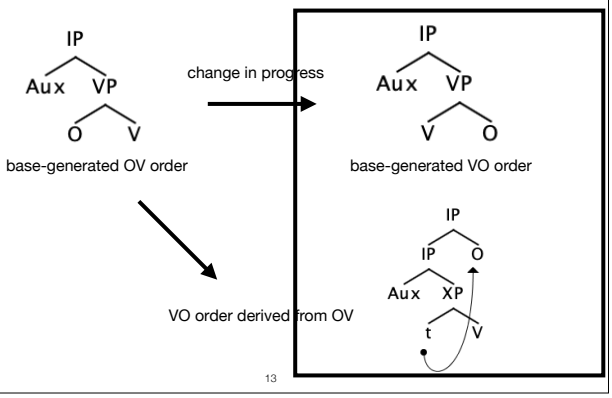
- data are limited to clauses with a finite auxiliary verb and a non-finite main verb in order to abstract away from the effects of verb-second (Pintzuk 1999)
- the following types of data were excluded:
  - pronominal (personal and demonstrative) objects, since they normally appear pre-verbally and exhibit special syntactic behaviour (Pintzuk 2005)
  - quantified/negative objects: their information status is unclear, and they also exhibit special syntactic behaviour (Pintzuk and Taylor 2006)
  - a few additional cases where the information status of the object is unclear
- after exclusions, the dataset contains 1507 clauses

information status coding

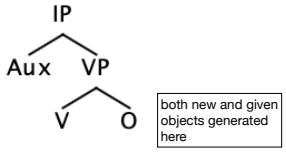
- a binary distinction made primarily on the basis of insights from Birner (2006) and Gundel et al. (1993).
  - ***new****:* referentially new objects, new discourse referents (Karttunen 1976) and bridging inferables (Birner 2006)
  - ***given****:* all other entities (previously mentioned, shared/ cultural knowledge, situationally evoked, elaborating inferables (Birner 2006) and semantically incorporated), all of which are considered accessible to the hearer.

syntactic model

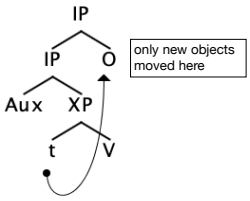
AuxV clauses



two sources of AuxVO

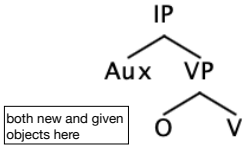


base-generated VO order
no information status effect



VO order derived from OV
information status of O = new

one source of AuxOV



base-generated OV order
no information status effect

prediction

- in the derived AuxVO order, the object is in narrow focus
  - the information status effect will be reflected in the set of post-verbal objects, i.e. they will include a higher proportion of new objects than in base-generated AuxVO
- in base-generated AuxVO order, the object is not in the narrow focus position but within the VP
  - so expect no information status effect at all, i.e. the proportion of new objects should be simply the proportion of new objects in the text as a whole
- unfortunately, we cannot usually determine in any particular case of Aux-V-O surface order whether the underlying structure is base-generated or derived
  - therefore, for the set of all surface Aux-V-O clauses, we expect the strong effect of information status from the derived structure to be diluted by the lack of an information status effect in the base-generated structure

a model of the change from OV to VO

the model

- to build a model of the change from OV to VO we need the following:
  - the ratio of ***given*** to ***new*** objects overall in the language of the period (expected to be relatively stable)
  - the rate at which ***new*** objects postpose (also stable)
  - (by assumption ***given*** objects do not postpose)
- to illustrate we assume
  - a ***given:new*** ratio of 50:50
  - ***new*** objects postpose at a rate of 20%

change over time

- before the change from OV to VO begins, all clauses are underlyingly OV with all post-verbal objects in narrow focus
- from this point on, as the change from OV to VO structure progresses, we expect
  - a gradual decrease in the proportion of AuxV clauses with underlying OV structure
  - therefore a gradual decrease in the proportion of Aux-V-O clauses with narrow focus objects that have been moved to post-verbal position
  - a gradual increase in the proportion of Aux-V-O clauses with underlying VO structure

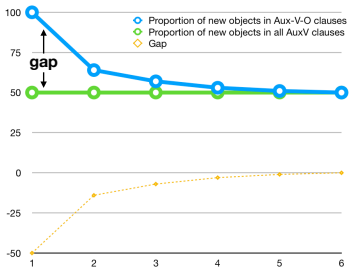
model for AuxVO clauses

Table 1: information structure of objects in *post-verbal* position (proportion new)

underlying OV structure			underlying VO structure			Surface Aux-V-O Order			Proportion of New Objects in Aux-V-O Clauses	Gap between overall new and AuxVO new
total	given	ne	total	given	new	given	new	total		
100	50	50	0	0	0	0	0+(50*.2)=10	10	10/10=100%	50-100=-50
80	40	40	20	10	10	10	10+(40*.2)=18	28	18/28=64%	50-64=-14
60	30	30	40	20	20	20	20+(30*.2)=26	46	26/46=57%	50-57=-7
40	20	20	60	30	30	30	30+(20*.2)=34	64	34/64=53%	50-53=-3
20	10	10	80	40	40	40	40+(10*.2)=42	82	42/82=51%	50-51=-1
0	0	0	100	50	50	50	50+(0*.2)=50	100	50/100=50%	50-50=0
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	col1*.5*		*100*-col1	col4*.5*		=col5	col5+(col3*.2)	col7+col8	col8/col9	*50*-col10

model for AuxVO clauses

information structure of objects in *post-verbal* position (proportion new)



- As the proportion of underlying OV structure drops from 100% to 0% (col 1)
- the proportion of clauses with ***new*** objects in post-verbal position (col 10 - blue) rapidly converges with the overall 50% proportion of ***new*** objects in the AuxV clauses of the language (green)
- this convergence is evident from the decreasing size of the gap (col 11 - orange) between the two proportions.
- the effect of information status becomes more and more diluted by the underlying VO clauses (which are impervious to information status demands)
- when the frequency of underlying OV structure reaches 0%, there is no longer any information status effect on the position of the object

model for AuxOV clauses

- the expected information structure of objects in the pre-verbal field can be tracked in the same way using the same three assumptions
- in contrast to objects in the post-verbal field, the gap between the proportion of new objects in the pre-verbal field and the overall rate of new objects remains constant

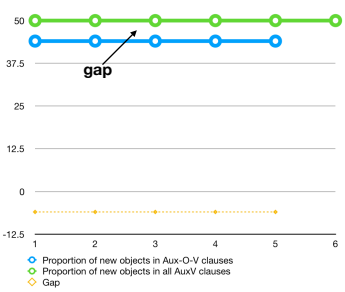
model for AuxV clauses

Table 2: information structure of objects in *pre-verbal* position (proportion new)

underlying OV structure			underlying VO structure			Surface Aux-O-V Order			Proportion of New Objects in Aux-O-V Clauses	Gap between overall new and AuxVO new
total	given	new	total	given	new	given	new	total		
100	50	50	0	0	0	50	50-(50*.2)=40	90	40/90=44%	44-50 = -6
80	40	40	20	10	10	40	40-(40*2)=32	72	32/72=44%	44-50 = -6
60	30	30	40	20	20	30	30-(30*2)=24	54	24/54=44%	44-50 = -6
40	20	20	60	30	30	20	20-(20*.2)=16	36	16/36=44%	44-50 = -6
20	10	10	80	40	40	10	10-(10*.2)=8	18	8/18=44%	44-50 = -6
0	0	0	100	50	50	0	0	0	0	-
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	col1*.5*		*100*-col1	col4*.5*		=col2	col3+(col3*.2)	col7+col8	col8/col9	*50*-col10

model for AuxV clauses

information structure of objects in pre-verbal position (proportion new)



- As the proportion of underlying OV structure drops from 100% to 0% (col 1)
  - the proportion of clauses with new objects in pre-verbal position (col 10 - blue) remains constant
  - it is slightly lower than the overall proportion of new objects at 50% (green) because 20% of the new objects move to post-verbal position

summary

- the model is based on there being two distinct post-verbal positions for objects in AuxV clauses:
  - one derived position reserved for narrow focus (new) objects
  - one base-generated position not specified for information status
- the frequency of the base-generated order increases over time, at the expense of AuxOV clauses
  - AuxOV clauses only have one (base-generated) derivation
  - as in the base-generated AuxVO order, the object position in AuxOV clauses is not specified for information status

summary

- the model predicts that in AuxVO clauses, the proportion of new objects in post-verbal position will decrease over time until it meets the overall proportion of new objects in the language
- in AuxOV clauses, the proportion of new objects does not change while OV order is still generated
- the model predicts that the rate of new objects in preverbal position will be lower than the overall proportion of new objects in the language, because some of the new objects always move from pre- to post-verbal position

testing the model

preliminaries

- to test the model we need a scale on which to rank texts as more or less innovative
- OE texts are notoriously hard to date - instead we use the proportion of AuxV clauses (AuxV/(AuxV+VAux))

Table 3: rank of texts according %AuxV order

	Text	AuxV	N	%AuxV	Rank
Old English	Orosius	405	929	43.6%	1
	Boethius	539	892	60.4%	2
	Cura Pastoralis	1016	1565	64.9%	3
	Catholic Homilies I	912	1350	67.6%	4
	Catholic Homilies II	759	1117	67.9%	5
	Lives of Saints	857	1221	70.2%	6
	Gregory's Dialogues (C)	1191	1642	72.5%	7
Mid English	Trinity Homilies	372	438	84.9%	8
	Katherine Group	454	509	89.2%	9
	Ancrene Riwle	576	588	98.0%	10

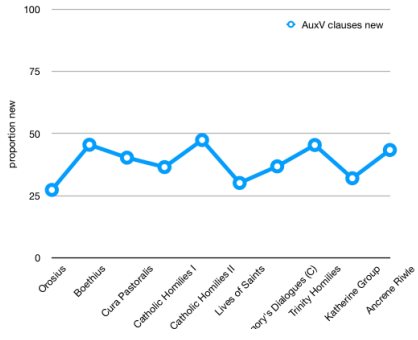
preliminaries

we need the overall proportion of new objects for each text (representing the overall proportion in the language) regardless of object position

Table 4: proportion of new objects in text

Text	New Objects	Total Objects	% New
Orosius	30	110	27.3%
Boethius	65	143	45.5%
Cura Pastoralis	25	62	40.3%
Catholic Homilies I	70	192	36.5%
Catholic Homilies II	36	76	47.4%
Lives of Saints	28	93	30.1%
Gregory's Dialogues (C)	21	57	36.8%
Trinity Homilies	44	97	45.4%
Katherine Group	24	75	32.0%
Ancrene Riwle	69	159	43.4%

preliminaries



- the proportion of new objects varies somewhat by text
- but it is stable across time

empirical predictions

Prediction 1: the gap between the proportion of new objects in the post-verbal field of AuxV clauses and the proportion of new objects in all AuxV clauses of the language will decrease and approach zero over time

prediction 1

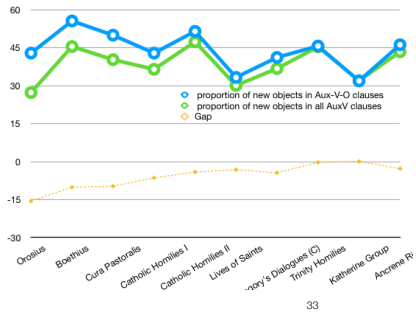
the gap between the proportion of new objects in the post-verbal field of AuxV clauses and the overall proportion of new objects will decrease and approach zero over time

Table 5: AuxV clauses: objects in the post-verbal field

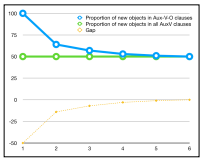
Text	New VO	Total VO	% New VO	% Total New	Gap
Orosius	9	21	42.9%	27.3%	-15.6
Boethius	40	72	55.6%	45.5%	-10.1
Cura Pastoralis	14	28	50.0%	40.3%	-9.7
Catholic Homilies I	36	84	42.9%	36.5%	-6.4
Catholic Homilies II	17	33	51.5%	47.4%	-4.1
Lives of Saints	17	51	33.3%	30.1%	-3.2
Gregory's Dialogues	14	34	41.2%	36.8%	-4.4
Trinity Homilies	21	46	45.7%	45.4%	-0.3
Katherine Group	15	47	31.9%	32.0%	0.1
Ancrene Riwle	54	117	46.2%	43.4%	-2.8

prediction 1

the gap between the proportion of new objects in the post-verbal field of AuxV clauses and the overall proportion of new objects will decrease and approach zero over time



AuxV clauses: objects in the post-verbal field



empirical predictions

Prediction 2: the gap between the proportion of new objects in the pre-verbal field of AuxV clauses and the proportion of new objects in all AuxV clauses of the language will remain constant

prediction 2

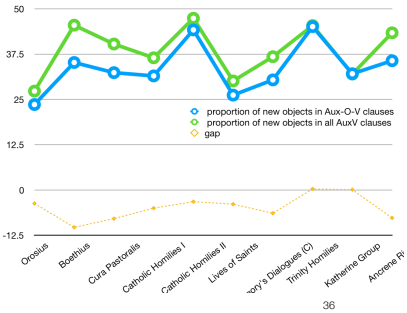
the gap between the proportion of new objects in the pre-verbal field of AuxV clauses and the overall proportion of new objects will remain constant over time

Table 6: AuxV clauses: objects in the pre-verbal field

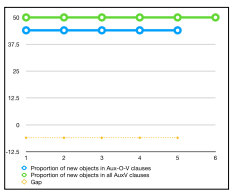
Text	New OV	Total OV	% New OV	% Total New	Gap
Orosius	21	89	23.6%	27.3%	-3.7
Boethius	25	71	35.2%	45.5%	-10.3
Cura Pastoralis	11	34	32.4%	40.3%	-7.9
Catholic Homilies I	34	108	31.5%	36.5%	-5.0
Catholic Homilies II	19	43	44.2%	47.4%	-3.2
Lives of Saints	11	42	26.2%	30.1%	-3.9
Gregory's Dialogues	7	23	30.4%	36.8%	-6.4
Trinity Homilies	23	51	45.1%	45.4%	0.3
Katherine Group	9	28	32.1%	32.0%	0.1
Ancrene Riwle	15	42	35.7%	43.4%	-7.7

prediction 2

the gap between the proportion of new objects in the pre-verbal field of AuxV clauses and the overall proportion of new objects will remain constant over time until OV order dies out



AuxV clauses: objects in the pre-verbal field



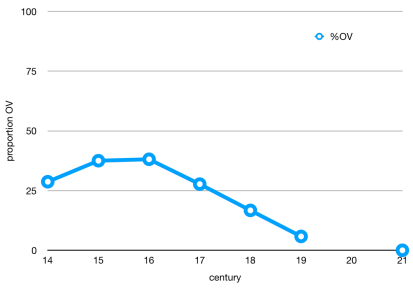
summary

- as texts become more innovative, the proportion of new objects in post-verbal position approaches the overall proportion of new objects in the text
- the conservative variant with a post-verbal focus position is gradually being replaced by the innovative variant, in which the post-verbal position has no information structure constraints associated with it
- the decrease in the gap shows that the proportion of new information in post-verbal position in these clauses is being diluted as the texts become more innovative
- in AuxOV clauses the gap remains constant, as this position is not subject to information status constraints

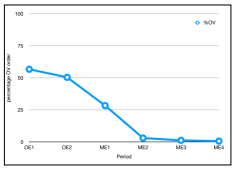
Icelandic (confirmation of the model)

syntactic change

Icelandic also undergoes a change from OV to VO
(data from Hróarsdóttir 2009)



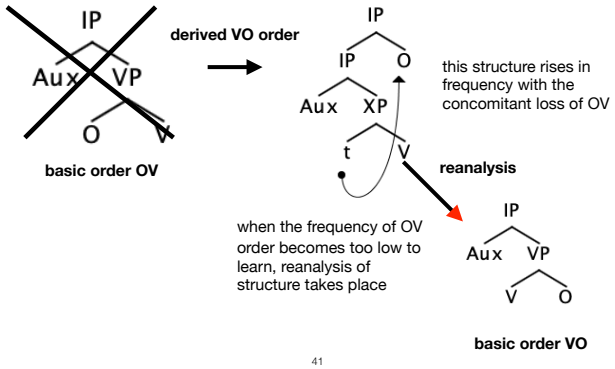
English for comparison



information status

- according to Hróarsdóttir, in Icelandic, as in OE, new objects favour post-verbal position, while given objects favour pre-verbal position
- she claims that the change from OV to VO in Icelandic is the result of a change in discourse strategy
  - a gradual increase in the use of the post-verbal focus (new) position over time leads to a sudden reanalysis and the loss of OV order

Hróarsdóttir's account



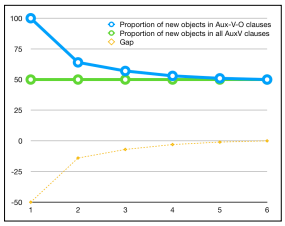
Hróarsdóttir's account

- the prediction of H's account:
  - the proportion of new objects in post-verbal position will rise over time
  - then, following the reanalysis, fall abruptly to approximately the overall proportion of new objects in the language.

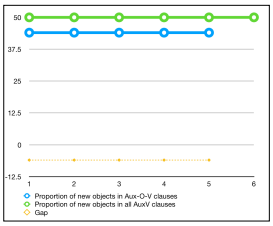
our model

our model makes the same predictions for Icelandic as for English

post-verbal objects



pre-verbal objects



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older Icelandinc

the gap between the proportion of new objects in VO structures and the overall proportion of new objects falls over time

Table 7: AuxV clauses: objects in the post-verbal field

centur	New VO	Total VO	% New VO	% Total New	Gap
14th	204	240	85.0%	59.2%	-25.8
15th	136	160	85.0%	57.9%	-27.1
16th	132	149	88.6%	65.9%	-22.7
17th	314	418	75.1%	55.2%	-19.9
18th	98	141	69.5%	59.0%	-10.5
19th	1312	2384	55.0%	51.2%	-3.8

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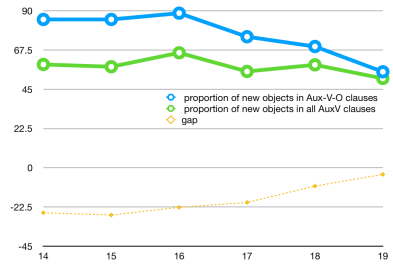
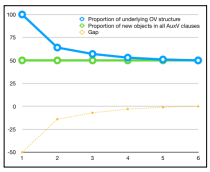
older Icelandic

the gap between the proportion of new objects in VO structures and the overall proportion of new objects falls over time



post-verbal objects



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older Icelandic

in pre-verbal position the proportion of new pre-verbal objects to new objects overall remains constant over time

Table 8: AuxV clauses: objects in the pre-verbal field

century	New OV	Total OV	% New OV	% Total New	Gap
14th	75	231	32.5%	59.2%	-26.7
15th	48	158	30.4%	57.9%	-27.5
16th	50	127	39.4%	65.9%	-26.5
17th	79	294	26.9%	55.2%	-28.3
18th	20	59	33.9%	59.0%	-25.1
19th	84	345	24.3%	51.2%	-26.9

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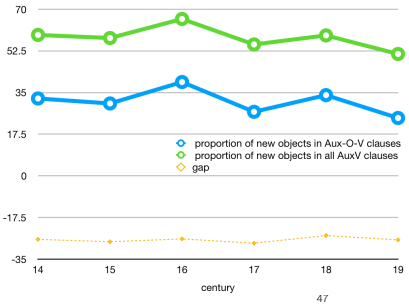
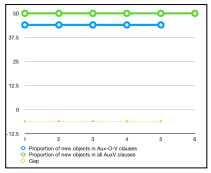
older Icelandic

in pre-verbal position the proportion of new pre-verbal objects to new objects overall remains constant over time.



pre-verbal objects



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summary

- Icelandic is a language closely related to OE, which undergoes the same change from OV to VO
- the patterns which we predicted on the basis of our model and could discern among the noise in the English data are extremely clear in Icelandic (larger sample, better dating, more authors per date)
- this result confirms our hypotheses in a very strong way

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conclusions

- a quantitative model of the change from OV to VO in earlier English and Icelandic based on the independence of information structure constraints predicts patterns in the data which can be seen in the (noisy) English data and much more clearly in the better attested Icelandic
- an alternative account in which syntactic change is driven by changes in discourse strategies predicts patterns not found in the data
- these findings support the hypothesis that the change from OV to VO is not in any way triggered by or related to changes in information structure
- information structure constraints remain constant over time

Thank you!

This talk is based on the following paper: Taylor, A & Pintzuk, S. 2011. The interaction of syntactic change and information status effects in the change from OV to VO in English. Catalan Journal of Linguistics, 10: 71-94

References

Birner B. 2006. Inferential relations and noncanonical word order. In Drawing the boundaries of meaning: Neo-Gricean studies in pragmatics and semantics in honor of Laurence R. Horn, eds. B Birner, G Ward, pp. 31-51. Amsterdam/Philadelphia: Benjamins

Gundel J. 1988. Universals of topic-comment structure. In *Studies in Syntactic Typology,* eds. M Hammond, E Moravcsik, J Wirth, pp. 209-39. Amsterdam: John Benjamins

Gundel J, Hedberg N, Zacharski R. 1993. Cognitive status and the form of referring expressions in discourse. *Language*, 69, 274-307

Hróarsdóttir Þ. 2009. OV languages: Expression of cues. In Information Structure and Language Change: New Approaches to Word Order Variation in Germanic, eds. R Hinterhölzl, S Petrova, pp. 67-90. Berlin: Mouton de Gruyter

Karttunen L. 1976. Discourse referents. In Syntax and semantics 7: Notes from the linguistic underground, ed. JD McCawley, pp. 363-85. New York: Academic Press

Pintzuk S. 1999. Phrase structures in competition: variation and change in Old English word order. New York: Garland

Pintzuk S. 2005. Arguments against a universal base: evidence from Old English. *English Language and Linguistics*, 9, 115-38

Pintzuk S, Taylor A. 2006. The loss of OV order in the history of English. In *The Handbook of the History of English*, eds. A van Kemenade, B Los, pp. 249-78. Oxford: Blackwell

Taylor A, van der Wurff W. 2005. Special issue on aspects of OV and VO order in the history of English. *English Language and Linguistics*, 9, 1-4

Taylor A, Pintzuk S. 2015. Verb order, object position and information status in Old English. In *Syntax over Time: Lexical, Morphological and Information-structural Interactions,* eds. T Biberauer, Walkden, George, pp. 318-35. Oxford: Oxford University Press