Grammatical and register variation and change: A multi-corpora perspective on the English genitive

Bridget Jankowski
University of Toronto
Friday, October 9, 2009

s- and *of*- genitive variation

1. a. …the continued callous indifference ***of*** *the federal government*. [Hansard/u/1956]

   b. *The federal government**'s*** environmental plan… [Hansard/u/1956]

2. … all Canadians should stand equal before *the trials **of** life* and that all Canadians should benefit equally from *life**'s** opportunities*. [Macleans/o/2006]

3. a. Professor Arnold Toynbee, disposing blandly of *the world**'s** various civilizations* like a man judging handicrafts, prize cattle or pickles at a country fair, cites Nova Scotia as a classic example of …[Macleans/h/1956]

   b. …that literally transcends all of the cultures and all of *the religions **of** the world.* [Hansard/y/2006]

4. a. …use it to house *Canada**'s** first responsible government*… [Macleans/h/1956]

   b. Miss Hardy is doing a work of national importance and polishing *the treasures **of** Canada*. [Macleans/h/1956]

5. a. Canada is asked to enter in to some sort of pact whereby she shall bear a share of *the military and naval expenditure **of** Britain*… [Macleans/d/1906]

   b. … those Jacobite survivals who meet in London and Edinburgh and solemnly resolve that it is *England**'s** duty* to bring back the Stuarts. [Macleans/d/1906]

Some recent studies of *s*- and *of*- genitive:

- Hinrichs & Szmrecsanyi 2007
  (Brown/Frown/LOB/FLOB press reportage of many types & editorials)
- Szmrecsanyi & Hinrichs (to appear)
  (adds CSAE and FRED data, which are spoken corpora, including vernacular)
- Ljung 1997
  (British & American daily news, American news mag and British science texts)
- Rosenbach 2002, 2003, 2005
  (empirical portions are ICE-GB corpus, spoken & written BrE, 1990s)
- Mair 2006 (Brown/Frown/LOB/FLOB & BNC)
- Tagliamonte & Jarmasz 2008 (Toronto corpus, vernacular speech)

"In poetry and in higher literary style, the genitive of lifeless things is used in many cases where *of* would be used in ordinary speech."
- Jespersen 1949: 326

"During the last few years the genitive of lifeless things has been gaining ground, (especially among journalists)…"
- Jespersen 1949: 327f.

Changing animacy constraint?

"**There is no consensus whether the shift from *of* to *'s* is due to changes in the animacy constraint: some authors attribute it to a spread of the form to inanimate possessor noun phrases** ([…] e.g. Jespersen, 1909-49: VII, 327–328), while Mair (2006a, 2006b) claims that the animacy constraint is currently being loosened for collective nouns, not inanimates, and that furthermore, **the more significant causes of the spread of the *s*-form lie in the area of discourse practices, not the underlying constraint grammar** (2006b: 147)."

- Hinrichs & Szmrecsanyi 2007: 440

Language change across speech and writing

"Change originates in the spoken language, and historical linguists generally assume without comment that changes enter the written language in approximately the same order as they appear in speech, after some undetermined time lag. The assumption, therefore, is that the written language reflects the spoken language of some earlier time. This is not necessarily the case; future research comparing written and spoken modern languages may help to determine the chronology of linguistic change" (Pintzuk 2003: 525)

Data sample

Data sample

Press: *Maclean's* magazine (50,000 words)

Data sample

Press: *Maclean's* magazine (50,000 words)

1906: 3 authors

1956: 3 authors

2006: 3 authors

Data sample

Press: *Maclean's* magazine (50,000 words)
1906: 3 authors
1956: 3 authors
2006: 3 authors

Formal spoken/transcripts: *Hansard* transcripts, debates of the Ontario Provincial Legislature (100,000 words)

Data sample

Press: *Maclean's* magazine (50,000 words)

1906: 3 authors

1956: 3 authors

2006: 3 authors

Formal spoken/transcripts: *Hansard* transcripts, debates of the Ontario Provincial Legislature (100,000 words)

1906: 3 speakers

1956: 3 speakers

2006: 3 speakers

Data sample

Press: *Maclean's* magazine (50,000 words)

1906: 3 authors

1956: 3 authors

2006: 3 authors

Formal spoken/transcripts: *Hansard* transcripts, debates of the Ontario Provincial Legislature (100,000 words)

1906: 3 speakers

1956: 3 speakers

2006: 3 speakers

All speakers/authors men (for now), between 30-65 in real time

Non-interchangable genitives/exclusions (following Hinrichs & Szmercsanyi, Ljung 1997)

Indefinite possessum & change of meaning:

- *hothouse growths of the Old World ≠ the Old World's hothouse growths*
- *other parts of the country ≠ the country's other parts*

Set Phrases:

- *The Honourable Member of this House/Parliament, the people of Ontario/Canada, Murphy's Law, Peggy's Cove*

Descriptive:

- *parents' night at the school*
- *forests of black spruce and maple*

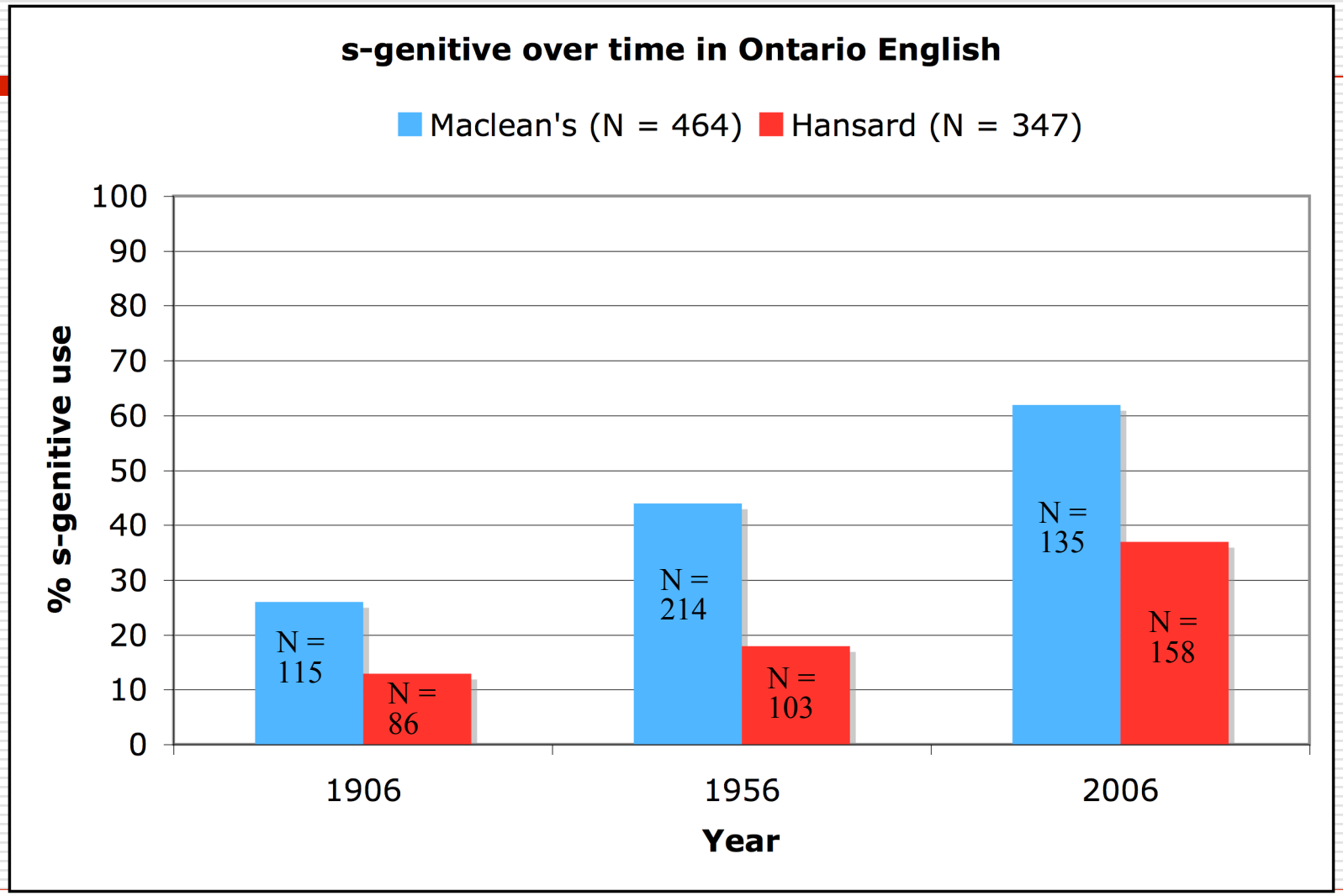
Units of measure:

- *a pink pill the size of a common white bean*

Phrasal genitives

- *the outward sign of an instinctive order which the progressive provinces of the west have not yet discovered*

Figure 1


s-genitive over time in Ontario English
Maclean's (N = 464)
Hansard (N = 347)
% s-genitive use
100
90
80
70
60
50
40
30
20
10
0
N = 115
N = 86
N = 214
N = 103
N = 135
N = 158
1906
1956
2006
Year

Animacy:

- *s*-genitive is known to be favoured by possessors which are human, and following that, animate in some way, such as animals and collective nouns (Ljung 1997: 25)
- *s*-genitive is common with certain types of inanimate nouns, such as geographic locations (Rosenbach 2005: 615, 2003: 386)

Categories coded:

- **Human:** *a student's schoolwork, Mrs. Hale's reaction*
- **Organizations (animate** "collectivities of humans which display some degree of group identity", see Zaenen, et al. 2004: 121**):** *the local school board's ruling; the federal government's plan*
- **Places (inanimate):** *Canada's foreign language press, Ontario's roads, the streets of Rome, the raw edge of the world, the people of this American continent*
- **Inanimate objects, activities, units of time, states (inanimate)**
  - realized with *of*-genitive 96% in Maclean's and 99% in Hansard

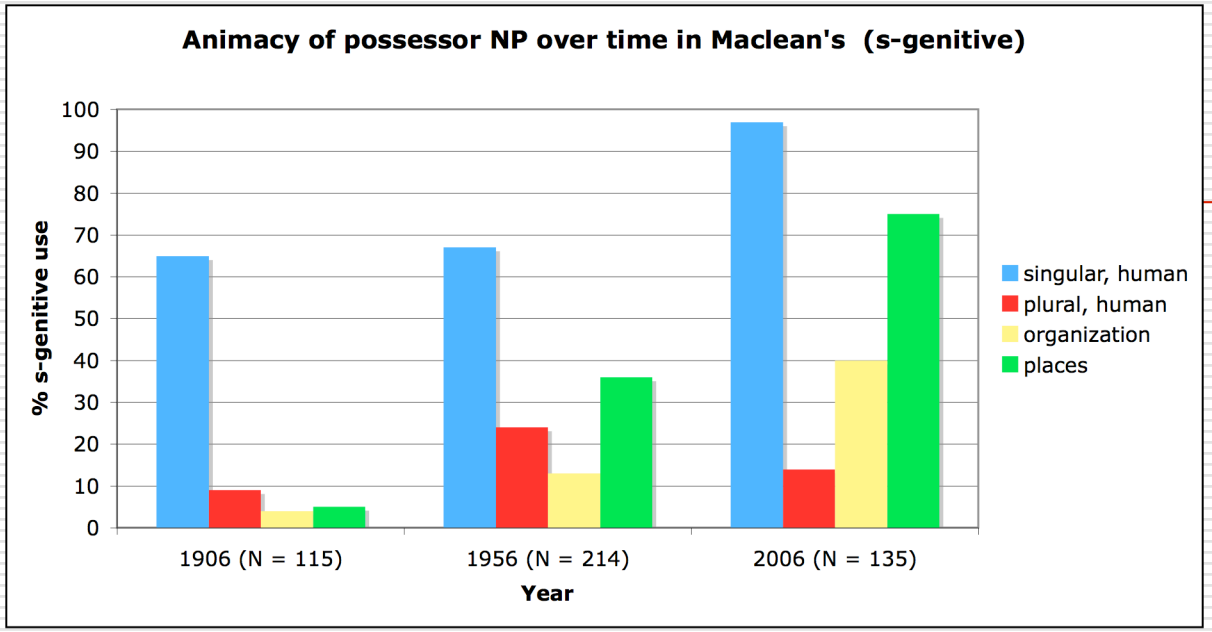
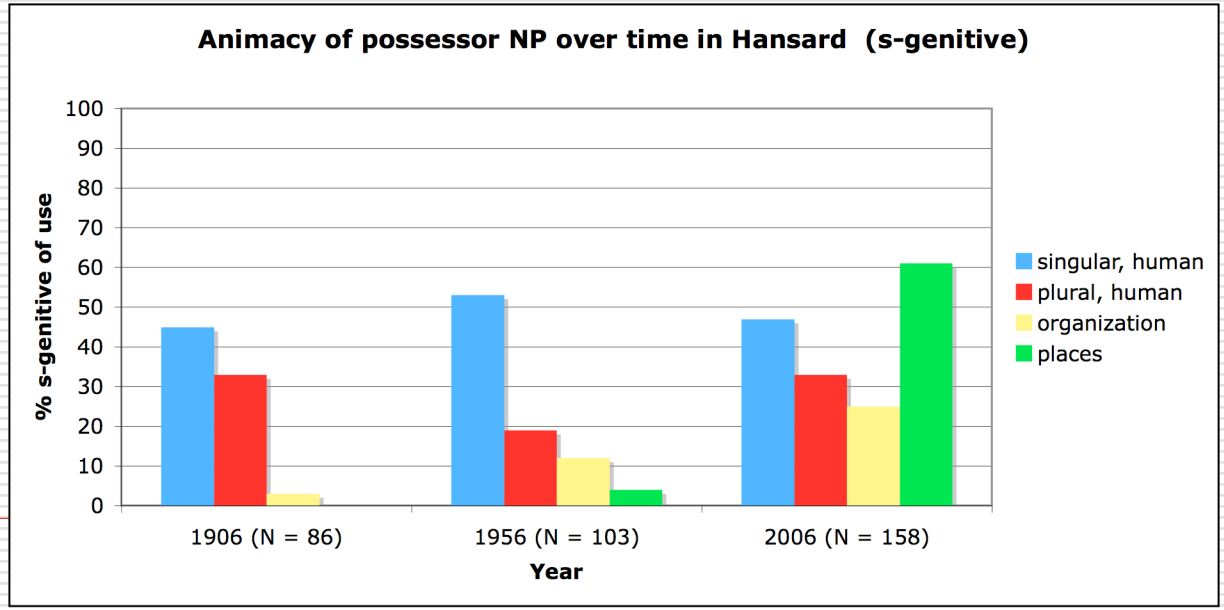


Figure 2:

Figure 3:



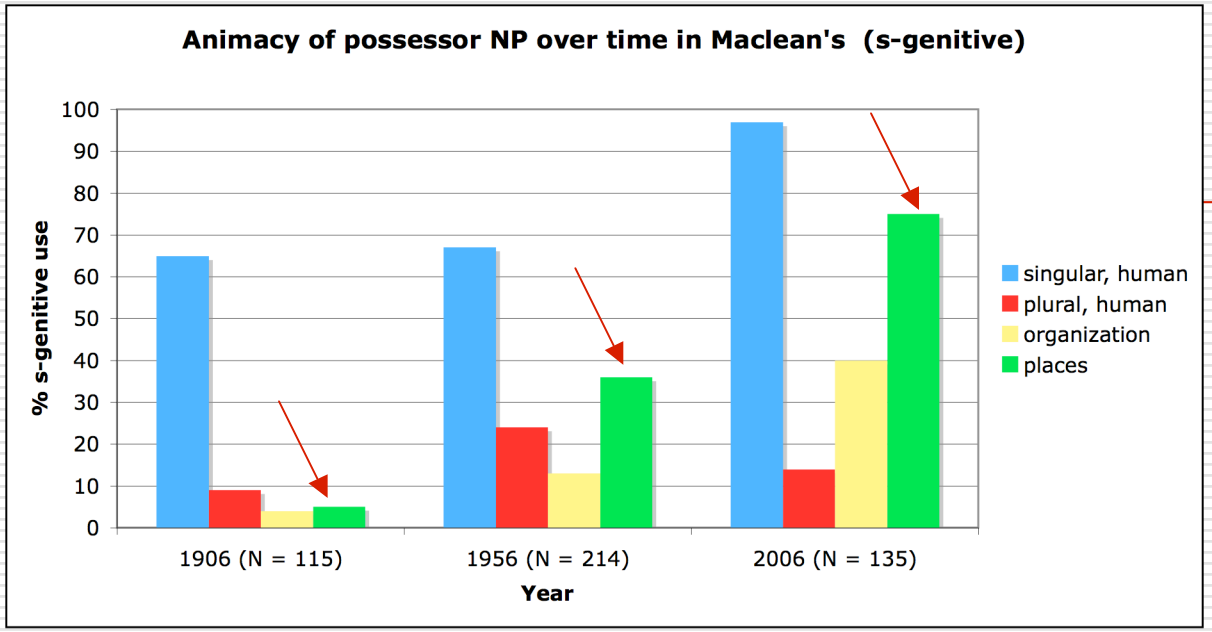


Figure 2:

Figure 3:

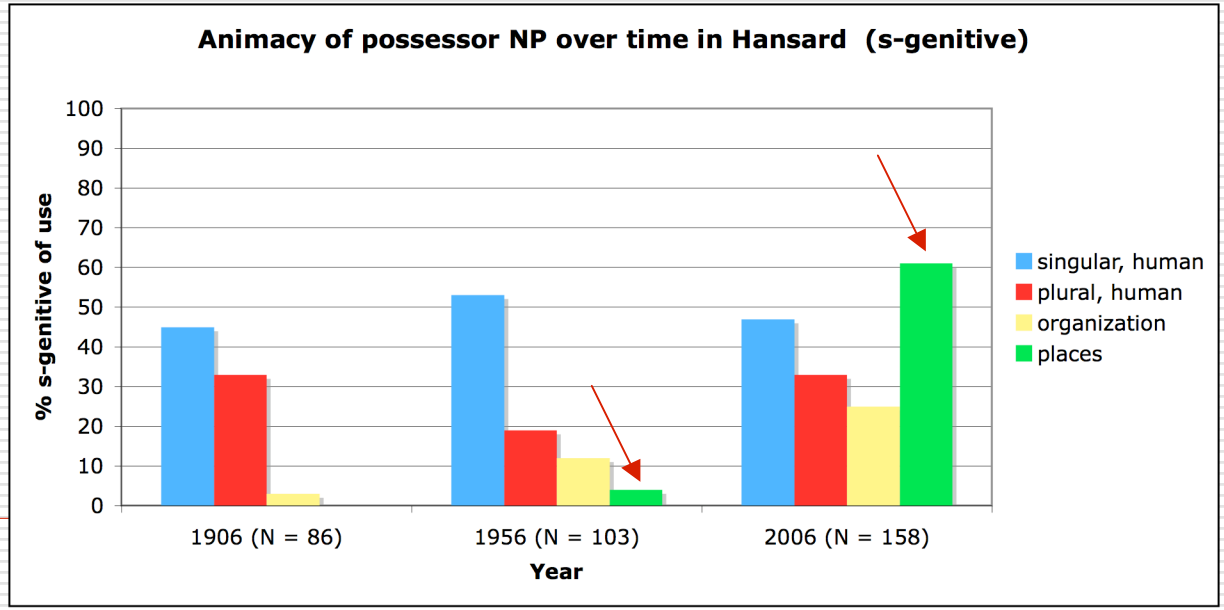
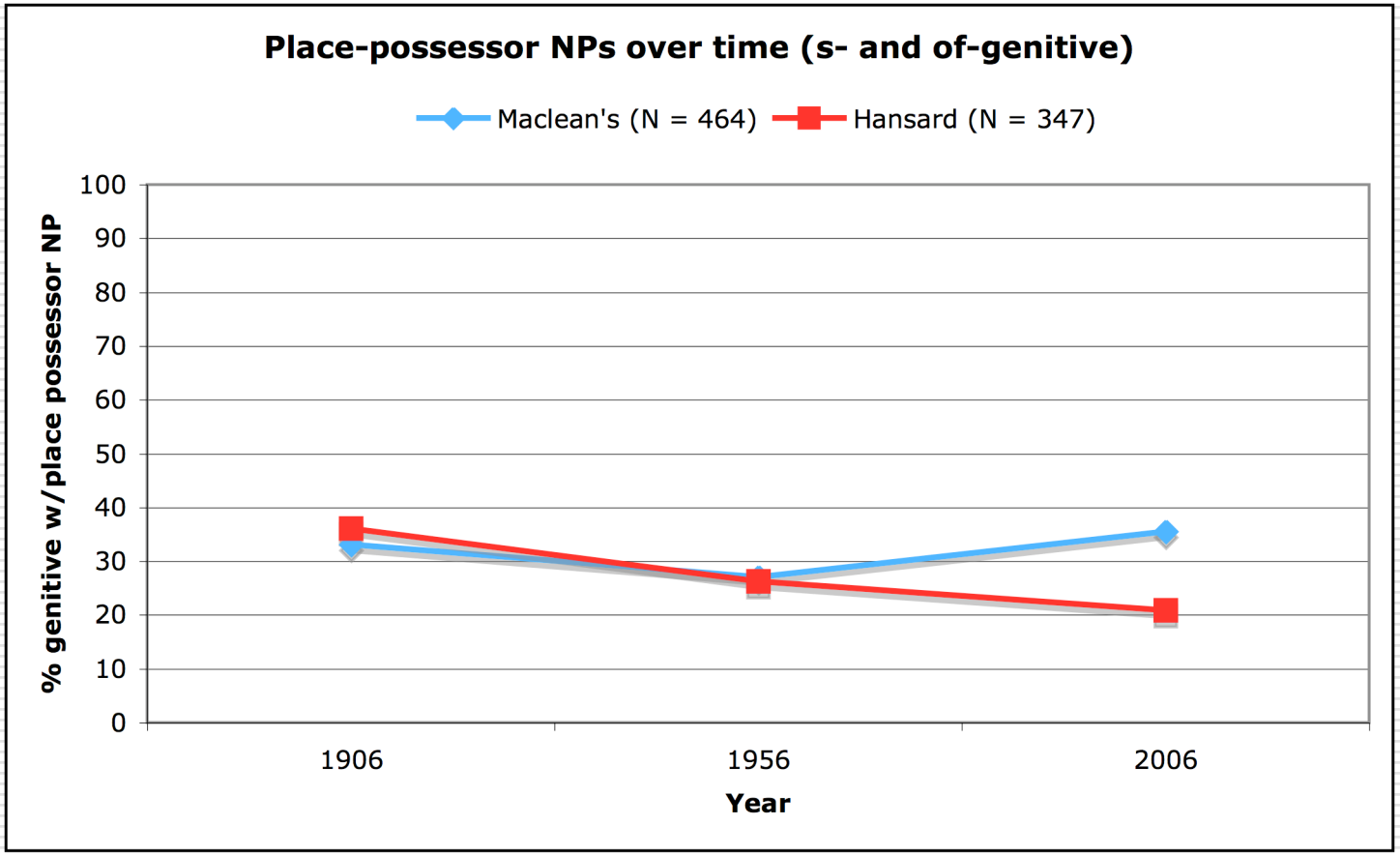


Figure 4:


Place-possessor NPs over time (s- and of-genitive)
Maclean's (N = 464)
Hansard (N = 347)
% genitive w/place possessor NP
100
90
80
70
60
50
40
30
20
10
0
1906
1956
2006
Year

End Weight:

- longer or more complicated constituents will come after shorter ones (S & H: 10, H & S: 22–4)

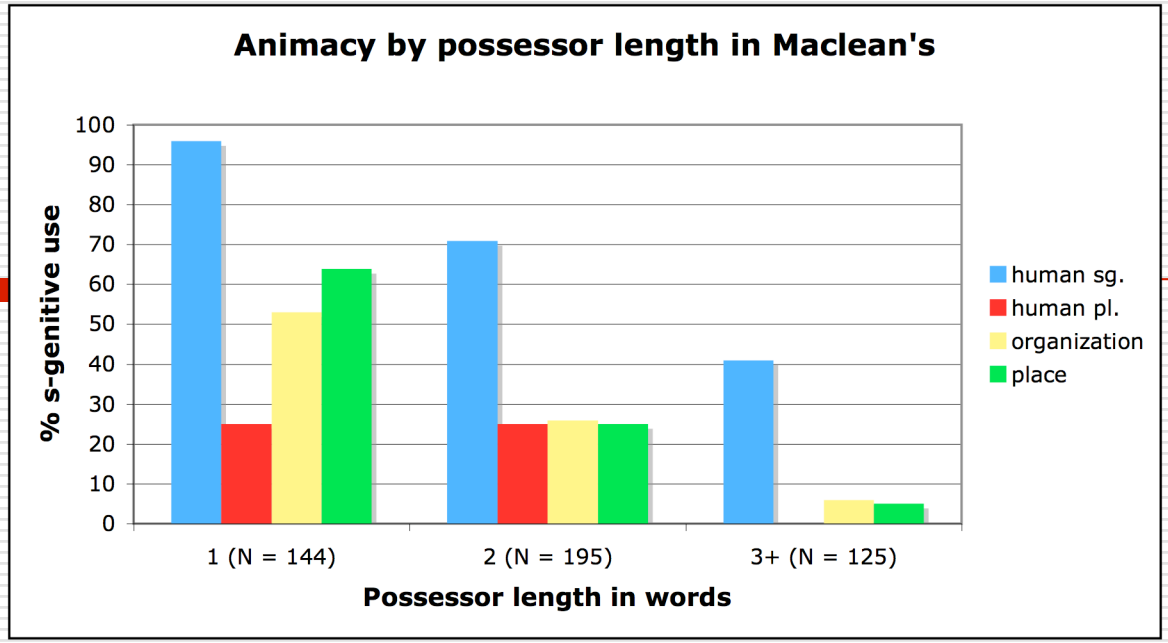
Possessor End Weight

- a shorter possessor is more likely to take an *s*-genitive
  - *Canada's people* (1-word possessor)
  - *the son of Hiram and Martha Fulford* (4-word possessor)

Possessum End Weight :

- shorter possessum will be more likely to take an *of*-genitive and so appear first in the construction, while a longer possessum is more likely to take the *s*-genitive
  - *a man's business ability* (2-word possessum)
  - *the prey of some other owl* (3-word possessum)

Figure 5



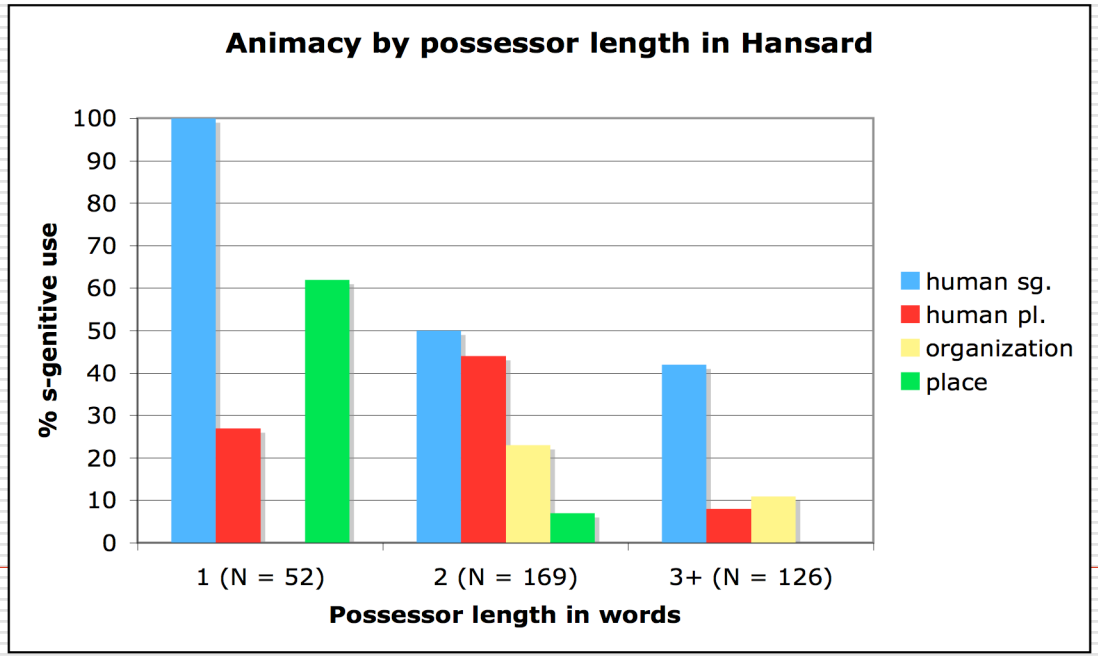
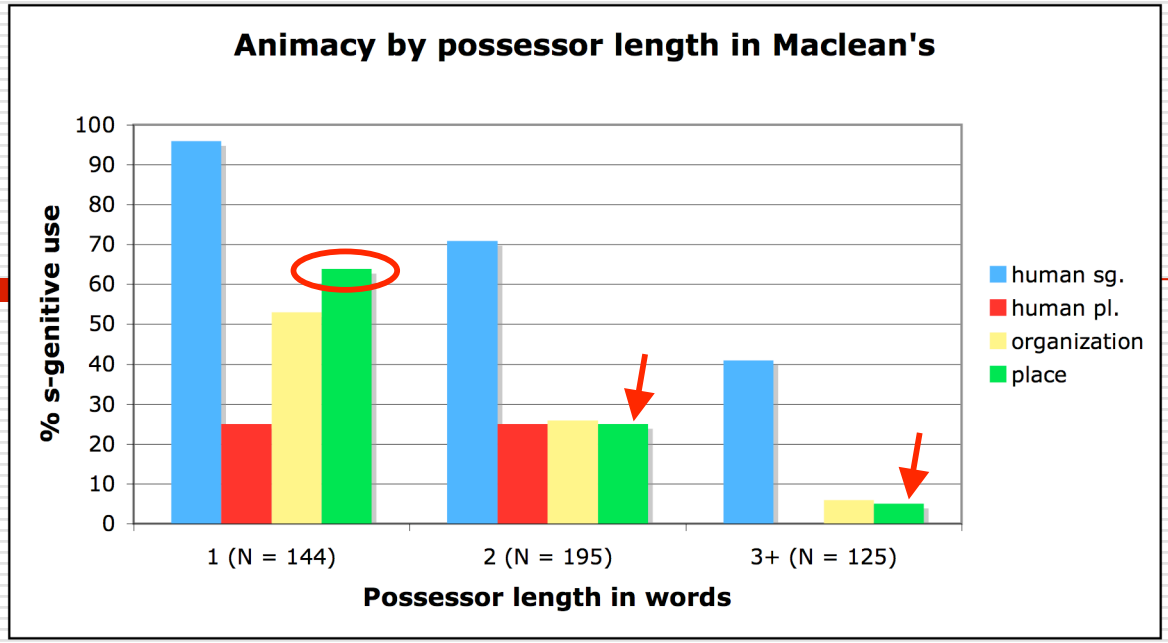


Figure 6

Figure 5



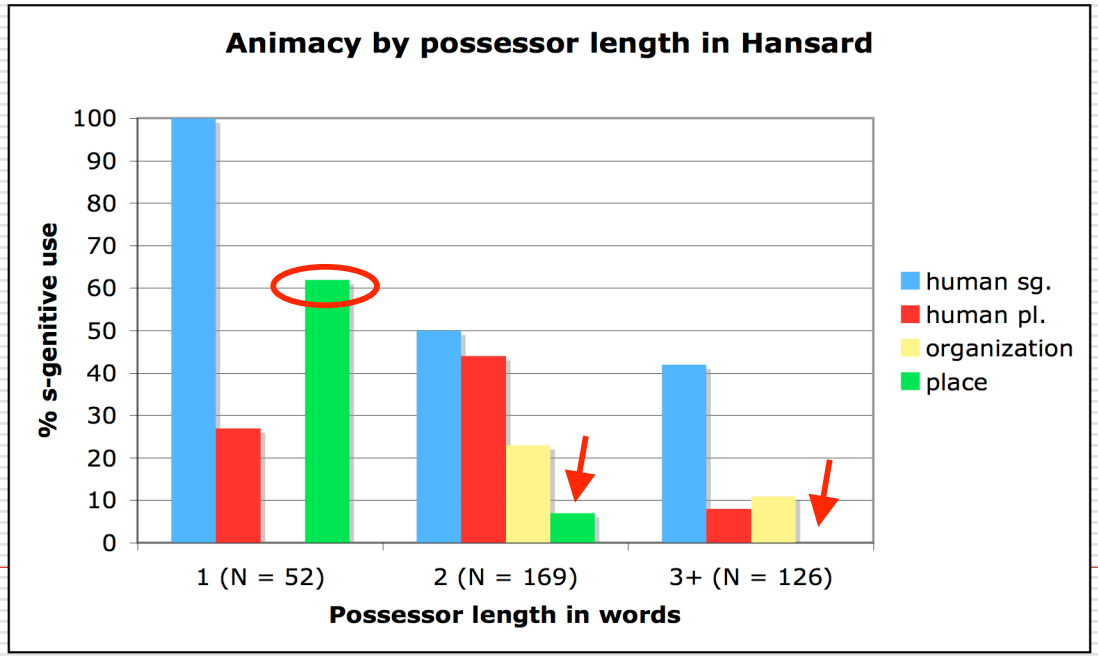
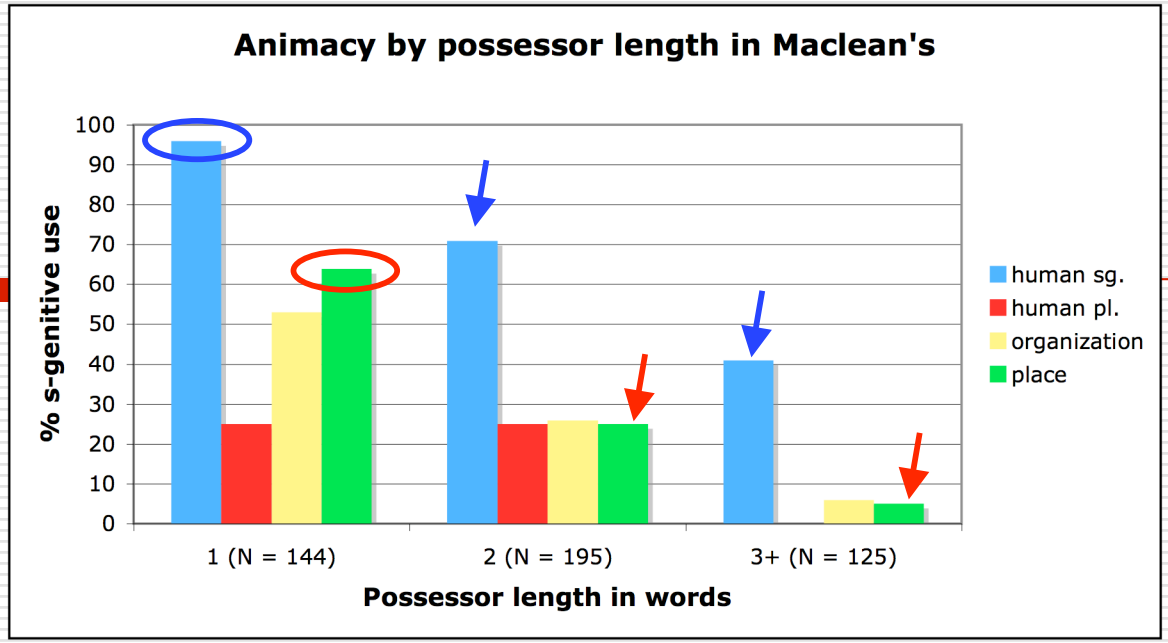


Figure 6

Figure 5



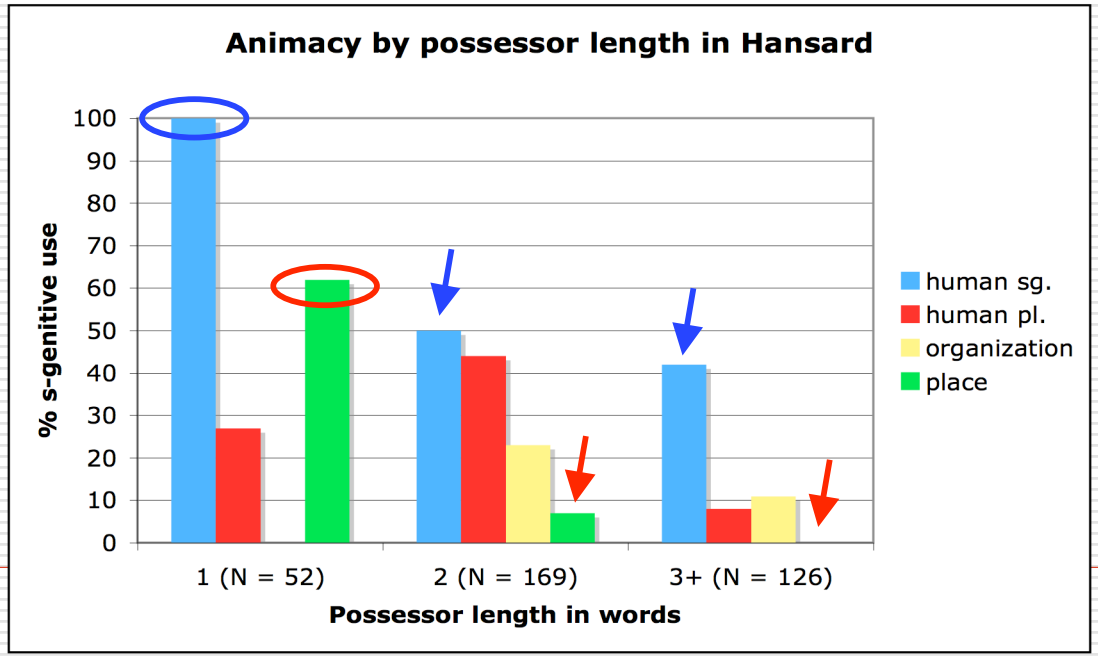
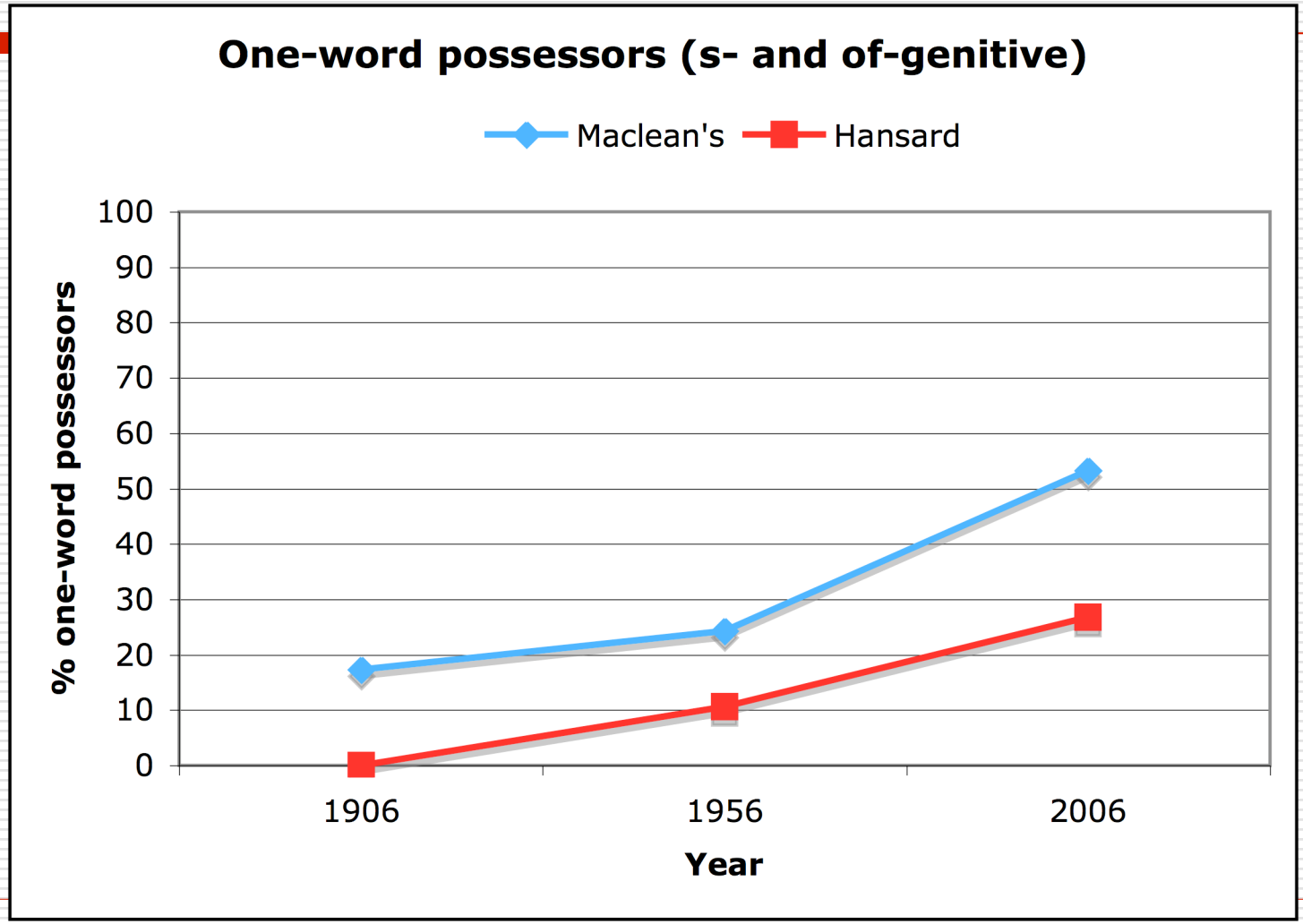


Figure 6

Figure 7


One-word possessors (s- and of-genitive)
Maclean's
Hansard
% one-word possessors
100
90
80
70
60
50
40
30
20
10
0
1906
1956
2006
Year

"Economy"

- The need to encode as much information as possible into less space in text. Felt to be particularly crucial in modern journalistic prose (Biber 2003).
  - **Type-Token Ratio (operationalized by Hinrichs & Szmrecsyani):**
    - lexical density
    - calculated by determining how many distinct parts of speech are present within 50 words on either side of a given token (100 word window).
    - The higher the TTR, the more likely the choice of the more "economic" (shorter) *s*-genitive.

Part-of-Speech Tagging

- Tree-Tagger software
  - http://www.ims.uni-stuttgart.de/projekte/corplex/TreeTagger/
  - Author: Helmut Schmid, Institut für maschinelle Sprachverarbeitung (IMS), Universität Stuttgart
  - Not a highly detailed tagger, distinguishes about 36 parts of speech, which I further collapsed down to 16.

- Range of 8–15 parts of speech within the 100-word windows for each token in data, easily coded as a discrete variable in GoldVarb.

Figure 8

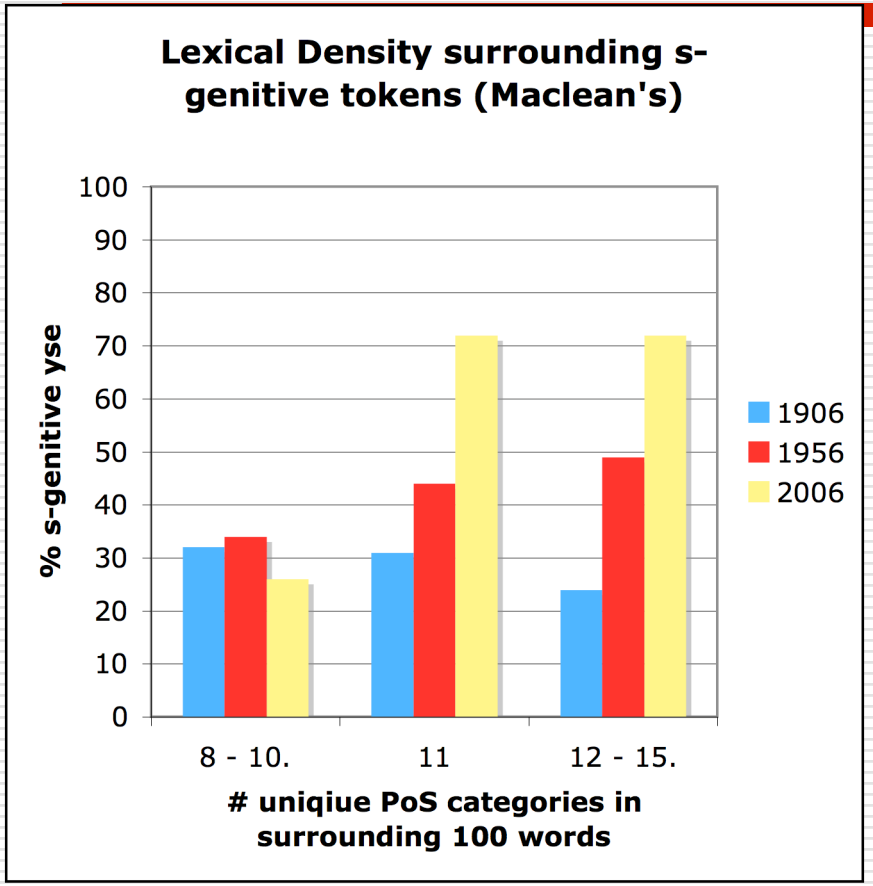


Figure 9

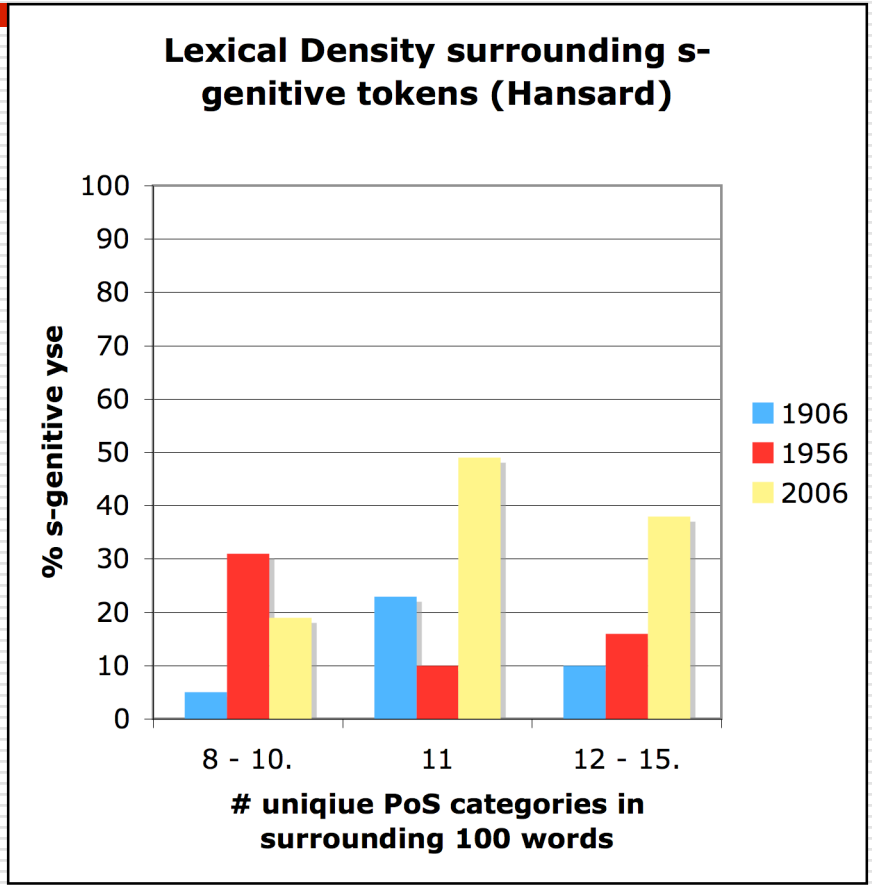


Figure 8

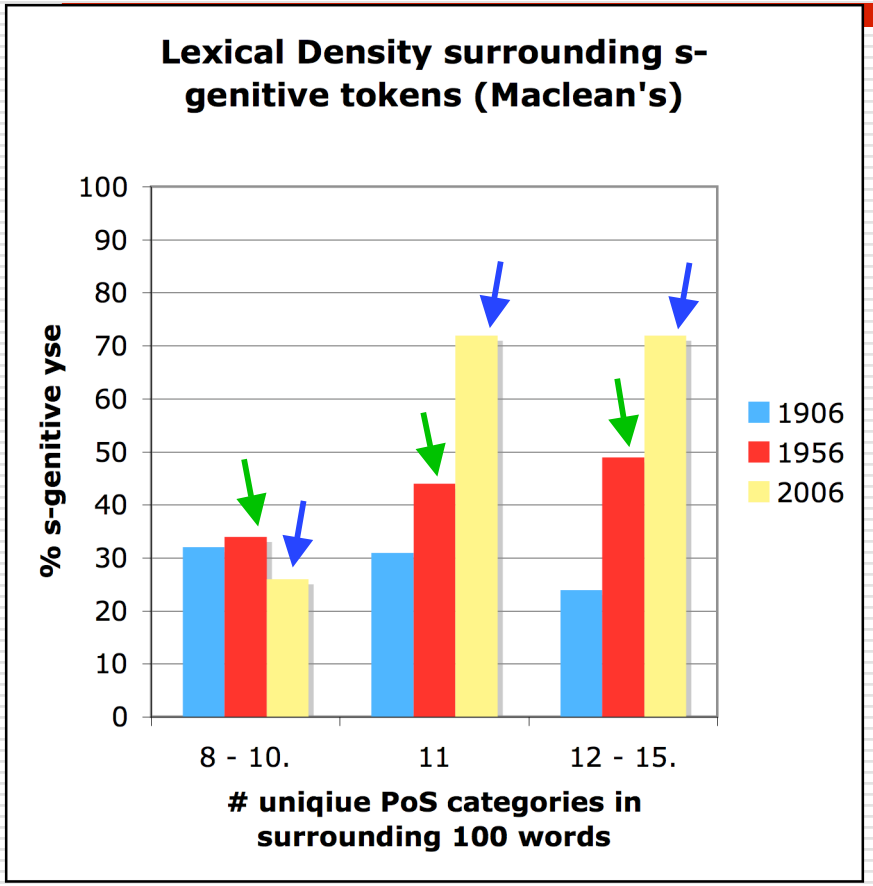
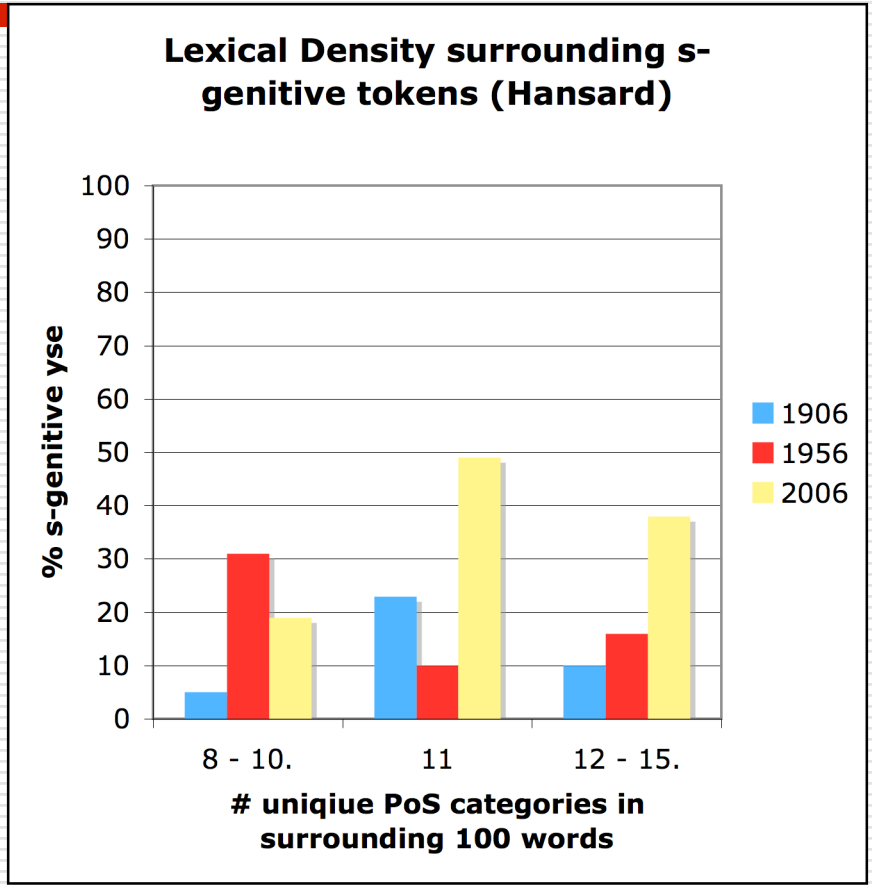


Figure 9



Economy:

- The need to encode as much information as possible into less space. Felt to be particularly active in modern journalistic prose (Biber 2003).
  - **"Thematicity" (operationalized by Hinrichs & Szmrecsyani):** frequency of possessor NP head noun in the surrounding text
    - The more frequent, the more likely economy dictates choosing *s*-genitive.
    - Count occurrences of each possessor head noun, normalized to frequency per 1000 words.
    - Report the number as a natural log (ln) in order to reduce the effects of outliers
  - Natural log range in the data of -2.4 – 2.9, making this easily codeable as a discrete variable for analysis in GoldVarb.

Figure 10

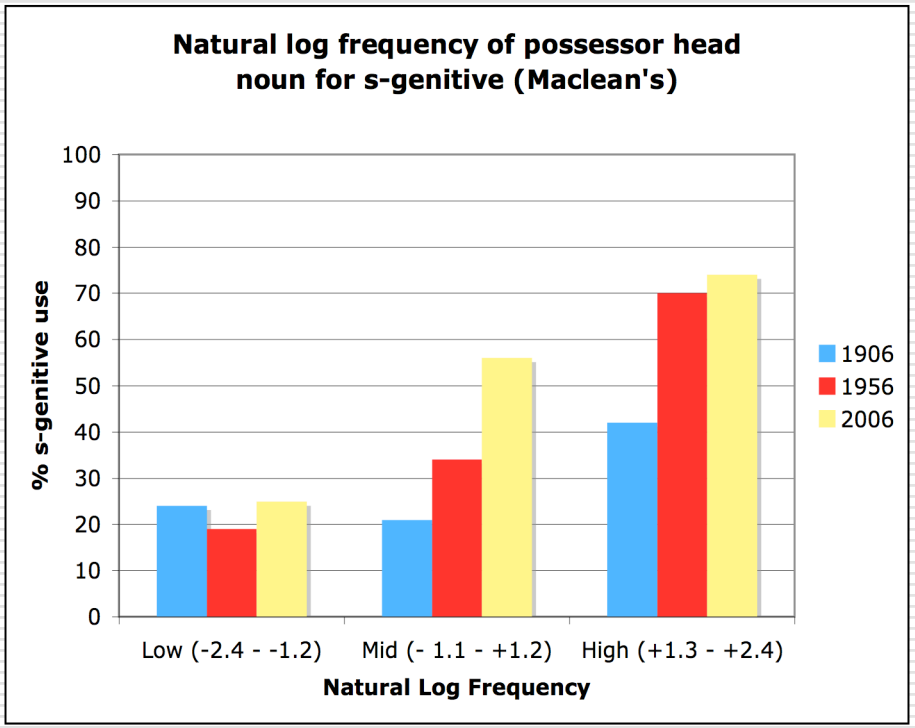


Figure 11

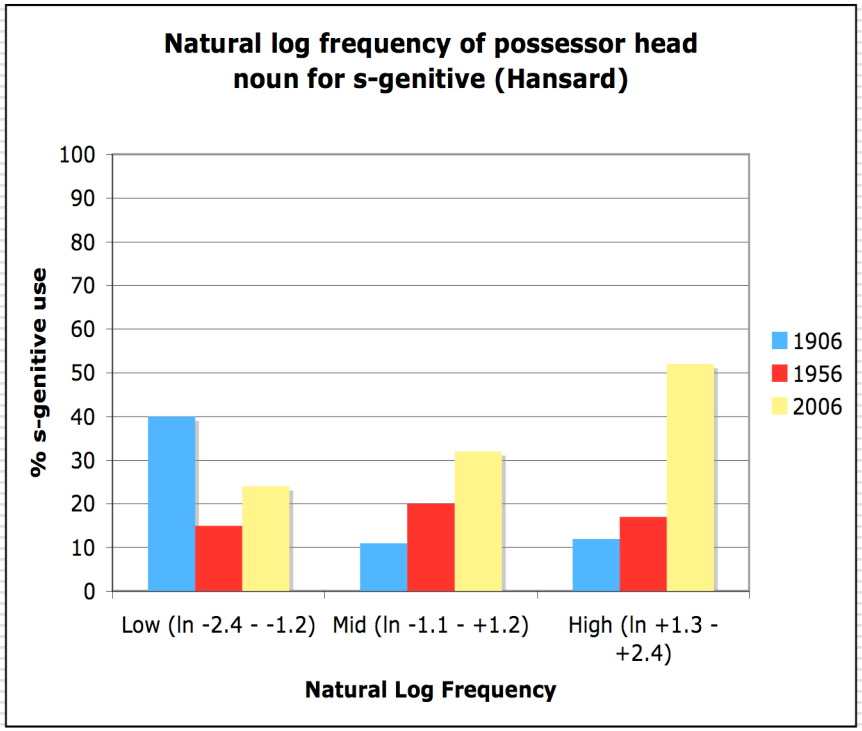


Figure 10

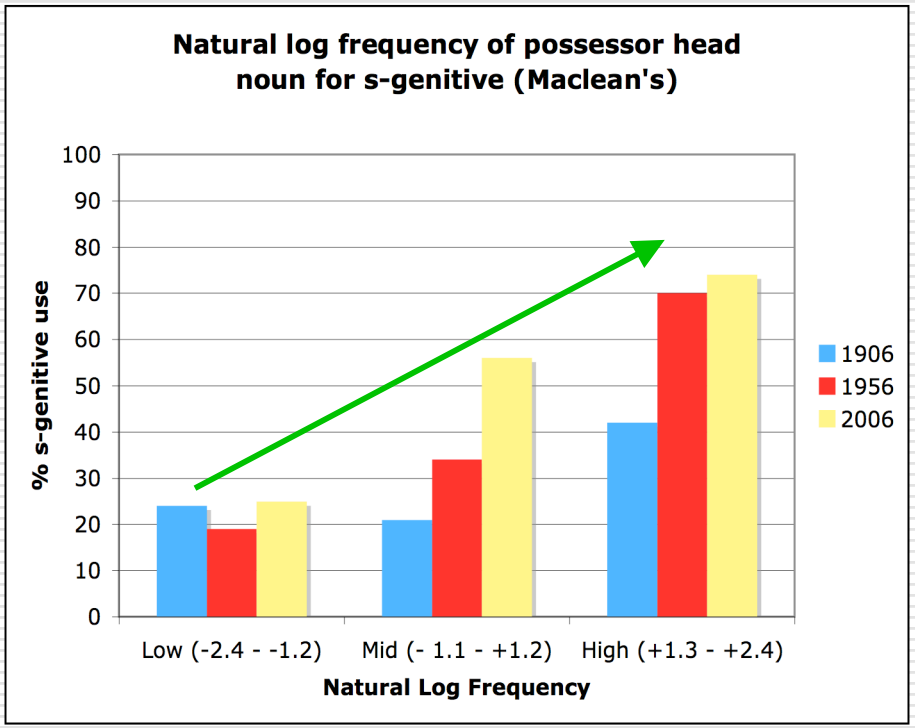


Figure 11

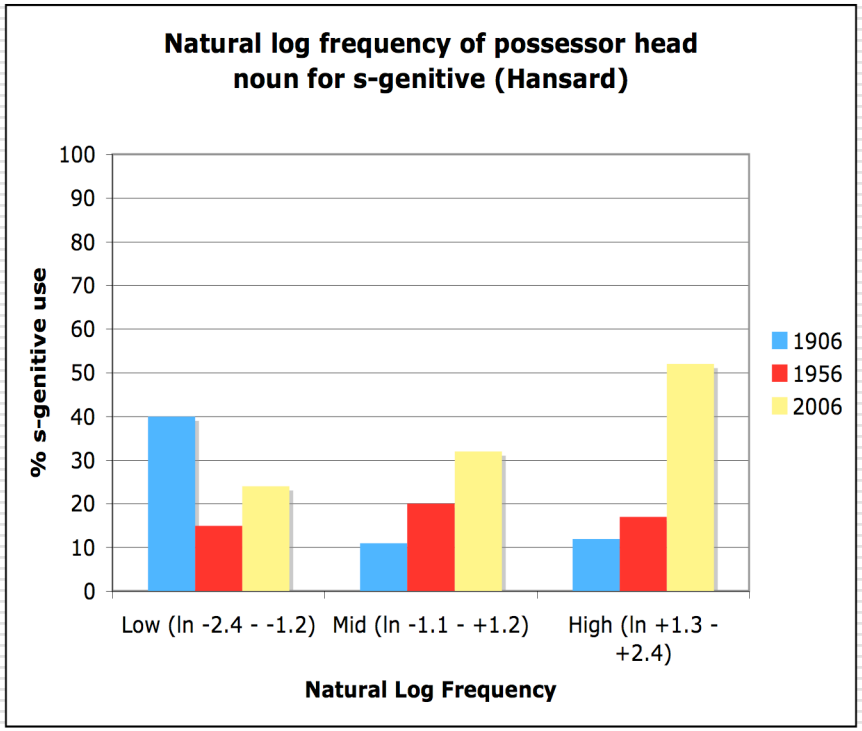


Figure 10

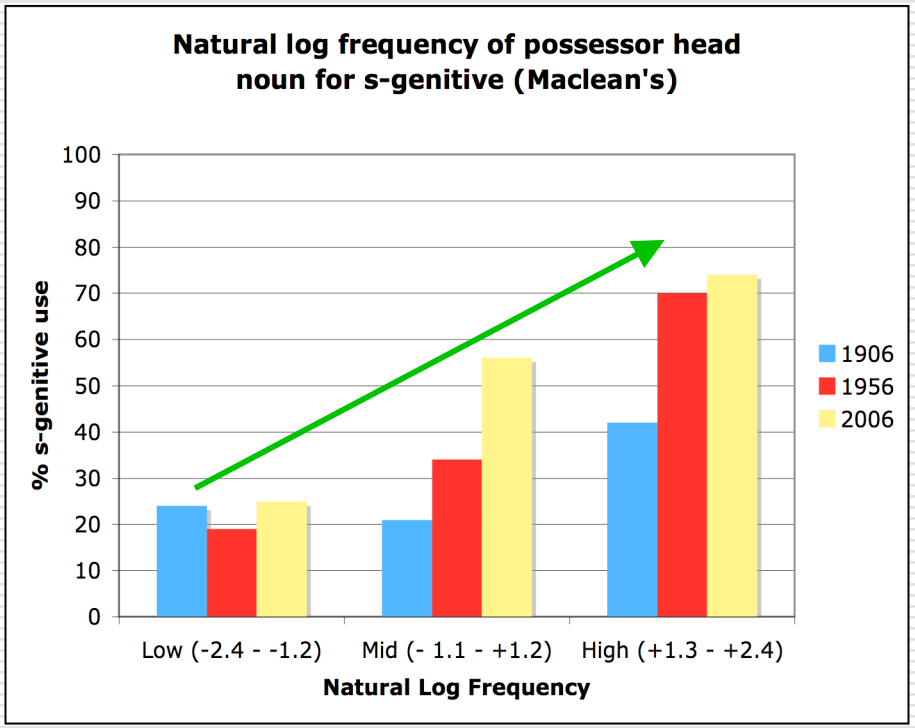


Figure 11

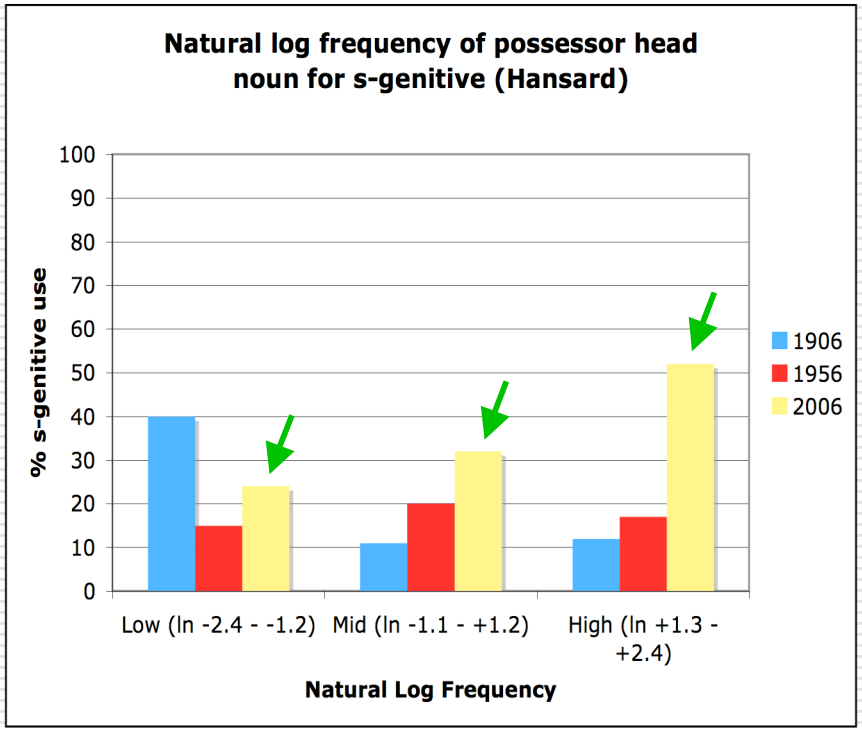


Table 1: Maclean's

Contribution of grammatical factors to the probability of *s*-genitive in *Maclean's* across time

	1906		**1956**		**2006**	
	Input: 0.13 Log likelihood: -38.94 TOTAL N: 115		Input: 0.41 Log likelihood: -110.95 TOTAL N: 214		Input: 0.72 Log likelihood: -52.94 TOTAL N: 135	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.91	65	.74	68	.93	97
Place (1 word)	.39	9	.60	47	.77	90
Plural Human (all lengths)	.35	9	.24	24	.06	14
Organizations (all lengths)	.18	4	.20	13	.20	40
Place (2+ words)	.18	4	.38	31	.09	20
range	*73*		*54*		*87*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	.64	34	[.51]	45	[.50]	68
Sibilant	.15	4	[.47]	44	[.50]	18
range	*49*					
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.31]	24	.19	19	[.27]	25
Med. Freq. (-1.1 – +1.2)	[.51]	21	.44	34	[.44]	56
High Freq. (+1.3 – -+2.9)	[.67]	44	.73	70	[.60]	74
range			*54*			
TYPE-TOKEN RATIO						
8–10	[.57]	33	[.42]	35	.21	36
11	[.61]	31	[.53]	44	.59	72
12–15	[.31]	14	[.53]	48	.58	67
range					*38*	

Possessum End Weight is never significant in the analysis.

Table 2: Hansard

Contribution of grammatical factors to the probability of *s*-genitive in Ontario English *Hansard* across time

	1906		**1956**		**2006**	
	Input: 0.33 Log likelihood: -15.48 TOTAL N: 86		Input: 0.19 Log likelihood: -36.95 TOTAL N: 103		Input: 0.34 Log likelihood: -89.49 TOTAL N: 158	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.61	45	.83	56	.58	50
Place (1 word)	--	0	.55	20	.74	68
Plural Human (all lengths)	.31	18	.46	19	.55	33
Organizations (all lengths)	--	0	.33	13	.36	25
Place (2+ words)	--	0	--	0	.61	38
range	*30*		*50*		*38*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	[.61]	15	[.51]	20	.58	45
Sibilant	[.16]	6	[.49]	16	.36	22
range					*32*	
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.65]	40	[.50]	15	[.34]	24
Med. Freq. (-1.1 – +1.2)	[.63]	11	[.55]	20	[.50]	32
High Freq. (+1.3 – -+2.9)	[.22]	12	[.40]	17	[.60]	52
range						
TYPE-TOKEN RATIO						
8–10	.19	5	.70	31	.30	19
11	.84	23	.30	10	.62	48
12–15	.40	10	.51	16	.53	39
range	*44*		*40*		*32*	

Possessum End Weight is never significant in the analysis.

Table 1: Maclean's

Contribution of grammatical factors to the probability of *s*-genitive in *Maclean's* across time

	1906		1956		2006	
	Input: 0.13 Log likelihood: -38.94 TOTAL N: 115		Input: 0.41 Log likelihood: -110.95 TOTAL N: 214		Input: 0.72 Log likelihood: -52.94 TOTAL N: 135	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.91	65	.74	68	.93	97
Place (1 word)	.39	9	.60	47	.77	90
Plural Human (all lengths)	.35	9	.24	24	.06	14
Organizations (all lengths)	.18	4	.20	13	.20	40
Place (2+ words)	.18	4	.38	31	.09	20
range	*73*		*54*		*87*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	.64	34	[.51]	45	[.50]	68
Sibilant	.15	4	[.47]	44	[.50]	18
range	*49*					
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.31]	24	.19	19	[.27]	25
Med. Freq. (-1.1 – +1.2)	[.51]	21	.44	34	[.44]	56
High Freq. (+1.3 – -+2.9)	[.67]	44	.73	70	[.60]	74
range			*54*			
TYPE-TOKEN RATIO						
8–10	[.57]	33	[.42]	35	.21	36
11	[.61]	31	[.53]	44	.59	72
12–15	[.31]	14	[.53]	48	.58	67
range					*38*	

Possessum End Weight is never significant in the analysis.

Table 2: Hansard

Contribution of grammatical factors to the probability of *s*-genitive in Ontario English *Hansard* across time

	1906		1956		2006	
	Input: 0.33 Log likelihood: -15.48 TOTAL N: 86		Input: 0.19 Log likelihood: -36.95 TOTAL N: 103		Input: 0.34 Log likelihood: -89.49 TOTAL N: 158	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.61	45	.83	56	.58	50
Place (1 word)	--	0	.55	20	.74	68
Plural Human (all lengths)	.31	18	.46	19	.55	33
Organizations (all lengths)	--	0	.33	13	.36	25
Place (2+ words)	--	0	--	0	.61	38
range	*30*		*50*		*38*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	[.61]	15	[.51]	20	.58	45
Sibilant	[.16]	6	[.49]	16	.36	22
range					*32*	
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.65]	40	[.50]	15	[.34]	24
Med. Freq. (-1.1 – +1.2)	[.63]	11	[.55]	20	[.50]	32
High Freq. (+1.3 – -+2.9)	[.22]	12	[.40]	17	[.60]	52
range						
TYPE-TOKEN RATIO						
8–10	.19	5	.70	31	.30	19
11	.84	23	.30	10	.62	48
12–15	.40	10	.51	16	.53	39
range	*44*		*40*		*32*	

Possessum End Weight is never significant in the analysis.

Table 1: Maclean's

Contribution of grammatical factors to the probability of *s*-genitive in *Maclean's* across time

	1906		1956		2006	
	Input: 0.13 Log likelihood: -38.94 TOTAL N: 115		Input: 0.41 Log likelihood: -110.95 TOTAL N: 214		Input: 0.72 Log likelihood: -52.94 TOTAL N: 135	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.91	65	.74	68	.93	97
Place (1 word)	.39	9	.60	47	.77	90
Plural Human (all lengths)	.35	9	.24	24	.06	14
Organizations (all lengths)	.18	4	.20	13	.20	40
Place (2+ words)	.18	4	.38	31	.09	20
range	*73*		*54*		*87*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	.64	34	[.51]	45	[.50]	68
Sibilant	.15	4	[.47]	44	[.50]	18
range	*49*					
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.31]	24	.19	19	[.27]	25
Med. Freq. (-1.1 – +1.2)	[.51]	21	.44	34	[.44]	56
High Freq. (+1.3 – -+2.9)	[.67]	44	.73	70	[.60]	74
range			*54*			
TYPE-TOKEN RATIO						
8–10	[.57]	33	[.42]	35	.21	36
11	[.61]	31	[.53]	44	.59	72
12–15	[.31]	14	[.53]	48	.58	67
range					*38*	

Possessum End Weight is never significant in the analysis.

Table 2: Hansard

Contribution of grammatical factors to the probability of *s*-genitive in Ontario English *Hansard* across time

	1906		1956		2006	
	Input: 0.33 Log likelihood: -15.48 TOTAL N: 86		Input: 0.19 Log likelihood: -36.95 TOTAL N: 103		Input: 0.34 Log likelihood: -89.49 TOTAL N: 158	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.61	45	.83	56	.58	50
Place (1 word)	--	0	.55	20	.74	68
Plural Human (all lengths)	.31	18	.46	19	.55	33
Organizations (all lengths)	--	0	.33	13	.36	25
Place (2+ words)	--	0	--	0	.61	38
range	*30*		*50*		*38*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	[.61]	15	[.51]	20	.58	45
Sibilant	[.16]	6	[.49]	16	.36	22
range					*32*	
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.65]	40	[.50]	15	[.34]	24
Med. Freq. (-1.1 – +1.2)	[.63]	11	[.55]	20	[.50]	32
High Freq. (+1.3 – -+2.9)	[.22]	12	[.40]	17	[.60]	52
range						
TYPE-TOKEN RATIO						
8–10	.19	5	.70	31	.30	19
11	.84	23	.30	10	.62	48
12–15	.40	10	.51	16	.53	39
range	*44*		*40*		*32*	

Possessum End Weight is never significant in the analysis.

Table 1: Maclean's

Contribution of grammatical factors to the probability of *s*-genitive in *Maclean's* across time

	1906		1956		2006	
	Input: 0.13 Log likelihood: -38.94 TOTAL N: 115		Input: 0.41 Log likelihood: -110.95 TOTAL N: 214		Input: 0.72 Log likelihood: -52.94 TOTAL N: 135	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.91	65	.74	68	.93	97
Place (1 word)	.39	9	.60	47	.77	90
Plural Human (all lengths)	.35	9	.24	24	.06	14
Organizations (all lengths)	.18	4	.20	13	.20	40
Place (2+ words)	.18	4	.38	31	.09	20
range	*73*		*54*		*87*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	.64	34	[.51]	45	[.50]	68
Sibilant	.15	4	[.47]	44	[.50]	18
range	*49*					
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.31]	24	.19	19	[.27]	25
Med. Freq. (-1.1 – +1.2)	[.51]	21	.44	34	[.44]	56
High Freq. (+1.3 – -+2.9)	[.67]	44	.73	70	[.60]	74
range			*54*			
TYPE-TOKEN RATIO						
8–10	[.57]	33	[.42]	35	.21	36
11	[.61]	31	[.53]	44	.59	72
12–15	[.31]	14	[.53]	48	.58	67
range					*38*	

Possessum End Weight is never significant in the analysis.

Table 2: Hansard

Contribution of grammatical factors to the probability of *s*-genitive in Ontario English *Hansard* across time

	1906		1956		2006	
	Input: 0.33 Log likelihood: -15.48 TOTAL N: 86		Input: 0.19 Log likelihood: -36.95 TOTAL N: 103		Input: 0.34 Log likelihood: -89.49 TOTAL N: 158	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.61	45	.83	56	.58	50
Place (1 word)	--	0	.55	20	.74	68
Plural Human (all lengths)	.31	18	.46	19	.55	33
Organizations (all lengths)	--	0	.33	13	.36	25
Place (2+ words)	--	0	--	0	.61	38
range	*30*		*50*		*38*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	[.61]	15	[.51]	20	.58	45
Sibilant	[.16]	6	[.49]	16	.36	22
range					*32*	
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.65]	40	[.50]	15	[.34]	24
Med. Freq. (-1.1 – +1.2)	[.63]	11	[.55]	20	[.50]	32
High Freq. (+1.3 – -+2.9)	[.22]	12	[.40]	17	[.60]	52
range						
TYPE-TOKEN RATIO						
8–10	.19	5	.70	31	.30	19
11	.84	23	.30	10	.62	48
12–15	.40	10	.51	16	.53	39
range	*44*		*40*		*32*	

Possessum End Weight is never significant in the analysis.

Table 1: Maclean's

Contribution of grammatical factors to the probability of *s*-genitive in *Maclean's* across time

	1906		1956		2006	
	Input: 0.13 Log likelihood: -38.94 TOTAL N: 115		Input: 0.41 Log likelihood: -110.95 TOTAL N: 214		Input: 0.72 Log likelihood: -52.94 TOTAL N: 135	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.91	65	.74	68	.93	97
Place (1 word)	.39	9	.60	47	.77	90
Plural Human (all lengths)	.35	9	.24	24	.06	14
Organizations (all lengths)	.18	4	.20	13	.20	40
Place (2+ words)	.18	4	.38	31	.09	20
range	*73*		*54*		*87*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	.64	34	[.51]	45	[.50]	68
Sibilant	.15	4	[.47]	44	[.50]	18
range	*49*					
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.31]	24	.19	19	[.27]	25
Med. Freq. (-1.1 – +1.2)	[.51]	21	.44	34	[.44]	56
High Freq. (+1.3 – -+2.9)	[.67]	44	.73	70	[.60]	74
range			*54*			
TYPE-TOKEN RATIO						
8–10	[.57]	33	[.42]	35	.21	36
11	[.61]	31	[.53]	44	.59	72
12–15	[.31]	14	[.53]	48	.58	67
range					*38*	

Possessum End Weight is never significant in the analysis.

Table 2: Hansard

Contribution of grammatical factors to the probability of *s*-genitive in Ontario English *Hansard* across time

	1906		1956		2006	
	Input: 0.33 Log likelihood: -15.48 TOTAL N: 86		Input: 0.19 Log likelihood: -36.95 TOTAL N: 103		Input: 0.34 Log likelihood: -89.49 TOTAL N: 158	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.61	45	.83	56	.58	50
Place (1 word)	--	0	.55	20	.74	68
Plural Human (all lengths)	.31	18	.46	19	.55	33
Organizations (all lengths)	--	0	.33	13	.36	25
Place (2+ words)	--	0	--	0	.61	38
range	*30*		*50*		*38*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	[.61]	15	[.51]	20	.58	45
Sibilant	[.16]	6	[.49]	16	.36	22
range					*32*	
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.65]	40	[.50]	15	[.34]	24
Med. Freq. (-1.1 – +1.2)	[.63]	11	[.55]	20	[.50]	32
High Freq. (+1.3 – -+2.9)	[.22]	12	[.40]	17	[.60]	52
range						
TYPE-TOKEN RATIO						
8–10	.19	5	.70	31	.30	19
11	.84	23	.30	10	.62	48
12–15	.40	10	.51	16	.53	39
range	*44*		*40*		*32*	

Possessum End Weight is never significant in the analysis.

Table 1: Maclean's

Contribution of grammatical factors to the probability of *s*-genitive in *Maclean's* across time

	1906		1956		2006	
	Input: 0.13 Log likelihood: -38.94 TOTAL N: 115		Input: 0.41 Log likelihood: -110.95 TOTAL N: 214		Input: 0.72 Log likelihood: -52.94 TOTAL N: 135	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.91	65	.74	68	.93	97
Place (1 word)	.39	9	.60	47	.77	90
Plural Human (all lengths)	.35	9	.24	24	.06	14
Organizations (all lengths)	.18	4	.20	13	.20	40
Place (2+ words)	.18	4	.38	31	.09	20
range	*73*		*54*		*87*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	.64	34	[.51]	45	[.50]	68
Sibilant	.15	4	[.47]	44	[.50]	18
range	*49*					
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.31]	24	.19	19	[.27]	25
Med. Freq. (-1.1 – +1.2)	[.51]	21	.44	34	[.44]	56
High Freq. (+1.3 – -+2.9)	[.67]	44	.73	70	[.60]	74
range			*54*			
TYPE-TOKEN RATIO						
8–10	[.57]	33	[.42]	35	.21	36
11	[.61]	31	[.53]	44	.59	72
12–15	[.31]	14	[.53]	48	.58	67
range					*38*	

Possessum End Weight is never significant in the analysis.

Table 2: Hansard

Contribution of grammatical factors to the probability of *s*-genitive in Ontario English *Hansard* across time

	1906		1956		2006	
	Input: 0.33 Log likelihood: -15.48 TOTAL N: 86		Input: 0.19 Log likelihood: -36.95 TOTAL N: 103		Input: 0.34 Log likelihood: -89.49 TOTAL N: 158	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.61	45	.83	56	.58	50
Place (1 word)	--	0	.55	20	.74	68
Plural Human (all lengths)	.31	18	.46	19	.55	33
Organizations (all lengths)	--	0	.33	13	.36	25
Place (2+ words)	--	0	--	0	.61	38
range	*30*		*50*		*38*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	[.61]	15	[.51]	20	.58	45
Sibilant	[.16]	6	[.49]	16	.36	22
range					*32*	
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.65]	40	[.50]	15	[.34]	24
Med. Freq. (-1.1 – +1.2)	[.63]	11	[.55]	20	[.50]	32
High Freq. (+1.3 – -+2.9)	[.22]	12	[.40]	17	[.60]	52
range						
TYPE-TOKEN RATIO						
8–10	.19	5	.70	31	.30	19
11	.84	23	.30	10	.62	48
12–15	.40	10	.51	16	.53	39
range	*44*		*40*		*32*	

Possessum End Weight is never significant in the analysis.

Table 1: Maclean's

Contribution of grammatical factors to the probability of *s*-genitive in *Maclean's* across time

	1906		1956		2006	
	Input: 0.13 Log likelihood: -38.94 TOTAL N: 115		Input: 0.41 Log likelihood: -110.95 TOTAL N: 214		Input: 0.72 Log likelihood: -52.94 TOTAL N: 135	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.91	65	.74	68	.93	97
Place (1 word)	.39	9	.60	47	.77	90
Plural Human (all lengths)	.35	9	.24	24	.06	14
Organizations (all lengths)	.18	4	.20	13	.20	40
Place (2+ words)	.18	4	.38	31	.09	20
range	*73*		*54*		*87*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	.64	34	[.51]	45	[.50]	68
Sibilant	.15	4	[.47]	44	[.50]	18
range	*49*					
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.31]	24	.19	19	[.27]	25
Med. Freq. (-1.1 – +1.2)	[.51]	21	.44	34	[.44]	56
High Freq. (+1.3 – -+2.9)	[.67]	44	.73	70	[.60]	74
range			*54*			
TYPE-TOKEN RATIO						
8–10	[.57]	33	[.42]	35	.21	36
11	[.61]	31	[.53]	44	.59	72
12–15	[.31]	14	[.53]	48	.58	67
range					*38*	

Possessum End Weight is never significant in the analysis.

Table 2: Hansard

Contribution of grammatical factors to the probability of *s*-genitive in Ontario English *Hansard* across time

	1906		1956		2006	
	Input: 0.33 Log likelihood: -15.48 TOTAL N: 86		Input: 0.19 Log likelihood: -36.95 TOTAL N: 103		Input: 0.34 Log likelihood: -89.49 TOTAL N: 158	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.61	45	.83	56	.58	50
Place (1 word)	--	0	.55	20	.74	68
Plural Human (all lengths)	.31	18	.46	19	.55	33
Organizations (all lengths)	--	0	.33	13	.36	25
Place (2+ words)	--	0	--	0	.61	38
range	*30*		*50*		*38*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	[.61]	15	[.51]	20	.58	45
Sibilant	[.16]	6	[.49]	16	.36	22
range					*32*	
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.65]	40	[.50]	15	[.34]	24
Med. Freq. (-1.1 – +1.2)	[.63]	11	[.55]	20	[.50]	32
High Freq. (+1.3 – -+2.9)	[.22]	12	[.40]	17	[.60]	52
range						
TYPE-TOKEN RATIO						
8–10	.19	5	.70	31	.30	19
11	.84	23	.30	10	.62	48
12–15	.40	10	.51	16	.53	39
range	*44*		*40*		*32*	

Possessum End Weight is never significant in the analysis.

Table 1: Maclean's

Contribution of grammatical factors to the probability of *s*-genitive in *Maclean's* across time

	1906		1956		2006	
	Input: 0.13 Log likelihood: -38.94 TOTAL N: 115		Input: 0.41 Log likelihood: -110.95 TOTAL N: 214		Input: 0.72 Log likelihood: -52.94 TOTAL N: 135	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.91	65	.74	68	.93	97
Place (1 word)	.39	9	.60	47	.77	90
Plural Human (all lengths)	.35	9	.24	24	.06	14
Organizations (all lengths)	.18	4	.20	13	.20	40
Place (2+ words)	.18	4	.38	31	.09	20
range	*73*		*54*		*87*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	.64	34	[.51]	45	[.50]	68
Sibilant	.15	4	[.47]	44	[.50]	18
range	*49*					
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.31]	24	.19	19	[.27]	25
Med. Freq. (-1.1 – +1.2)	[.51]	21	.44	34	[.44]	56
High Freq. (+1.3 – -+2.9)	[.67]	44	.73	70	[.60]	74
range			*54*			
TYPE-TOKEN RATIO						
8–10	[.57]	33	[.42]	35	.21	36
11	[.61]	31	[.53]	44	.59	72
12–15	[.31]	14	[.53]	48	.58	67
range					*38*	

Possessum End Weight is never significant in the analysis.

Table 2: Hansard

Contribution of grammatical factors to the probability of *s*-genitive in Ontario English *Hansard* across time

	1906		1956		2006	
	Input: 0.33 Log likelihood: -15.48 TOTAL N: 86		Input: 0.19 Log likelihood: -36.95 TOTAL N: 103		Input: 0.34 Log likelihood: -89.49 TOTAL N: 158	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.61	45	.83	56	.58	50
Place (1 word)	--	0	.55	20	.74	68
Plural Human (all lengths)	.31	18	.46	19	.55	33
Organizations (all lengths)	--	0	.33	13	.36	25
Place (2+ words)	--	0	--	0	.61	38
range	*30*		*50*		*38*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	[.61]	15	[.51]	20	.58	45
Sibilant	[.16]	6	[.49]	16	.36	22
range					*32*	
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.65]	40	[.50]	15	[.34]	24
Med. Freq. (-1.1 – +1.2)	[.63]	11	[.55]	20	[.50]	32
High Freq. (+1.3 – -+2.9)	[.22]	12	[.40]	17	[.60]	52
range						
TYPE-TOKEN RATIO						
8–10	.19	5	.70	31	.30	19
11	.84	23	.30	10	.62	48
12–15	.40	10	.51	16	.53	39
range	*44*		*40*		*32*	

Possessum End Weight is never significant in the analysis.

Table 1: Maclean's

Contribution of grammatical factors to the probability of *s*-genitive in *Maclean's* across time

	1906		1956		2006	
	Input: 0.13 Log likelihood: -38.94 TOTAL N: 115		Input: 0.41 Log likelihood: -110.95 TOTAL N: 214		Input: 0.72 Log likelihood: -52.94 TOTAL N: 135	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.91	65	.74	68	.93	97
Place (1 word)	.39	9	.60	47	.77	90
Plural Human (all lengths)	.35	9	.24	24	.06	14
Organizations (all lengths)	.18	4	.20	13	.20	40
Place (2+ words)	.18	4	.38	31	.09	20
range	*73*		*54*		*87*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	.64	34	[.51]	45	[.50]	68
Sibilant	.15	4	[.47]	44	[.50]	18
range	*49*					
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.31]	24	.19	19	[.27]	25
Med. Freq. (-1.1 – +1.2)	[.51]	21	.44	34	[.44]	56
High Freq. (+1.3 – -+2.9)	[.67]	44	.73	70	[.60]	74
range			*54*			
TYPE-TOKEN RATIO						
8–10	[.57]	33	[.42]	35	.21	36
11	[.61]	31	[.53]	44	.59	72
12–15	[.31]	14	[.53]	48	.58	67
range					*38*	

Possessum End Weight is never significant in the analysis.

Table 2: Hansard

Contribution of grammatical factors to the probability of *s*-genitive in Ontario English *Hansard* across time

	1906		1956		2006	
	Input: 0.33 Log likelihood: -15.48 TOTAL N: 86		Input: 0.19 Log likelihood: -36.95 TOTAL N: 103		Input: 0.34 Log likelihood: -89.49 TOTAL N: 158	
	FW	**%**	**FW**	**%**	**FW**	**%**
POSSESSOR TYPE						
Sing. Human (all lengths)	.61	45	.83	56	.58	50
Place (1 word)	--	0	.55	20	.74	68
Plural Human (all lengths)	.31	18	.46	19	.55	33
Organizations (all lengths)	--	0	.33	13	.36	25
Place (2+ words)	--	0	--	0	.61	38
range	*30*		*50*		*38*	
FINAL SIBILANT IN POSSESSOR						
Not sibilant	[.61]	15	[.51]	20	.58	45
Sibilant	[.16]	6	[.49]	16	.36	22
range					*32*	
FREQUENCY OF POSSESSOR NP HEAD NOUN						
Low Freq. (-2.4 – -1.2)	[.65]	40	[.50]	15	[.34]	24
Med. Freq. (-1.1 – +1.2)	[.63]	11	[.55]	20	[.50]	32
High Freq. (+1.3 – -+2.9)	[.22]	12	[.40]	17	[.60]	52
range						
TYPE-TOKEN RATIO						
8–10	.19	5	.70	31	.30	19
11	.84	23	.30	10	.62	48
12–15	.40	10	.51	16	.53	39
range	*44*		*40*		*32*	

Possessum End Weight is never significant in the analysis.

"What is needed is no more and no less than **a model of how changing stylistic conventions and changing discourse traditions ultimately lead to changes in the underlying system of grammatical choices.**" (Mair 2002: 186)

Language change across speech and writing

"Change originates in the spoken language, and historical linguists generally assume without comment that changes enter the written language in approximately the same order as they appear in speech, after some undetermined time lag. The assumption, therefore, is that the written language reflects the spoken language of some earlier time. This is not necessarily the case; **future research comparing written and spoken modern languages may help to determine the chronology of linguistic change**" (Pintzuk 2003: 525)

Figure 12

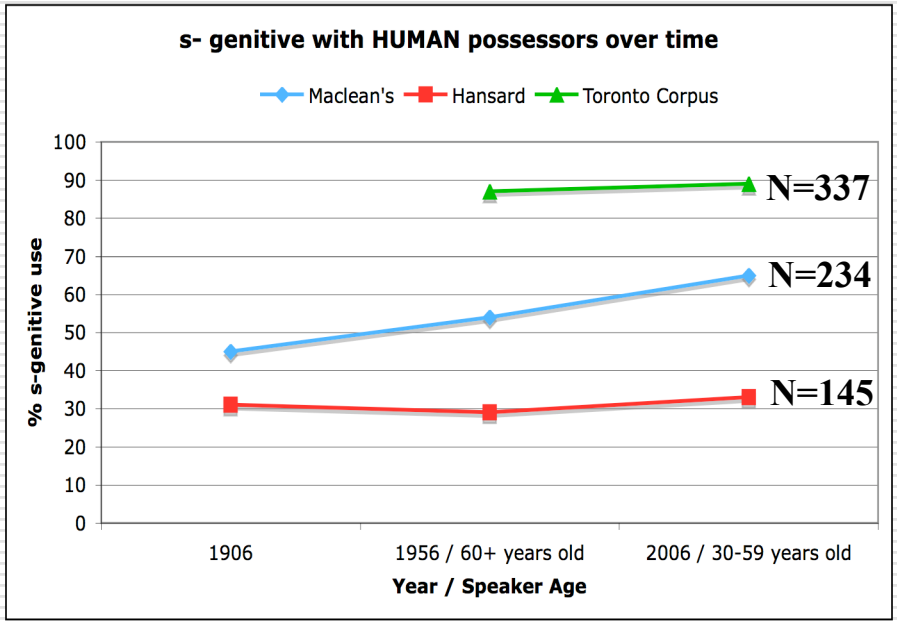
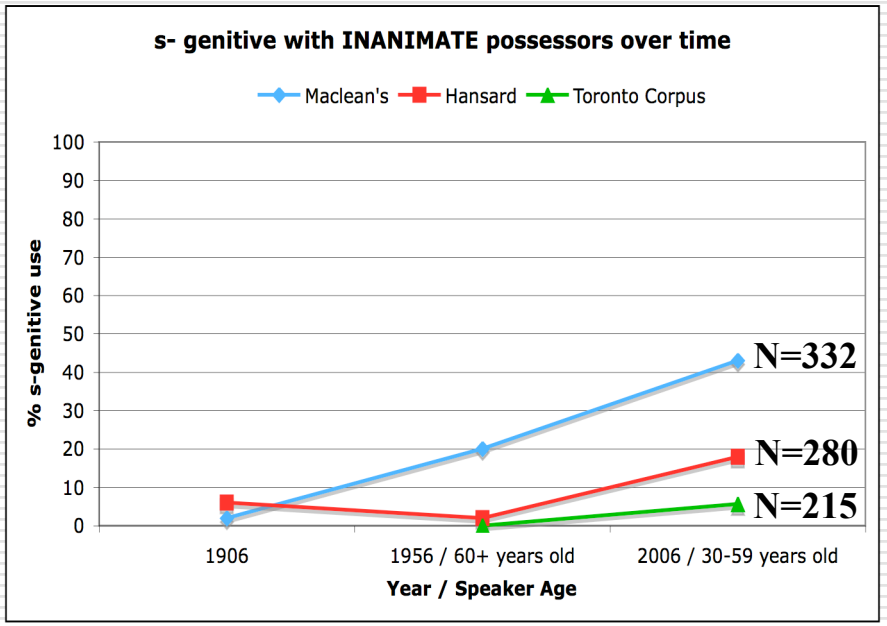


Figure 13



References

Barber, Charles. 1964. *Linguistic change in present-day English.* London Edinburgh: Oliver and Boyd.

Denison, David. 1998. Syntax. In *The Cambridge History of the English Language, Vol. IV: 1776-1997,* ed. Suzanne Romaine. Cambridge: Cambridge University Press.

Hinrichs, Lars and Benedikt Szmrecsanyi. 2007. "Recent changes in the function and frequency of standard English genitive constructions: a multivariate analysis of tagged corpora." *English Language and Linguistics:* 11(3): 437–474. Manuscript version available at http://omnibus.uni-freiburg.de/~szmrecsa/publications.html

Hundt, M. and Mair, C. 1999. "'Agile' and 'uptight' genres: the corpus-based approach to language change in progress." *International Journal of Corpus Linguistics* 4: 221–242.

Jespersen, Otto. 1909–1949. *A Modern English Grammar on Historical Principles: Part VII.* London: Allen & Unwin.

Ljung, Magnus. 1997. "The *s*-genitive and the *of*-construction in different types of English texts." In Fries, Udo, Viviane Müller and Peter Schneider, eds. 1997. *From Ælfric to the New York Times: Studies in English Corpus Linguistics.* Amsterdam: Rodopi.

Mair, Christian. 2002. "Tagged corpora as a new resource in the study of linguistic change in progress." In Fischer, Andreas, Gunnel Tottie and Hans Martin Lehmann, eds., *Text types and corpora: studies in Honour of Udo Fries.* Tübingen: Gunter Narr Verlag.

Mair, Christian. 2006a. "Inflected genitives are spreading in present-day English, but not necessarily to inanimate nouns. In *Corpora and the History of English: Festschrift für Manfred Markus*, ed. Christian Mair. Heidelberg: Winter.

Mair, Christian. 2006b. *Twentieth-Century English: History, Variation and Standardization.* Cambridge: Cambridge University Press.

Pintzuk, Susan. 2003. Variationist approaches to syntactic change. In *The Handbook of Historical Lingusitics,* eds. Brian D. Joseph and Richard D. Janda. 509–528. Oxford: Blackwell.

Rosenbach, Anette. 2005. "Animacy versus weight as determinants of grammatical variation in English." *Language* 81(3): 613–644.

Rosenbach, Anette. 2003. "Aspect of iconicity and economy in the choice between the *s*-genitive and the *of*-genitive in English." In *Determinants of Grammatical Variation in English*, eds. Günter Rohdenburg and Britta Mondorf. 379–411. Berlin: Mouton de Gruyter.

Rosenbach, Anette. 2002. *Genitive variation in English: conceptual factors in synchronic and diachronic studies.* Berlin: Mouton de Gruyter.

Szmrecsanyi, Benedikt and Lars Hinrichs. To appear. "Probabilistic determinants of genitive variation in spoken and written English: a multivariate comparison across time, space, and genres." In *The Dynamics of Linguistic Variation: Corpus Evidence on English Past and Present*, eds. Terttu Nevalainen, Irma Taavitsainen, Päivi Pahta & Minna Korhonen. Amsterdam: Benjamins. Uncorrected proof available at: http://omnibus.uni-freiburg.de/~szmrecsa/publications.html

Tagliamonte, Sali and Lidia Jarmasz. 2008. "Variation and change in the English genitive: A sociolinguistic perspective." Paper presented at the annual meeting of the Linguistic Society of America, Chicago, IL, January 3–6, 2008.

Westin, Ingrid. 2002. *Language change in English newspaper editorials.* Amsterdam: Rudopi.