UNIVERSITY OF BIRMINGHAM | COLLEGE OF ARTS AND LAW

When context shapes grammar

Stylistic flexibility in the English genitive alternation

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Probabilistic grammar approach

- Linguistic choices are conditioned by multiple constraints
- Users possess implicit knowledge of the quantitative associations (probabilities) between variants and their constraints
- Probabilistic knowledge is derived from experience
- Individuals within a community converge on shared norms for constraint effects

Stylistic sensitivity in Vaiationist Sociolingx

- Internal constraints on variation are generally thought to be independent of stylistic factors (e.g. Labov 2010: 265; Rickford 2014: 601)
- Stylistic effects largely manifest as differences in variant frequencies rather than differences in linguistic (internal) constraints

Different constraints ⟶ Different grammars

"In the community-grammar, variable rule model that I'm endorsing, altering constraint effects beyond minor statistical differences would mean effectively adopting a different grammar […]

What varies from speaker to speaker, and from moment to moment in stylistic practice and bricolage, is…the overall rate of use of a variant […]

[…] using different constraint effects stylistically will be equivalent to diglossic or bilingual behavior, rather than simple stylizing within one language."

Greg Guy (*NWAV*, 2015)

Scope of stylistic variation

Style: any variety of a language that is associated with a particular topic, function, or social/situational context

- encompasses variability across all speaking **and writing** practices within an individual's repertoire
- variability across written styles is (relatively) new territory in variationist research (e.g. Jankowski 2013; Grafmiller 2014; Pijpops & Van de Velde 2014)
- stylistic variation in writing shares many properties with complex style-shifting in speech
    - e.g. 'situational' vs. 'metaphorical' shifting (e.g. Rickford 2014)

Questions for today

1. To what extent are internal constraints sensitive to stylistic variation?
   - do we find genre-specific changes in constraint effects?

2. Do individual speakers/writers vary in their use of certain constraints?
   - do we find evidence that speakers vary constraint effects?

Study: English genitive alternation

(1) the best interest of both governments [*of*-genitive]
(2) both governments' best interest [*s*-genitive]

Very well-researched phenomenon (Rosenbach 2014)

- relatively stable across regional varieties (Heller et al. 2017)
- historically quite variable (Wolk et al. 2013)

  ⇨parallel increase in use of *s*-genitives across vernacular speech and newspaper writing in U.S. English (Biber 2003; Hundt & Mair 1999)

- variation in other written styles not so well-studied (cf. Jankowski 2013; Grafmiller 2014)

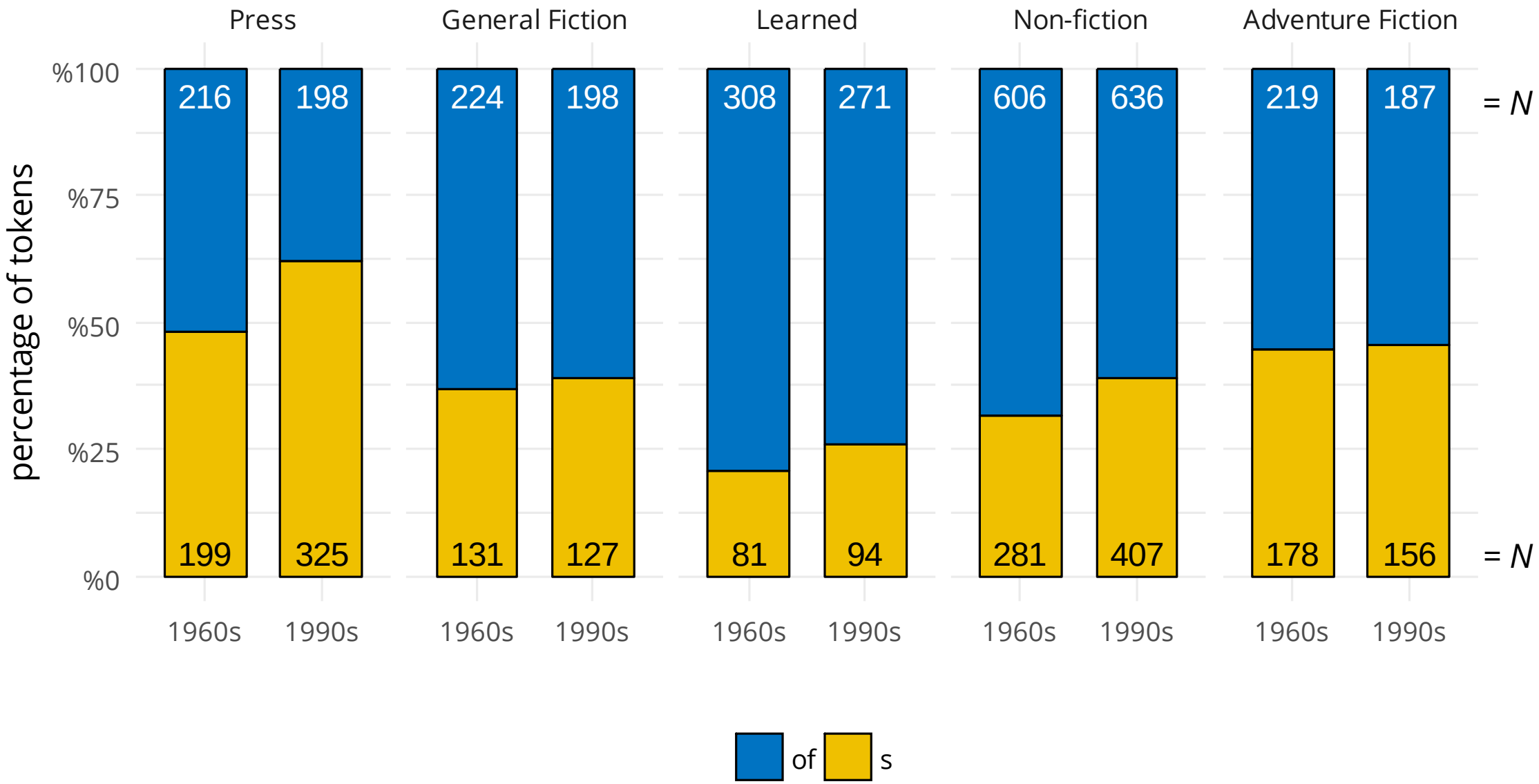
Present dataset (*N* = 5096)

Focus on 5 genres of US English from the 1960s (Brown) & 1990s (Frown)

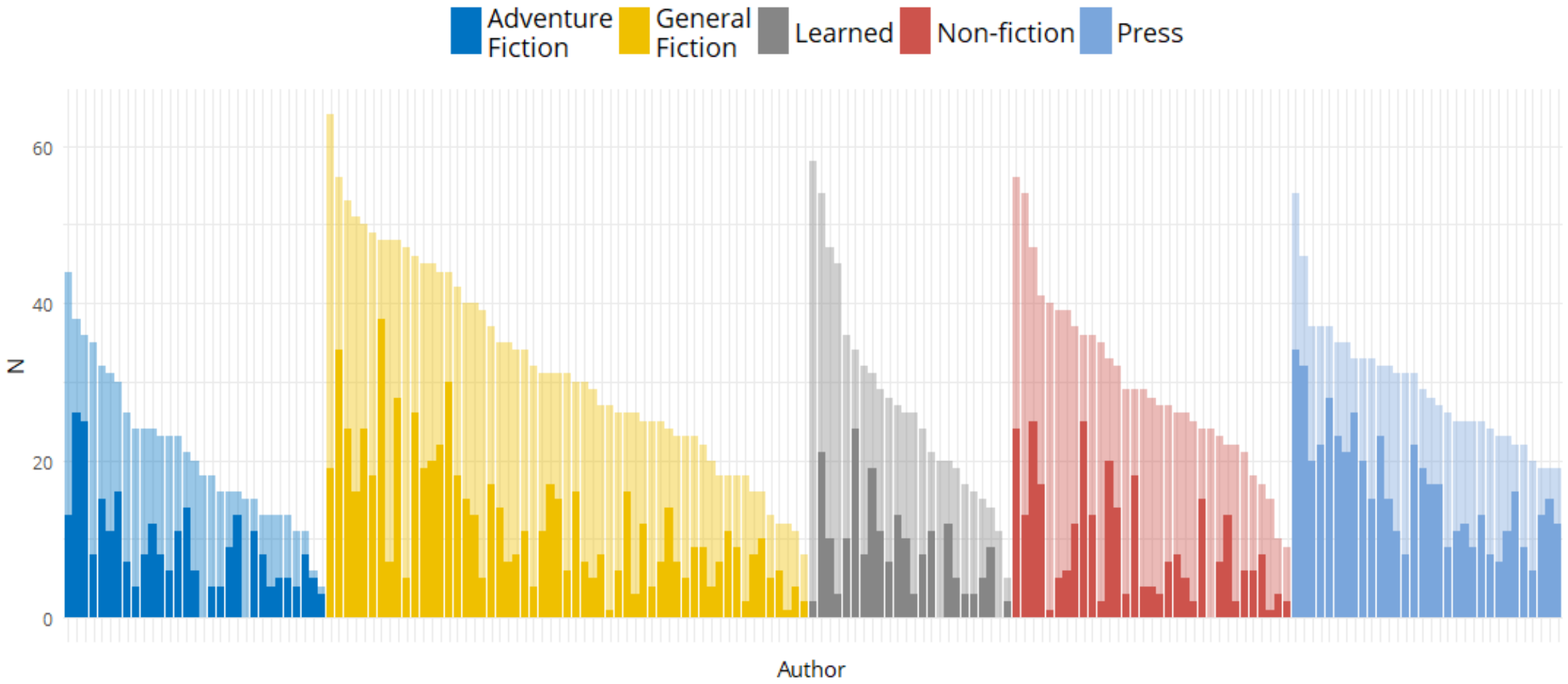
- Press: newspaper reportage (A)
- Learned: academic books & papers (J)
- Non-fiction: memoirs, biographies, letters (G)
- General fiction: 'literary' works (K)
- Adventure fiction: e.g. westerns (N)

Extract all instances of interchangeable genitives (Rosenbach 2002; Heller 2018)

Distribution of genitives by time and genre



By-author (*N* = 177) variability in Brown/Frown



Light bars = total number of tokens; **Dark bars** = number of *s*-genitives

Factors coded for

- Possessor animacy (animate vs. inanimate)
- Possessor/Possessum length (number of words)
- Possessor NP type (proper N vs. common N)
- Possessor ends in a sibilant? (yes / no)
- Possessor givenness (given vs. new)
- Lexical density of local context (type-token ratio)
- Semantics (prototypical vs. non-prototypical)
- Prior genitive (*s*-gen vs. other)

Comparative Sociolinguistic Method

Adapt 3 ‘lines of evidence’ (Poplack & Tagliamonte 2001; Taglimonte 2013)

Looking across the genres individually…

1. How are constraints ranked in terms of overall explanatory power?
2. What is the strength and ordering of the levels within the constraints (the size and direction of the effects)?
3. Which constraints are significant?

Model specs

- Mixed-effects logistic regression[1]
  - 10 models: one for each genre in each time period
  - by-author intercepts and slopes for Possessor Animacy

```
Type ~ (1|Author) + (0 + PossrAnimacy|Author) +
   PossrAnimacy + PossrLength + PossmLength +
   PossrGiven + PossrNP + FinalSibilant +
   SemanticRelation + TypeTokenRatio
```

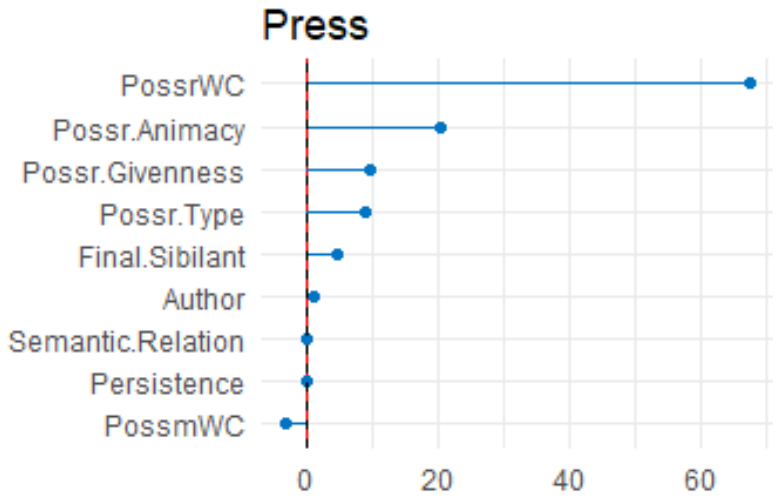
[1]Bayesian models using `brms` package with standardized predictors and weakly informative priors

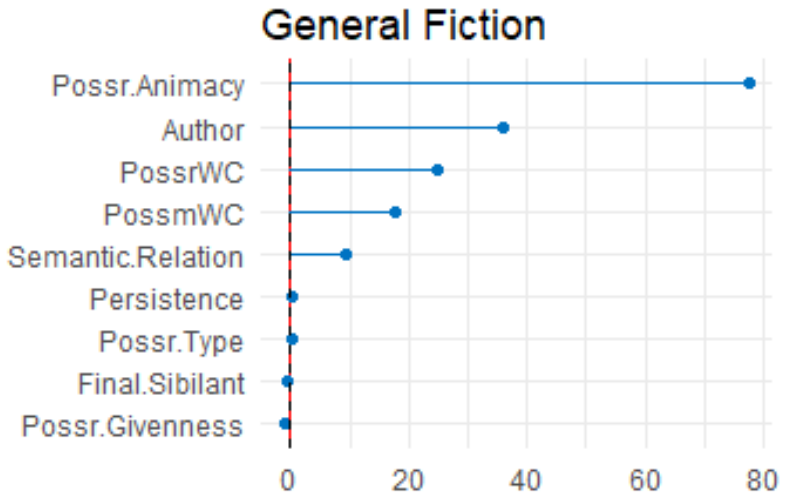
Analysis: Assessing explanatory importance

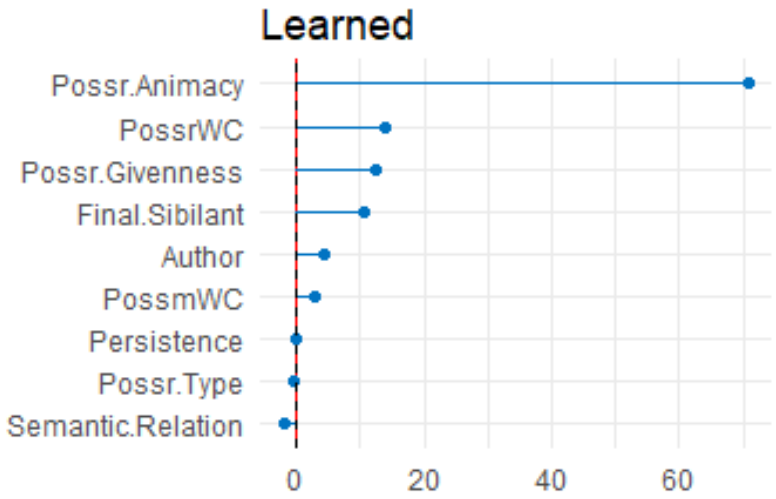
Do certain constraints vary across genres in their relative importance?

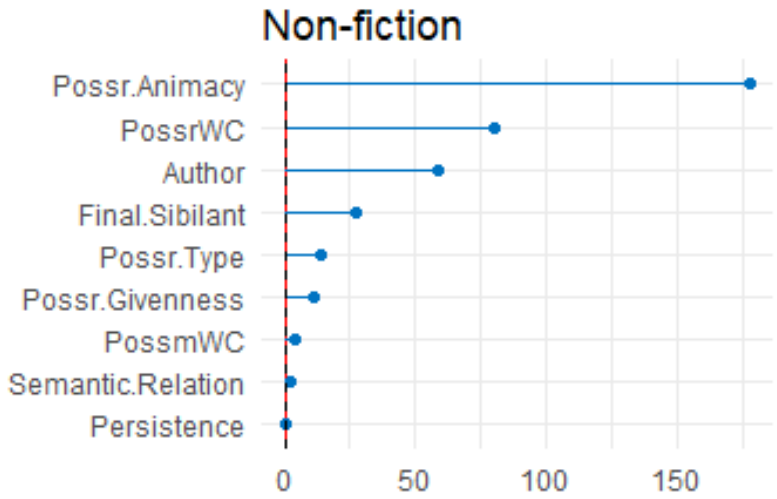
- compute variable importance rankings for individual genre models
  - compare accuracy of original model to model with predictor randomly permuted
  - different rankings reflect different degrees of constraint importance

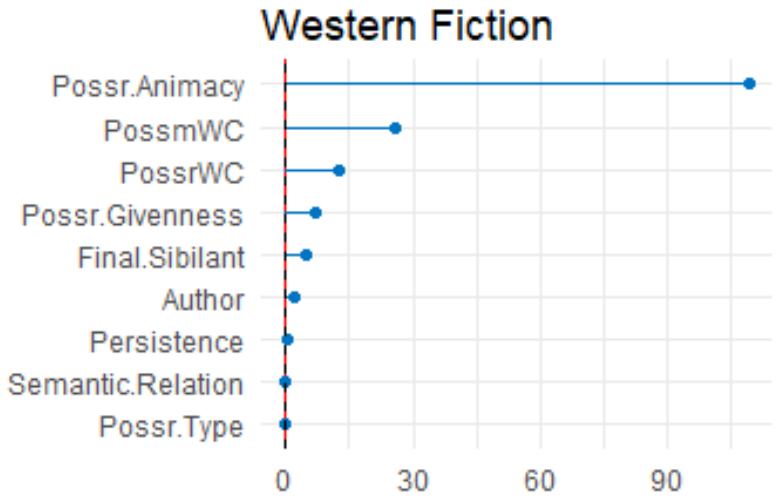
Constraint ranking: 1960s



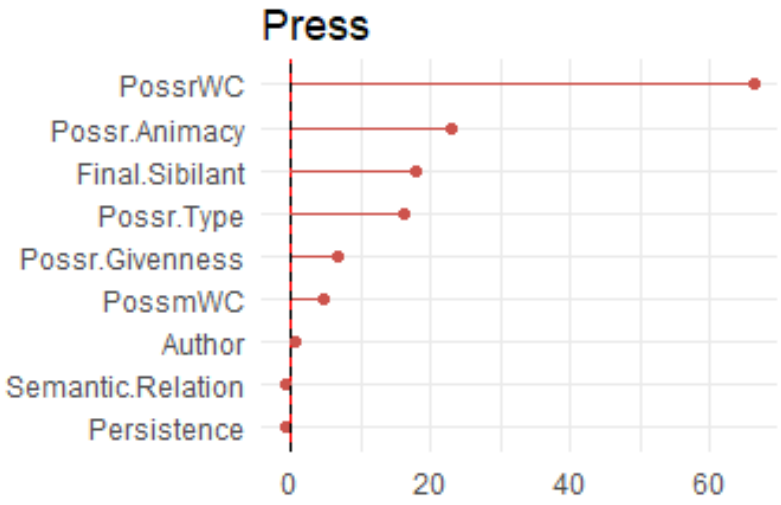


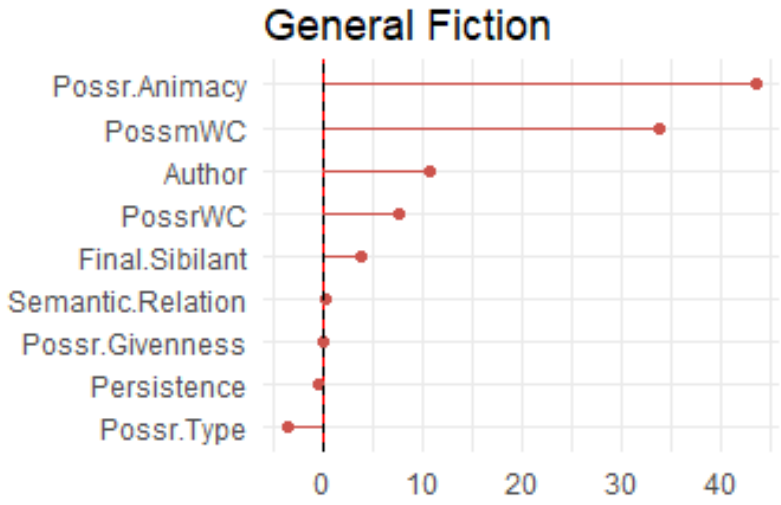


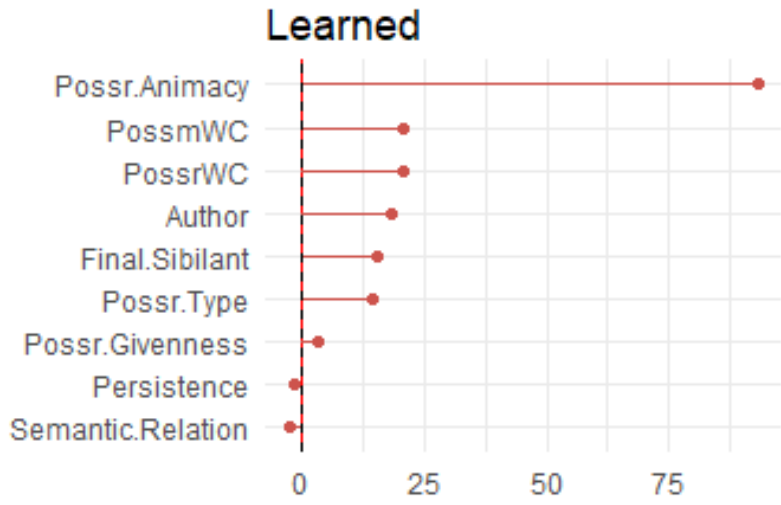


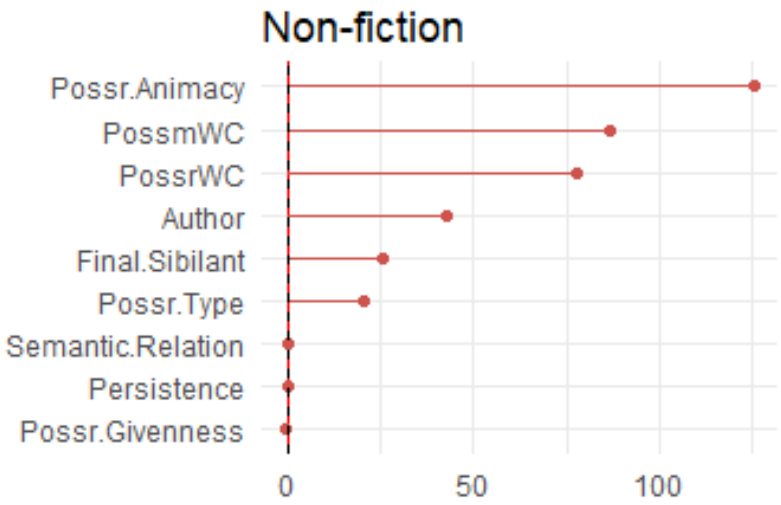


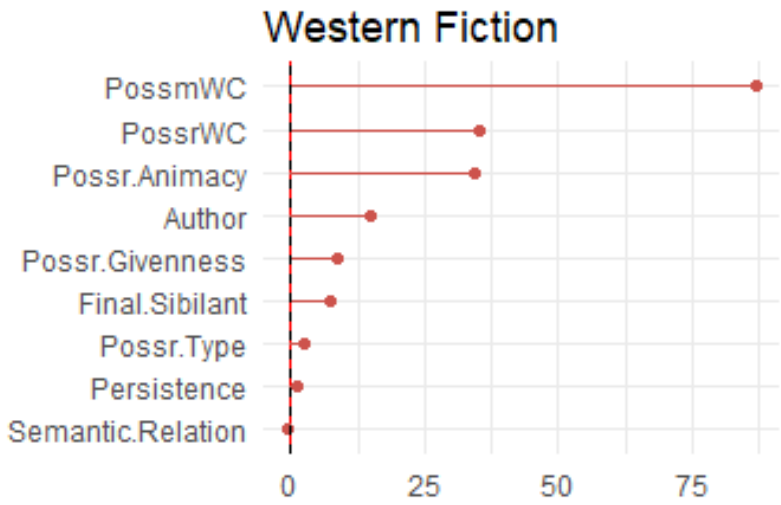
Constraint ranking: 1990s











Analysis: Assessing strength and direction

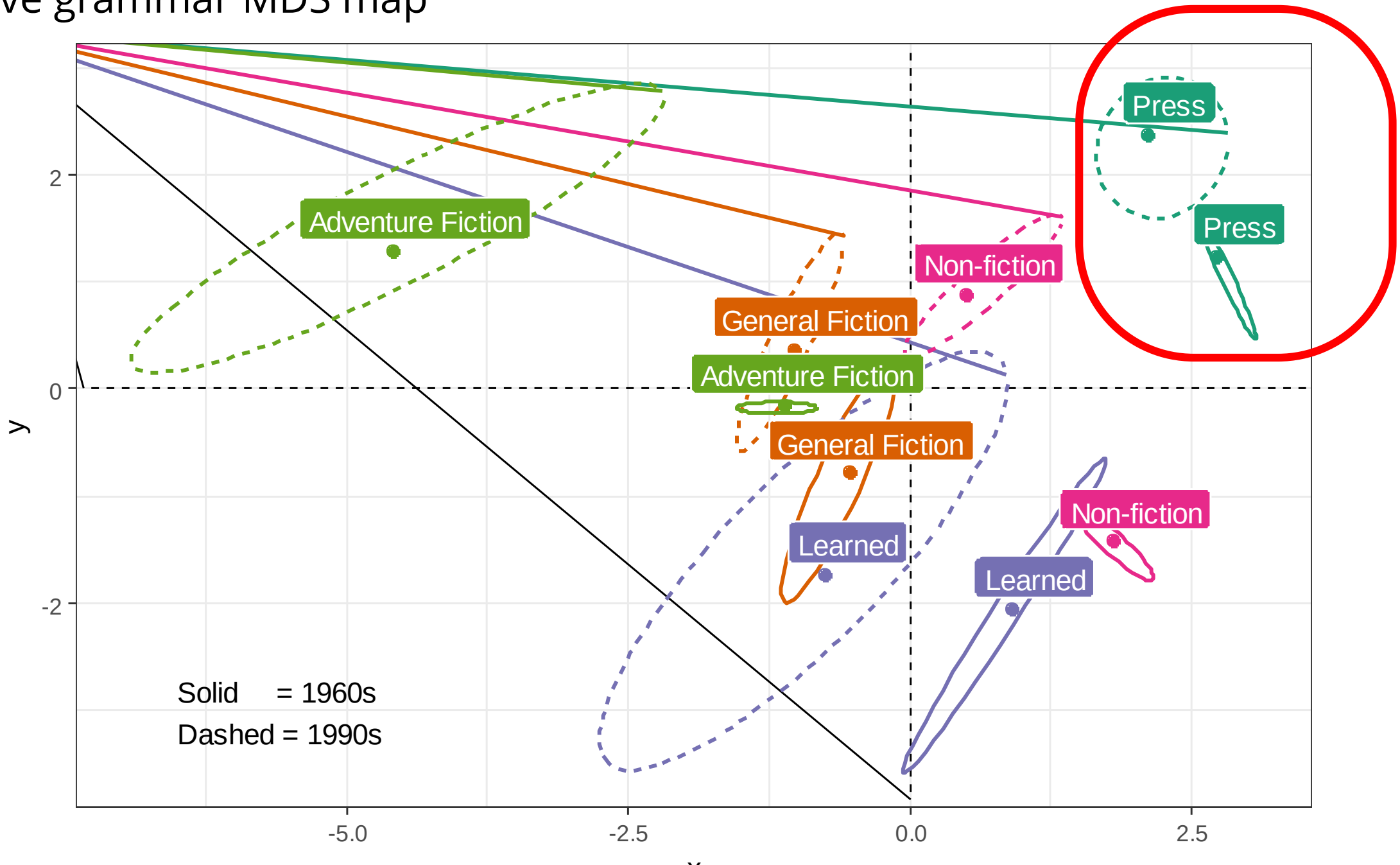
Do certain constraints vary across genres in the strength and/or of their effects?

- regression coefficients measure constraint effect size and direction
  - use coefficients to generate probabilistic distance measures between genres
  - visualize distances with multidimensional scaling maps, neighbor nets, etc.

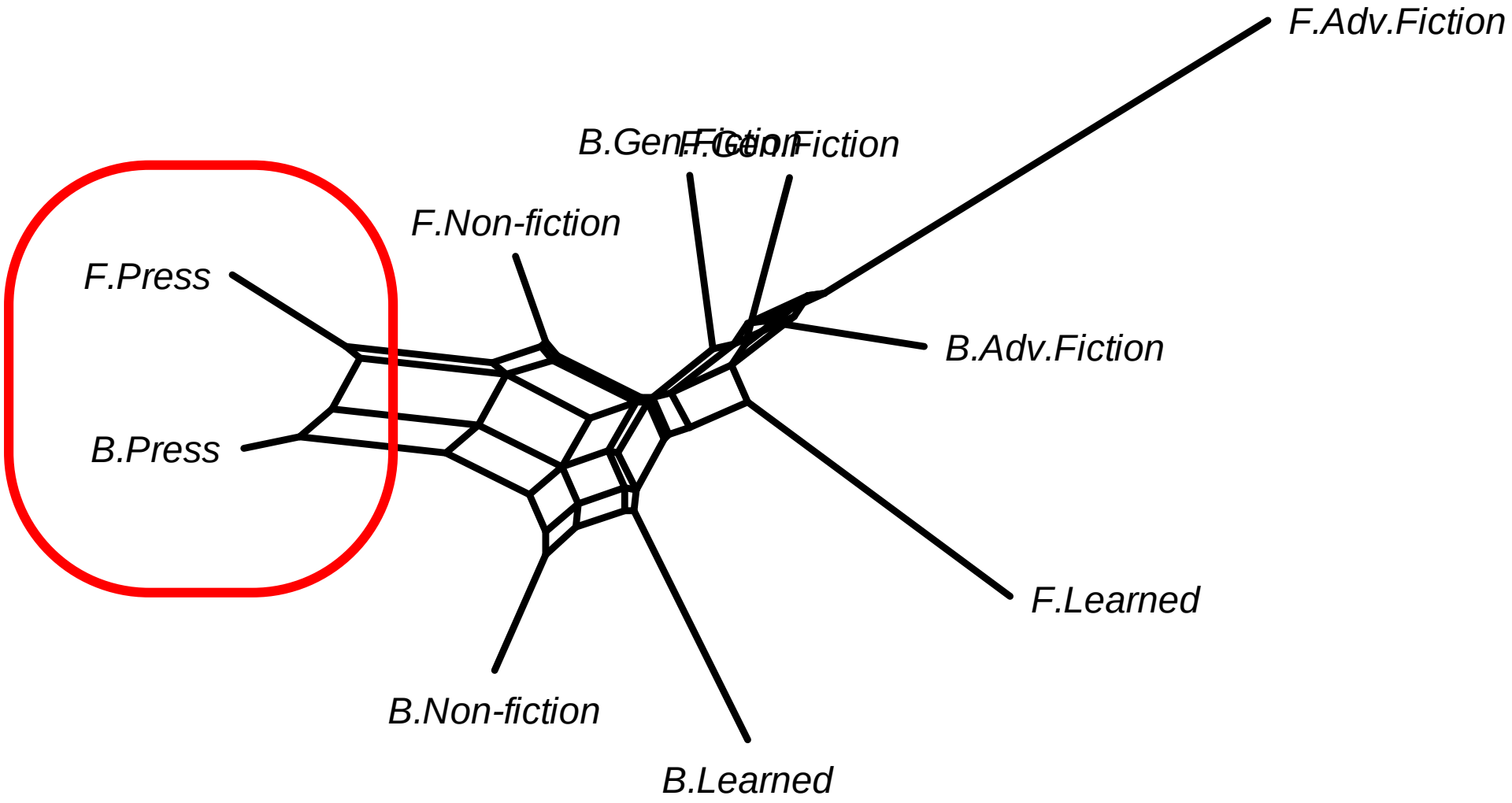
Model coefficients

	Brown (1960s)					Frown (1990s)				
	Press	Gen. Fiction	Learned	Non-fiction	Adv. Fiction	Press	Gen. Fiction	Learned	Non-fiction	Adv. Fiction
Intercept	-0.27	-1.88	-3.15	-2.07	-0.66	0.86	-1.36	-2.73	-0.94	-0.61
Possr = Animate	1.40	3.96	3.31	3.26	4.99	1.31	3.52	4.34	2.15	3.68
Possr length	-3.26	-4.42	-2.69	-3.78	-3.43	-2.31	-1.69	-2.71	-2.55	-4.88
Possm length	0.21	-2.04	-0.75	0.40	-2.50	-0.77	-3.37	-2.35	-2.08	-6.35
Final Sibilant = Y	-0.74	-1.02	-2.55	-1.88	-1.27	-1.27	-1.26	-2.77	-1.45	-2.44
Possr = Given	-0.96	-1.24	-2.33	-0.85	-1.85	-0.84	-0.48	0.89	0.04	-2.05
Possr = Proper N	1.07	0.49	0.01	1.07	0.83	1.28	1.28	2.84	1.09	1.32
Prior = s-genitive	0.04	-0.35	-0.43	0.70	0.12	0.06	0.69	0.47	0.37	0.66
Semantics = Proto	0.16	1.35	0.25	0.72	-0.01	-0.26	0.67	-0.38	0.28	0.78

Genitive grammar MDS map



Genitive grammar neighborNet

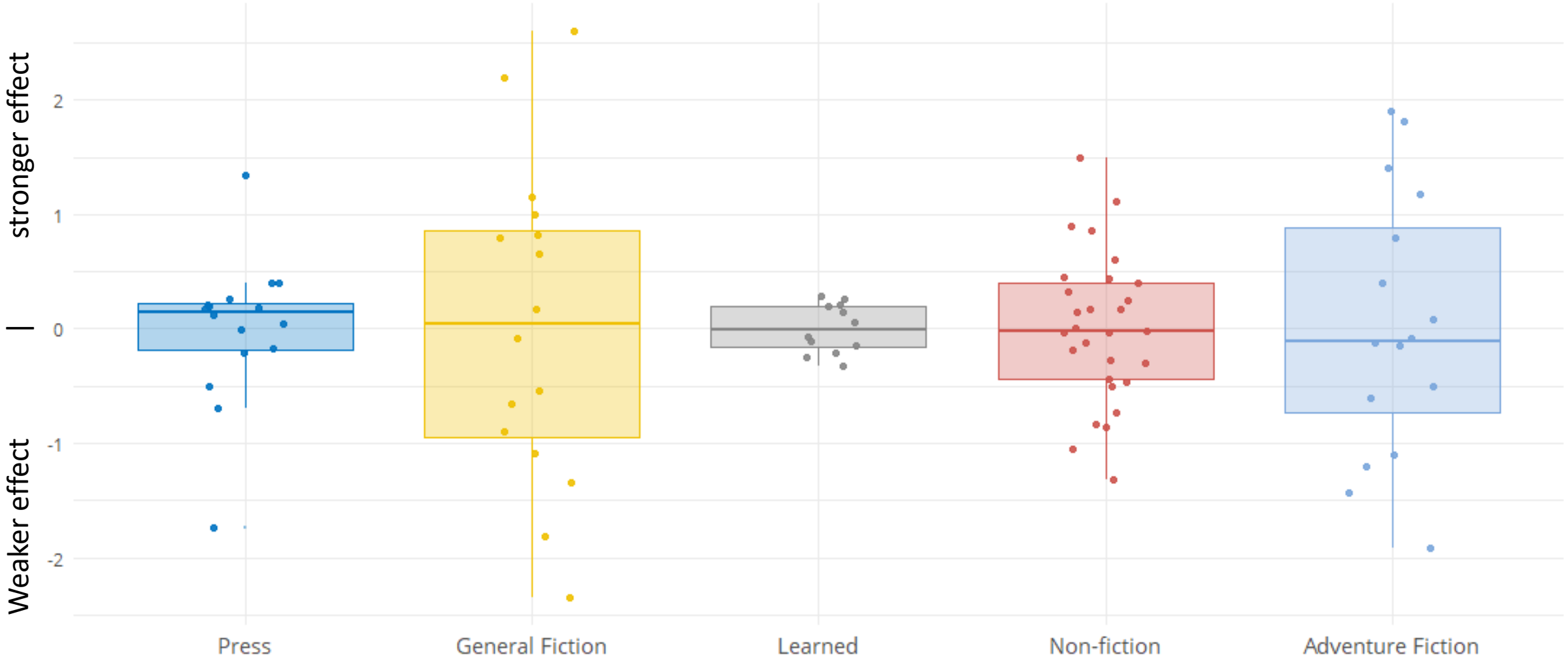


Individuals vs. the community

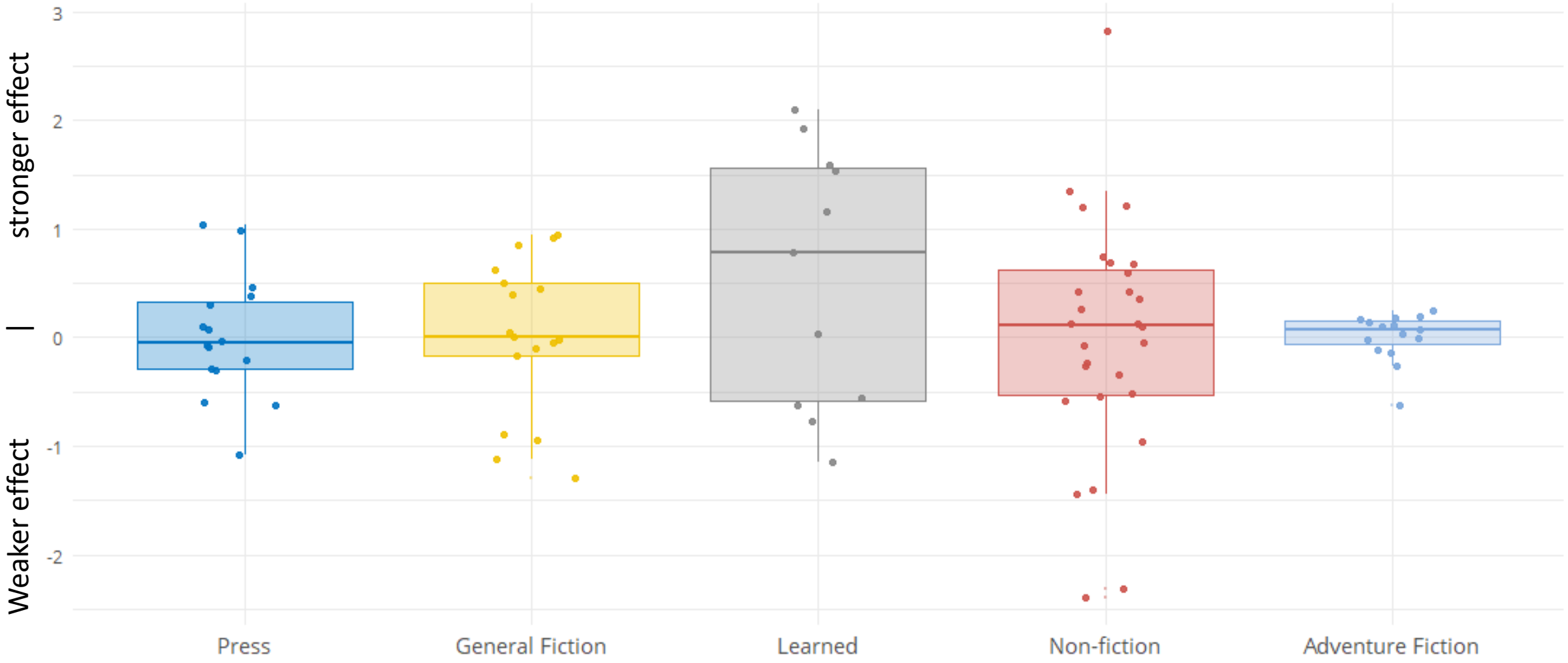
Compare influence of certain constraints (**possr animacy**) for individual writers to that of the register as a whole

- use **by-author slopes for animacy** derived from the mixed-effects models (see Forrest 2015)
- do individuals' constraint effects match up to the aggregate patterns?

Animacy effects among 1960s writers



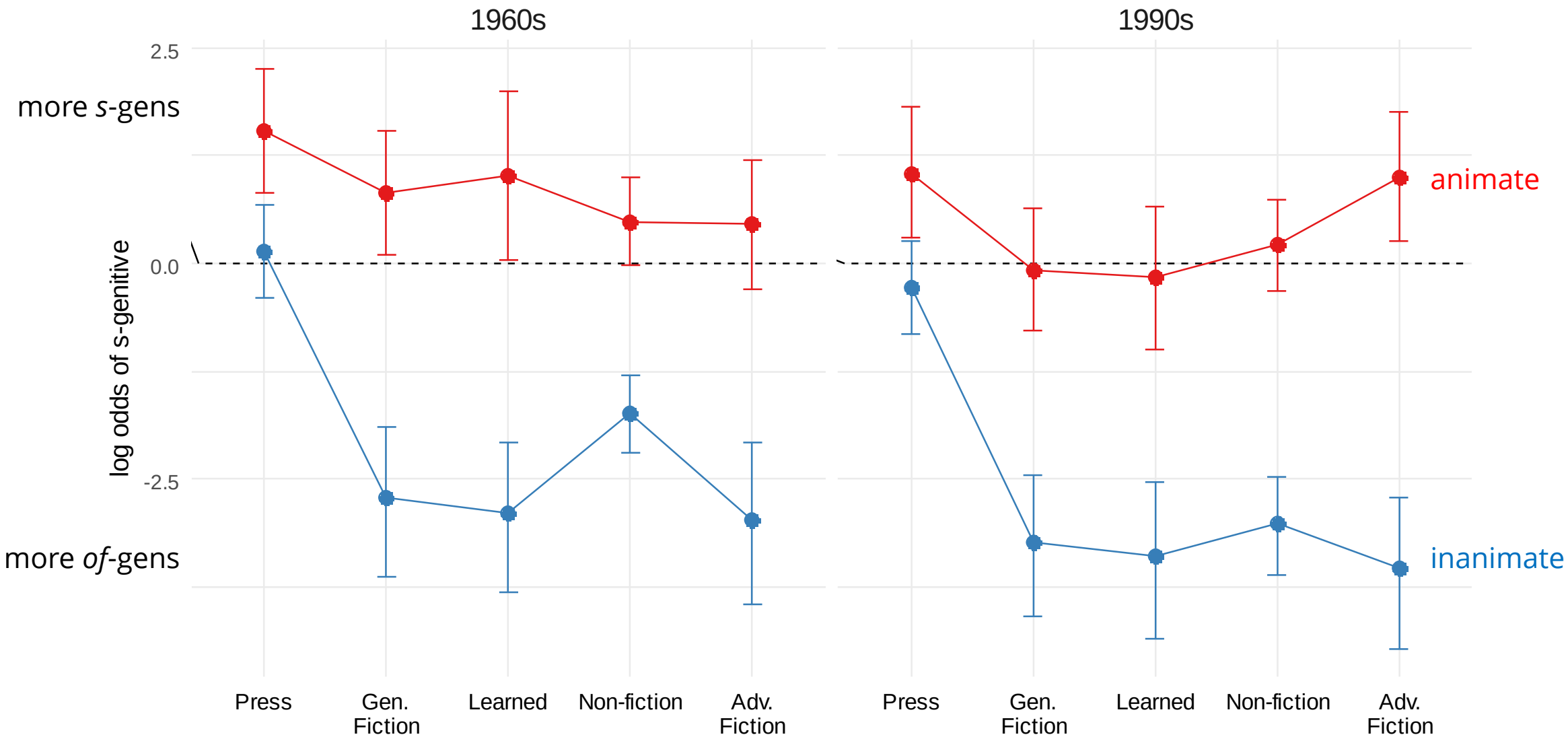
Animacy effects among 1990s writers



Genre-specificity in English genitives

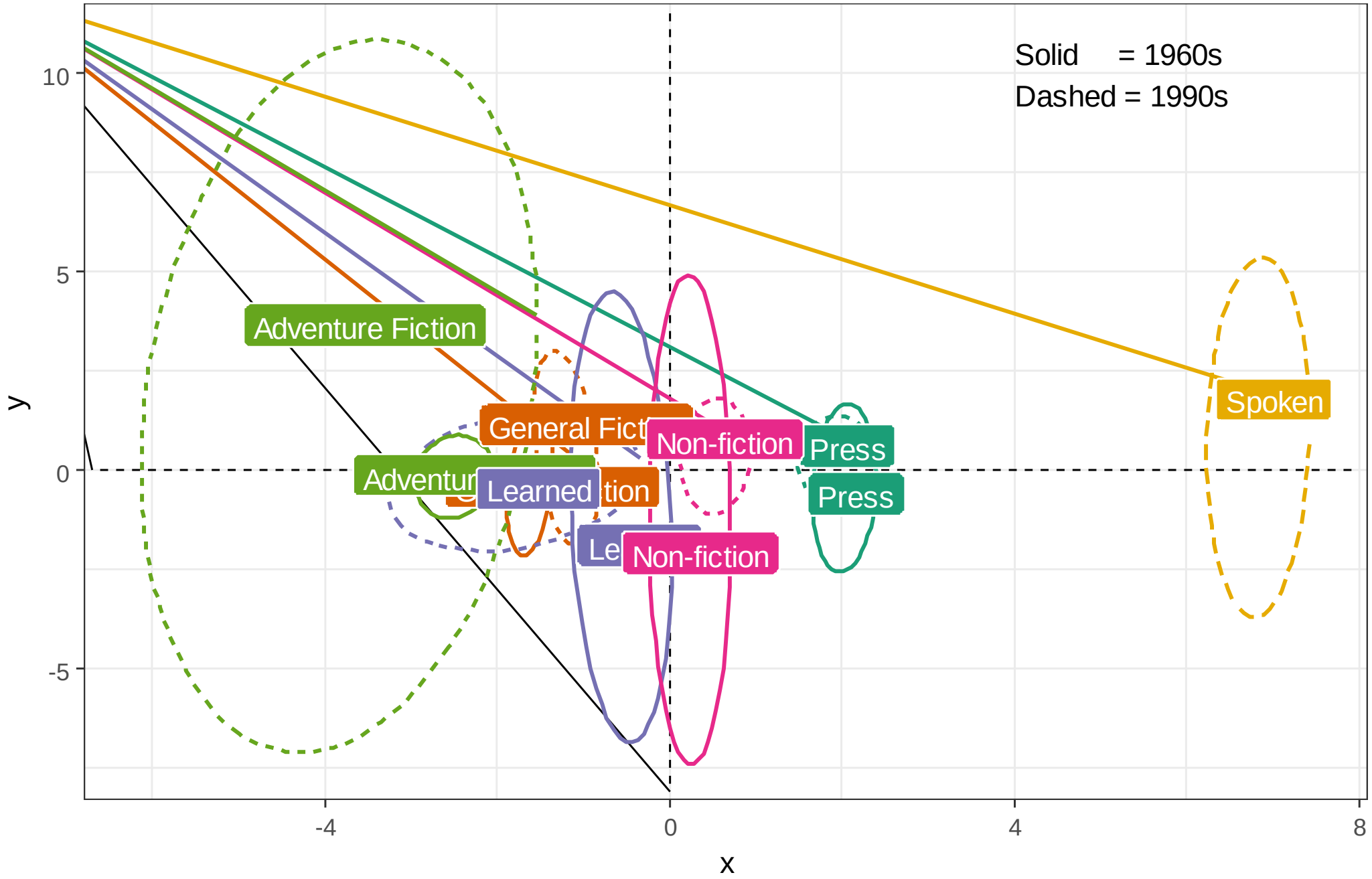
- Genres **vary** considerably with regard to constraints' relative explanatory importance and the size of their influence on genitive choice
- Effect of possessor animacy is particularly weak in journalistic writing
- But direction of the effects are **parallel** across genres
  - evidence of cognitive/functional processes at work?

Effect of possessor animacy by Genre and Time



Colloqualization or economization?

- *s*-genitives have been increasing spoken U.S. English over the late 20th century (Biber & Finegan 1989; Rosenbach 2002)
- News texts are becoming more overall more colloquial and conversational (Hundt & Mair 1999; Rühlemann & Hilpert 2017)
- Might colloquialization processes explain the patterns in Press genitive grammar(s)?


Solid = 1960s
Dashed = 1990s
Adventure Fiction
General Fict
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Colloqualization or economization?

- Genitive grammars of Press writing appear more similar to other those of written genres than spoken data
- The weak effect of animacy is the result of pressures on journalists to write more economically (Biber 2003; Hinrichs & Szmrecsanyi 2007)
  - *s*-genitives are more compact, thus preferred when writers need to minimize text length and maximize information content
  - writers deliberately use more *s*-genitives with inanimate possessors, effectively cancelling out the animacy effect

Individual differences?

"...most sociolinguistic, and social-semiotic variation [involves] rates of use. When the contexts of use differ, different grammars are involved."

- we observe both different rates AND different contexts across individuals
- but individual variation in animacy effects only apparent in some genres
- emergence of a unique 'Press grammar'?

Difficult questions

- How to define a threshold for ‘different’ grammars?
  - no two speakers have exactly the same experience, hence some differences across individuals (and styles, communities, …) will always exist
  - when do differences become large enough to “notice” and become available for social-semiotic purposes?
  - statistical significance is not a good metric (e.g. Burnham & Anderson 2014)

Coming soon(ish)

Register-specificity of probabilistic grammatical knowledge in English and Dutch (project with Benedikt Szmrecsanyi & Freek Van de Velde)

- Investigate written stylistic sensitivity within individuals directly
  - same individual, different registers/genres/styles
  - corpus data are ill-suited for this
- Can we induce genre effects experimentally?

Thank You!

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Data, code & slides: https://osf.io/tkfnc/

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