UNIVERSITY OF BIRMINGHAM | COLLEGE OF ARTS AND LAW

Variable cues vs. multiple grammars

Genre specificity in the English genitive alternation

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ICAME 39, Tampere

Variationist approach to grammar

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

Different constraints ⟶ Different grammars

- **Shared Constraints Hypothesis:**
  Individuals within a community share a set of constraints on variable processes (Guy 2004, 2015)

- **Grammatical Differences Hypothesis:**
  Having different constraint effects means having a different grammar, and generally that means belonging to a different speech community
  - Internal constraints are generally thought to be independent of stylistic factors (e.g. Labov 2010)

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. And that is clearly a possibility, but is also the road rarely taken […]

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)

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?
3. How much can such investigations tell us about the possible existence of genre-specific grammars?

What is the scope of stylistic variation?

Any variety of a language that is associated with particular functional goal and/or situational context (Register/Genre/Style)

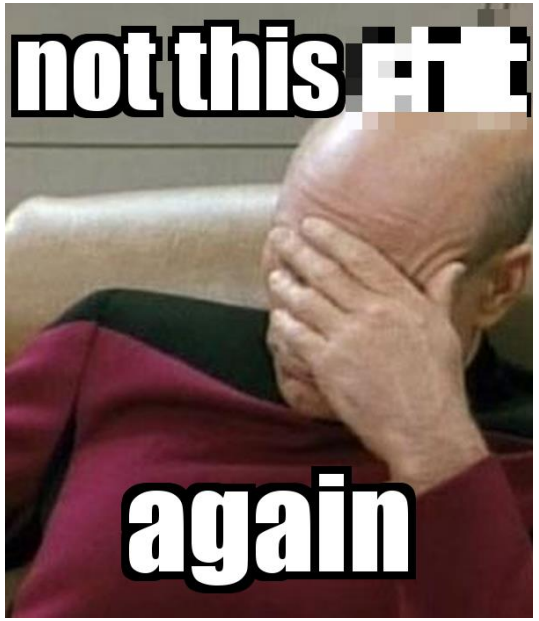
- more expansive definition than just formality or attention to speech (see also Rickford 2014)
- encompasses variability across **all speaking and writing practices**
- variability across R/G/Ss—esp. in written language—is (relatively) uncharted territory in variationist research
  (Hinrichs & Szmrecsanyi 2007; Jankowski 2013; Grafmiller 2014; Pijpops & Van de Velde 2014)

Case Study: English genitive alternation

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

Well-researched phenomenon (Rosenbach 2014)

- relatively stable across regional varieties (Heller et al. 2017)
- historically quite variable (Wolk et al. 2013)
- recent parallel increase in use of s-genitives across vernacular spoken and newspaper writing in AmE (Biber 2003; Hundt & Mair 1999; Hinrichs & Szmrecsanyi 2007)
- variation in other written styles not so well-studied (cf. Grafmiller 2014)



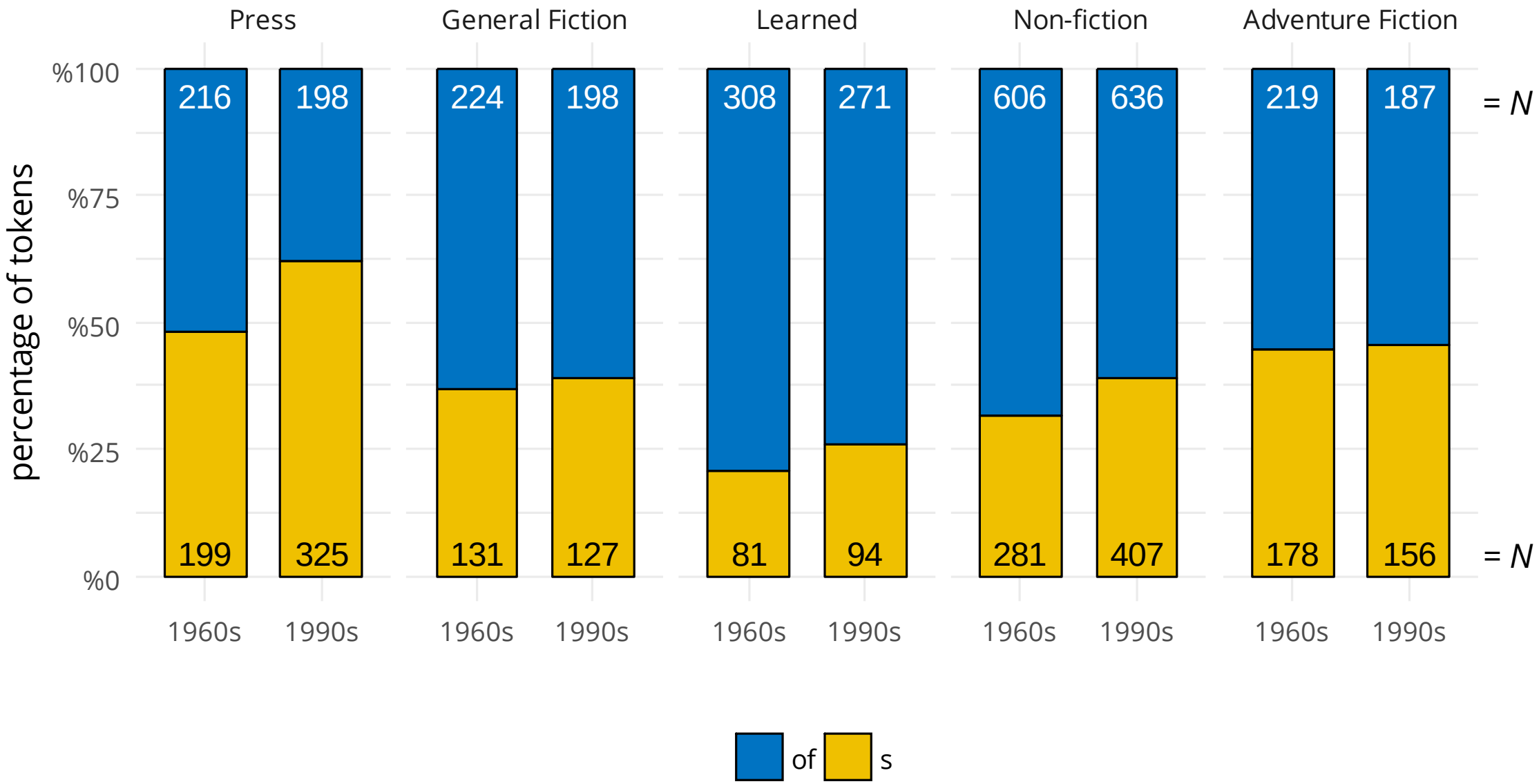
Present dataset (*N* = 5096)

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

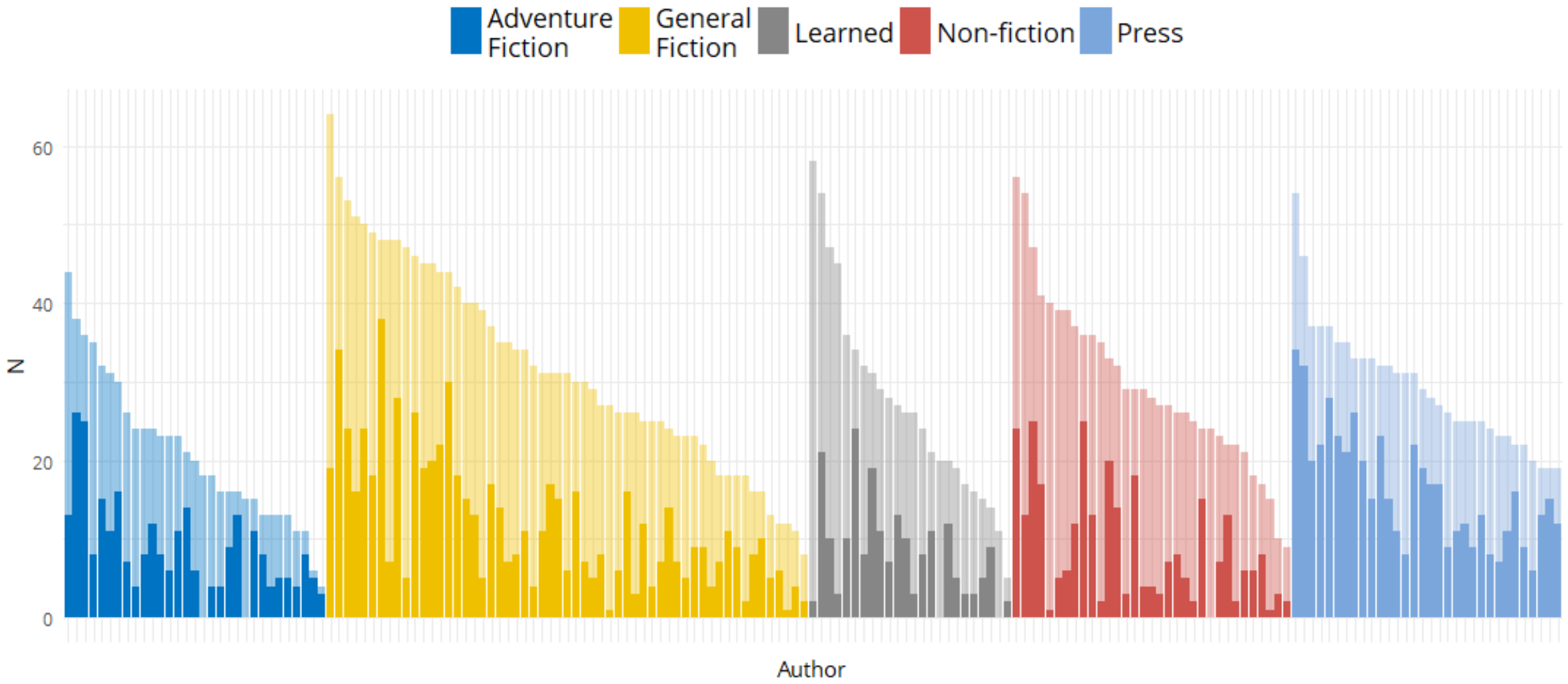
- Press: newspaper reportage (A)
- Learned: academic books & papers (J)
- Non-fiction: memoirs, biographies, letters (G)
- General fiction: ‘literary’ works (K)
- Adventure fiction: e.g. westerns (N)

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 end 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

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

Looking across the genres individually…

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

Analysis: Identifying significant effects

Which constraints are significant?

- assess ‘significance’ via mixed-effects logistic regression
- fit separate models to each of 10 datasets (2 times x 5 genres individually identify which constraints reliably influence variant choice

Do the same constraint significantly affect genitive choice in the different genres?

Model specs

- Bayesian mixed-effects logistic regression:
  - `rstan` and `brms` packages
  - by-author intercepts and slopes for Possessor Animacy
  - standardized predictors with weakly informative priors (Gelman et al. 2008)

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

Predict the probability of the *s*-genitive

‘Significant’ effects: 1960s

Green = favors *s*-genitive, Red = favors *of*-genitive

	Press	General fiction	Learned	Non-fiction	Adventure fiction
Possr = Animate	*s*	*s*	*s*	*s*	*s*
Possr length (words)	*of*	*of*	*of*	*of*	*of*
Possm length (words)		*of*	*of*		*of*
Final sibilant = present	*of*		*of*	*of*	*of*
Possr = discourse new	*of*		*of*	*of*	*of*
Typetoken ratio		*s*		*s*	
Possr NP type = Proper N	*s*			*s*	
Semantics = prototypical		*s*			
Prior genitive = *s*				*s*	

‘Significant’ effects: 1990s

Green = favors *s*-genitive, Red = favors *of*-genitive

	Press	General fiction	Learned	Non-fiction	Adventure fiction
Possr = Animate	*s*	*s*	*s*	*s*	*s*
Possr length (words)	*of*	*of*	*of*	*of*	*of*
Possm length (words)	*of*	*of*	*of*	*of*	*of*
Final sibilant = present	*of*	*of*	*of*	*of*	*of*
Possr = discourse new	*of*				*of*
Typetoken ratio		*s*		*s*	
Possr NP type = Proper N	*s*		*s*	*s*	*s*
Semantics = prototypical					
Prior genitive = *s*				*s*	

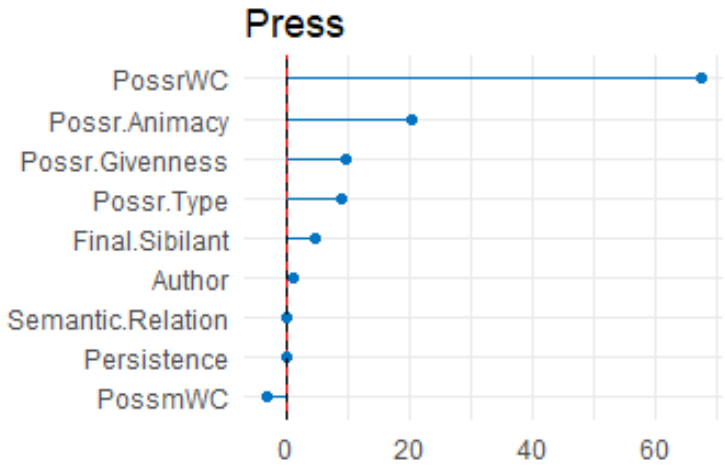
Analysis: Assessing relative strength

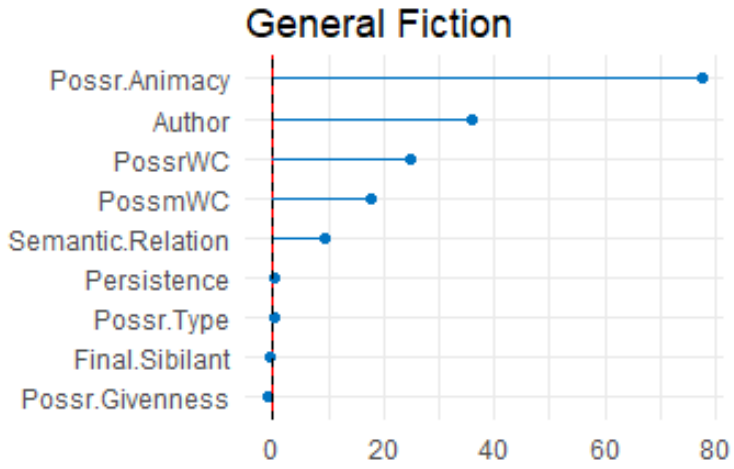
What is the relative importance of factors across genres?

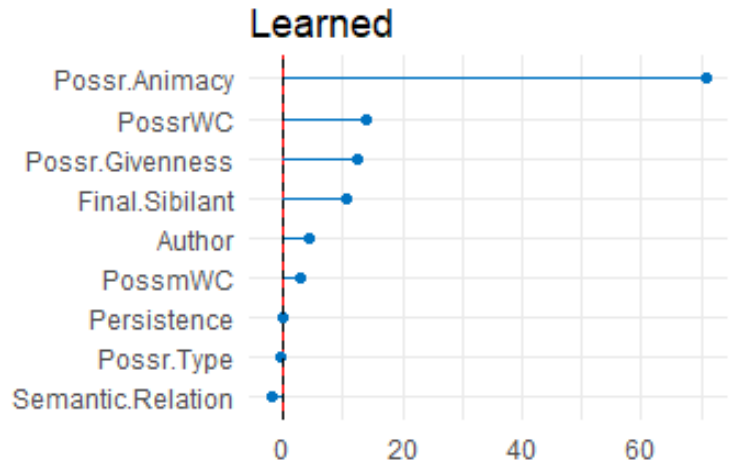
- compute variable importance rankings for individual genre models
  - compare WAIC of original model to model with predictor removed
  - different rankings reflect different degrees of constraint importance

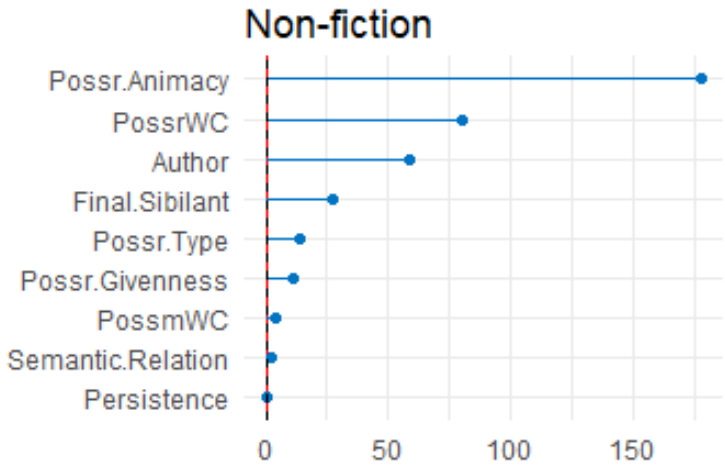
Do certain constraints vary across genres in the relative strength of their effects?

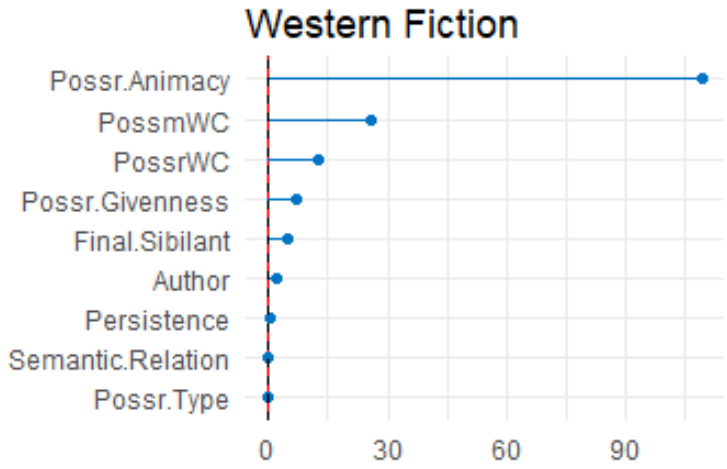
Constraint ranking: 1960s



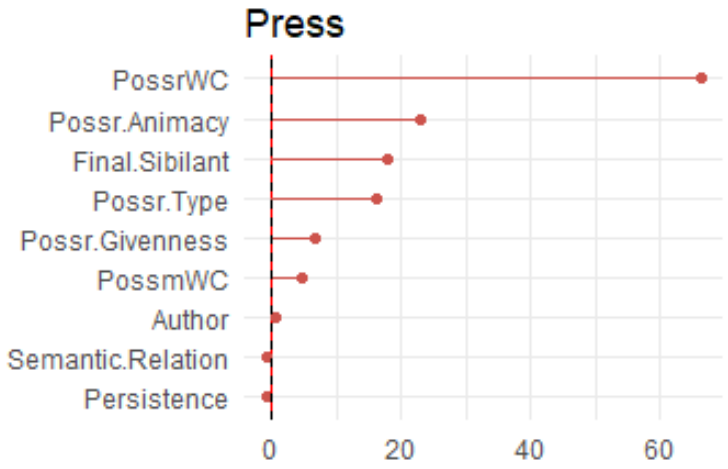


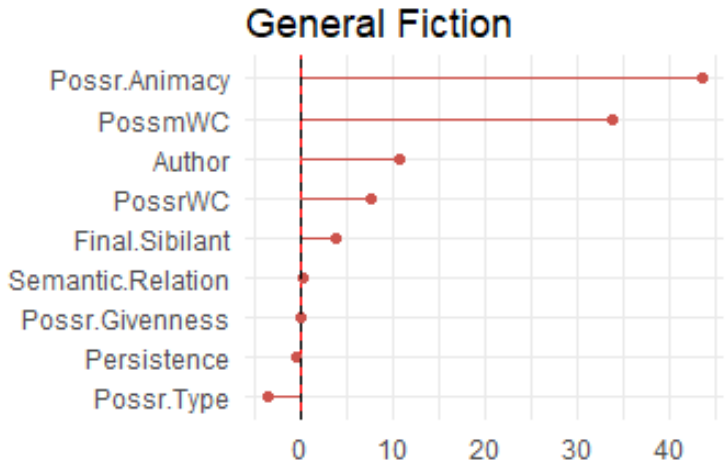


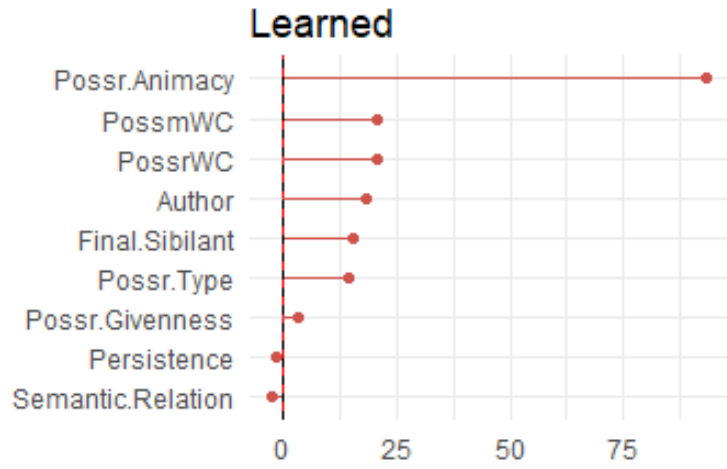


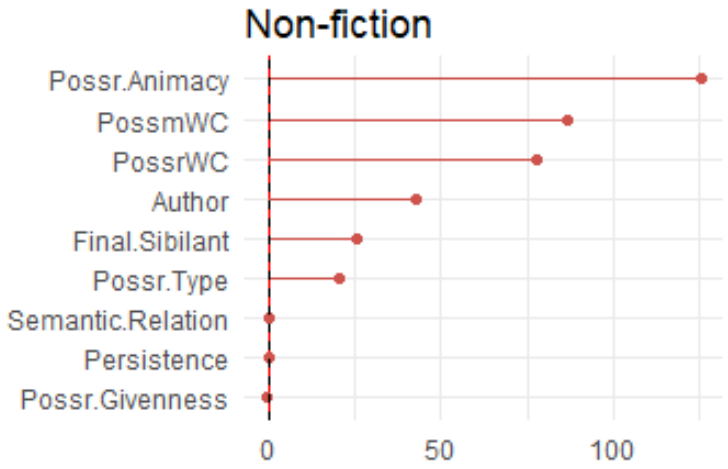


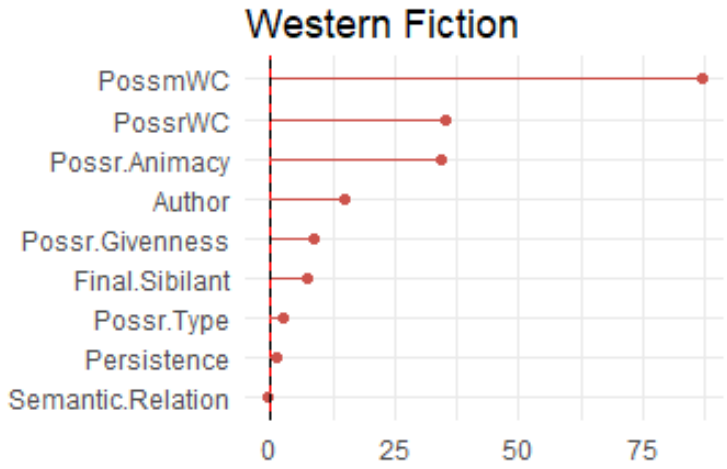
Constraint ranking: 1990s









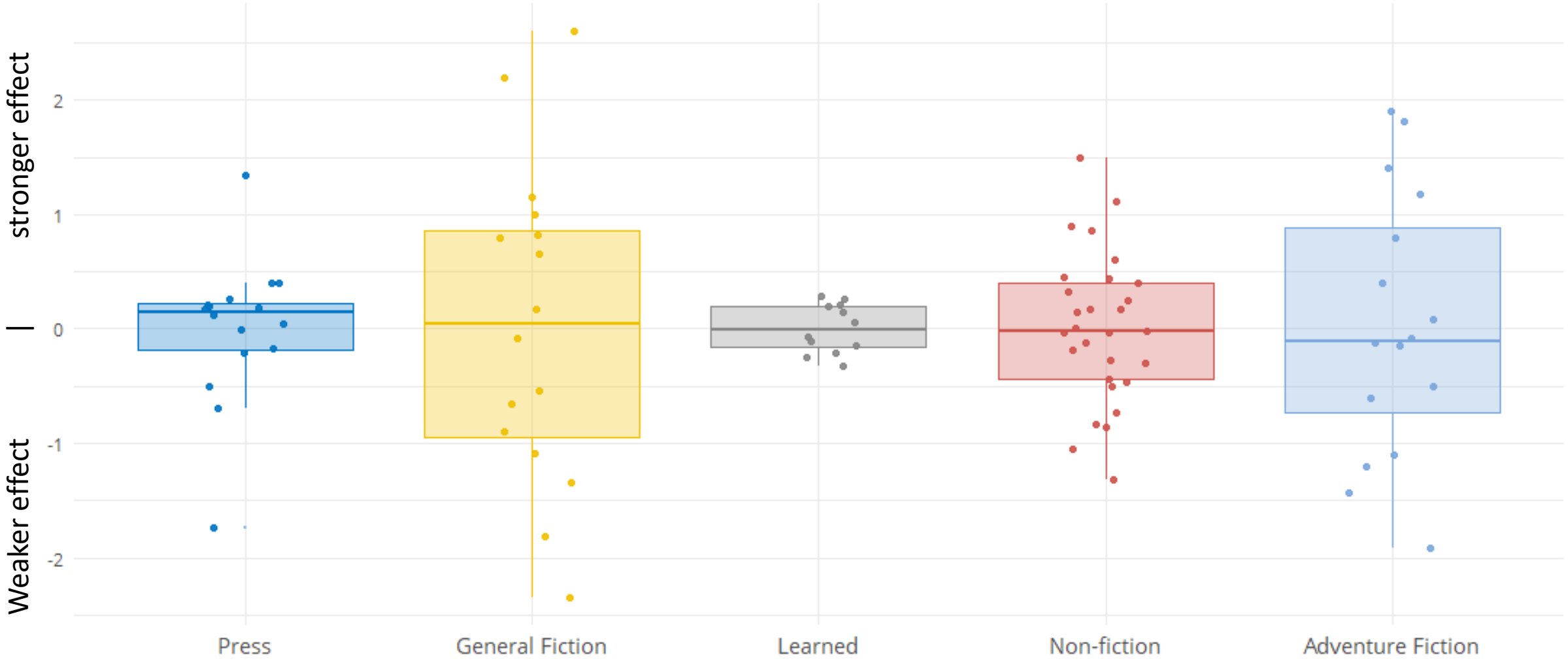


Individuals vs. the community

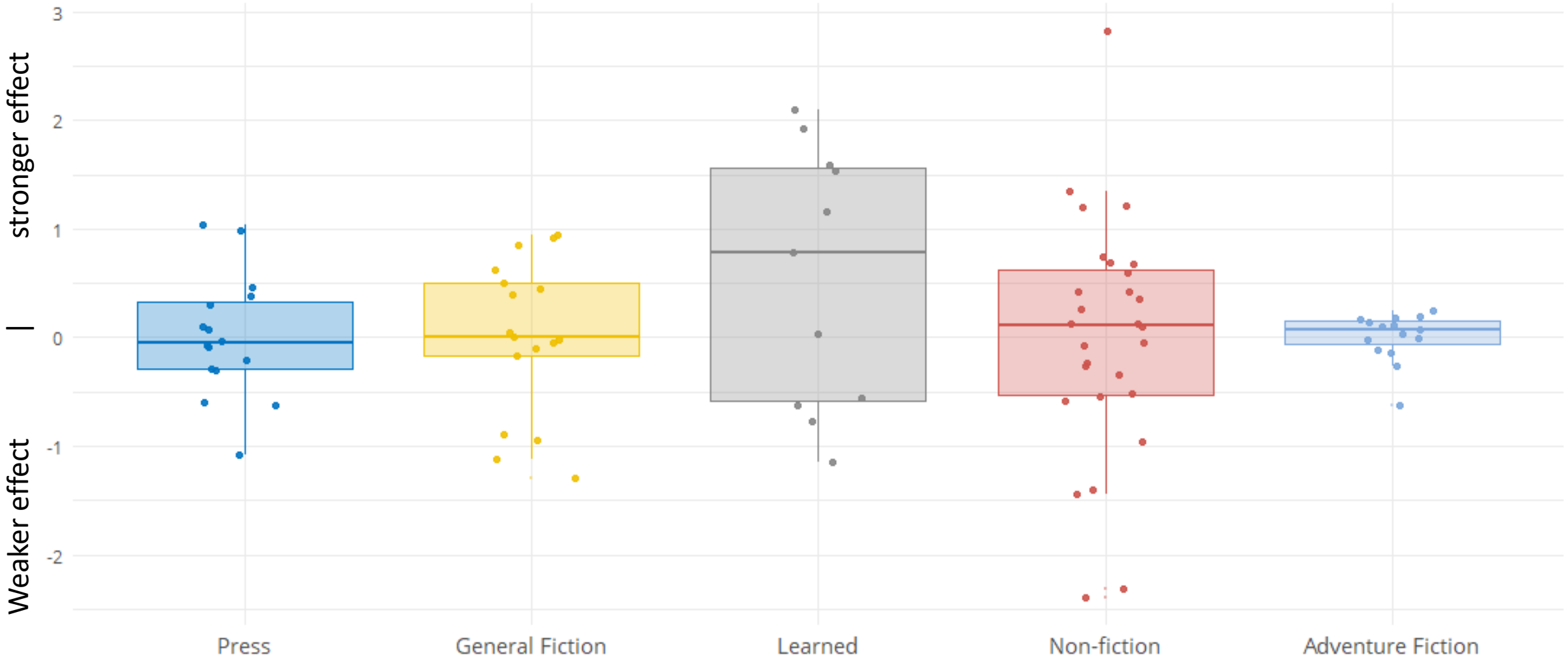
Compare influence of certain constraints (**possr animacy**) for individual writers to that of the register as a whole

- 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…
  - which constraints influence genitive choice
  - the relative importance of those constraints
- But direction of the effects are **parallel** across genres
  - evidence of cognitive/functional processes at work?
- Is this sufficient evidence to posit genre-specific genitive grammar(s)?

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'?

Remaining questions

- How to define a ‘difference threshold’?
  - no two speakers have exactly the same experience, hence some differences across individuals (and styles) 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)
- How can we investigate stylistic sensitivity within individuals directly?
  - same individual, different registers/genres/styles
  - corpus data are ill-suited for this

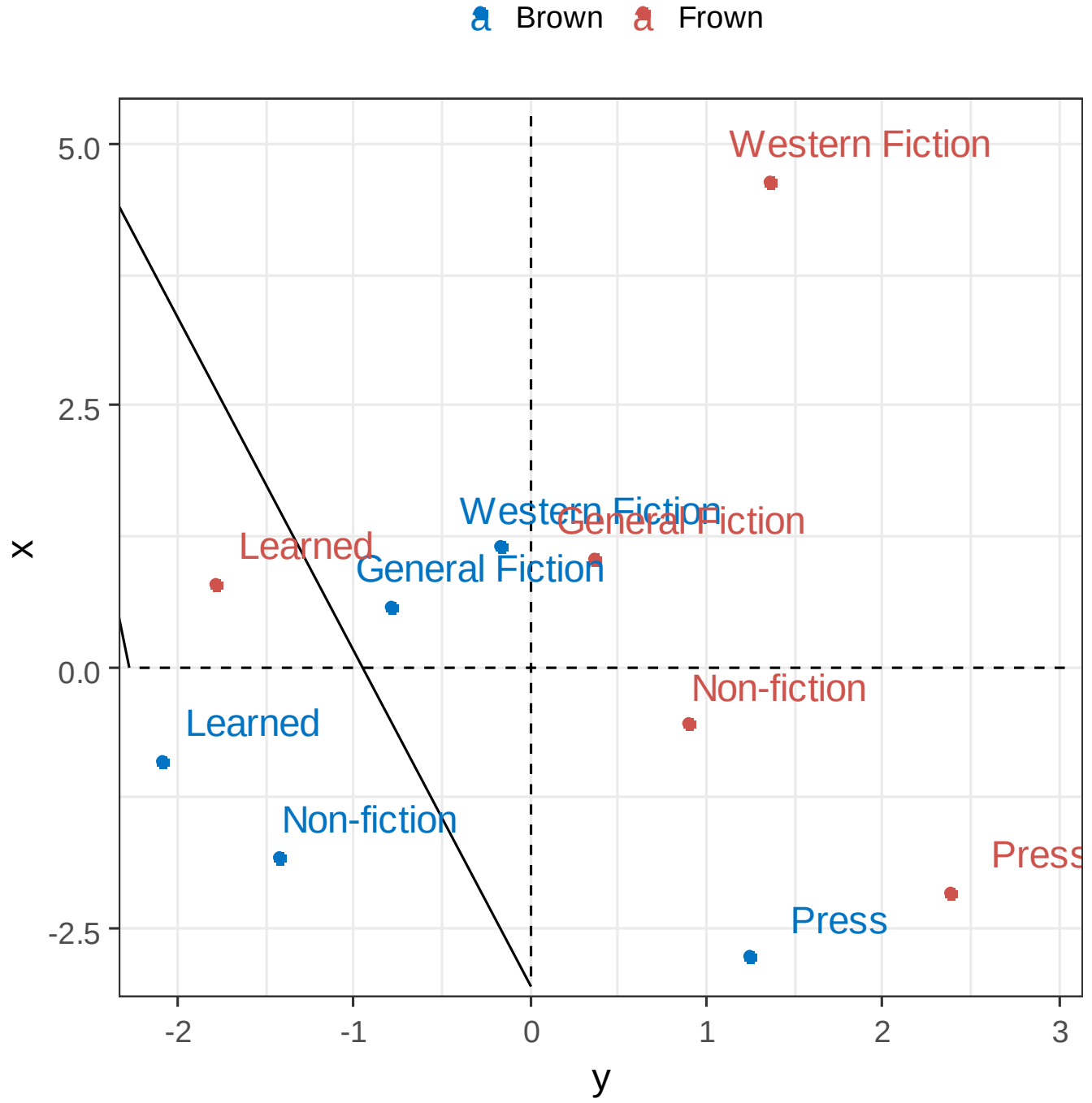
Remaining questions

- To what extent are our models of different grammars dependent on the tools we use to identify them?
  - different analytical techniques can yield very different results… so which should we use?
- How do we incorporate results of multiple techniques into comparative variationist methodology?
  - utilize multivariate techniques to visualise relationships among varieties' grammars

MDS plot of genitive grammars in Brown/Frown genres

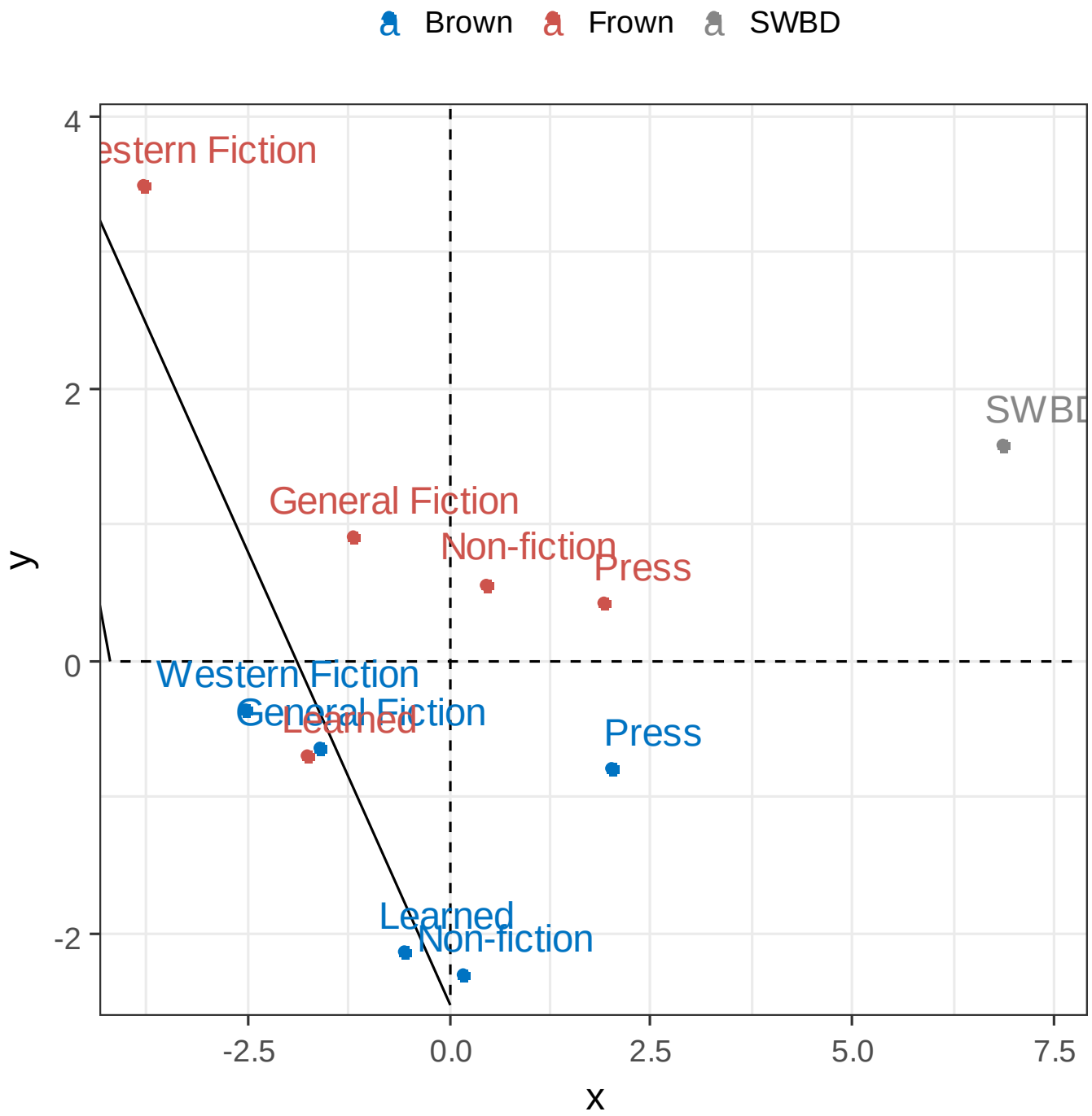
- based on regression model coefficients
- distance in plot reflects dissimilarity in genitive grammars

(see also Heller 2018; Röthlisberger 2018)



MDS plot of genitive grammars in Brown/Frown genres

- distance in plot reflects dissimilarity in genitive grammars
- compare spoken conversational data from Switchboard corpus



Kiitos!

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Data & code: github.com/jasongraf1/icame2018

References

- Biber, Douglas. 2003. Compressed noun-phrase structures in newspaper discourse. In Jean Aitchison & Diana M. Lewis (eds.), *New Media Language*, 169–181. London: Routledge.
- Burnham, K. P. & D. R. Anderson. 2014. P values are only an index to evidence: 20th- vs. 21st-century statistical science. *Ecology* 95(3). 627–630.
- Forrest, Jon. 2015. Community rules and speaker behavior: Individual adherence to group constraints on (ING). *Language Variation and Change* 27(3). 377–406. doi:10/gdjzpk.
- Grafmiller, Jason. 2014. Variation in English genitives across modality and genres. *English Language and Linguistics* 18(3). 471–496. doi:10.1017/S1360674314000136.
- Guy, Gregory R. 2015. Coherence, constraints and quantities. *Paper presented at NWAV 44*. Toronto. October 23.
- Heller, Benedikt, Benedikt Szmrecsanyi & Jason Grafmiller. 2017. Stability and Fluidity in Syntactic Variation World-Wide: The Genitive Alternation Across Varieties of English. *Journal of English Linguistics* 45(1). 3–27. doi:10.1177/0075424216685405.
- Heller, Benedikt. 2018. *Stability and Fluidity in Syntactic Variation World-wide*. Leuven, Belgium: KU Leuven Ph.D. Thesis.

References cont.

- Hinrichs, Lars & 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. doi::10.1017/S1360674307002341.
- Hundt, Marianne & Christian Mair. 1999. 'Agile' and 'uptight' genres: The corpus-based approach to language change in progress. *International Journal of Corpus Linguistics* 4. 221–242.
- Jankowski, Bridget L. & Sali A. Tagliamonte. 2014. On the genitive's trail: data and method from a sociolinguistic perspective. *English Language and Linguistics* 18(2). 305–329. doi:10.1017/S1360674314000045.
- Labov, William. 2010. *Principles of linguistic change. Vol. 3: Cognitive and cultural factors*. Malden, MA Oxford Chichester, West Sussex: Wiley-Blackwell.
- Labov, William. 2014. What is to be learned: The community as the focus of social cognition. In Martin Pütz, Justyna A. Robinson & Monika Reif (eds.), Current Topics, vol. 59, 23–51. Amsterdam: John Benjamins.
- Poplack, Shana & Sali Tagliamonte. 2001. *African American English in the diaspora*. Malden, MA: Blackwell.
- Rickford, John R. 2014. Situation: Stylistic variation in sociolinguistic corpora and theory. *Language and Linguistics Compass* 8(11). 590–603. doi:10.1111/lnc3.12110.

References cont.

- Rosenbach, Anette. 2002. *Genitive Variation in English: Conceptual Factors in Synchronic and Diachronic Studies*. Berlin: Mouton de Gruyter.
- Rosenbach, Anette. 2014. English genitive variation – the state of the art. *English Language and Linguistics* 18(2). 215–262. doi:10.1017/S1360674314000021.
- Röthlisberger, Melanie. 2018. *Regional variation in probabilistic grammars: A multifactorial study of the English dative alternation*. Leuven, Belgium: KU Leuven Ph.D. Thesis.
- Tagliamonte, Sali. 2013. Comparative Sociolinguistics. In J. K. Chambers & Natalie Schilling (eds.), *Handbook of Language Variation and Change*, 130–156. 2nd ed. Chichester, UK: John Wiley & Sons Inc.