From Latin to Romance: Computational Modeling of Syncretism

Tyler Lau*, Maria Polinsky[†], and Jake Seaton[†]

*Department of Linguistics, University of California at Berkeley, USA [†]Deparment of Linguistics, Harvard University, USA

Overview

Questions:

- What factors in Late Latin led to the heavy reshaping of the nominal system?
- What minimal information does a connectionist model need to predict syncretism in the correct direction?

Background:

- Analogy driven by factors such as *frequency*, markedness, and morpheme length. (Kurylowicz 1947, Bybee 1985, Albright 2008)
- From Latin to Romance
- Declension: $5 > 3 \sim 2$ (I, II, (III)): frequency, sound change
- Gender: 3 > 2 (M, F): sound change, contact
- Case: $6 > 2 \sim 1$ (ACC, (NOM/GEN)): sound change, periphrastic constructions (preposition+ACC)
- Fate of the Neuter
- N.SG had same endings as M.SG so many became M
- N.PL ended in -a and as plural inanimates were seen as collectives, reinterpreted as F.SG: ex. Lat. folia 'leaves N.PL' > Sp. hoja 'leaf F.SG' (Herman 1967)
- Romanian has an ambigeneric system
- "Neuter" class takes M morphology in singular and F in plural • Falls out from same principles as other Romance languages (with N.PL being reinterpreted as F.PL)
- Many M's migrate to N class via analogy (Lat. $campus \sim$ campi 'field M' > Rom. $c\hat{i}mp$ (M.SG) $\sim c\hat{i}mpuri$ (F.PL), likely via $tempus \sim tempora$ 'time N')

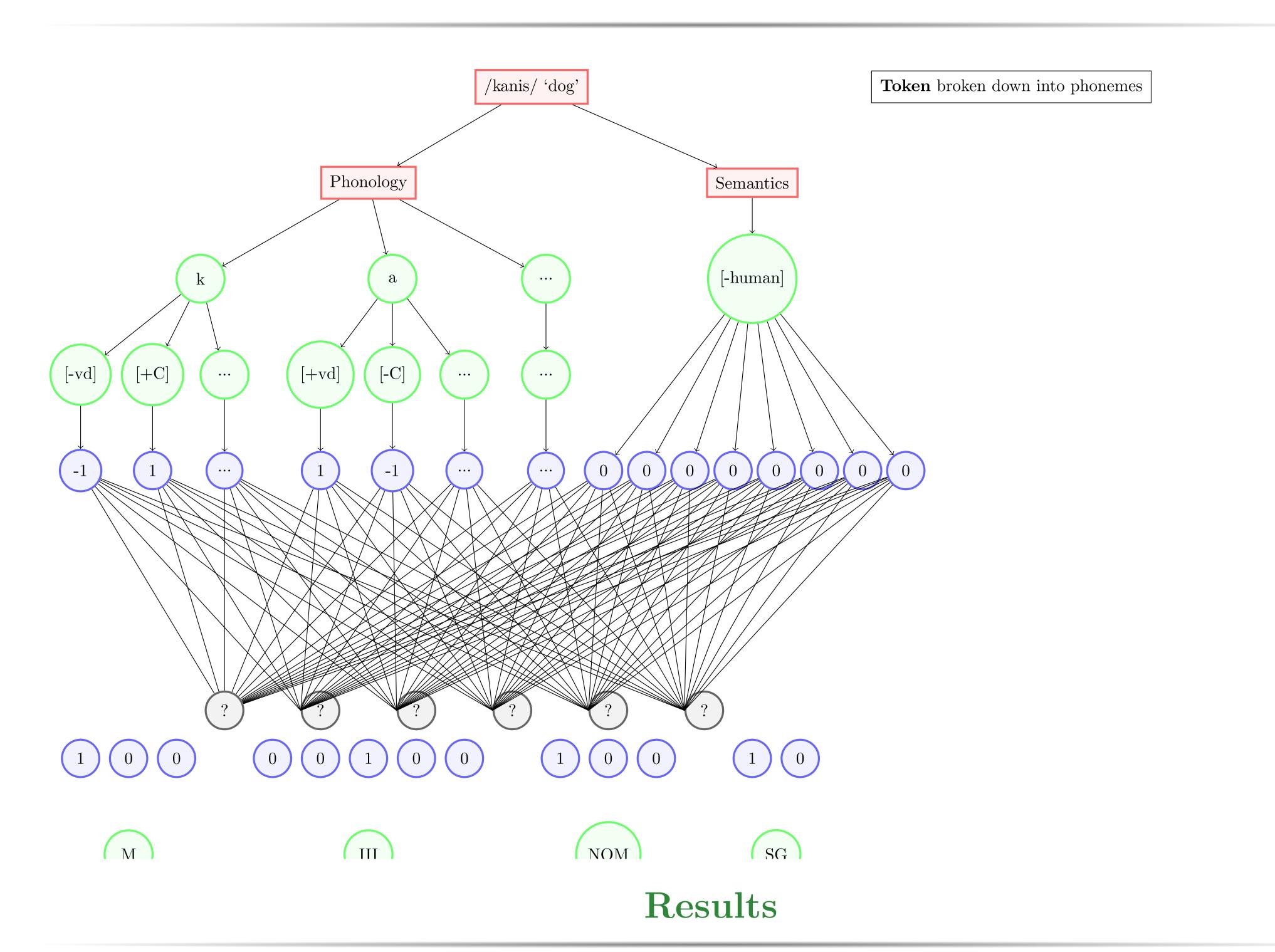
Objective: To use a connectionist simulation of generational learning providing minimal phonological and semantic information and see whether the changes that are actually attested in Romance can be reproduced

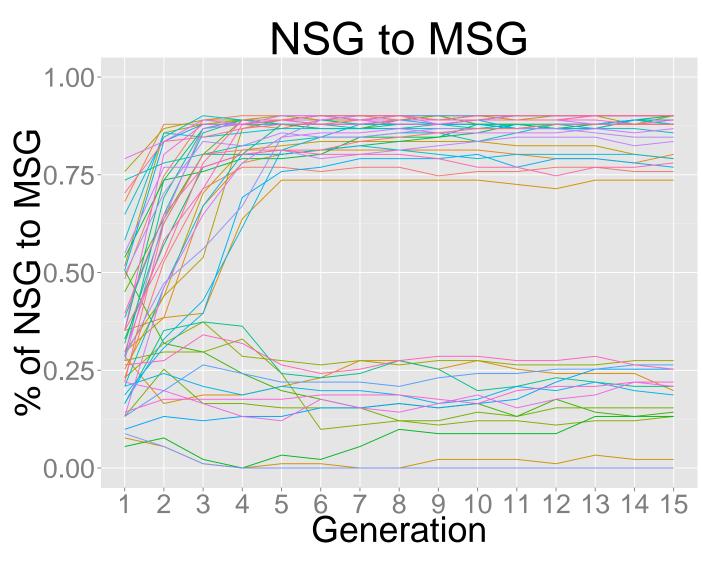
Latin Declension System

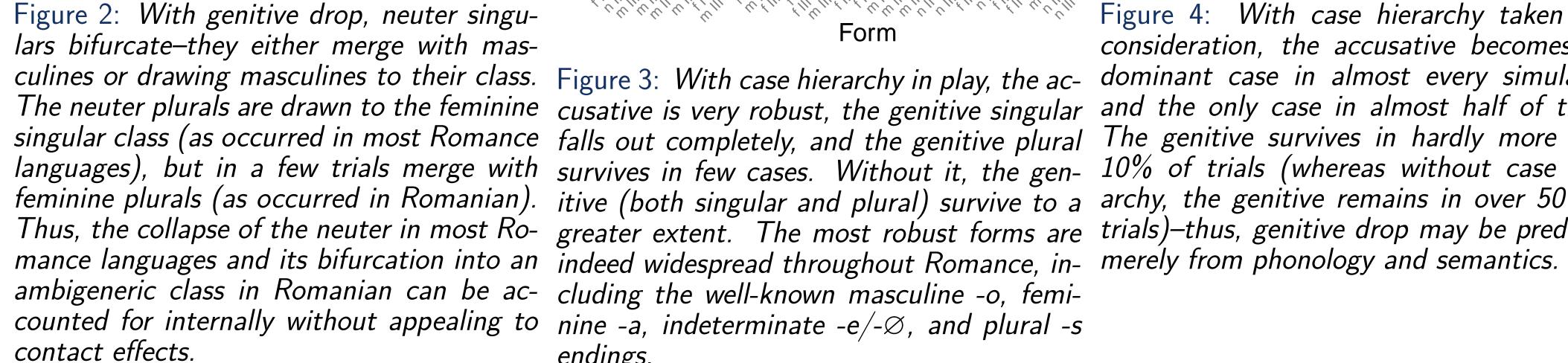
		I	II	IIIa	IIIb	IV	V
	Root	silv a -	ann o-	colo r -	ign i-	lac u -	fid e-
	Gloss	'forest'	'year'	'color'	'fire'	'lake'	'faith'
Sg.	Nom.	silva	ann us	color	ign is	lacus	$\mathrm{fid}\mathbf{ar{e}s}$
	Gen.	silvae	$\operatorname{ann}\overline{1}$	$\operatorname{colar{o}r}$ is	$\mathrm{ign}\mathbf{is}$	$lacar{\mathbf{u}}\mathbf{s}$	$\mathrm{fid}\mathbf{e}\overline{\mathbf{i}}$
	Acc.	silvam	ann um	$\operatorname{col\bar{o}rem}$	ign em	lac um	fidem
Pl.	Nom.	silvae	ann ī	$\operatorname{colar{o}r}ar{\mathbf{e}}\mathbf{s}$	ign ēs	$lac\overline{\mathbf{u}}\mathbf{s}$	$\mathrm{fid}\mathbf{ar{e}s}$
	Gen.	silvārum	$\mathrm{ann} \mathbf{\bar{o}rum}$	$\operatorname{col} \bar{\operatorname{o}} \operatorname{rum}$	ign ium	$lac\overline{\mathbf{u}}\mathbf{m}$	$\mathrm{fid}\mathbf{\bar{e}rum}$
	Acc.	silv ās	ann ōs	$\operatorname{colar{o}rar{e}s}$	$\operatorname{ign} \overline{\mathbf{i}} \mathbf{s} /$	$lacar{\mathbf{u}}\mathbf{s}$	$\mathrm{fid}\mathbf{ar{e}s}$
					$ign\mathbf{ar{e}s}$		

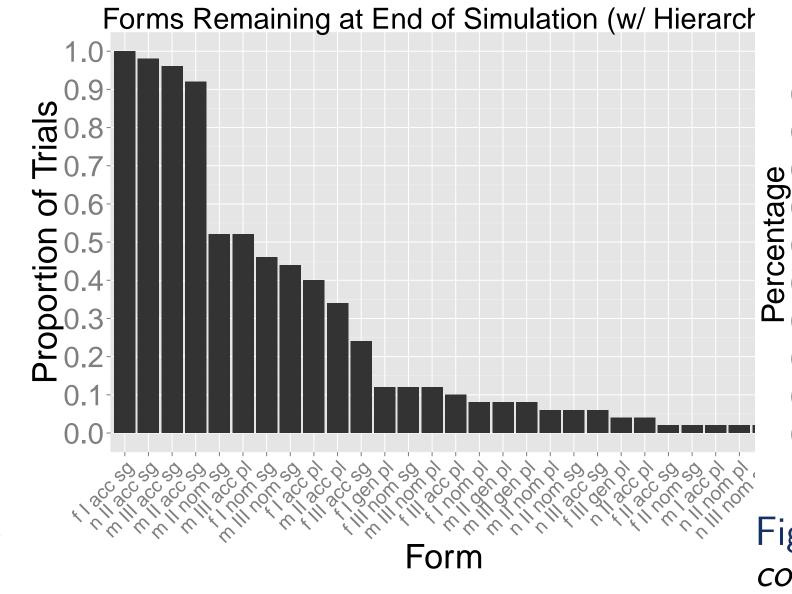
Figure 1: The Latin Declension Classes

Structure of the Connectionist Model









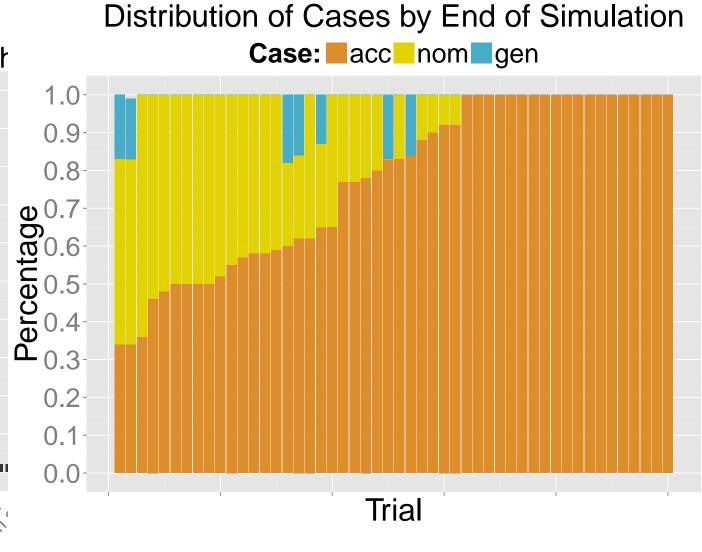


Figure 4: With case hierarchy taken into consideration, the accusative becomes the dominant case in almost every simulation The neuter plurals are drawn to the feminine cusative is very robust, the genitive singular and the only case in almost half of them. singular class (as occurred in most Romance falls out completely, and the genitive plural The genitive survives in hardly more than languages), but in a few trials merge with survives in few cases. Without it, the gen- 10% of trials (whereas without case hierfeminine plurals (as occurred in Romanian). itive (both singular and plural) survive to a archy, the genitive remains in over 50% of Thus, the collapse of the neuter in most Ro-greater extent. The most robust forms are trials)—thus, genitive drop may be predicted

Discussion

- With phonology, frequency, & animacy semantics
- Declensions IV & V fall out in every simulation
- With case hierarchy added, final forms converge more
- Genitive singular drops out *completely*
- Genitive plural hardly survives (only example is oblique 3PL pronoun-Fr. leur, It. loro, Rom. lor)
- Forms remaining in $\geq 90\%$ of simulations
- -am > -a F.SG ending in all Romance (> -e in Fr.)
- -um > -u M.SG ending in all of Romance (> -o in Sp., It. etc.)
- -em > -e SG ending for M/F nouns in all of Romance • Forms remaining in 25-90% of simulations
- -Ø SG ending for M/F nouns in all of Romance
- $-\bar{e}s$ PL ending in western Romance, maybe > -i in eastern • $-\bar{o}s$ M.PL ending in western Romance, maybe > -i in eastern
- $-\bar{a}s$ F.PL ending in western Romance, maybe > -e in eastern
- M/F.NOM.SG -us & -as: in E-Romance., final -s falls out; in W-Romance, NOM persists in older Sp. & Fr.
- Case system converges to accusative in almost half (as in western Romance), eastern Romance shows alternate history where nominative plural may have survived (see D'hulst (2006) on Romance plurals)
- Neuter rarely survives—when it stays, a sizeable chunk of the masculine class migrates over (as in Romanian)
- With genitive dropped, N.SG > M.SG, N.PL > F.SG
- Otherwise, N.PL.GEN > M.PL because of phonology
- Supports popularity of periphrastic construction view

References

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Contact Information

- Tyler Lau: tylerlau@berkeley.edu
- Maria Polinsky: polinsky@fas.harvard.edu
- Jake Seaton: jseaton@college.harvard.edu



