In search of (lost?) contact-induced change in phonology

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Language contact and phonological change

What counts as a phonological pattern?

For phonologists

- Phonetic categories
- Phoneme inventories
- Distributions and phonotactics
- Patterns of allophony
- Morphophonological alternations
- Featural representations

For typologists

- Phonetic categories?[1]
- Phoneme inventories? Sure![2]
- Distributions and phonotactics? Getting there[3]
- Suprasegmentals? Finally some movement[4]
- Everything else?.. 🤷

For more on the disconnect between phonological theory and modern linguistic typology, see also Larry M. Hyman. 2008. Universals in phonology. *The Linguistic Review* 25(1–2). 83–137 and Frans Plank. 2018. An implicational universal to defy: Typology ⊃ ¬ phonology ≡ phonology ⊃ ¬ typology ≡ ¬ (typology ∧ phonology) ≡ ¬ typology ∨ ¬ phonology. In Larry M. Hyman & Frans Plank (eds.), *Phonological typology*, 21–53. Berlin: De Gruyter. This is all the more curious, in my opinion, in view of the (not apparently widely remembered) interest that the Praguians and especially Jakobson, reverentially cited as the founding fathers of much of Western phonology, showed in areal linguistics[5]

What can be transferred?

In the widely cited distinction between transfer of *matter* and transfer of *pattern*,[6] phonological material sits rather uneasily:

- Introducing new segments that weren't there before, with phonemic status: widely accepted and widely attested,[7] often in connection with lexical borrowing
- Promotion of existing distinctions to phonemic status: is this matter or pattern?

[1] Ian Maddieson. 2018. Is phonological typology possible without (universal) categories? In Larry M. Hyman & Frans Plank (eds.), *Phonological typology*, 107–125. Berlin: De Gruyter.

[2] Steven Moran & Daniel McCloy (eds.). 2019. *PHOIBLE 2.0*. Jena: Max Planck Institute for the Science of Human History. https://phoible.org/; Steven Moran. 2019. Phonological inventories. In *Oxford research encyclopedia of linguistics*. Oxford: Oxford University Press.

[3] Jayden L. Macklin-Cordes, Claire Bowern & Erich R. Round. 2021. Phylogenetic signal in phonotactics. *Diachronica* 38(2). 210–258; Ian Joo & Yu-Yin Hsu. 2024. Phonotacticon: A cross-linguistic phonotactic database. *Linguistic Typology*. Pre-published.

[4] Ricardo Napoleão de Souza & Kaius Sinnemäki. 2022. Beyond segment inventories: Phonological complexity measures and suprasegmental variables in contact situations. *Journal of Language Contact* 15. 439–480.

[5] Patrick Sériot. 2023. Roman Jakobson, language unions, and structuralism in Russia: Encounter or misunderstanding? In James McElvenny (ed.), *The limits of structuralism: Forgotten texts in the history of modern linguistics*, 139–204. Oxford: Oxford University Press.

[6] Jeannette Sakel. 2007. Types of loan: matter and pattern. In Yaron Matras & Jeannette Sakel (eds.), *Grammatical borrowing in cross-linguistic perspective*, 15–29. Berlin & New York: Mouton de Gruyter.

[7] Thomas Stolz & Nataliya Levkovych. 2021. *Areal linguistics within the Phonological Atlas of Europe: Loan phonemes and their distribution*. In collab. with Beke Seefried. Berlin & New York: Mouton de Gruyter.

Fricatives in English[8]

- Old English *wul*[f] but *wul*[v]*as* /f/ ≠ *o*[fː]*rian* /fː/

- Middle English

  – French borrowings: *victory, veal, zeal…*

  – Degemination: *o*[v]*er* ≠ *o*[f]*er*

  – Apocope: *wul*[f] ≠ *lo*[v]e < OE *lufu*

  – Southern English Fricative Voicing: *vixen, vat*

Division of labour and the life cycle

The view of phonological architecture that I adopt distinguishes between phonological computation (discrete manipulation of proprietary phonological categories) and language-specific phonetics (language-specific interface between the output of phonology and implementation that uses numbers on the real line).[9]

An observed 'sound pattern' can have multiple aetiologies:[10]

- Universal phonetic pattern, outwith cognitive control

- Language-specific phonetic rule, under cognitive control but outwith phonological computation

- Phonological rule, possibly within a stratal architecture

- Morphological exponent

- Historical remnant

An example: stop preaspiration

There is a very extensive literature that treats preaspirated stops [ʰp ʰt ʰk] as both rare cross-linguistically[11] and areally concentrated in northern Europe.[12] There is growing evidence that both of these claims needs significant nuance,[13] but it certainly true that this phenomenon is found across genealogical groupings in the northern European region.

A closer look at the patterns shows that 'preaspiration' is far from a unified phenomenon: although the patterns are clearly cognate in terms of the life cycle, we can diagnose them as belonging to different components of the grammar.

Stage	UR	SR	Phonetics	Example
Phonologization	/p t k/	[p t k]	❙ʰp ʰt ʰk❙	Faroese, Ulster Irish, Sea Sámi
Stabilization	/p t k/	[hp ht hk]	❙hp ht hk❙	Icelandic, Northern Sámi, Argyll Gaelic
Lexicalization	/hp ht hk/	[hp ht hk]	❙hp ht hk❙	South Sámi, Härjedalen Swedish

[8] Roger Lass. 1987. *The shape of English: Structure and history*. London: Dent.

Cases like these are difficult to neatly classify as being clearly 'matter' or 'pattern': the matter was there before, but the pattern changed. And what was the role of the contact: did it create the conditions for the 'endogenous' developments to happen, by unlocking the new contrasts, or do we only see the unadapted borrowings because the 'endogenous' developments made them possible?

[9] D. Robert Ladd. 2011. Phonetics in phonology. In John Goldsmith, Jason Riggle & Alan Yu (eds.), *The handbook of phonological theory*, 2nd edn., 348–373. Oxford: Wiley-Blackwell.

[10] Ricardo Bermúdez-Otero. 2015. Amphichronic explanation and the life cycle of phonological processes. In Patrick Honeybone & Joseph C. Salmons (eds.), *The Oxford handbook of historical phonology*, 374–399. Oxford: Oxford University Press; David Natvig. 2019. Levels of representation in phonetic and phonological contact. In Jeroen Darquennes, Joseph C. Salmons & Wim Vandenbussche (eds.), *Language contact: An international handbook*, 88–100. Berlin: De Gruyter.
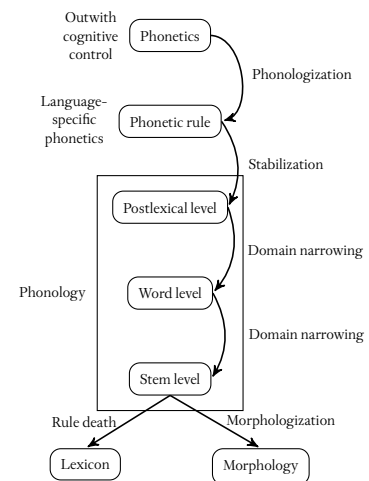
Figure 1: The life cycle of phonological processes

[11] Daniel Silverman. 2003. On the rarity of pre-aspirated stops. *Journal of Linguistics* 39(3). 575–598.

[12] Michael Rießler. 2008. Substratsprachen, Sprachbünde und Arealität in Nordeuropa. *North-West European Language Evolution (NOWELE)* 54/55. 99–130.

[13] Michaela Hejná. Forthcoming. On the rarity of pre-aspirated consonants. In Cormac Anderson, Shelece Easterday & Natalia Kuznetsova (eds.), *Rarities in phonetics and phonology: Evolutionary, structural, typological and social dimensions*. Berlin: Language Science Press.

In what sense can we call 'preaspiration' a contact or areal phenomenon if it's not even a single phenomenon?

Phonological change and sociolinguistic typology

Contact-induced change in phonology

Where does phonology sit?

- Can phonological patterns transfer? Yes![14]
- How does phonology interact with the two different modes of agentivity?[15]
  - L1 agentivity: yes, although the degree of integration matters. Pieces of phonological 'matter' like phonemes appear to be fairly loosely integrated, and so can transfer quite straightforwardly. Phonological 'patterns' seem to be more abstract, raising questions about how 'easy' they are to borrow.
  - L2 agentivity: yes, sound patterns are generally involved, but social evaluation seems to matter a lot. Essentially, adult learners have a strong 'foreign accent', which can be negatively evaluated but can also be involved in processes such as ethnolectalization.
- What even counts as a phonological pattern?[16]

Phonology and language contact in the past

- The sociohistorical circumstances should match the transfer mechanism, but phonology can be involved in both modes
- Phonological change by itself is not easily diagnostic for recovering the type of contact.

Contact-induced change and transfer

As with other abstract, tightly integrated subsystems, not all change in sound patterns that is induced by contact can be conceptualized as *transfer* or *copying*

- Compromise and interlanguage systems[17]
- Loss of marked structures / reversion to the mean
- Simultaneous innovation

And conversely, some changes that involve sharing of patterns are not necessarily contact-induced

- True parallels (Poplack, this conference)
- Endogenous developments downstream of contact events[18]
- Drift[19]

[14] Sarah G. Thomason & Terrence Kaufman. 1988. *Language contact, creolization, and genetic linguistics*. Berkeley: University of California Press.
Without going into the details here, it is worth remembering that this was not a given in much earlier literature: phonological borrowing was said to be possible only where it sufficiently matched the structure of the recipient language, or led to a decrease in markedness. Although partly a response to 'substrate manias', this turned out to be too strong.

[15] Frans van Coetsem. 1988. *Loan phonology and the two transfer types in language contact*. Dordrecht: Foris; Donald Winford. 2005. Contact-induced changes: Classification and processes. *Diachronica* 22(2). 373–427.

[16] Natvig, 'Levels of representation in phonetic and phonological contact'.

[17] Margaret Kehoe. 2015. Cross-linguistic interaction: A retrospective and prospective view. In *Proceedings of the International Symposium on Monolingual and Bilingual Speech 2015*, 141–167. Chania: Institute of Monolingual & Bilingual Speech; Samuel Andersson, Oliver Sayeed & Bert Vaux. 2017. The phonology of language contact. *Oxford Handbooks Online*.

[18] Juliette Blevins. 2017. Areal sound patterns: From perceptual magnets to stone soup. In Raymond Hickey (ed.), *The Cambridge handbook of areal linguistics*, 55–87. Cambridge: Cambridge University Press.

[19] Brian D. Joseph. 2013. Demystifying drift: A variationist account. In Martine Robbeets & Hubert Cuyckens (eds.), *Shared grammaticalization: With special focus on the Transeurasian languages*, 43–66. Amsterdam & Philadelphia: John Benjamins.

The problem with phonology

We don't know *enough* about possible and/or probable phonological changes, but we know *something*, and tend to have strong intuitions[20]

Phonological change and grounding

Phonology is about externalization and subject to extremely strong substantive biases. I would suggest that this is a real difference vis-à-vis morphology and syntax, where biases of various sorts undoubtedly exist, but would seem to be much 'softer'. A classic discussion of these issues in phonology is provided by Elliott Moreton. 2006. Analytic bias and phonological typology. *Phonology* 25(1). 83–127. The idea that phonology is 'grounded' in phonetics is widely accepted in theoretical phonology (Bruce Hayes, Donca Steriade & Robert Kirchner [eds.]. 2004. *Phonetically based phonology*. Cambridge: Cambridge University Press).

This makes distinguishing between 'endogenous' and 'contact-induced' change especially difficult

Sociolinguistic typology: the Trudgill conjecture

I will follow Blaxter[21] in referring to the set of hypotheses around the link between language acquisition, language change, and the social context developed within the approach of 'sociolinguistic typology'.[22] As Bowern (this conference) reminds us, we should not treat it as being a universal, but rather as one region in the space of possibilities that is primarily formed by the social embedding of interaction and language acquisition! But it's what I've got.

Key points of the Trudgill conjecture (as I understand them)

- The social ecology determines the mechanism of acquisition involved
- Some mechanisms of acquisition promote *complexification*, or at least maintenance of complexity; others support *simplification*
- Complex structures need L1 learners to perpetuate them
- Simplification is promoted by L2 learners — raising questions about the social context. If a change is led by L2 users, your community has to be structured in ways that support the propagation of such a change!

Chasing complexity in phonology

- A definition of complexity from first principles is, of course, very elusive[23]
- In sociolinguistic typology, complexity is primarily conceptualized as *L2 learning difficulty*
- Many candidate measures involve semantics, pragmatics, and discourse factors, which are challenging to apply in phonology

  - Transparency in form-meaning mapping[24]
  - Integration with interface modules[25]
  - Nature of features involved[26]

[20] Martin Kümmel. 2007. *Konsonantenwandel: Bausteine zu einer Typologie des Lautwandels und ihre Konsequenzen für die vergleichende Rekonstruktion*. Wiesbaden: Dr. Ludwig Reichert Verlag; András Cser. 2015. Basic types of phonological change. In Patrick Honeybone & Joseph C. Salmons (eds.), *The Oxford handbook of historical phonology*, 193–204. Oxford: Oxford University Press.

[21] Tamsin Blaxter. 2022. *Diachronic dialectology: New methods and case studies in Medieval Norwegian*. Chichester: Wiley-Blackwell.

[22] Peter Trudgill. 2011. *Sociolinguistic typology: Social determinants of linguistic complexity*. Oxford: Oxford University Press.

[23] John E. Joseph. 2021. Why does language complexity resist measurement? *Frontiers in Communication* 6. 624855.

[24] Trudgill, *Sociolinguistic typology*.

[25] Antonella Sorace. 2011. Pinning down the concept of 'interface' in bilingualism. *Linguistic Approaches to Bilingualism* 1(1). 1–33.

[26] George Walkden & Anne Breitbarth. 2019. Complexity as L2-difficulty: Implications for syntactic change. *Theoretical Linguistics* 45(3–4). 183–209.

An approach to complexity

Two views of complexity[27]

Inventory complexity   the number of distinctive elements in the system[28]

Descriptive complexity   the amount of information required to describe the system[29]

A note on phonology

- Phonologists and typologists alike *love* measuring inventory complexity in phonology, because we all know what a phoneme is and how to count them.[30]

- Theoreticians have been looking for rigorous 'evaluation metrics', not completely without success,[31] but this is difficult to scale up for typological enquiry

Canonical typology and markedness

Canonical typology[32] offers one possible way forward

A (modest?) proposal

- Although canonicity does not equal measurable descriptive complexity,[33] it provides some approximation[34]

- For phonology, this first approximation is good enough to build arguments utilizing the Trudgill conjecture

- Phonologists know descriptive complexity as '(descriptive) markedness'[35]

NB!   We should resist easy elisions between different aspects of 'markedness'[36]

- In particular, we do not expect a universal drive towards 'the unmarked'. The multidimensional emphasis of canonical typology is a helpful corrective here.[37] The insight that 'markedness hierarchies' can be in competition is also not new in phonology.[38]

Approaching contact-induced change in phonology

How do we look for contact-induced change in phonology?

Convergence (or non-divergence?)

- Straightforward transfer of matter

- Less straightforward, but perhaps possible: transfer of pattern

Canonicity manipulation

- Growth (or maintenance) of non-canonical patterns ≈ growth or maintenance of complexity

- Increasing canonicity ≈ decrease in complexity

[27] Östen Dahl. 2004. *The growth and maintenance of linguistic complexity*. Amsterdam & Philadelphia: John Benjamins; Johanna Nichols. 2020. Canonical complexity. In Peter Arkadiev & Francesco Gardani (eds.), *The complexities of morphology*, 163–192. Oxford: Oxford University Press.

[28] Also 'taxonomic', 'enumerative'…

[29] Also 'canonical', 'Kolmogorov complexity'.

[30] Do we though? See Paul Kiparsky. 2018. Formal and empirical issues in phonological typology. In Larry M. Hyman & Frans Plank (eds.), *Phonological typology*, 54–106. Berlin: De Gruyter.

[31] Ezer Rasin et al. 2021. Approaching explanatory adequacy in phonology using Minimum Description Length. *Journal of Language Modelling 9*(1).

[32] Greville G. Corbett. 2005. The canonical approach in typology. In Zygmunt Frajzyngier, Adam Hodges & David S. Rood (eds.), *Linguistic diversity and language theories*, 25–49. Amsterdam & Philadelphia: John Benjamins; Erich Round. 2023. Canonical phonology and criterial conflicts: Relating and resolving four dilemmas of phonological typology. *Linguistic Typology* 27(2). 267–287.

[33] Jenny Audring. 2019. Canonical, complex, complicated? In Francesca Di Garbo, Bruno Olsson & Bernhard Wälchli (eds.), *Grammatical gender and linguistic complexity*. Vol. 1: *General issues and specific studies*, 15–52. Berlin: Language Science Press.

[34] Nichols, 'Canonical complexity'.

[35] Elizabeth Hume. 2011. Markedness. In Marc van Oostendorp et al. (eds.), *The Blackwell companion to phonology*. Oxford: Blackwell Publishing.

[36] Keren Rice. 2007. Markedness in phonology. In Paul de Lacy (ed.), *The Cambridge handbook of phonology*, 79–97. Cambridge: Cambridge University Press.

[37] Round, 'Canonical phonology and criterial conflicts'.

[38] Paul de Lacy. 2006. *Markedness: Reduction and preservation in phonology*. Cambridge: Cambridge University Press.

There are *heavy* caveats,[39] but the hope is that this approach can operationalize complexity in phonology without reference to either meaning or 'difficulty'

Types of contact-induced phonological change

Change under L1 agentivity

Convergence under L1 multilingualism?

Perhaps the most straightforward type of contact-induced change in phonology, commonly held responsible for many well-known 'areal sound patterns'

- South Asian retroflexes[40]
- Jewish North-Eastern Neo-Aramaic in contact with Gorani and Kurdish[41]
- Slavic and Baltic in the Great Duchy of Lithuania convergence zone[42]

These cases are especially well known (or at least much cited) where the outcome is total convergence of (sub)systems, but the exact mechanism rarely comes under sustained scrutiny.

Long-term convergence: a closer look

An areal pattern in Ireland

- Southern Irish English: /t d/ *tin den* ≠ /t̪ d̪/ *thin then*[43]
- Irish: /t d/ *team deck* [tiːmʲ dɪkʲ] ≠ /t̪ d̪/ *tinn* 'ill' [t̪ʲiːn̪] *doigh* [d̪ʌ] 'pain'[44]
- Pre-/r/ dentalization: [t̪r d̪r], *[tr dr]
  - Irish English, north and south[45]
  - Irish: [t̪ d̪] in *trail, motor, history*…

- English [θ ð] > Irish English [t̪ d̪] usually analysed as L2 imposition[46]
- English [t d] was borrowed as [t̪ d̪] prior to the growth of English competence in the community: separate L1-actuated transfer
- Dentalization: not Irish > English substrate[47,48]

Problems with directionality: the Balkan schwa

- Many languages of the Balkan Sprachbund have undoubtedly phonemic central non-low vowels
  - Romanian *câmp* < CAMPUM 'field', *fără* < FORĀS 'without', *văzduh* < Slavic **vъzduxъ* 'sky'
  - Bulgarian *zəb* < **zǫbъ* 'tooth'
  - Albanian *këngë* < Latin CANTICAM 'song'
  - Macedonian[49]
    * Northern dialects: *sən* 'dream' < **sъnъ*, *dən* 'day' < **dьnъ*
    * South-eastern dialects: *vək* 'wolf' < **vḷkъ*

[39] Particularly acute is the need to explore the necessary link to L2 learning.

[40] Murray B. Emeneau. 1956. India as a lingustic area. *Language* 32(1). 3–16. http://www.jstor.org/stable/410649.

[41] Geoffrey Khan & Masoud Mohammadirad. 2024. *Language contact in Sanandaj: A study of the impact of Iranian on Neo-Aramaic*. Berlin: Mouton.

[42] Tamara Mikhaĭlovna Sudnik. 1975. *Dialektȳ litovsko-slavyanskogo pogranich'ya: Ocherki fonologicheskikh sistem*. Moscow: Nauka; Aksana Erker & Björn Wiemer. 2011. Manifestations of areal convergence in rural Belarusian spoken in the Baltic-Slavic contact zone. *Journal of Language Contact* 4(2). 184–216.

[43] Jeffrey L. Kallen. 2013. *Irish English*. Vol. 2: *The Republic of Ireland*. Berlin & New York: Mouton de Gruyter.

[44] Brian Ó Curnáin. 2007. *The Irish of Iorras Aithneach, County Galway*. Dublin: Dublin Institute for Advanced Studies.

[45] Kallen, *The Republic of Ireland*; Warren Maguire. 2020. *Language and dialect contact in Ireland: The phonological origins of Mid-Ulster English*. Edinburgh: Edinburgh University Press.

[46] Markku Filppula. 1999. *The grammar of Irish English: Language in the Hibernian style*. London: Routledge.

[47] Maguire, *Language and dialect contact in Ireland*.
[48] If anything, the fact that dentalization is found in Scotland and can be sufficiently advanced along the life cycle to be a stem-level rule would suggest that it is, if anything, more likely to have been a borrowing from English/Scots into Irish.

[49] Božidar Vidoeski. 1999. *Dijalektite na makedonskiot jazik*. Vol. 1. Skopje: Makedonska akademija na naukite i umetnostite.

- Often listed as a shared sound pattern, one of the few phonetic 'Balkan-isms', noted already in the earliest accounts of the Sprachbund.[50]
- A skeptical view:[51]

  – Different historical sources[52]

  – No obvious mechanisms beyond unadapted borrowings, which does not seem that powerful, even where plausible

Shared sound change under L1 agency

Some possible sources of convergence:

- Perceptual magnet effects[53]
- *Shared sound change*

  Co-territorial vernaculars with parallel outcomes of the nasal schwa:[54]

- *ə̃ > ɔ in SE Macedonian and Meglenoromanian
- \> ə(N) in Albanian, Aromanian, W Macedonian
- \> ə̃ > ɔN in Albanian, SW Macedonian

  What is the direction of this transfer? These developments are sometimes considered a 'substrate' feature, but this is clearly unsatisfactory. At the same time, there does not seem to be a clear reason why one of the languages should be obviously the 'source'.

Shared sound change?

If anything, we *should* expect multilingual speakers to do this!

How pervasive is shared change?

- On the one hand, examples are not very difficult to find

  – Long vowel diphthongizations in Polabian and Wendland/Altmark German[55]

  – Pharyngealization segmentation in Neo-Aramaic, Gorani and Kurd-ish[56]

- Long-term balanced bilingualism that enables such change does not seem as common in (ahem) Western Eurasia as elsewhere

  – Even for established Sprachbünde like the Balkans the situation may need some nuance[57]

  – We need much more work on diverse contexts that centres the multilingual repertoire

Convergence of systems

- Shared sound changes explain synchronically converged systems primarily through diachrony
- This is in line with much current thinking in phonology[58] and typology[59]
- Can this explain all instances of phonological convergence?

[50] Afanasij Seliščev. 1925. Des traits linguistiques communs aux langues balkaniques: Un balkanisme ancien en bulgare. *Revue des études slaves* 5(1/2). 38–57.

[51] Brian D. Joseph. 2009. Broad vs. localistic dialectology, standard vs. dialect. In Stav-roula Tsiplakou, Marilena Karyolemou & Pavlos Pavlou (eds.), *Language variation — European perspectives II: Selected papers from the 4th International Conference on Language Variation in Europe (ICLaVE 4), Nicosia, June 2007*, 119–134. Amsterdam & Philadelphia: John Benjamins.

[52] Unstressed vowel reduction, pre-nasal raising, centralization of back vowels...

[53] Blevins, 'Areal sound patterns'.

[54] Irena Sawicka. 2000. A medieval phonetic balkanism. *Folia Linguistica Historica* 21(1–2). 155–158; Marjan Marković. 2007. *Aromanskiot i makedonskiot govor ot obridsko-struškiot region (vo balkanski kontekst)*. Skopje: Makedonska akademija na naukite i umetnostite; Victor A. Friedman. 2018. Reflexes of Common Slavic nasal vowels in southwest Macedonian dialects revisited: An areal and balkanological account. In Christina Y. Bethin (ed.), *American contributions to the 16th International Congress of Slavists, Belgrade, August 2018. Linguistics*, 121–138. Bloomington, IN: Slavica.

[55] Peter Wiesinger. 2004. Niederdeutsche und dravänopolabische Lautentwicklungen im Wendland und in der Altmark. In Dieter Stellmacher (ed.), *Sprachkontakte: Niederländisch, Deutsch und Slawisch östlich von Elbe und Saale*, 249–300. Frankfurt am Main: Peter Lang.

[56] Khan & Mohammadirad, *Language contact in Sanandaj*.

[57] Andrey N. Sobolev. 2021. Separation and symbiosis between Slavs and Albanians as continuum of linguistic contact situations: New challenges for new data. In Andrey N. Sobolev (ed.), *Between separation and symbiosis: South Eastern European languages and cultures in contact*, 27–58. Berlin & New York: Mouton de Gruyter.

[58] Juliette Blevins. 2004. *Evolutionary phonology: The emergence of sound patterns*. Cambridge: Cambridge University Press.

[59] Sonia Cristofaro. 2019. Taking diachronic evidence seriously: Result-oriented vs. source-oriented explanations of typological universals. In Karsten Schmidtke-Bode et al. (eds.), *Explanation in typology: Diachronic sources, functional motivations and the nature of the evidence*, 25–46. Berlin: Language

Homoplasy

What is shared is not the changes but the system that the changes bring about[60]

- Homoplasy: different diachrony, convergent synchrony[61]
- Possible explanations:
  - Importation via lexical borrowings
  - Shared sound change
  - Perceptual magnet effects[62]
  - Convergence/transfer of synchronic pattern? Often argued to be difficult/impossible!

An example: High Latvian vowel 'reduction'

- East Slavic *akan'e*:

  *a   [tra'va] 'grass' ∼ ['travi] 'grass.PL'

  *o   [va'da] 'water' ∼ ['vodi] 'water.PL'

  - Usually treated as CSl *o > a in an unstressed syllable[63]

- High Latvian[64]

  *a   ['vodu͡ot] 'drive.INF' ∼ ['povada] 'reins'

  *o   absent in native vocabulary

- Diachrony of High Latvian

  1. *a > o except before front vowels/palatal consonants

  2. Allophonic alternation, with /o/ in the elsewhere context: *gods* 'year.NOM.SG' ∼ *gadi* 'year.NOM.PL' (Standard Latvian *gads* ∼ *gadi*)

  3. *ɛ > a in palatal contexts leads to phonemicization: /a/ ≠ /o/

- Both languages end up with ['o] ∼ [a] alternations: how does this fit into the sociolinguistic typology model?

Contact-induced non-divergence

Varieties that exist in contact with other languages can fail to participate in innovations found in non-contact varieties

- Pyrenean Romance *pleká* 'fold' < PLĬCARE, *saper* 'know' < SAPĒRE vs. Spanish *llegar*, *saber*: cf. Basque *katea* 'chain' < CATĒNAM, *bake* 'peace' < PĀCEM[65]
- Breton *hañv* 'summer', *deñved* 'sheep.PL' vs. Welsh *haf*, *defaid* < *samos, *damatī:[66] cf. nasal vowels in Gallo-Romance
- English is the only Germanic language to have maintained both PGmc [θ] and [w], both segments also present in Welsh[67]

[60] Hans Heinrich Hock. 2022. *Principles of historical linguistics*. 3rd edn. Berlin & New York: Mouton de Gruyter, 682 on Indo-Aryan retroflexes.

[61] Roger Lass. 1997. *Historical linguistics and language change*. Cambridge: Cambridge University Press; Freek Van de Velde & Joop van der Horst. 2013. Homoplasy in diachronic grammar. *Language Sciences* 36. 66–77.

[62] Blevins, 'Areal sound patterns'.

[63] This is not entirely uncontroversial...

[64] Ilja A. Seržant. 2010. Phonologische Isoglossen des Hochlettischen, Nord-Ost-Litauischen, Nord-West-Russischen und Weißrussischen. *Baltic Linguistics* 1. 193–214.

[65] Fredrick H. Jungemann. 1950. *La teoría del sustrato y los dialectos hispano-romances y gascones*. Madrid: Editorial Gredos.

[66] Kenneth Hurlstone Jackson. 1967. *A historical phonology of Breton*. Dublin: Dublin Institute for Advanced Studies.

[67] J. R. R. Tolkien. 1963. English and Welsh. In Henry Lewis (ed.), *Angles and Britons: The O'Donnell Lectures*, 1–41. Cardiff: University of Wales Press.

How to approach this?

- This situation seems not uncommon, but how do we handle it beyond vague appeal to 'reinforcement'?
- Historical linguists tend to prefer synapomorphy[68] to symplesiomorphy,[69] but are we losing information here?

[68] Shared innovation
[69] Shared retention

Dealing with retentions

- *In general*, the answer has to be aggregating the data with typological methods[70]
- The *specific problem in phonology* is the high probability of parallel developments:

    - Phonetic grounding of sound change
    - Lineage-specific trends, i. e. *drift*

[70] Kaius Sinnemäki et al. 2024. A typological approach to language change in contact situations. *Diachronica* 41(3). 379–413.

L1 agentivity and contact in phonology: summary

- Many aspects where the framework is a good fit
- L1 agentivity conducive to maintaining or increasing complexity/non-canonicity

    - Non-canonical structures can be acquired/transferred via L1 learning mechanisms
    - Perpetuation of structures via shared sound change

- Issues that require more work

    - Contact-driven non-divergence
    - Homoplasy
    - Do we have enough stable multilingualism to go around to explain the convergences?

Change under L2 agentivity

Shift-induced interference in phonology

- This *sounds* like it should be unproblematic: subversion effects under conditions of language shift
- Especially phonetic detail is widely understood to be L2-hard and subject to imposition
- No shortage of proposals in the literature ascribing sound change to substrates/language shift

How does phonological imposition happen?

- Three mechanisms for propagation of L2-driven phonological change

    - Ethnolectalization: contact-influenced variety stabilizes as distinct
    - Users of contact-influenced variety are a majority in the community

– De-ethnolectalization and spread of originally contact-influenced features via community-internal dynamics

- Does this happen?

  – Ethnolectalization: Hebridean English, post-Sámi Northern Norwegian

  – Numerical preponderance: requires particular sociohistorical situations: Southern Irish English[71]

  – De-ethnolectalization ⁉️

- Much more work required on what exactly gets imposed in what situation[72]

Phonologically invisible language shifts

- There are plenty of arguments in the literature *reconstructing* past contacts from phonological evidence, but do we have *documentation*?

- In documented cases of complete language shift, phonological influence seems quite elusive

  – Latin: plenty of evidence for individual bilingualism,[73] but clear substrate effects in phonology are rare to non-existent![74]

  – Ulster English: no strong evidence for Irish substrate in the phonology[75]

  – Similar absences in Manx English,[76] Cornish English[77]

What's going on?

- In these well-documented cases, language shift is *slow*[78]

- The community shifts over time, but at any given stage the proportion of shifters is low

- Phonetic-phonological non-target forms may attract a social penalty in a way that grammatical features do not[79]

- Social dynamics rarely conducive to propagation of contact-induced features

The take-away

Whole-community L2-driven phonological change may be quite a bit rarer than we think![80]

Areal effects and drift

Some 'areal' effects in northern Europe

- Preaspiration
- Sonorant preocclusion: *nn > dn
- Tonal accents
- Initial stress[81]
- Contrastive quantity[82]

[71] Filppula, *The grammar of Irish English*.

[72] Natvig, 'Levels of representation in phonetic and phonological contact'.

[73] J. N. Adams. 2003. *Bilingualism and the Latin language*. Cambridge: Cambridge University Press.

[74] J. N. Adams. 2007. *The regional diversification of Latin, 200 BC–AD 600*. Cambridge: Cambridge University Press.

[75] Maguire, *Language and dialect contact in Ireland*.

[76] Christopher Lewin. 2017. 'Manx hardly deserved to live': Perspectives on language contact and language shift. *Zeitschrift für celtische Philologie* 64(1). 141–206.

[77] Martyn F. Wakelin. 1975. *Language and history in Cornwall*. Leicester: Leicester University Press.

[78] See Maguire, *Language and dialect contact in Ireland*, for detailed argumenation for Ulster.

[79] On this difference see Penelope Eckert & William Labov. 2017. Phonetics, phonology and social meaning. *Journal of Sociolinguistics* 21(4). 467–496.

[80] For similar skepticism, see Joseph C. Salmons. 2015. Language shift and the Indo-Europeanization of Europe. In Robert Mailhammer, Theo Vennemann & Birgit Annette Olsen (eds.), *The linguistic roots of Europe: Origins and development of Indo-European languages*, 147–169. Copenhagen: Museum Tusculanum Press.

[81] Joseph C. Salmons. 1992. *Accentual change and language contact: Comparative survey and case study of early northern Europe*. London: Routledge.

[82] Andrea-Eva Ewels. 2009. *Areallinguistik und Sprachtypologie im Ostseeraum: Die phonologisch relevante Vokal- und Konsonantenquantität*. Frankfurt am Main & New York: Peter Lang.

- The languages are in contact, but the sociohistorical situation does not allow for L2-actuated phonological change: instead, many of the parallels emerge from the operation of the life cycle on similar starting points

- This is a theory of drift[83]

[83] Joseph, 'Demystifying drift'.

Simplification in phonology?

- If we are anywhere near the right track, we should see examples of 'simplification' (increase in canonicity) in L2-actuated phonological change…

- … or perpetuation of complexity (non-canonicity) in the absence of L2-driven learning

- One example from the literature: glide hardening in European vernaculars[84]

  - Romansh *flukr vekr* for *flūr* 'flower' *vejr* 'see.INF'
  - Jutland Danish *bic byc* for *bi$^{\textrm{?}}$* 'bee', *by$^{\textrm{?}}$* 'town'
  - Franconian German *tsikt* for *Zeit* 'time'
  - Norwegian dialectal *beksel* for *beisl* 'bridle'
  - Latvian dialectal *juks kreikt* for *jùs* 'you.PL', *krȉt* 'fall.PRS.3SG'

[84] Henning Andersen. 1988. Center and periphery: Adoption, diffusion and spread. In Jacek Fisiak (ed.), *Historical dialectology: Regional and social*, 39–84. Berlin & New York: Mouton de Gruyter; Trudgill, *Sociolinguistic typology*.

- This change does, however, have at least phonetic grounding in the devoicing of high vocoids[85]

[85] David R. Mortensen. 2012. The emergence of obstruents after high vowels. *Diachronica* 29(4). 434–470.

Another (better?) example

- Another such feature is vowel excrescence in sonorant + consonant clusters[86]
- Variable, partly lexicalized

  - West Germanic: English, Scots, Dutch, much of High German (with Luxembourgish and Yiddish)
  - North Germanic: (historical) Danish
  - Brythonic Celtic

[86] Pavel Iosad & Warren Maguire. In preparation. English epenthesis in *lC* and *rC* clusters: Areal effect or drift? MS., University of Edinburgh.

- Variable, undergoing stabilization

  - Northern Sámi, Lule Sámi, other Western Sámi varieties
  - Finnish dialects

- Currently productive in the phonology

  - Scottish Gaelic

- Historically regular, now morphologized/lexicalized

  - Irish, Manx
  - East Slavic

Social dialectology and the non-canonicity of epenthesis

- The excrescent vowel is non-canonical: arises from the misalignment of C- and V-gestures in the sonorant,[87] assuming a canonical segment is

[87] Nancy Hall. 2006. Cross-linguistic patterns of vowel intrusion. *Phonology* 23(3). 387–429.

characterized by tight gestural coupling[88]

- Why doesn't it get into standard languages easily?

  – The social dynamics of LOL[89] languages are simplification-friendly

  – Large and loose social networks, historically most users learn the standard as a second language

- Possible sociolinguistic typology account of how a pervasive feature like epenthesis flies so entirely under the radar

- Are there more features like this?

L2 agentivity and contact in phonology: summary

- L2-driven phonological change clearly exists at the individual level

- Community-wide phonological imposition requires very specific sociohistorical circumstances, which may be relatively rare

- Even for languages in contact, 'substrate' influence may not be visible in phonology

Some conclusions

- The study of language contact is very exposed to the lack of communication between theoretical phonology and historical-typological linguistics

- Phonology is special in ways that create challenges for this research programme

- Both of these are crucial to future progress:

  – Theoretically informed approach to what a sound pattern is

  – Serious engagement with the sociohistorical context

- Some important things that I think are true

  – Contact-induced change in phonological *systems* is rarer than we think

  – The place to look is often very localized contact between vernaculars

  – … and we need a much broader view of what is possible in terms of social interaction in diverse communities

[88] Round, 'Canonical phonology and criterial conflicts'.
[89] Literate, Official, Lots of Users: Östen Dahl. 2015. How WEIRD are WALS languages? Presentation at Diversity Linguistics: Retrospect and Prospect, Max Planck Institute for Evolutionary Anthropology. https://www.eva.mpg.de/fileadmin/content_files/linguistics/conferences/2015-diversity-linguistics/Dahl_slides.pdf.