

The Limits of Analogy

or

Why doesn't Paul agree
with Anttila (1977: 20) that
"all change is analogical"?

Specifically:

1. Why does Paul draw a fundamental distinction between "analogy" and "sound change"?
2. What about "phonetic analogy"?

Some proponents of "phonetic analogy"

- By that name: Schuchardt 1885; Karsten 1894; Hermann 1931; Vennemann 1972; Benware 1996; Schryver et al. 2008.
- By other names: Andersen 1973; Ohala 1993; Kiparsky 1995; Bybee 2001 (??); Blevins 2004.

Schuchardt's notion of "analogy"

Schuchardt's "analogy" does not correspond to Paul's analogy.

When Schuchardt – and some of his followers – talk about analogy, they mean roughly what Paul calls "contamination".

Paul adds his chapter on contamination in the 2nd [1886] edition of the *Principien*. (Schuchardt was writing in 1885.)

Unlike "proportional analogy", contamination is arguably problematic for Neogrammarian theory, regardless of whether it is "conceptual" or phonetic.

"...das, was hier Sch[uchardt] [unter rein lautlicher Analogie] versteht [ist] überhaupt keine Analogie, sondern **ein Unding, was sich überhaupt nicht denken lässt**. Wo käme die Proportionsgleichung her?" (Paul 1886b:6)

2 conceptions of analogical innovation

- Analogical innovation as application of a grammatical rule (=solving of a proportional equation)
- Analogical innovation as influence of one (set of) form(s) on a similar/related (set of) form(s).

Comprehensive theories include BOTH types of innovation (but don't necessarily call them both "analogical").

Approaches differ greatly in which they regard as more fundamental/important.

Coverage of the two approaches **overlaps** in the crucial area of paradigm leveling.

What is "phonetic analogy"?

Schuchardt and many who cite him talk about the analogical extension or generalization of **a sound change**:

"die Häufigkeit eines gewissen **Lautwandels** wird zur Allgemeinheit" (1885:7)

For this to make any sense, we have to clarify what we mean by "Lautwandel".

Specifically, there must be some pattern with psychological reality as "synchronic" correlate of the historical change (see Vennemann's Theses 24-27).

3 possible candidates

Sound patterns that could conceivably be extended analogically (in some sense) include:

1. patterns of alternation
2. patterns of distribution
3. patterns of variation

Candidate I:

Patterns of alternation

Paul grants phonological alternations (*Lautwechsel*) a prominent role in his discussion of analogy and analogical innovation (Ch. 5, §76, 84: "material-phonological proportional groups").

So this type of phonetic analogy is uncontroversial: "Ich habe darauf zu erwidern, dass es allerdings eine rein lautliche Analogie gibt, wie ich in der zweiten Auflage meiner Principien zeigen werde ..." (Paul 1886b:6; cf. Reis 1978:196n.91).

Candidate 2:

Patterns of distribution

Under Schuchardt's notion of "analogy" (=contamination), dominant distributional tendencies could directly influence the phonological make-up of other items:

"So begünstigt die Häufigkeit gewisser Lautcomplexe die Neubildung identischer ..." (1885:7)

Vennemann (1972a) argues that learners construct (directional) phonological rules based on patterns of distribution and sometimes extend these rules by phonetic analogy.

Lack of productive potential in rules based on patterns of distribution

Paul's analogical formation = **productive** grammar use
= solving for an unknown
(analogical = "proportional")

Even if speakers' grammars include some kind of (redundancy) rules that capture patterns of distribution, these rules have no **productive potential**.

They do not allow speakers to produce any forms that they haven't learned directly, and that – for Paul – is what analogical formation is all about.

So Vennemann's insistence that it can't be the distributional patterns themselves that are analogically extended, that it has to be a phonological rule, doesn't really get us anywhere. If we're dealing with something like **contamination**, why can't it be the distributional patterns themselves? And the type of rule that Vennemann is proposing does not bring us any closer to any other recognized type of analogy.

Candidate 3:

Patterns of variation

Paul recognizes a mechanism based on patterns of variation that is "psychologically no different from" analogy.

BUT he argues that:

1. The relevant kind of variation does not (normally) occur within a speech community.
2. The kind of variation that does occur within a community (and within the speech of every individual) has no productive/analogical potential.

Paul on "analogy" based on inter-lectal variation:

"...groups of correspondences are bound to be set up in the mind of an individual who is proficient in both languages (e.g. Low German *water* ~ High German *wasser* = *eten* ~ *essen* = *laten* ~ *lassen* etc.). Individuals will begin to have at least a vague feeling for the regular relationship of the sounds of the one language to those of the other. As a result they may be able to transpose words that they only know from their natural language correctly into the phonetic form of the artificial language.

This procedure is psychologically no different from what we have called **analogical formation**, which means that mistakes can sometimes arise through the incorrect generalization of a proportional relationship. I heard one such example from a child who had grown up speaking Low German—he said *Zeller* for *Teller* 'plate' when speaking High German." (ch. 23, §293)

A terminological issue:

For Paul this inter-lectal phenomenon – now commonly known as "(structural) hypercorrection" – is "psychologically no different from [...] analogical formation" but it is **NOT** analogical formation because it is not based on grammatical relations within a single mental grammar.

And a closely related substantive issue:

"Thesis 3. The mechanism of spread of sound change is borrowing by imitation.

Thesis 4. There is no difference in principle between borrowing among individuals and borrowing among dialects." (Vennemann 1972a:171).

If these 2 theses are correct...

...then Paul would presumably have to acknowledge that something "psychologically no different" from phonetic analogy plays a major role in sound change.

But Paul is quite explicit in his rejection of both theses, e.g. concerning Thesis 4:

"Thus, there remains only the question whether the linguistic interaction of different individuals can be a source of inconsistencies (in the application of a sound law). That would only be conceivable if an individual were simultaneously under the influence of various groups, clearly separated from one another by different sound developments, and acquired some words from the one group and other words from the other group. However, this assumes an exceptional kind of situation. Normally no such differences are found within the speech community where the individual grows up [...]" (ch. 3, §48)

"Therefore, inconsistencies cannot develop within the same dialect, but only as a result of dialect mixture or, as we more accurately outline below, as a result of the borrowing of a word from a different dialect. [...]
Naturally, then, in the establishment of sound laws we do not have to deal with such apparent inconsistencies." (ch. 3, §48)

"Ich habe nichts dawider, wenn [Schuchardt] die wechselseitige Beeinflussung der Individuen unter einander als Sprachmischung bezeichnen will, aber dieselbe darf doch nicht mit dem, was man gewöhnlich Sprachmischung nennt, einfach confundirt werden." (Paul 1886b:6)

Paul on phonetic variation within the individual/community

"The movement sense does not form itself separately for each individual word. Rather, everywhere where the same elements recur in speech their production will be regulated through the same movement sense. If the movement sense shifts through the pronunciation of an element in one word, this shift will also be decisive for the same element in any other word. **Fluctuations of pronunciation that arise through faster or slower, louder or quieter, more careful or more careless speech will always affect the same element in the same way—regardless of which word it occurs in [...]"** (Ch. 3, §47)

2 Neogrammarian reasons...

...why this kind of individual phonetic variation cannot give rise to analogical **innovations**:

1. It is a physiological rather than a psychological matter.
2. OK, maybe it's psychological (and part of the mental grammar), but analogical **innovations** can only arise where inconsistencies and ambiguities in grammatical patterns create the potential for speakers to "guess wrong" when arriving at forms by analogy.

Reason 1...

...was quickly challenged and rejected:

"Thesis 1. The human basis of sound change is psychological." (Vennemann 1972a:171)

But this does not settle the matter of the role of "phonetic analogy" in sound change; it merely brings us to **Reason 2** and thus back to the fundamental debate over the nature (and perhaps the teleology) of analogical innovation/change.

"Freilich Osthoffs Gegenüberstellung eines physiologischen und eines psychologischen Moments geht im Ausdruck fehl, insofern auch die physiologische Seite der Sprachthätigkeit psychisch bedingt ist. Aber die Scheidung [zwischen Lautwandel und Analogiewirkung] bleibt darum noch bestehen." (Paul 1886b:6)

Paul vs. Vennemann (I)

Two very different conceptions of (the teleology of) analogical innovation/change.

Paul:

The possibility for analogical **innovation** depends crucially on there being **ambiguous** forms as well as potentially **unknown** forms in the system.

Paul vs. Vennemann (2)

Paul (continued):

No matter how complex a grammatical system might be, no matter how badly it violates alleged universal "preferences" such as "one-form-one-function", there is no possibility for analogical innovation so long as "each individual form [...] reveal[s] beyond a doubt which of the existing classes a given word belongs to." (Ch. 5, §81)

Paul vs. Vennemann (3)

Vennemann:

The potential for analogical innovation exists wherever speakers see an opportunity to "improve" their language by extending an existing pattern to similar contexts.

For Vennemann (and many others), analogical innovation/change can be a matter of speakers **extending** a rule to a new, similar context, (apparently) **knowing** that that rule did not previously apply in that context.

For Paul (and many others), analogical innovation is a matter of a speaker **applying** a rule in some context because she mistakenly believes that it **does** apply in that context (thus the crucial importance of ambiguous and unknown forms in Paul's "proportional" model).

In general...

Paul (and many others) are very concerned with showing how innovations – including those that become changes – could arise as unintended but inevitable by-products of ordinary language use, without the innovators ever realizing that they are innovating.

Paul shows how this could be true – for very different reasons – for both sound change and analogical innovation.

Vennemann and Schuchardt (and many others) are utterly unconcerned with this issue (or reject the premise).

Many linguists seem to assume one or the other of these views on the teleology of analogical innovation/change, without realizing there is any alternative.

So they wind up talking past each other.

Paul on "complete harmony" of a system

"it is quite natural that forms that were already established in the language will often be created with the help of proportions. If that were always to be the case, however, then, [...] there would have to be [...] a complete harmony of the form system ..." (Ch. 5, §81).

It is precisely this kind of "complete harmony"...

...that Paul seems to be describing when he talks about the system of phonetic variants within an individual:

"Fluctuations of pronunciation that arise through faster or slower, louder or quieter, more careful or more careless speech will **always affect the same element in the same way**—regardless of which word it occurs in [...]" (Ch. 3, §47)

Thus, even if the system of phonetic variants is psychological/grammatical, and its productive use is "analogical" in the same sense as that of the form system, the "complete harmony" (i.e. perfect predictability) inherent in the phonetic system still means that there is – under Paul's conception of analogy – no potential here for analogical **innovation**.

Two senses of "mechanical"

- mechanical = physical: "caused by movement, physical forces, properties, or agents" (OED sense 6.a.)
- mechanical = predictable: "lacking spontaneity or originality; automatic, routine" (OED sense 7.)

If a linguistic subsystem is completely "mechanical" in the sense of "predictable", it does not matter – as far as the potential for Paulian analogical innovation is concerned – whether it is also "mechanical" in the sense of "physical".

Two remaining questions

1. What about phonetic "backformation"?
2. How clean is the distinction between **distinct phonetic elements**, on the one hand, and **different realizations of the same element**, on the other?

What about phonetic backformation?

What if we look at things from the perspective – not of **speakers** who know what elements they are dealing with and need to figure out how to pronounce them on a particular occasion, but rather – of **listeners/learners** who know what sounds they've heard and are trying to figure out what elements those sounds belong to?

Paul seems to be assuming **biuniqueness** (perfect predictability in both directions).

Is this plausible if we're talking about all of the "fluctuations of pronunciation that arise through faster or slower [...] more careful or more careless speech"?

(See Johnson 2004 on the "massive reduction" characteristic of conversational speech, but also Garret and Johnson 2013 on the irrelevance of such conversational speech to articulatory targets and sound change.)

Insights from folk etymology

Paul on the role of misperception in folk etymology:

"Für die Erklärung des Vorganges werden wir zunächst zu berücksichtigen haben, dass man ganz gewöhnlich die Worte und Sätze, die man hört, ihren Lautbestandteilen nach nicht vollkommen exakt perzipiert, sondern teilweise errät, gewöhnlich durch den nach dem Zusammenhange erwarteten Sinn unterstützt. Dabei rät man natürlich auf **Lautkomplexe, die einem schon geläufig sind, ...**" (Ch. II, §151)

Guessing "wrong" under the influence of familiar patterns...

...sounds an awful lot like Paul's conception of analogical innovation.

2 questions:

1. Is this mechanism only relevant to folk etymology?
2. Is it really always a matter of mishearing, or is it sometimes more a matter of phonological mis- (or re-)analysis?

Relevance beyond folk etymology

Paul's own formulation – "Dabei rät man natürlich auf Lautkomplexe, die einem schon geläufig sind" – strongly suggests that it could have broader applicability.

Compare Schuchardt (1885:7): "So begünstigt die Häufigkeit gewisser Lautkomplexe die Neubildung identischer ..."

Ohalian hypercorrection as phonetic backformation

"the voiceless aspirated palatal /ch/ of Sanskrit happened to occur, when medial, mostly as a geminate [cch]; the few simple occurrences were later geminated, generalizing the rule 'Aspirated palatals, when medial, are geminated.'" (Kiparsky 1992:58)

Mishearing vs. phonological reanalysis

Phonological reanalysis: The listener correctly hears the sound produced by the speaker but guesses wrong in assigning that (ambiguous) sound to an "element" (to use Paul's term).
(Compare Ohala, Blevins, etc.)

Here, the parallels to analogical backformation would be exact.

What would Paul say...

...about this notion of phonological reanalysis?

He might not want to go there because he is not willing to give up on **biuniqueness**.

He is OK with the idea of **confusability** of sounds, but not with actual phonological **ambiguity**.

Could all alleged cases of phonetic analogy supposedly based on patterns of **distribution** be reanalyzed as (quasi-)backformation based on patterns of **variation** involving phonemic ambiguity or confusability?

Many certainly can be. (See Benware 1996 for one important example.)

The distributional patterns would still account for the "geläufige Lautkomplexe" that bias listeners' perceptions/analyses, but the ambiguous/confusable sounds would be the crucial "pivots" licensing the (proportional) innovations (and accounting for how speakers could unwittingly innovate in the course of normal language use).

Conclusions

Paul does present a coherent model in which phonetic change and analogical innovation are – strictly speaking – mutually exclusive, and this does **not** depend on the discredited Neogrammarian view that phonetic change is an (entirely) physiological rather than a psychological matter.

There are a number of key places, however, where we are reminded of Paul's careful formulation: "psychologically no different from what we have called analogical formation" (ch. 23, §293).

Selected references (I):

Andersen, Henning (1973), 'Abductive and Deductive Change', *Language* 49, 765–93.

Benware, W.A. (1996), 'Processual Change and Phonetic Analogy: Early New High German <s> <sch>', *American Journal of Germanic Linguistics and Literatures*, 8.265–87.

Blevins, Juliette (2004), *Evolutionary Phonology*, Cambridge: Cambridge University Press.

Bybee, Joan (1988), 'Morphology as Lexical Organization', in Michael Hammond and Michael Noonan (eds), *Theoretical Morphology*, New York: Academic Press, pp. 119–41.

Bybee, Joan (2001), *Phonology and Language Use*, Cambridge: Cambridge University Press.

Garrett, Andrew and Keith Johnson. 2013. 'Phonetic bias in sound change'. In *Origins of Sound Change*, ed. by Alan C.L. Yu, 51-97. New York: Oxford University Press.

Hermann, Eduard (1931), *Lautgesetz und Analogie (Abhandlungen der Gesellschaft der Wissenschaften zu Göttingen, Philologisch-Historische Klasse, neue Folge 23, 3)*, Berlin: Weidmannsche Buchhandlung.

Johnson, Keith. 2004. 'Massive reduction in conversational American English.' In *Spontaneous speech: Data and analysis. Proceedings of the 1st Session of the 10th International Symposium*, ed. by K. Yoneyama and K. Maekawa, 29-54. Tokyo: National Institute for Japanese Languages.

Karsten, Gustaf E. 1894. 'The Psychological Basis of Phonetic Law and Analogy', *Publications of the Modern Language Association of America* 9:2.312-341.

Selected references (2):

Kiparsky, Paul (1992), 'Analogy', in William Bright (ed.), *International Encyclopedia of Linguistics*, vol. 1, New York: Oxford University Press, pp. 56–61.

Kiparsky, Paul (1995), 'The Phonological Basis of Sound Change', in John A. Goldsmith (ed.), *The Handbook of Phonological Theory*, Oxford: Blackwell, pp. 640–70.

Ohala, John (1993), 'The phonetics of sound change', in Charles Jones (ed.), *Historical Linguistics: Problems and Perspectives*, London: Longman, pp. 237–78. Schryver, Johan de, Anneke Neijt, Pol Ghesquière and Mirjam Ernestus. 2008. 'Analogy, Frequency, and Sound Change. The Case of Dutch Devoicing'. *Journal of Germanic Linguistics* 20.159-195.

Paul, Hermann. 1886b. Review of Schuchardt, Hugo. Ueber die Lautgesetze. *Literaturblatt für germanische und romanische Philologie* 7.1-6.

Schuchardt, Hugo [1885] (1972), *Über die Lautgesetze: Gegen die Junggrammatiker*, Berlin: Oppenheim. [Reprint and translation in Vennemann and Wilbur 1972, 1–72.]

Vennemann, Theo (1972a), 'Hugo Schuchardt's theory of phonological change', in Theo Vennemann and Terence H. Wilbur (eds), *Schuchardt, the Neogrammarians, and the Transformational Theory of Phonological Change*, Frankfurt: Athenäum, pp. 115–179.

Vennemann, Theo (1972b), 'Phonetic Analogy and Conceptual Analogy', in Theo Vennemann and Terence H. Wilbur (eds), *Schuchardt, the Neogrammarians, and the Transformational Theory of Phonological Change*, Frankfurt: Athenäum, pp. 181–204.

Vennemann, Theo and Terence H. Wilbur (1972), *Schuchardt, the Neogrammarians, and the Transformational Theory of Phonological Change*, Frankfurt: Athenäum.