When 'better coverage' isn't enough: comparing theories of agreement & correspondence

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Linguistic data often finds plausible explanations from multiple distinct theories. Systematic comparison of the competing potential analyses requires understanding the theories that give rise to them, and the consequences and predictions implied by each set of assumptions. This talk considers a case study in understanding current theories in the literature on 'Agreement by Correspondence' (ABC; Rose & Walker 2004, Hansson 2010, etc.).

In typical ABC theories, agreement is understood as an indirect effect based on similarity: similar consonants are required to correspond, and correspondent segments are required to agree. However, work aiming to refine the basic ABC proposals, and work applying the approach to a wider body of data and wider set of phenomena, has led to a plethora of different variations on this basic idea. The result: an assortment of different ABC-esque theories, each with different formal characteristics, but closely aligned empirical targets. Many of the arguments for or against different variants of ABC have been based on general axioms of simplicity and parsimony, or on the details of language-specific patterns of note. I take a different approach here: analysis of the typological structure.

ABC and ABP

ABC theory recognizes two central classes of constraints: CORR constraints, violated by pairs of segments that do not correspond, most typically those that also meet some condition of segmental similarity; and CC·ID constraints, violated when corresponding segments do not agree in some feature(s). Together, their interaction can impose a dual requirement that similar segments correspond and also agree in some specified features – i.e. that similar segments harmonize in some way. A different interaction produces dissimilation, because segments that do not meet a similarity condition are not required to correspond – and therefore can disagree without incurring a violation of CC·ID.

A major revision to ABC, proposed by Hansson (2014), removes the correspondence relationship from the framework, arguing that harmony among similar segments can be obtained without decomposing the requirement into separate mechanisms of correspondence and agreemnt. Instead, this Agreement-by-Projection (ABP) theory posits just agreement constraints. These constraints take two arguments: one for the feature(s) the segments must agree in, the other specifying a *projection* (akin to a formal or autosegmental tier) that picks out the class of segments subject to the requirement (generally defined by a natural class). A constraint AGR·F/αG (=Hansson's *[+F][-F]$_{[\alpha G]}$) is violated by disagreement for feature [±F], only if the disagreeing segments share [αG] (i.e., are on the [αG] projection). This constraint derives a similarity condition, whereby only segments sharing some feature(s) are subjected to (dis)harmony – the same result produced in ABC theory through interaction of CORR(G) and CC·ID(±F) constraints.

Using a basic segment inventory defined by two features (1), we can calculate—in full—the typology of a basic ABC system, and show how it produces harmony and dissimilation as interactions between a pair of similar consonants. Property Theory (Alber & Prince in prep., Alber, DelBusso & Prince 2016) provides a means to characterize the formal intensional structure of this typology, decomposing it into a set of choices available for grammars to make about their input-output mappings. We can then compare the property analyses of different

variations on ABC, to understand the typological ramifications that follow from differences in how the theory is stated (Bennett & DelBusso 2018).

1) Segmental inventory

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Results

Intuitively, comparing ABC and ABP ought to reveal the answer to an important question: what difference comes about in a theory's typological predictions as a result of assuming the mechanism of correspondence? The finding reported here is less intuitive: there is no difference.

The ABC and ABP systems make exactly the same extensional predictions: at the segmental level, the possible optima permitted in both theories are the same. The ABC typology is slightly larger, but only because it produces additional languages that differ only in the correspondence indices of certain optima – a difference not visible on the surface. As such, there is no empirical space that the ABC typology can include which the ABP alternative does not also capture. The extensional difference between them is found only in the covert structure of correspondence. That is: there is no observable empirical pattern that pulls these theories apart.

2) Languages of the ABC and ABP typologies

(har = harmony; dis = dissimilation; cor = faithful correspondence; noc = faithful non-corresp.)

T_{ABC}	/d z/	/t d/
har.dis	d_1 d_1	t_1 z_2
dis.har	d_1 s_2	t_1 t_1
har.*cor*	d_1 d_1	t_1 d_1
har.*noc*	d_1 d_1	t_1 d_2
dis.*cor*	d_1 s_2	t_1 d_1
dis.*noc*	d_1 s_2	t_1 d_2
cor.har	d_1 z_1	t_1 t_1
noc.har	d_1 z_2	t_1 t_1
cor.dis	d_1 z_1	t_1 z_2
noc.dis	d_1 z_2	t_1 z_2
cor.cor	d_1 z_1	t_1 d_1
cor.noc	d_1 z_1	t_1 d_2
noc.cor	d_1 z_2	t_1 d_1
noc.noc	d_1 z_2	t_1 d_2

T_{ABP}	/d z/	/t d/
har.dis	d d	t z
dis.har	d s	t t
har.f	d d	t d
dis.f	d s	t d
f.har	d z	t t
f.dis	d z	t z
f.f	d z	t d

The ABC and ABP systems also share internal structural parallels: not only do they produce the same results, but they do so *in the same ways*. Properties in ABP are like those of ABC, but substituting an AGR constraint for a class of {CORR, CC.ID}. These properties correlate with the exact same extensional traits: the homologous choices about relative constraint rankings carry the same empirical consequences. The conclusion: even intuitively different theories can have equivalent logical structures on the inside.