(Dis)Agreement by (Non)Correspondence: Inspecting the foundations

Gunnar Ólafur Hansson
University of British Columbia

When the Agreement by Correspondence model (ABC) was originally developed and applied to long-distance consonant assimilation phenomena (Walker 2000a, 2000b, Rose & Walker 2000, 2004, Hansson 2001), it encapsulated within it a set of basic assumptions and operating principles. Over the past decade, our knowledge base in this area has grown substantially thanks to new empirical observations, formal explorations of the properties and predictions of the ABC model itself (including its extension to cover long-distance dissimilation; Bennett 2013), and related research on the learnability of long-distance phonotactics, both computational (learning algorithms) and experimental (artificial language learning studies). In this paper I will revisit and critically reexamine some of the foundational assumptions of the ABC approach to long-distance phonotactic dependencies in light of these subsequent developments, and attempt to assess to what extent these aspects of ABC are empirically supported or formally necessary (or desirable).

Firstly, in the early literature proposing and advocating the ABC model, featural agreement (potentially non-local) was juxtaposed against feature spreading (strictly local) and the two were generally viewed as mutually exclusive products arising from distinct types of well-formedness constraints. In recent work, prompted in part by the discovery of cases of consonant harmony with blocking (e.g. Walker et al. 2008), I have argued instead that strictly-local feature spreading can arise—even with the constraint machinery of the ABC model—as a means of achieving featural agreement between non-adjacent segments (Hansson 2010). This has implications that run counter to received opinion about the typological signature of spreading phenomena (e.g. that spreading is always "myopic"; Wilson 2003, McCarthy 2010), and raises challenging questions about the relationship between the constraint mechanisms for unbounded strictly-local spreading on the one hand and for long-distance featural agreement on the other.

Secondly, the cornerstone of the ABC model is the hypothesis that a covert structural relation, "CC correspondence", can hold between (a subset of) co-occurring output segments. This abstract relation serves a mediating function, in that the contextual factors that condition agreement (e.g. relative similarity) are seen as triggering segment-to-segment correspondence rather than the agreement imperative as such. In effect, ABC deconstructs what is descriptively a two-term logical implication $P \rightarrow Q$ (e.g. "if *x*, *y* share [+strident], then *x*, *y* agree in [±anterior]") into two independent implications, each formalized as a well-formedness constraint: $P \rightarrow R$ ("if *x*, *y* share [+strid], then $x \mathfrak{R} y$"; CORR-[+strid]) and $R \rightarrow Q$ ("if $x \mathfrak{R} y$, then *x*, *y* agree in [±ant]"; CC-IDENT[±ant]). An offending state of affairs $P \wedge \neg Q$ can be repaired by changing either the consequent ($\neg Q$ to Q; here, [±ant] harmony) or the antecedent (P to $\neg P$; here, [±strid] dissimilation; see Bennett 2013). However, this same choice of repairs would hold even if the $P \rightarrow Q$ implication were encapsulated in a single output well-formedness constraint, rather than as the mediated relation $P \rightarrow R \rightarrow Q$ of the ABC model. Furthermore, the covert nature of CC correspondence raises certain challenges from a learner's perspective, in that the truth of "R" is not directly observable. For example, should an observation of $P \wedge \neg Q$ in a given context be interpreted as $P \wedge \neg \mathbf{R} \wedge \neg Q$ (a violation of the CORR-CC constraint) or as $P \wedge \mathbf{R} \wedge \neg Q$ (violating the "CC-Limiter" constraint, to use Bennett's convenient terminology)? In general, the learnability properties of the ABC model are in dire need of examination. Other formal aspects of the ABC model which have yet to be clarified and placed on a solid footing include the question of whether the correspondence relation is transitive and how agreement is evaluated in correspondence "chains" of multiple segments (cf. Hansson 2007).

A key aspect of the ABC model is the fact that presence vs. absence of CC correspondence relations is regulated independently by ranked and violable constraints, which have the potential of interacting in complex ways with the rest of the phonological grammar. Correspondence relations fulfil a role quite similar to that of autosegmental tiers in a feature geometry, in that they effectively render adjacent a pair of segments that are separated from each other in the output string, by "projecting" the segments in question onto a "virtual tier" of sorts (the correspondence chain). For the reasons just mentioned, however, correspondence relations are unlike feature-geometric tiers in being derived, malleable, language-specific and potentially intersecting, rather than encoded in some fixed universal geometry of phonological representation. I will explore this informal notion of "virtual tiers" (in part relating it to the Tier-based Strictly Local class of formal languages; Heinz et al. 2011) and address the question whether such "projections" in fact require the full complexity that CC correspondence, and thus the ABC model itself, brings along with it.

References

Bennett, William G. 2013. *Dissimilation, consonant harmony, and surface correspondence*. Rutgers University dissertation.

Hansson, Gunnar Ólafur. 2001. *Theoretical and typological issues in consonant harmony*. U.C. Berkeley dissertation. [Revised version published as *Consonant harmony: Long-distance interaction in phonology*. Berkeley, CA: Univ. of California Press, 2010.]

Hansson, Gunnar Ólafur. 2007. Blocking effects in agreement by correspondence. *Linguistic Inquiry* 38: 395-409.

Hansson, Gunnar Ólafur. 2010. Long-distance voicing assimilation in Berber: spreading and/or agreement? *Actes du Congrès de l'ACL 2010 / 2010 CLA Conference Proceedings*, ed. M. Heijl. Association canadienne de linguistique / Canadian Linguistic Association. [http://homes.chass.utoronto.ca/~cla-acl/actes2010]

Heinz, Jeffrey, Chetan Rawal and Herbert G. Tanner. 2011. Tier-based strictly local constraints for phonology. *Proceedings of ACL 49*, pp. 58–64. Assoc. for Computational Linguistics.

McCarthy, John. 2010. Autosegmental spreading in Optimality Theory. *Tones and features: Phonetic and phonological perspectives*, ed. by J. Goldsmith, E. Hume and L. Wetzels, pp. 195–222. Berlin: de Gruyter.

Rose, Sharon, and Rachel Walker. 2000. Consonant agreement at a distance. Paper presented at NELS 31, Georgetown University, October, 2000.

Rose, Sharon and Rachel Walker. 2004. A typology of consonant agreement as correspondence. *Language* 80: 475–531.

Walker, Rachel. 2000a. Long-distance consonantal identity effects. *WCCFL* 19: 532–545.

Walker, Rachel. 2000b. Yaka nasal harmony: spreading or segmental correspondence? *BLS* 26: 321–332.

Walker, Rachel, Dani Byrd, and Fidèle Mpiranya. 2008. An articulatory view of Kinyarwanda coronal harmony. *Phonology* 25: 499–535.

Wilson, Colin. 2003. Analyzing unbounded spreading with constraints: marks, targets, and derivations. Ms. University of California, Los Angeles.