Nominal Concord needs Harmonic Serialism: Evidence from Archi

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Main Claim: Nominal concord is crucially different from subject-verb agreement in that concord is canonically expressed on multiple elements (Norris 2017). The following account of Archi concord is based on a feature copy operation in Harmonic Serialism. This account is superior to an account with global constraint evaluation, since it avoids the sour grapes-problem and relies on only one simple local feature copy operation.

Data: Concord in Archi (Nakh-Dagestanian; Russia) targets several categories, namely participles (1a-1c), numerals and demonstratives (1b). Possessors (1d), nominal adjectives (1c) and quantifiers (1a) do not show concord. All data are from Bond et al. (2016).

(1) Nominal Concord in Archi

a. čeħ hiba-tːu-t adam
not.one be.good-ATTR-IV.SG person(IV)[SG.ABS]
'not one good person'

b. to-b ɬːej<b>u doːˤ-zu-b χošon
that-III.SG five<III.SG> be.big-ATTR-III.SG dress(III)[SG.ABS]
'those five big dresses'

c. beːχu-tːu mu-tːu oˤroˤs lo
be.tall-ATTR[I.SG] be.handsome–ATTR[I.SG] Russian boy
'a tall handsome Russian boy'

d. buwa-n χˤon
mother(II)[SG]-GEN cow(III)[SG.ABS]
'mother's cow'

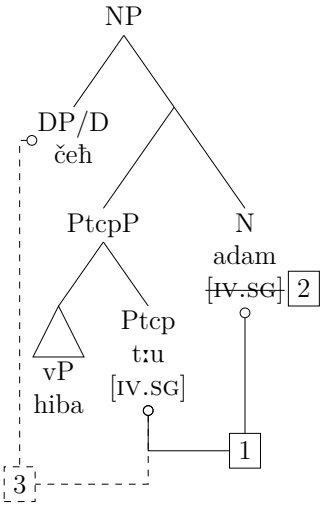
Analysis: Harmonic Serialism (McCarthy 2016), or more specifically, Extremly Local Optimization (Heck & Müller 2007), is a serial version of Optimality Theory (Smolensky & Prince 1993). This means that every process is optimized against a ranked set of constraints one after the other. I assume a NP-over-DP approach, where all modifiers of a noun are specifiers in the noun phrase (Georgi & Müller 2010). In a probe-goal approach (Polinsky 2016) one would have to specify for each category if it has an agreement probe or not to capture the pattern. In the present analysis these facts will follow from the domain of concord: the cooccurrence constraints *γ/D and *γ/N against gender features on determiners/quantifiers and nouns respectively will delimit the domain of nominal concord. A LEFT(γ,NP) constraints requires the leftmost/highest head in a noun phrase to bear gender features. Only local feature copying and deletion are considered.

A partial example derivation of (1-a) is given in (2). In the first relevant step, evaluated in (3), the gender feature that is underlyingly present on the noun is copied to the head of the modifying participle phrase in the optimal candidate b. Not copying, as in candidate a., would violate the LEFT(γ) constraint, because the leftmost head in the noun phrase would not bear a gender feature. Deleting the gender feature instead, as in candidate c., would also violate the constraint. The second step is evaluated in (4). Since we have already satisfied the LEFT(γ,NP), deletion of the gender feature on the noun in candidate b. becomes optimal to satisfy the *γ/N constraint. Neither deletion on Ptcp in candidate c. nor staying faithful as in candidate a. will satisfy this constraint. In the third step, evaluated in (5), we cannot copy any further, as shown in candidate c., because that would violate the constraint against gender features on determiner heads *γ/D.

The same constraint ranking also accounts for the other data. Since both nominal adjectives and nominal possessors (1c-1d) are of category N, they never show up with a

gender feature. This is due to the constraint *γ/N, which however still allows these to be transparent for nominal concord. Demonstratives and numerals (1b) on the other hand are of neither category D nor category N. Therefore they exhibit gender concord.

(2) Schematic derivation



(3) Derivation of (1-a) - 1

	$[_{NP}$ PtcpP $N_{IV}]$	*γ/D	Left(γ,NP)	*γ/N	Max(γ)
a.	$[_{NP}$ PtcpP $N_{IV}]$		*!	*	
☞b.	$[_{NP}$ PtcpP$_{IV}$ $N_{IV}]$			*	
c.	$[_{NP}$ PtcpP N]		*!		*

(4) Derivation of (1-a) - 2

	$[_{NP}$ PtcpP$_{IV}$ $N_{IV}]$	*γ/D	Left(γ,NP)	*γ/N	Max(γ)
a.	$[_{NP}$ PtcpP$_{IV}$ $N_{IV}]$			*!	
☞b.	$[_{NP}$ PtcpP$_{IV}$ N]				*
c.	$[_{NP}$ PtcpP $N_{IV}]$		*!	*	*

(5) Derivation of (1-a) - 3

	$[_{NP}$ DP [PtcpP$_{IV}$ N]]	*γ/D	Left(γ,NP)	*γ/N	Max(γ)
☞a.	$[_{NP}$ DP [PtcpP$_{IV}$ N]]		*		
b.	$[_{NP}$ DP [PtcpP N]]		*		*!
c.	$[_{NP}$ DP$_{IV}$ [PtcpP$_{IV}$ N]]	*!		*	
d.	$[_{NP}$ DP [PtcpP$_{IV}$ NP$_{IV}$]]		*	*!	

Discussion: As is well known in phonology, several global accounts of feature spreading suffer of the so called sour grapes-problem (Kimper 2016, Breteler 2017). Similarly in Archi concord: under global optimization, we would expect deletion of the gender feature on the noun, since copying can never satisfy the higher ranked constraint Left(γ,NP) without violating the undominated constraint *γ/D. The present account circumvents this problem by a stepwise derivation, where copying is optimal at an intermediate step. In a probe-goal approach, an analysis has to embrace a concept of multiple agree. As Polinsky (2016) points out, such a move does away with the locality restriction on agreement and is thus conceptually dispreferred. Similarly, assuming a dedicated concord operation introduces a non-local and unrestricted operation into the theory.

The present account can also be extended to other domains of agreement in Archi. For instance, low adverbs in Archi agree in gender with the absolutive object. Assuming that these are optional specifiers of the VP, one can derive this analogously to nominal concord. A high ranked constraint *γ/v delimits the domain to the VP and a low ranked constraint *γ/V ensures that gender concord does not show up on the verb. The triggering constraint Left(γ,TP) is ranked in between, so that the gender feature is copied onto the adverbs but no further. Afterwards, the gender feature on the verb is deleted.

Another specific prediction of this account is that reranking of the constraints *γ/N and Max(γ) will yield a language with nominal concord on the noun itself, because deletion of the feature on the noun will never become optimal. It is well known from the typology of gender agreement that these forms are attested in Bantu languages (Corbett 1991). One could assume that in Bantu-like systems, the gender feature is simply not deleted from the noun where it originates, because the constraint ranking is minimally different from an Archi-like language. All in all, the present account is thus formally simple and empirically accurate.

Selected References: Bond, O., G. Corbett, M. Chumakina & D. Brown. 2016. In *Archi: Complexities of agreement in a cross-theoretical perspective.* Oxford: University Press. •Breteler, J. 2017. Deriving bounded tone with layered feet in harmonic serialism: The case of Saghala. *Glossa* 2(1). •Heck, F. & G. Müller. 2007 Extremely local optimization. *Proceedings of the 26th WECOL.* •Kimper, W. 2016. Positive constraints and finite goodness in Harmonic Serialism. *In Harmonic Grammar and Harmonic Serialism.* London: Equinox.