

Phonological agreement as phonological correspondence

Introduction: Phonological agreement (PA) is a phenomenon under which agreement is determined by the phonological properties of a noun. Agreement is generally assumed to be computed in the syntactic component. Most generative models of grammar believe that syntax has no access to phonological information (see Chomsky 1995, among others). This assumption is challenged by PA. If PA is computed in the syntax like it is assumed for morphological agreement, the syntax must have access to phonological information in order to select agreement markers based on their phonological content. The aim of this talk is twofold: First, the common properties that all known PA systems have in common are illustrated. Second, a model is proposed which accounts for the common properties and allows to maintain the claim that syntax is phonology-free.

PA: An example is given in (1) for the language Abuq (Nekitel 1986), where PA is displayed by all nouns that have no semantic gender. The final segment of the nominal root determines the agreement marking on adjectives and verbs (relevant segments are bold-faced). The final consonant of the noun can take any shape the phonology allows in the word-final position and is thus not the exponent of a morphological category like noun class.

- (1) PA in Abuq (Nekitel 1986):
- | | | |
|--------------------|-----------------------|----------------------|
| <i>almil</i> | <i>afu-l-i</i> | <i>l-ahe?</i> |
| bird | good-AGR-ADJ | AGR-went |
| ‘A good bird went’ | | |

Common properties of PA systems: The following generalizations can be made for PA systems based on the languages that are known to exhibit this type of agreement:

- (i) PA systems differ with regard to the phonological properties that determine the agreement: Abuq in (1) shows agreement between consonants, whereas Bainuk in (2) shows agreement between entire syllables. PA can even be restricted to individual features, as in the language Tafi (Bobuafor 2013). When agreeing with nouns of the *bu*-class, the agreement marker on demonstratives is a back rounded vowel that agrees with the final vowel of the noun for the feature [high]. This is not an instance of vowel harmony, as PA applies, even when the two vowels are not adjacent.
- (ii) The relevant nominal edge is always the same in each language: Although the position in the noun that contains the agreeing property can be different among PA systems, it is invariant within a single PA system. It is always the *left* syllable in Bainuk, the *right* consonant in Abuq and the *right* vowel in Tafi which determine PA.
- (iii) Markers of PA belong to the same syntactic category as markers of morphological agreement: PA does not apply to the stem but is always marked by individual agreement morphemes. In Tafi, it is evident that the phonologically agreeing vowel in (3) is an agreement morpheme that is determined by the noun’s *bu*-class (a *morphological* property), as nouns belonging to a different class, as *ki-do* in (6), trigger a different agreement marker in the same position. The markers of morphological agreement in Abuq (4) and Bainuk in (5) are contained in the exact same position in relation to the stem as the markers for PA in (1) and (2), as well. In conclusion, markers of PA belong to the same syntactic category as markers for morphological agreement.
- (2) PA in Bainuk (Sauvageot 1967):
- | | |
|---------------------|----------------|
| <i>katama in-ka</i> | <i>ka-wuri</i> |
| River DEM-AGR | AGR-long |
| ‘This long river’ | |
- (3) PA in Tafi (Bobuafor 2013)
- | | | | |
|---------------------|-------------|--------------------|-------------|
| a. <i>bu-kókéyí</i> | <i>u-ni</i> | b. <i>bu-sukpa</i> | <i>o-ni</i> |
| NC-chicken | AGR-DEM | NC-dogs | AGR-DEM |
| ‘these chicken’ | | ‘these grounds’ | |
- (4) Morphological agreement in Abu: (Nekitel 1986)
- | | | |
|---------------------------|-------------------------|----------------------|
| <i>baah</i> | <i>afu-ner-i</i> | <i>n-ahe?</i> |
| grandfather | good-AGR-ADJ | AGR-went |
| ‘A good grandfather went’ | | |
- (5) Morphological agreement in Bainuk: (Sauvageot 1967)
- | | |
|---------------------|---------------|
| <i>sahri in-no</i> | <i>a-wuri</i> |
| village DEM-AGR | AGR-long |
| ‘This long village’ | |
- (6) Morphological agreement in Tafi: (Bobuafor 2013)
- | | |
|--------------|-------------|
| <i>ki-do</i> | <i>i-ni</i> |
| NC-yam | AGR-DEM |
| ‘this thing’ | |

The Analysis: The model I propose is couched in the framework of Optimality Theory (Prince and Smolensky 1993). Following Sande (2017), I assume that PA is computed in the phonology between the exponents of syntactic elements that already agree for syntactic features. Syntactic agreement underlies PA. PA is established to satisfy Output-Output Faithfulness constraints which have access to syntactic features. The correspondence relations on which OO-faithfulness constraints evaluate PA are demanded by the constraint CORR(M_{AGR-noun}). This constraint, and therefore PA, only applies to overtly realized agreement markers, accounting for (iii). In the absence of an overt agreement marker PA does not apply.

(7) CORR(M_{AGR-noun}): Each segment in the output of an agreement morpheme X must have an output correspondent in a noun Y, if Y matches the syntactic features of X.

Identity between the output correspondents is demanded by parameterized ID-OO constraints:

(8) ID-OO (X): Output correspondents are identical with regard to property X

The position of the relevant edge in the noun is established by the ranking of two alignment constraints which demand that a nominal edge is aligned with a correspondent.

(9) ALIGN(X-corr): If a segment S in a noun has an output correspondent, S must be aligned with the edge X (X can be the right or the left edge).

The tableau in (10) shows how PA is determined for the noun *almil* and the adjective *afuli* in Abuq. The underlying representation of the agreement morpheme I assume to be an underspecified consonantal root node [C]. The output of [C] is in a correspondence relationship with a segment in the noun, satisfying CORR(M_{AGR-noun}). The correspondent of the agreement marker is the *final* segment of the noun [l], satisfying ALIGN-R. The agreement marker in (a) is identical to its correspondent, as both are realized as [l], satisfying ID-OO. Since the agreement marker is underlyingly underspecified, ID-IO is not violated, because no underlying feature specifications are changed under PA.

In Bainuk, ALIGN(L-corr) dominates ALIGN(R-corr) and thus the *left* nominal edge is relevant for PA. In Tafi, ALIGN-R dominates ALIGN-L and PA is determined by the *final* segment. Within a language the position of the correspondent in the noun is always determined by the same ranking of ALIGN-(R-corr) and ALIGN-(L-corr), which means that always the same edge in the noun is targeted for PA, as stated in generalization (ii). In cases of morphological agreement (4-6), I attribute the absence of PA to the ranking ID-IO >> ID-OO, which rules out PA for agreement markers that are fully specified underlyingly. The phonologically agreeing morphemes in Bainuk and Tafi are underlyingly underspecified as well. The phonologically agreeing morpheme in Bainuk is underspecified for all features and thus PA applies for all features. The phonologically agreeing morpheme in Tafi is only underspecified for [high] and thus PA only determines the specification for [high]. It is thus the ranking between ID-IO and ID-OO and the underlying representation of an agreement morpheme that determines whether PA applies, and which phonological features are involved, accounting for (i).

(10) PA in Abuq

almil _N afu -C _{AGR} -i _{ADJ}	CORR(M _{AGR-noun})	ID-IO	ALIGN-R	ID-OO	ALIGN-L
a. almil _l afu-l _l -i				*	*
b. almil afu-t-i	*!				
c. almil _l afu-t _l -i		*!			
d. alm _l il afu-m _l -i			*!*		

In conclusion, my model accounts for PA as a phonological process, without giving up the well-motivated claim that syntax is phonology-free. In addition, it accounts for the properties (i-iii) that are common to all PA systems.

References: Bobuafor, M. 2013. *A Grammar of Tafi*. Rijksuniversiteit te Leiden. PhD thesis; Chomsky, N. 1995. *The minimalist program*. Cambridge, MA: MIT Press; Nekitel, O. 1986. A Sketch of Nominal Concord in Abu' (An Arapesh Language). *Papers in New Guinea Linguistics* 24. The Australian National University, 177-205; Prince, A & P. Smolensky. 1993. *Optimality Theory: constraint interaction in generative grammar*; Sande, H. 2017. *Distributing morphologically conditioned phonology: Three case studies from Guébie*. PhD Thesis, UC Berkeley; Sauvageot, S. 1967. Note sur la classification nominale en bainouk. In *La classification nominale dans les langues négro-africaines*. 225–236. Paris: C.N.R.S;

Keywords: Phonology, Agreement, Morphology, Optimality Theory, Phonological agreement