

Dargi languages (Dargwa) belong to the North-East Caucasian family and are spoken in central Dagestan. The chief traits of Dargi languages are ergative alignment, non-configurational clause structure, complex noun and verb morphology, and verb agreement in both gender and person, triggered by complex rules. Dargi agreement has mostly been described in (Sumbatova 2010a,b, 2011); Shiri and Ashti data come from the author's fieldwork<sup>1</sup>.

There are three gender agreement classes in Dargwa in the singular (masculine, feminine, neuter) and two in the plural (human, nonhuman). The marker nonhuman plural *d-* is also used for 1st and 2nd person plural. Generally speaking, the controller of prefixal (gender) agreement is always the Absolutive argument of the clause (for exceptions see (Sumbatova 2010b)).

Suffixal (person)<sup>2</sup> agreement can be triggered by either the ergative/dative<sup>3</sup> or the absolutive argument depending on the relative positions of these two arguments on two scales: the personal hierarchy (2 > 1 > 3 or 1,2 > 3) and the case/core argument hierarchy (SUBJ > ABS or ABS > SUBJ). The rules are the following:

1. If one of the arguments is 1st or 2nd person, and the other is 3rd person, the 1/2 person argument triggers agreement.
2. If both arguments are 1st or 2nd person, agreement is always triggered by the 2nd person argument in Icari, Qunqi, Kaytag and Khuduts, by A in Chirag, and by P in other dialects.
3. If all arguments are 3rd person, the person agreement slot is occupied either by the copula/zero (in analytic verb forms) or by a 3rd person agreement morpheme (in synthetic verb forms).

To generalize, the person hierarchy always outranks the core argument hierarchy, and the latter is only considered when both arguments are of the same rank on the former. When both arguments are of the same person, it is impossible to determine the controller, as two 1st or 2nd person arguments can only be found in reflexive sentences, and 3rd person agreement markers never distinguish number.

The Kubachi language behaves in a different way: person agreement is always controlled by the A/S argument (the subject), with the single exception of optional control by locutor P if A is 3rd person.

I propose analysing Dargwa as having fully accusative f-structure, with agreement being mostly resolved at m-structure. This is desirable according to facts of control, which follows the accusative pattern. I assume that m-structure is projected from f-structure, following (Frank and Zaenen 2004). Gender agreement is determined by the function ABS, which is always occupied by the absolutive argument of the clause in a Constructive Case-like fashion (Nordlinger 1998) (thus gender agreement is morphologically conditioned, and is not related to the syntactic alignment type of the language):

$$\begin{array}{l}
 b- \quad (\uparrow_{\mu} \text{ ABS NUM}) =_c \text{ SG} \\
 \quad \quad (\uparrow_{\mu} \text{ ABS GENDER}) =_c \text{ N}
 \end{array}
 \quad
 \begin{array}{l}
 \textit{murad} \quad \text{N} \quad (\uparrow \text{ PRED}) = \textit{'Murad'} \\
 \quad \quad \quad \quad \quad (\text{ABS } \uparrow_{\mu}) \\
 \quad \quad \quad \quad \quad (\uparrow_{\mu} \text{ PERS}) = 3 \\
 \quad \quad \quad \quad \quad (\uparrow_{\mu} \text{ GENDER}) = \text{M}
 \end{array}$$

TH is the function which controls person agreement. The lexical entry for the 1st person/2nd person plural agreement marker is thus the following:

$$=da \quad \text{I} \quad \left\{ \begin{array}{l} (\uparrow_{\mu} \text{ TH PERS}) =_c 1 \quad | \quad (\uparrow_{\mu} \text{ TH PERS}) =_c 2 \\ (\uparrow_{\mu} \text{ TH NUM}) =_c \text{ PL} \end{array} \right\}$$

Entries for the 2nd person agreement marker and the copula (which serves as 3rd person agreement in certain paradigms), as well as synthetic verb forms with agreement, are analogous. The TH position can be filled by either the subject or the object:

$$\{ (f_{\mu} \text{ TH}) = (f \text{ SUBJ})_{\mu} \mid (f_{\mu} \text{ TH}) = (f \text{ OBJ})_{\mu} \}$$

The annotations provided above allow agreement with any of the arguments, while in reality only one possibility is manifested in each idiom. I propose imposing additional constraints on the f- to m-structure correspondence via Optimality Theory. The input can be considered to be the f-structure, as in the standard model of OT-LFG (Bresnan 2000), and the candidate set is a set of quadruples consisting of c-structures, f-structures, m-structures and their correspondence functions (Lee 2004). In our case, the differences between different candidates will consist in what particular agreement markers and their annotations are selected and, consequently, what m-structure configurations are constructed.

The analysis I propose makes use of four constraints: 1TH, 2TH, TH-ABS, and TH-SUBJ. The constraints 1TH and 2TH are satisfied for a given m-structure *m* if  $(m \text{ TH PERS}) =_c 1$  and  $(m \text{ TH PERS}) =_c 2$ , respectively. TH-ABS is satisfied if the same m-structure occupies the ABS and TH positions [formally:  $(m \text{ TH}) =_c (m \text{ ABS})$ ]. TH-SUBJ is satisfied if the f-structure from which TH is projected is the subject [formally:  $(\text{SUBJ } (m \text{ TH})^{-1})$ ]. Constraint rankings for each language are the following:

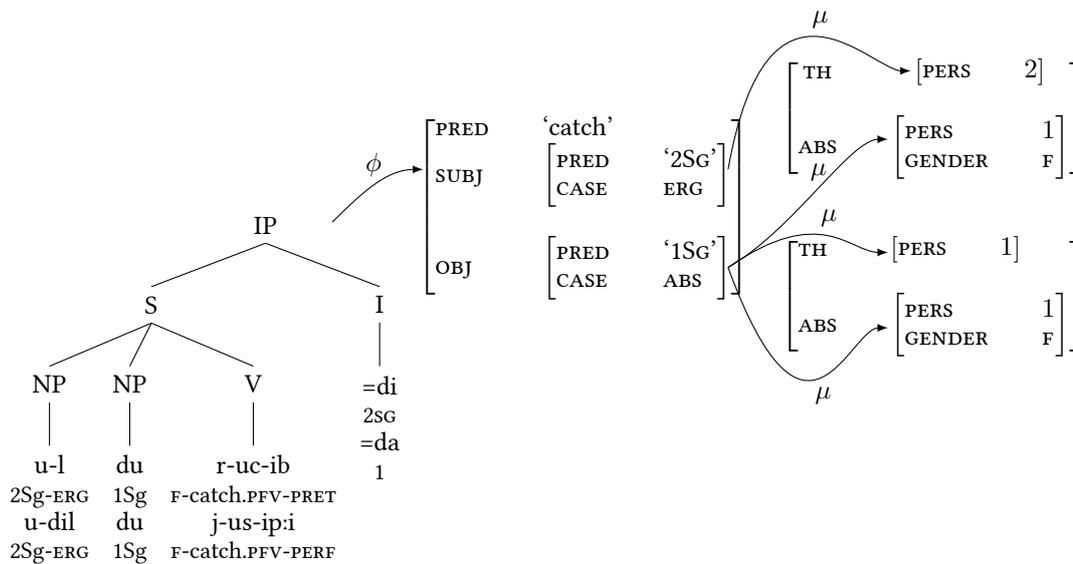
literary Dargwa, Ashti, Tanti	1TH, 2TH > TH-ABS > TH-SUBJ
Chirag	1TH, 2TH > TH-SUBJ > TH-ABS
Icari, Qunqi, Kajtag, Khuduts	2TH > 1TH > TH-ABS, TH-SUBJ
Kubachi	TH-SUBJ, 2TH, 1TH > TH-ABS

For example, below the c-, f- and m-structures of two sentences from Icari (above in the terminal nodes) and Ashti (below in the terminal nodes) are provided. The two sentences have identical f-structures (omitting aspectual differences) and mean 'I [have] caught you (f.)', but different m-structures and differences in the lexical choice of I: Icari can only have the upper m-structure in the picture below (with a 2nd person TH), while Ashti can only have the lower one (with 1st person TH).

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<sup>2</sup>The terms "gender" and "person" agreement are conventional labels: prefixal markers mark gender, number, and, in a limited way, person; suffixal markers distinguish between singular and plural in the 1st and 2nd persons.

<sup>3</sup>The Dative case in Dargwa marks the Experiencer with verbs of perception.



This difference is straightforwardly captured by using different constraint orderings. 1TH and 2TH are unordered in Ashti, which opens up the constraint TH-ABS that blocks 2nd-person agreement with the subject:

[PRED 'catch']		1TH	2TH	TH-ABS	TH-SUBJ
[SUBJ [PRED '2SG']]			*		*
[OBJ [PRED '1SG']]		*		*!	

In Icarì, 2TH outranks 1TH, ruling out 1st person agreement. The violation of TH-ABS is irrelevant:

[PRED 'catch']		2TH	1TH	TH-ABS	TH-SUBJ
[SUBJ [PRED '2SG']]		*!			*
[OBJ [PRED '1SG']]			*	*	

The analysis of Dargi agreement provided in this paper accounts for most of the known facts and demonstrates how the interplay between m-structure and f-structure can capture the difference between purely syntactic phenomena (defined over f-structure) and agreement facts that do not have any direct syntactic relevance (defined over m-structure, with occasional reference to f-structure). This allows us to apply the optimality-theoretical approach to agreement facts, by treating f-structure as input and pairs of c- and m-structure as output. Therefore, the differences between closely related languages can be described in terms of different constraint orderings, without postulating different syntactic structures for different agreement patterns.

The distinction between f- and m-structure can be used to formalize the notions of “morphological” and “syntactic” ergativity (Anderson 1976; Dixon 1994), as well as related distinctions, in a clear and straightforward fashion. Under this approach, agreement facts fall under the “morphological” category, and are irrelevant for determining the syntactic alignment type of the language.

## References

- Anderson S.R. 1976. On the notion of subject in ergative languages. In: C.N. Li (ed.). *Subject and Topic*. New York: Academic Press, pp. 1–24.
- Bresnan, J. 2000. Optimal Syntax. In: J. Deekers, F. van der Leeuw, J. van de Weijer (eds.). *Optimality Theory: Phonology, Syntax and Acquisition*. Oxford: Oxford University Press, pp. 334–385.
- Dixon R.M.W. 1994. *Ergativity*. Cambridge: Cambridge University Press.
- Falk Y.N. 2006. *Subjects and Universal Grammar. An explanatory theory*. Cambridge: Cambridge University Press.
- Frank A. and A. Zaenen. 2004. Tense in LFG: Syntax and Morphology. In: L. Sadler and A. Spencer (eds.). *Projecting Morphology*. Stanford: CSLI Publications, pp. 23–66.
- Lee, H. 2004. Minimality in a Lexicalist Optimality Theory. In: A. Stepanov, G. Fanselow, R. Vogel (eds.). *Minimality Effects in Syntax*. Berlin: Mouton de Gruyter, pp. 241–288.
- Nordlinger, R. 1998. *Constructive Case: Evidence from Australian languages*. Stanford: CSLI Publications.
- Sumbatova, N.R. 2010a. Lico i ličnye ierarxii v naxsko-dagestanskix jazykax [Person and personal hierarchies in Nakh-Daghestanian languages]. In: V.F. Vydrin, S.Ju. Dmitrenko, N.M. Zaika, S.S. Saj, N.R. Sumbatova, V.S. Xrakovskij (eds.). *Problemy grammatiki i tipologii: sbornik statej pamjati Vladimira Petroviča Nedjalkova*. Moscow: Znak, pp. 319–354.
- Sumbatova, N.R. 2010b. Svjazki v darginskom jazyke: oppozicii i upotreblenije [Copulae in Dargwa: oppositions and usage]. *Voprosy jazykoznanija* 5, pp. 44–62.
- Sumbatova, N. 2011. Person hierarchies and the problem of person marker origin in Dargwa: facts and diachronic problems. In: G. Authier, T. Maisak (eds.). *Tense, aspect, modality and finiteness in East Caucasian languages*. Diversitas linguarum, V. 30. Bochum: Universitätsverlag Dr. N. Brockmeyer, pp. 313–160.