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The Old Avestan correlatives: An alternative LFG analysis

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Abstract

Correlatives show vastly diverse patterns across the world's languages to the extent that it is debated whether they form a homogeneous class of syntactic constructions. This work presents the first formal account of correlatives in Old Avestan and parallel constructions such as free relatives and head-internal relative clauses. The analysis of correlatives within Lexical Functional Grammar is limited to two proposals, Butt et al. (2007) and Belyaev and Haug (2014); this work provides an alternative LFG analysis of correlatives based on the empirical assumption that the correlative clause in correlatives is fundamentally nominal, not clausal. The proposed analysis takes advantage of the parallel architecture of LFG to represent the hybrid nature of the correlative clause in Old Avestan correlatives.

1 Three strategies of relativization

This section will introduce and discuss three relativization strategies that are discussed in this paper. First, correlatives will be discussed. Based on the internal structure of correlatives, two other structures will be introduced, namely free relatives and head-internal relative clauses. Finally, I will discuss a possible fourth construction called hanging free relatives, and argue that although hanging free relatives are assumed to only superficially resemble correlatives, they are actually correlatives.

CORRELATIVE constructions are standardly analyzed as consisting of two adjoined or conjoined clauses. The first clause (called the correlative clause in this paper, or S_{rel}), is a relative clause –headless or internally-headed– that prototypically precedes the matrix clause. The matrix clause (S_{mat}) contains a demonstrative correlate, anaphorically resuming the relativized element in the correlative clause. The relativizer can be either an originally demonstrative pronoun or a WH-word (Belyaev and Haug 2020). Typologically, the head noun can either appear in S_{rel}, in S_{mat}, in neither, or in both of the clauses (Lipták 2009). These patterns are schematized below:

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(1) i No head noun: [REL ...]$_{S_{rel}}$[DEM ...]$_{S_{mat}}$

ii Head inside the matrix clause: [REL ...]$_{S_{rel}}$[DEM NP ...]$_{S_{mat}}$

iii Head inside the correlative clause: [REL NP ...]$_{S_{rel}}$[DEM ...]$_{S_{mat}}$

iv Head in both clauses: [REL NP ...]$_{S_{rel}}$[DEM NP ...]$_{S_{mat}}$

The correlative clause patterns in (i) and (ii) do not contain a head noun. This structure is parallel to that known as **FREE RELATIVES**. Free relatives are relative clauses with a WH-word in which there is no expressed head for the relative clause; they are syntactically clauses, but have the same distribution as a DP (Caponigro 2003). The correlative clause in a correlative construction can, then, have the same form as a free relative.

In general, there are two main approaches to free relatives: the HEAD analysis and the COMP analysis. The HEAD analysis, put forward by Bresnan and Grimshaw (1978), assumes that in free relatives, the WH-phrase is base-generated as a head to its clause, which produces a matching effect between the syntactic category of the WH-phrase and that of the whole free relative. From this perspective, the WH-phrase acts as an NP which is followed by a relative clause: the referent is embedded in the relative pronoun itself. This explains the DP-like distribution of free relatives. On the other hand, the COMP analysis (Groos and van Riemsdijk 1981) suggests that free relatives have a phonologically null external head. LFG analyses of free relatives unsurprisingly follow the HEAD analysis, as it avoids stipulating phonologically null elements. The following, for instance, is the f-structure for the English sentence '*Whoever is driving the tractor is laughing*' in Butt et al. (1999):

(2)
$$\begin{bmatrix} \text{PRED} & \textit{'laugh'}\ \langle \text{SUBJ} \rangle \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \textit{whoever} \\ \text{ADJUNCT} & \begin{bmatrix} \text{PRED} & \textit{'drive'}\langle \text{SUBJ} \rangle, \langle \text{OBJ} \rangle \\ \text{SUBJ} & [\ ] \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \textit{'tractor'} \\ \text{SPEC} & \left[\text{DET}\ \left[\text{PRED}\ \textit{'the'}\right]\right] \end{bmatrix} \\ \text{PRONREL} & [\ ] \end{bmatrix} \end{bmatrix} \\ \text{TENSE} & \text{PRESENT} \end{bmatrix}$$

In this f-structure, the relative pronoun has a double role. It both functions as the head of the free relative (which is itself, as a whole, the subject of the verb 'to laugh'), and as the grammatical function of the gap inside the relative clause, here the subject of the verb 'to drive'. The nominal nature of free relatives is captured here by representing the relative pronoun as the head of the relative clause.

Patterns (iii) and (iv), on the other hand, roughly resemble another relativization strategy, INTERNALLY-HEADED RELATIVES. In internally-headed relative

clauses or IHRCs, the head noun is not external to the relative clause, but is inside the position it is relativized over. However, what we see in these two patterns is only approximately similar to what is known in the literature as IHRCs, since IHRCs do not contain a relativizer (Bhatt 2015). Therefore, to make the distinction between the widely attested IHRCs and the relativization construction seen in the correlative clause of patterns (iii) and (iv), I call the latter **HEAD-INTERNAL RELATIVE CLAUSES**.

1.1 Correlatives and free relatives

As mentioned above, the correlative clause (S_{rel}) in a correlative construction can have the form of a free relative. In general, free relatives and correlatives are known to share some properties. Most notably, their semantics is known to be similar, in that they both have a maximalizing semantics (Srivastav 1991, Grosu and Landman 1998). In Indo-Aryan languages, upon which most of the dominant accounts of correlatives are founded, neither correlative clauses nor free relatives can be stacked, and both allow elements like *ever* (Bhatt 1997). However, while free relatives are agreed to have a nominal nature, correlative clauses are always assumed to be clausal, including in both existing LFG analyses which will be discussed later.[1]

1.2 Hanging Free Relatives

An alternative analysis of pattern (i), or at least something structurally identical to it, has been proposed by de Vries (2002). De Vries (2002) argues that there exists a construction called HANGING FREE RELATIVES (henceforth HFR) which only superficially resembles correlatives. He provides the following Dutch example:[2]

(3) wie dit gedaan heeft die krijgt straf
REL this done has DEM gets punishment
"Who has done this, he gets the punishment."

De Vries (2002) analyzes this construction as involving left-dislocation of a free relative clause with resumption. Therefore, he asserts that pattern (i) does not necessarily represent correlativization, but only left-dislocation with resumption. Interestingly, he also suggests that such a free relative can be headed, in which case the HFR would look exactly like the prototypical correlative in (iii). De Vries's distinction is based on an assumed functional difference: the Dutch 'hanging free relative' construction is nominal in nature, while correlative constructions are necessarily clausal. In other words, correlative clauses in a correlative constructions

[1] It has also been argued in Belyaev and Haug (2020) that correlatives and free relatives are distinct categories due to a cross-linguistic dissimilarity: free relatives are, unlike correlatives, rare in WH-in-situ languages.

[2] Glossing adopted from the original source, except for replacing 'who' with REL to emphasize the relativizer.

cannot have a nominal nature. If they do, they are not correlatives, but only left-dislocation with resumption, i.e. hanging free relatives. Belyaev and Haug (2020) assume the same.

De Vries suggests three criteria for distinguishing HFRs from correlatives in Dutch: **1.** in HFRs the demonstrative is always clause initial in the matrix clause, **2.** in headed HFRs only a generic interpretation is available (whereas correlatives allow for both definite and generic interpretations), and **3.** HFRs cannot occur in a subordinate clause. The problem with these criteria is that correlation is mistaken as causation. It is not clear how the difference between the nominal nature of the relative clause in HFRs and the clausal nature of the relative clause in correlatives gives rise to these distinctions between the two construction. In other words, what does the fact that HFRs are nominal but correlatives are clausal have to do with the position of the demonstrative, the semantics or the structure of subordination? These facts may co-occur in Dutch, but one cannot necessarily apply these criteria to other languages.

Almost all those who have discussed this category have relied on de Vries's account, but his very reasoning for assuming such a construction is questionable. De Vries's reasoning for distinguishing hanging relatives from correlatives seems to be methodologically flawed. First of all, note that he never mentions a *true* correlative clause in Dutch. Therefore, when he suggests that in normal correlative constructions the demonstrative can be in-situ whereas this is not available in HFRs, his point of reference is the general cross-linguistic correlative construction. However, it might be possible that the correlative construction in Dutch happens to be subject to a language-specific constraint that forbids an in-situ demonstrative. The same criticism applies to the second test: when there is no *true* correlative in the language, the fact that the so-called HFR should primarily have a generic interpretation does not show that it differs from the correlative construction. In fact, Belyaev and Haug (2020) have shown that when the relativizer morpheme is WH-based (as in Dutch), the correlative construction can only have a generic meaning. Therefore, typological data suggests that if Dutch has a correlative construction, it should exactly have a generic interpretation. The third test is rather ambiguously described: "a third difference with correlatives is that a hanging free relative is impossible in a subordinate clause (contrary to a normal free relative)"[p.48]. Described as such, it means that the difference is between HFRs and normal free relatives, not the former and correlatives. In any case, as de Vries mentions no example of a *true* correlative construction in Dutch, this test again does not seem to work.

Now, if we accept that de Vries's tests are not valid, how should we analyze these so-called hanging free relatives? Dutch correlatives or correlative-like constructions are not well described in the literature, except for comparative correlatives, which are not necessarily syntactically related to other types of correlative construction.[3] However, Izvorski (1996) mentions a Dutch correlative strategy

[3]Cf. English where comparative correlatives are common and productive but there are no other

which she assumes is a *true* correlative (and not NP left-dislocation with resumption) where the demonstrative pronoun should always appear at the beginning of a clause. She adds that Groos and van Riemsdijk (1981), who first mention these examples, do not take them as correlatives, rather "as part of their investigation of the properties of free relative clauses". The construction in question is, in fact, is exactly what de Vries takes as the HFR construction. It appears, then, that de Vries's HFRs are in fact simply correlatives, a fact which explains the failure of de Vries's attempt to distinguish HFRs from correlatives. There is, in fact, no difference between left-dislocation of a free relative with resumption and a standard correlative construction; or, at least, no such difference has yet clearly been established.

One can conclude then, that pattern (i) of correlativization exists in Dutch. If de Vries's assertion about headedness of free relatives is correct, then correlatives of the pattern (iii) also exist in Dutch, which always have a generic meaning. This description matches the general definition of correlatives. Therefore, I suggest that there is no such thing as hanging free relative in Dutch, rather a correlative construction based on patterns (i) and (iii), which in latter case always have a generic meaning due to the relativizer's morphology, and are subject to a structural constraint that states that the demonstrative should always be clause-initial.

2 Relativization in Old Avestan

Old Avestan is the language of the most ancient parts of the sacred Zoroastrian textual corpus, the Avesta. It belongs to the Iranian branch of Indo-Iranian language family and has traditionally been dated back to 1000 BCE. Old Avestan has a generally free word order (except that clitics always occupy the second position) and is a highly inflected language with e.g. eight nominal cases. The Old Avestan relative pronoun is the same *ya-* pronominal class of Indo-European languages. There are different pronominal stems for the demonstrative pronoun, namely *a/i-*, *ta-*, *ana-* and *auua-*. Personal pronouns can also have a demonstrative use (Martínez and de Vaan 2014).

The standard relativization strategy in Old Avestan is postnominal relative clauses, in which the head noun is followed by a relative pronoun, which itself introduces a clause modifying the head noun. The head noun bears the case marking of its grammatical function inside the matrix clause, whereas the relative pronoun is case marked based on the grammatical function of the gap within the relative clause. For instance, in (4), the head noun *'Ahura'* bears accusative case as it is the object of the matrix clause. It is then modified by the relative clause, in which it functions as the subject of the verb *'to give'*; as subject the relative pronoun bears nominative case marking.[4]

kind of correlatives whatsoever.

[4]The examples from the Old Avestan corpus are from Humbach (1991). Translations are also mostly from the same edition, but in some cases Insler (1975) and Kellens and Pirart (1988–1991) have been consulted. The numbers after the translation refer to the place of these sentences in the

(4) yazamaidē ahurəm$_i$ mazdąm yə̄$_i$ gąm=cā
praise.PRES.1PL Ahura.ACC wise.ACC REL.NOM cow.ACC=CONJ
aṣ̌əm=cā dāṯ̰
truth.ACC=CONJ create.AOR.3SG
"We praise the wise Ahura, who created the cow and truth." (Y 37.1)

2.1 Correlatives

Although the majority of relative clauses are of the previously outlined postnominal type, Old Avestan has some other forms of relativization. The data for these forms are not abundant, but given the limited size of the corpus the examples are not, relatively speaking, infrequent. One of these marginal relativization strategies is the correlative construction. Correlative constructions in Old Avestan are DEM-based, since the relative pronoun comes from the Proto-Indo-European anaphoric *ya-* pronoun. The relative pronoun occupies the initial position in the correlative clause. Patterns (i) and (iii) can be found in the Old Avestan correlatives, meaning that the head noun either appears only in the correlative clause, or does not appear in either clause. In other words, the correlative clause is either an head-internal relative clause (examples 5a and 5b) or a free relative (examples 6a and 6b).

(5) a. [[**yā** və̄ ... ahurō mazdå **nāmąm**
REL.ACC you.DAT ... Ahura.NOM wise.NOM name.ACC
dadāṯ̰] ... [**tāiš** vå yazamaidē]]
give.PRES.3SG ... DEM.ACC you.DAT praise.PRES.1PL
"The names which wise Ahura ... gave you ... we praise you with them." (Y 38.4)

b. [[**yə̄** mā **nā** marəxšaitē] ... [**huuō**
REL.NOM I.ACC man.NOM try to destroy.AOR.3SG ... DEM.NOM
dāmōiš drūjō hunuš]]
creator.GEN deceit.GEN offspring.NOM
"The man who tries to destroy me ... that [is] an offspring of the creator of deceit." (Y 51.10)

(6) a. **yā** frauuaxšiiā yezi **tā** aθā haiθiiā
REL.ACC say.PRES.1SG CONJ DEM.NOM ADV true.NOM
"What I say, in case those are true..." (Y 44.6)

b. **yə̄** aṣ̌āunē vahištō ... **huuō** aṣ̌ahiiā
REL.NOM truthful.DAT best.NOM ... DEM.NOM truth.GEN
aŋhaṯ̰ vāstrē
be.PRES.3SG pasture.LOC
"He who is best to the truthful ... that one will be in the pasture of truth." (Y 33.3)

corpus. 'Y.' stands for Yasna, traditional name of the part of the corpus containing Old Avestan texts.

There is no formal characterization of Old Avestan correlatives. Old Avestan grammars such as Kellens and Pirart (1988–1991) and West (2011) even misuse the term (to denote a relative clause modifying a demonstrative pronoun preceding it): "relative clauses very often have a correlative demonstrative in the main clause, whether this precedes or follows" (West (2011) [p.47]). Theoretical literature only relies on de Vries (2002), who has only mentioned that *Avestic* (sic.) has correlatives.

2.2 Free relatives

As mentioned above, the correlative clause in a correlative construction can have the form of a free relative. Embedded free relatives, that is, clause-internal free relatives with no demonstrative pronoun, are common in Old Avestan as well. Case matching is preserved in embedded free relatives, meaning that the grammatical function of the whole free relative clause matches the grammatical function of the gap inside the clause. In (7) for instance, the free relative clause acts as the (conjoined) subject of '*to choose*', and the gap inside the clause is the subject of the verb '*to satisfy*'; both roles require nominative case, which appears on the relative pronoun.

(7) varatā ... aṣ̌əm mainiiuš spəništō, ...
choose.AOR.3SG ... truth.ACC spirit.NOM most prosperous.NOM ...
yaē=cā xšnaošən ahurəm
REL.NOM=CONJ satisfy.AOR.3PL Ahura.ACC
"The most prosperous spirit chooses truth... also those who satisfy the Ahura." (Y 30.5)

2.3 Head-internal relatives

If a correlative clause is headed in Old Avestan, the head always appears inside the relative clause. This is in contrast with the standard postnominal relativization strategy of Old Avestan, where the head appears external to the relative clause. Head-internal relative clauses do not only occur in correlative constructions; there are instances of the head-internal relative clauses in the left periphery without resumption. This is not universally considered a type of correlative construction, since a characteristic property of correlatives is resumption. Case-matching is preserved in these cases, too.

(8) **hiiaṯ** **mižd**ə**m** zaraθuštrō magauuaibiō cōišt
REL.ACC prize.ACC Zarathuštra.NOM sacrificer.NOM promise.AOR.3SG
parā ... ahurō mazdā jasaṯ
PVB ... ahura.NOM wise.NOM come.AOR.3SG
"The prize which Zarathuštra has promised to the sacrificer ... (to that) comes the wise Ahura..." (Y 51.15)

Head-internal relative clauses can also appear embedded in a clause. In most of the instances of this construction, we see case matching of the referent in the matrix and relative clause. In other words, the grammatical function that the head noun has in the relative clause (shown by case marking on the relative pronoun and the noun) is the same as its grammatical function in the matrix clause. This contrasts with postnominal relative clauses (example 4) in which the external head is case-marked according to its grammatical function in the matrix clause, whereas the relative pronoun bears the case-marking of the gap inside the relative clause.

(9) xšaiiā=cā **yā** və **mąθrā** srəuuīmā
rule.IMPER.2SG=CONJ REL.INST you.GEN formula.INST hear.AOR.1PL
rādå̊
bounty.ACC
"And rule with a formula with which we might hear (of) your bounties."
(Y 28.7)

In addition to these cases, there are examples in Old Avestan where the relative pronoun seems to be redundant. In this construction, there is no long-distance dependency. The relative marker has no pronominal function; in other words, the relative pronoun plus the head noun would be distributionally equivalent to a bare noun.

(10) viiādarəsəm ... **yəm** **mazdąm ahurəm**
see.AOR.1SG ... REL.ACC wise.ACC Ahura.ACC
"I have now seen ... the wise Ahura." (Y 45.8) [5]

2.4 Summary

In Old Avestan, correlativization follows patterns (i) and (ii). This means that the correlative clause can have the form of a free relative or a head-internal relative clause. Free relatives and head-internal relative clauses can also be found in argument position in Old Avestan, independently and without involving correlativization. Ideally, any analysis given of correlativization should be extendable to the cases where the construction in the correlative clause appears outside a correlative construction (and vice versa). In what follows, I attempt to outline such analysis. The core of this unified analysis is that all of these relative clauses have a nominal nature at the f-structure.

[5] Some translators such as Kellens and Pirart (1988–1991) have assumed a free relative type structure here, translating it as 'who is the wise Ahura'. However, a predicative interpretation requires nominative on the predicate. Accusative case marking on the relative pronoun and *'wise Ahura'* shows that this is not the case.

3 Correlatives: an alternative analysis

In this section, I will first address previous accounts of correlatives in LFG. Then I will propose an alternative analysis which depends on the possibility of a nominal nature for correlative clauses, and which can unify the different correlativization constructions in Old Avestan. This analysis takes advantage of the parallel architecture of LFG which allows mismatch between c-structural and f-structural headedness.

3.1 Correlatives in LFG

Within the LFG framework, correlatives have been addressed by Butt et al. (2007) (henceforward BKR) and Belyaev and Haug (2014) (henceforward BH).

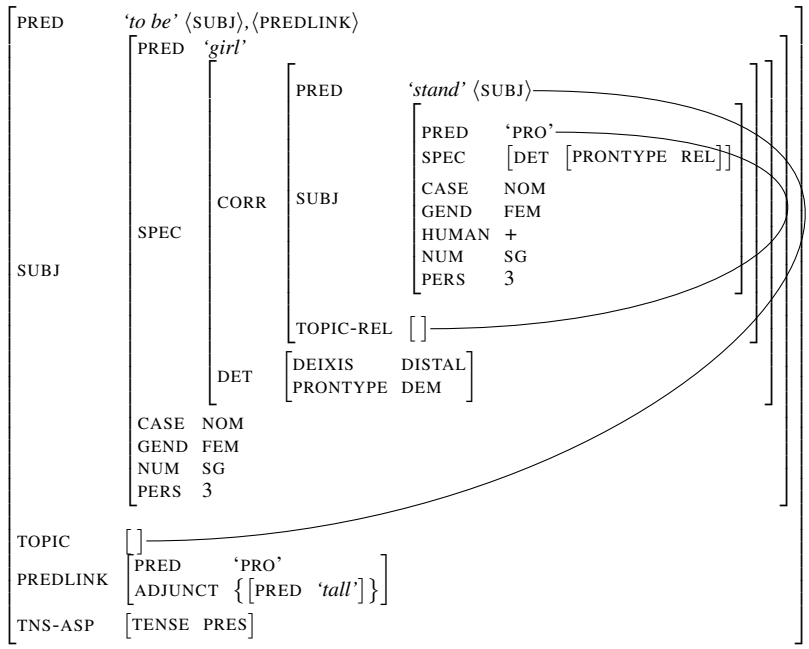
3.1.1 Butt, King, Roth (2007)

The focus of BKR, the pioneering work in the treatment of correlatives within LFG, is to account for Urdu correlatives, in which all patterns of correlativizaion in (1) exist. Building on previous analyses of Hindi correlatives (Srivastav 1991, Bhatt 2003), they treat the correlative clause with demonstrative correlate as a DP with an f-structure analogous to free relatives. Unlike previous analyses, they do not treat the correlative clause as an adjunct of the demonstrative, rather as occupying SPEC. They argue for this analysis based on three facts from Urdu: correlative clauses cannot be stacked; they function as quantifiers; and they are in complementary distribution with other SPEC material. When the correlative clause is discontinuous from the demonstrative, it is assumed to be topicalized as a discourse element.

Their formal LFG analysis is of a case in which the head noun appears inside the matrix clause, which is as follows:

(11) [**jo** k^haṛ-i hɛ] [**vo laṛki** lambi
which stand-PERF.F.SG be.PRES.3SG that girl.F.SG.NOM tall.F.SG
hɛ]
be.PRES.3SG
"Who is standing, that girl is tall."

(12)



Looking at the proposed f-structure, a number of peculiarities stand out which require explanation. First of all, taking the demonstrative resumptive pronoun as the determiner of the head noun suggests that two elements can exist in the position of the specifier of the DP, which is an empirical assumption about the distribution of specifier elements and needs to be justified. Furthermore, within the correlative clause, the relative pronoun acts as the specifier of a null head (the PRO subject). This suggestion needs motivation, as this is not the ordinary function of a relative pronoun. The relative pronoun normally either is the specifier of a contentful head, or is itself the head, in the case of free relatives. Consequently, it is not clear why in the case of the above example we cannot provide the PRED of the subject via the relative pronoun. Doing this would be parallel to how free relative clauses take their PRED from the relative pronoun. This is also in line with BKR's attempt to take correlatives as the equivalent of English free relative clauses.

While this analysis captures the relationship between the correlative clause and the demonstrative correlate, not much has been said about the internal structure of the correlative clause. For instance, it is not immediately clear how BKR's analysis would account for cases where the head noun appears only inside the correlative clause.

3.1.2 Belyaev, Haug (2014)

Belyaev and Haug (2014) focus mainly on the semantics of correlative clauses in Ossetic, in which the DP in the correlative clause and the DP in the matrix clause can be partially coreferential, and demonstrate that there can be two separate

referents which are anaphorically related. BH adopt the same syntactic analysis as Bhatt (2003) in which the fronted correlative clause is a TOPIC f-structure (which is structurally the specifier of the matrix clause) structure-shared with the ADJ feature of the correlate's f-structure. Their proposed analysis of the following sentence is as follows:

(13) [didinʒ̂-ətɜ **sə** **čəžg-ɜn** ba-lɜvar kot:-aj], **wəj**
flower-PL what girl.DAT PV-present do.PST.2SG that[GEN]
fet:-on
see.PFV-PST.1SG
"I saw the girl which you gave flowers to."

(14)
$$\begin{bmatrix} \text{PRED} & \textit{'see'}\ \langle \text{SUBJ}\rangle, \langle \text{OBJ}\rangle \\ \text{TOPIC} & \begin{bmatrix} \text{PRED} & \textit{'give'}\ \langle \text{SUBJ}\rangle, \langle \text{OBJ}\rangle, \langle \text{OBJ}_{\text{GOAL}}\rangle \\ \text{STYPE} & \text{CORREL} \\ \text{FOCUS} & \begin{bmatrix} \text{PRED} & \textit{'girl'} \\ \text{DET} & \text{REL} \end{bmatrix} \\ \text{OBJ}_{\text{GOAL}} & [\ ] \\ \text{SUBJ} & [\text{PRED}\ \textit{'you'}] \\ \text{OBJ} & [\text{PRED}\ \textit{'flowers'}] \end{bmatrix} \\ \text{SUBJ} & [\text{PRED}\ \textit{'I'}] \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{DET} & \text{DIST} \\ \text{ADJ} & \{[\ ]\} \end{bmatrix} \end{bmatrix}$$

Here we see that the fronted clause, which is the correlative clause which contains the head noun, is the TOPIC. Again here we see the relative pronoun treated as the determiner of the head noun.

BH also discuss another analytical possibility that suggests that the correlative clause directly attaches to the demonstrative, in which case it forms a constituent with the demonstrative correlate:

(15)
$$\begin{bmatrix} \text{PRED} & \textit{'see'}\ \langle \text{SUBJ} \rangle, \langle \text{OBJ} \rangle \\ \text{SUBJ} & \left[\text{PRED}\ \textit{'I'}\right] \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \textit{'PRO'} \\ \text{DET} & \text{DIST} \\ \text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \textit{'give'}\ \langle \text{SUBJ} \rangle, \langle \text{OBJ} \rangle, \langle \text{OBJ}_{\text{GOAL}} \rangle \\ \text{STYPE} & \text{CORREL} \\ \text{FOCUS} & \left[\begin{matrix} \text{PRED} & \textit{'girl'} \\ \text{DET} & \text{REL} \end{matrix}\right] \\ \text{OBJ}_{\text{GOAL}} & [\,] \\ \text{SUBJ} & \left[\text{PRED}\ \textit{'you'}\right] \\ \text{OBJ} & \left[\text{PRED}\ \textit{'flowers'}\right] \end{bmatrix} \right\} \end{bmatrix} \end{bmatrix}$$

This is rather similar to BKR's proposed analysis, but instead of taking the correlative clause as the specifier of the demonstrative correlate, BH take it as its adjunct. They do not discuss whether and how one of these analyses should be chosen over the other. This is probably because, as they mention themselves, the main focus of their contribution is the semantic analysis which remains the same regardless of the adopted syntactic approach.

3.1.3 Taking stock: against a clausal analysis of Old Avestan correlatives

While these two analyses differ in representing the relationship of the correlative clause with the demonstrative correlate and the matrix clause, they both assume a clausal nature for the correlative clause at the f-structure.

Adopting one of the analyses above for the Old Avestan correlative would mean that we cannot account for cases where the correlative clause has the structure of a free relative, since the main PRED of the correlative clause's f-structure in these analyses comes from the verb of the correlative clause, but in free relatives the main PRED comes from the relative pronoun which is the head.

Furthermore, it is not only the case of correlative constructions with a free relative correlative clause which motivates a non-clausal analysis of correlatives. Correlatives with a head-internal correlative clause point in the same direction. There are arguments for assuming a nominal nature for head-internal relative clauses in Old Avestan. First of all, the head-internal relative clauses can appear embedded in argument position, as we saw in (9), as well as the following example:

(16) [daēnå̊ saošiianṭąm ... uruuāxšat [**hiiaṯ**
religion.NOM benefactor.GEN ... proceed.AOR.3PL REL.ACC
ciuuištā hudåbiiō **mīždəm**]]
accord.AOR.2PL munificient.DAT prize.ACC
"The religious views of the benefactors proceed ... towards the prize which you accord to the munificent." (Y 34.13)

Free relatives are considered to be DPs due to their DP-like distribution. The same argument works in favour of assuming that head-internal relative clauses also have a DP-like nature.

The second argument for assuming a DP-like analysis of head-internal relatives comes from example (10), repeated below as (17). In this example, the relative pronoun has a reduced syntactic function due to the disappearance of the long distance dependency. The semantic contribution of the relative pronoun is difficult to analyze, but one can assume that the relative pronoun here could act as an article.

(17) viiādarəsəm ... **yə̄m** **mazdąm ahurəm**
see.AOR.1SG ... REL.ACC wise.ACC Ahura.ACC
"I have now seen ... the wise Ahura." (Y 45.8)

As this construction is diachronically related to head-internal relative clauses, the path from the head-internal relative clauses in argument position to this article-like function of the relative pronoun should involve some sort of depronominalization of the relative pronoun, as well as reanalysis of the clause as an NP. A nominal analysis of head-internal relative clauses can easily account for this construction, assuming a reduced anaphoric function of the relative pronoun while retaining its quantificational function.

In conclusion, the correlative clause in correlativization can be structurally identical to FRs or head-internal relative clauses, and in both latter cases there is evidence for nominal status in Old Avestan. Therefore it makes sense to conclude that correlative clauses are also nominal. This provides the empirical ground for the alternative LFG analysis of Old Avestan correlatives.

3.2 LFG Analysis

In order to account for the DP-like property of the correlative clause, I posit that the f-structure of the relative clause in a correlative construction should receive its main PRED value from the head noun. The rest of the clause will be an ADJ to this PRED, as we see in ordinary relative clauses (and in the parallel existing analysis of FRs, cf the f-structure given for the English free relative in (2)). This would mean that the topicalized element is the head noun itself, which is then modified by a clausal adjunct. In this analysis, in line with previous accounts (BKR and BH), the relative pronoun contributes to a position inside the specifier function of the head noun. The SPEC position of a noun is normally used in the analysis of articles and quantifiers (Dalrymple et al. (2019) [p.83]). Section 3.2.1 will show that there indeed exists a quantificational force inside the relative pronoun. Therefore, having the relative pronoun inside the SPEC of the head noun has some motivation in the present analysis.

The main complexity in outlining the formal analysis of the Old Avestan correlatives is mapping a clausal c-structure to a nominal f-structure. In order to do this, I propose a @CORRELHEAD template for the head noun which is inside the correlative clause.

(18) @CORRELHEAD ≡ (ADJ∈ ↑) = ↓
↓ ∈ CORRELPATH

Where

CORRELPATH ≡ (DIS∈ ↓) GF* ADJ
(←PRONTYPE=CORREL)

This template uses a (ADJ∈ ↑) = ↓ constraint to assign this NP as the head of the correlative clause. It states that the NP to which this template applies functions as the head of the f-structure which contains the ADJ in which the mother of the NP appears.[6]

The inter-clausal relationship between the correlative clause and S_{mat} is defined by CORRELPATH. Following other analyses of correlatives, the correlative clause is taken as the adjunct of the demonstrative correlate. In order to do so, we want the correlative clause to be mapped to an ADJ f-structure of the demonstrative correlate. Since the head noun is the PRED of the correlative clause, CORRRELPATH applies to it. It defines the search path for the overlay function DIS and ensures the structure-sharing of DIS and the adjunct of the demonstrative: the path finds an ADJ which is in a(n arbitrarily embedded) grammatical function that contains the attribute-value pair PRONTYPE=CORREL and which is inside the mother f-structure of DIS. Then it ends up in its adjunct.[7]

The specific phrase structure rules that give rise to this mapping are outlined below. Some other facts about the syntax of Old Avestan are presupposed in these rules. Most importantly, the second position in Old Avestan (as in some other ancient Indo-European languages) is reserved for clitics, which either appear in or are adjoined to C (Lowe 2014), while relative (and interrogative) pronouns occupy [SPEC CP].

[6]The same constraint has been used by Baker and Nordlinger (2008) to account for the mixed categoriality of N-Adj compounds in Gunwinyguan languages, which are adjectival at c-structure but nominal at f-structure. When an adjective has an incorporated nominal, the inside-out function application (ADJ∈ ↑) = ↓ ensures that the nominal itself constructs the PRED for the superordinate f-structure. Another category mismtach of this sort might be category mismatches caused by displacement, as explained in Kaplan and Bresnan (1982), cited in Dalrymple et al. (2019) [pp. 131-133].

[7]For a possibly alternative analysis, look at section 3.3.

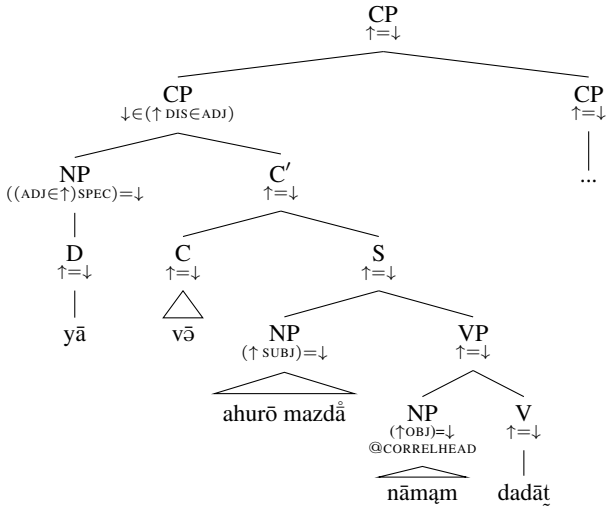
(19)

CP →	CP	CP	
	$(\downarrow \in (\uparrow \text{DIS} \in \text{ADJ}))$	$\uparrow = \downarrow$	
CP →	NP	C′	
	$((\text{ADJ} \in \uparrow)\text{SPEC}) = \downarrow$	$\uparrow = \downarrow$	
	$(\uparrow \text{RELPRO}) = \downarrow$		
C′ →	C	S	
	$\uparrow = \downarrow$	$\uparrow = \downarrow$	
S →	NP*,	VP	...
	$(\uparrow \text{GF}) = \downarrow$	$\uparrow = \downarrow$	
	$(@\text{CORRELHEAD})$		
VP →	NP	V	
	$(\uparrow \text{GF}) = \downarrow$	$\uparrow$=$\downarrow$	
	$(@\text{CORRELHEAD})$		

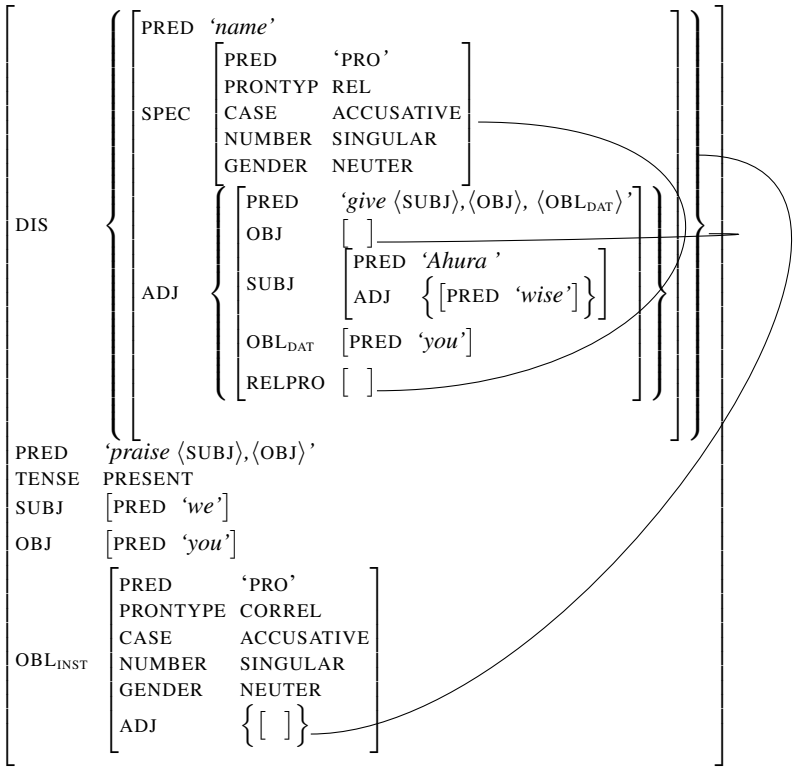
An example of the LFG c-structure (only of the correlative clause) and f-structure of example (5a), repeated here as (20), is given below.

(20) [[**yā** və ... ahurō mazdå **nāmąm** dadāṯ]
REL.ACC you.DAT ... Ahura.NOM wise.NOM name.ACC give.PRES.3SG
... [**tāiš** vå yazamaidē]]
... DEM.ACC you.DAT praise.PRES.1PL
"The names which wise Ahura ... gave you ... we praise you with them."
(Y 38.4)

(21)



(22)



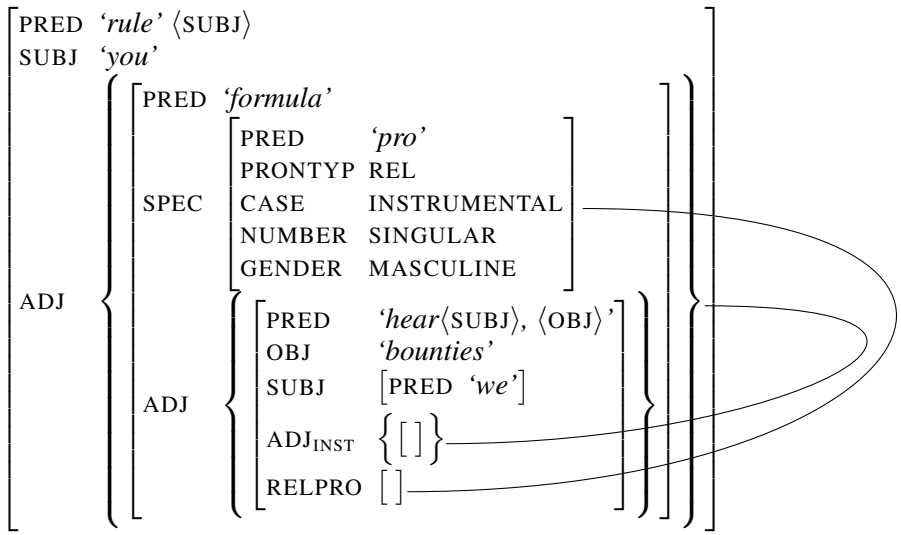
The annotated c-structure produces the f-structure in the following way. Starting from the rightmost terminal node at the c-structure, *dadāṯ* 'gave' projects up to the CP node, which builds the ADJ f-structure inside a DIS f-structure; the PRED for the ADJ is provided by *dadāṯ* 'gave'. The NP *nāmam* 'name' then will occupy its grammatical function inside this clause, here the OBJ. The @CORRELHEAD template first provides the PRED of the DIS, then goes outside of the DIS f-structure, finds an f-structure which contains the feature PRONTYPE CORREL, here OBL_{INST}, and maps DIS (which the NP provides the PRED of) to the ADJ of OBL_{INST} through a functional uncertainty path.

3.2.1 LFG analysis of head-internal relatives

The suggested analysis for correlatives can be extended to head-internal relatives in argument position as well. In fact, the virtue of this analysis is that it provides an economical, unified structure for capturing different relativization strategies in Old Avestan which share the same distributional properties. The following is the f-structure for (9), repeated here as (23):

(23) xšaiiā=cā **yā** vō **mąθrā** srəuuīmā
rule.IMPER.2SG=CONJ REL.INST you.GEN formula.INST hear.AOR.1PL
rādå̊
bounty.ACC
"And rule with a formula with which we might hear (of) your bounties."
(Y 28.7)

(24)



This f-structure is highly similar to that of the correlative example: the relative clause has the relativized noun, *'formula'*, as its PRED (representing its nominal category) while the rest of the clause is its adjunct. The main difference between this f-structure and the f-structure of the correlatives is the number of functional uncertainty paths. Since there is no resumption in head-internal relative clauses, there is functional identity between anything in the relative clause and something outside it.

Examples such as (17) can now be understood better, as well. As explained above, in these constructions the relative pronoun does not have an anaphoric function as there is no long-distance dependency. This loss can be explained by comparing these constructions to postnominal relative clauses, in which there is a gap inside the relative clause and the relative pronoun acts as an intermediary to constrain the anaphoric relationship between the head noun and the gap. In correlatives and head-internal relative clauses, on ther other hand, there is no gap inside the matrix clause – in correlatives a resumptive pronoun fills the gap, and in head-internal relatives the whole relative clause is inside the argument position. Therefore, the anaphoric function of the relative pronoun is prone to vanishing. If we assume that the relative pronoun also has quantificational force, we can posit that it retains the quantificational force and, therefore, does not drop after having lost its anaphoric function. This is represented below by having the relative pronoun inside the SPEC

f-structure of the head noun in previous examples, as well as here.[8]

(25)
$$\begin{bmatrix} \text{PRED} & \textit{`see}\langle\text{SUBJ}\rangle, \langle\text{OBJ}\rangle\textit{'} \\ \text{SUBJ} & \textit{`I'} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \textit{`Ahura'} \\ \text{SPEC} & \begin{bmatrix} \text{PRED} & \textit{`pro'} \\ \text{PRONTYP} & \text{REL} \\ \text{CASE} & \text{ACCUSATIVE} \\ \text{NUMBER} & \text{SINGULAR} \\ \text{GENDER} & \text{MASCULINE} \end{bmatrix} \\ \text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \textit{`wise'} \end{bmatrix} \right\} \end{bmatrix} \end{bmatrix}$$

3.3 Another possibility for the inter-clausal relationship in correlatives

In this paper, the relationship between the correlative clause and the matrix clause was adopted from previous works on correlatives, which normally assume that the correlative clause is the adjunct of the resumptive correlate. The syntax of resumptions in correlative constructions from the perspective of Resource Management Theory of Resumption (Asudeh 2012) has not yet been explored. Adopting this approach, an alternative analysis of the relationship between the correlative clause and the resumptive correlate emerges. Preliminarily, it can be assumed that in Old Avestan, the resumptive pronoun is a Syntactically Active Resumptive (which does not show any gap-like properties). These resumptive pronouns give rise to only an anaphoric relationship between what is being resumed and the resumptive pronoun. Therefore, there would be no syntactic link between the correlative clause and the resumption. A semantic anaphoric relation would then be what links the resumptive correlate and the correlative clause. The virtue of this analysis is that it makes us needless from @CORRELPATH and simplifies the current analysis.

Also, this analysis provides another motivation for assuming a nominal nature for the correlative clause. The resumptive pronoun should resume an expression with a DP-like semantics. It should resume the head noun that has been modified by the relative clause, not the head noun alone. Therefore, the correlative clause should have a DP-like semantics in which the head noun is being modified by the rest of the clause, which is what the present paper attempts to show in syntax as well. Expanding on this possible analysis falls outside the scope of this paper, but this seems like a plausible scenario to explore in the future works on correlatives.

[8]This might help explain how the compositional semantics of the maximalizing relatives work. The fact that all maximalizing relatives have an internal head could indicate that this configuration (existence of relative pronoun and the head noun in one clause) has something to do with the special semantics of these constructions. In other words, the quantificational force behind the maximalizing semantics of correlatives might come from the relative pronoun, which combines with the sentential adjunct to quantify over the head noun.

4 Conclusion

Old Avestan shows correlativization patterns which differ from those previously treated in LFG. It was shown in this paper that the Old Avestan correlatives have the structure of free relatives and head-internal relative clauses in their correlative clause, and these two construction have nominal properties. This motivated a nominal analysis for correlatives as well. The availability of multiple levels of representations in Lexical Functional Grammar provided the necessary means to adequately describe these data, which have the internal structure of a clause (represented at the c-structure) but display nominal properties as well (represented at the f-structure). There are other questions to be answered, such as the nature of this type of mismatch between f-structure and c-structure. Also, the fact that different patterns of correlativization in particular languages motivate contrasting analyses raises the question of whether a more unified, cross-linguistically valid, analysis of correlatives can be developed, or whether these superficially similar patterns in different languages cannot ultimately be unified.

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