PARTICIPIAL RELATIVES IN LFG

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Abstract

I propose an analysis of the attributive participle (verb-to-adjective, V2A, transposition) functioning as a participial relative clause, PTCP-RC. I adopt Spencer's (2013) analysis of transpositions: the argument structure representation of a verb has an event 'EV' semantic function (SF) role, an adjective has a modifier 'A-MOD' SF role and a participle has a composite ⟨A-MOD⟨ EV⟩⟩ SF role. The composite SF role licences both verb and adjective morphosyntax through a projection function which maps a-structure representations to c-structure and f-structure. Specifically, the A-MOD SF role licences adjective-noun concord. I illustrate this with Lithuanian, whose participles have the full array of adjectival properties, including definiteness marking. I offer brief speculation on how the analysis might be extended to languages whose PTCP-RCs can be formed on non-subject GFs.

1 Introduction

In many languages verbs take participle forms, which have the outward appearance and function ('external morphosyntax') of attributive adjectives, but which retain crucial inherent properties of verbs ('internal morphosyntax').[*] For instance, a participle-headed phrase (PtcpP) may occupy the typical position of an adjective phrase and may agree with the head noun like an adjective, but it may take complements and be modified by adverbials just like the base verb and may express verb properties such as voice, aspect, tense or even mood. Such PtcpPs function exactly like relative clauses (RCs), for instance, the Relative Pronoun RCs (RelPron-RC) of English (Lehmann, 1984), and should be considered a subtype of relative clause, the Participial Relative Clause (PTCP-RC).

In LFG such constructions have recently been the subject of investigation for Latin (Haug and Nikitina, 2012, 2015) and Sanskrit (Lowe, 2015) (there is interesting, if brief, discussion too in Falk, 2006). Lowe presents a detailed analysis of early and Classical Sanskrit showing that much of the tense system of the finite verb is retained in the participle system. He therefore proposes to treat PtcpPs exactly like RelPron-RCs at f-structure. Haug and Nikitina, however, argue that the f-structure of the PtcpP is an XADJ whose SUBJ attribute is controlled by the head noun through cyclic re-entrancy. A question that is not discussed in any detail by either set of authors is the precise relation between the purely adjectival aspects of the morphosyntax of the participles and that of true adjectives.

I will argue for an analysis of such PtcpPs which more closely reflects their overlap with true adjectives, basing my discussion on the participial system of Lithuanian. This is almost identical in structure and function to its sister language, Sanskrit, but there are additional features bringing it closer to the adjectival system which call into question the approach taken by Lowe.

[*]I am grateful to Mary Dalrymple and the editors for helpful discussion which has eliminated various errors and improved the clarity of the exposition.

The main problem posed by PTCP-RCs is that they are mixed categories, in fact, transpositions (Kuriłowicz, 1966; Beard, 1995), akin to action nominalizations. Relatively little attention has been given to mixed categories in LFG, the principal recent sources being the treatment of agent nominals in Gĩkũyũ proposed by Bresnan (1997), Bresnan and Mugane (2006), and the discussion of action nominals in Nikitina (2008). There are technical and conceptual problems with Bresnan and Mugane's approach (Spencer, 2013). I therefore propose an analysis which combines LFG morphosyntax with the approach to lexical representation argued for in Spencer (2013).

2 Functions of participial phrases

Languages often use participial verb forms and whole participial clauses for purposes other than attributive modification, i.e. PTCP-RCs. In particular we often find that the participial clause functions more like a clause adjunct than the modifier of a noun. In some cases it is difficult to distinguish such uses from appositive or non-restrictive relative clauses (especially in Australian languages, for instance; see Nordlinger, 2014, 248f and references therein for recent discussion). Schematically, if we can treat a phrase such as [*the* [*girl* [*quietly reading a book in the corner*]]] as containing a (restrictive) RC, do we treat that clause as a non-restrictive RC or as a clausal adjunct in *The girl seemed wrapped in her own thoughts, quietly reading a book in the corner*? Languages seem to differ. Lowe (2015) discusses the matter in detail for Sanskrit and Haug and Nikitina (2012) discuss very interesting related constructions in Latin. I leave these constructions aside, however.

The canonical use of a participle form is as an attributive modifier, that is, PTCP-RC. There are broadly two types. In Indo-European languages the participle is effectively restricted to relativizing the SUBJ function (SUBJ-only PTCP-RCs). In other languages, however, we find constructions of the kind [*the boy* [*the girl giving* GAP *a book*]] or [*the girl* [GAP's *mother we meeting*], which we could call GF-PTCP-RCs (that is, relativizing on any grammatical function). This is the 'Option 1' type of Ackerman and Nikolaeva (2013). They violate the principle assumed in Haug and Nikitina (2012) and Spencer (2013) that the heads modified by participial clauses realize the subject of that clause.[1]

Many languages use participles in periphrastic tense-aspect-voice-polarity etc constructions with finite auxiliaries. We will see that Lithuanian is particularly rich in such constructions, but it also uses its participles as the sole exponent of an evidential mood series, without the mediation of any auxiliaries at all.

[1]Such PTCP-RCs are cases of head-marking. It is not the case that the participial morphology is really a clitic/edge inflection scoping over an entire phrase. For that kind of RC see, e.g., Zoque, (Faarlund, 2012, 158–169).

3 Participial relative clauses in Sanskrit

The PTCP-RCs of Vedic Sanskrit have been analysed within the LFG framework by Lowe (2015), one of the few in-depth studies in any framework of participial constructions. Lowe (2015: 79–83) effectively adopts the treatment of PTCP-RCs implicit in Bresnan and Mugane's (2006) discussion of Gĩkũyũ agent nominals. The participles are regarded as inflected forms of verbs bearing the attribute (VFORM)= PARTICIPLE. They differ from finite forms in that the participle is marked as non-finite and it specifies the gender of the SUBJ but not its person (while the finite form specifies person but not gender). In other respects the participles function very much like non-finite congeners of finite predicators.

In their function as attributive modifiers, participles fulfill the same function as Rel-PronRCs, and so Lowe proposes the same type of f-structure representation, in which the PTCP-RC is furnished with a REL-TOPIC attribute. The REL-TOPIC attribute bears the adjective-like agreement properties, mimicking adjective-like relative pronouns in languages such as Latin, Russian or Lithuanian.

The Sanskrit participles have exactly the same morphology and 'external syntax' (Haspelmath, 1996) of (a certain class of) adjectives, in particular, agreeing with the head noun exactly like an adjective does. When a participle get lexicalized as a true adjective it is the complementation and semantic properties that reveal this, not the agreement morphosyntax or morphological form. However, on Lowe's analysis, it is not clear how this convergence of morphosyntax with adjectives is to be represented, because the participle is presented as a type of verb which, for unclear reasons, takes adjective-type agreements. I will therefore present an alternative analysis under which the participle really is, morphosyntactically, an adjective (as well as being a verb).

4 Participial relatives in Lithuanian

The Lithuanian participle system is, if anything, more baroque than that of Sanskrit and it inherits a great many of the same Indo-European properties as the Sanskrit system (Ambrazas, 1997, henceforth 'LG'). Lithuanian finite verbs inflect for TENSE: {present, past simple, past frequentative, future}, ASPECT: {simple, perfect, progressive}, MOOD: {indicative, subjunctive, imperative, relative/oblique}, VOICE: {active, passive}. There is also a morphologically realized category of reflexive verb. Finite verbs agree with their subjects in person/number. Lithuanian non-finite forms are represented by an infinitive and a rich set of participles (*dalyviai*), gerunds (*padalyviai*), and the 'half-participles' (*pusdalyviai*, sometimes translated as 'semi-gerunds' or 'partly declinable' gerunds). The participles express the same range of four tenses as finite forms in active, passive and reflexive voice forms (together with modal variants, specifically a necessitive participle 'that which should be *VERB*-ed'). Like their Sanskrit congeners, the Lithuanian participles are morphologically adjectives and are fully incorporated into the adjectival

declensional class system, including the characteristic system of accentual classes. Lithuanian participials share with Sanskrit and other classical languages functions such as the gerund-like clausal adjunct and complements to certain sorts of predicate (e.g. perception verbs), which means that Lithuanian will function as a kind of proxy for Sanskrit.

In PTCP-RCs the complementation of the participles is that of the base verb, and participles are modified by (event-oriented) adverbials in the manner of verbs. The attributive usage of participles is described in LG:353–360. Typical examples are seen in (1–6), where the RC can be either prenominal (1–5) or postnominal (6) with no difference in interpretation as far as I am aware. (The past frequentative is not generally used attributively):

(1) Present active (PRS_ACT_PTCP):
darbus išman-ant-is ukininkas
jobs know-PRS_ACT_PTCP-M.SG.NOM farmer[M].SG.NOM
'a farmer knowledgeable about various jobs' LG:354

(2) Past active (PST_ACT_PTCP):
tolumoj pasirodęs žmogus
in.the.distance appear.PST_ACT_PTCP.M.SG.NOM man[M].SG.NOM
'the man who had appeared in the distance' LG:354

(3) Future active (FUT_ACT_PTCP, somewhat rare as a PTCP-RC):
Ateisiančios žiemos ilgumo
come.FUT_ACT_PTCP.F.SG.GEN winter[F].SG.GEN length
'the length of the coming winter' LG:355

The past passive participles (PST_PASS_PTCP) with perfective aspect are used as expected:

(4) pamiršta daina
forget.PST_PASS_PTCP.F.SG.NOM song[F].SG.NOM
'a forgotten song'

(5) Future passive participle (FUT_PASS_PTCP):
turėsimus pinigus
have.FUT_PASS_PTCP.F.ACC.PL money[F.PL].ACC
'money which he is going to have'

Present passive (PRS_PASS_PTCP; this form can express a wide variety of meanings):

(6) Durys visiems einamos
door[F.PL].NOM everybody.DAT walk.through.PRS_PASS_PTCP.F.PL.NOM
'a door everybody can walk through'

Participles in the nominative case can be used as open clausal adjuncts, controlled by the matrix SUBJ with which they agree in number/gender, and nominative case, in effect (these are the *pusdalyviai* 'half-participles').

(7) Mergaitės dainuodamos grėbe sieną
girls singing.F.PL.NOM mowed the-hay
'The girls mowed the hay (while) singing.'

Lithuanian also has a dative absolutive construction, a closed adjunct whose SUBJ has to appear in the dative.

(8) Jis išvažiavo lietui lyjant
he left rain.DAT raining
'He left while it was raining.'

The attributive and gerundial uses of the participles closely mirror the situation in Vedic Sanskrit. Lithuanian also uses participles together with forms of the verb BE to form compound constructions, much as in Classical Sanskrit and other later Indo-European languages. These include compound perfect and progressive tenses and the periphrastic passive construction. They are available for all tenses (including periphrastic ones), indicative/subjunctive mood, and active/passive voice. In (9) we see a 'nested' periphrasis: the passive is formed with the BE auxiliary and the passive participle, and that auxiliary itself appears in the present participle form with the (present) subjunctive of BE to form the past subjunctive.

(9) butume buvusi-os mušam-os
BE.SUBJ.1PL BE.PRS_PTCP-F.PL beat.PASS_PTCP-F.PL
'We[F] would have been beaten.'

However, Lithuanian participles are also used to realize a special relative or oblique mood, essentially a type of (hearsay) evidential (LG: 371).

(10) Seniau žmones nąmu nerakindavę
earlier people houses not.lock.PST_FREQ_PTCP.PL
'(I heard) People didn't lock their doors in olden times.'

(11) Jai nuo darbo rankas suką
her.DAT from work arms.[M] ache.PRS_PTCP-M.PL
'(She said) Her arms ache from work.'

(12) Kaip gražu budavę!
How beautiful be.PST_FREQ-PTCP
'How beautiful it used to be!'

(13) Kitąmet busią žąsų
next.year be.FUT_PTCP.M.PL geese
'Next year there'll be (probably) geese as well <i.e. just like this year>.'

The evidential meaning of the participle forms extends to the auxiliary BE in its use to form compound tenses (perfect, progressive).

In their use as the exponent of the evidential (relative) mood the participle forms look just like finite verb forms. However, they remain (predicative) adjectives in morphology and agreement properties. But this property highlights the conceptual problem with treating PTCP-RCs as essentially just another verb form. The participles in the relative mood form are the head of the main clause predication, not part of a subordinate clause. But if the PTCP-RCs of Lithuanian are to be treated as verb phrases then they will be headed by bare participles (lacking auxiliary verbs), precisely the construction that is normally interpreted as an evidential mood, yet they are interpreted as indicative mood forms, not relative mood. This is not because evidential modality is excluded from relative clauses: it is possible to put a relative clause formed using the RelPron-RC strategy in the relative/oblique mood, as seen in (14) (LG: 264):

(14) Jis mėgdavo svajoti apie veikalus, kuriu-os
he used.to.like to.daydream about books[F].GEN.PL REL_PRON-F.ACC.PL
jis parašiąs …
he write.FUT_PTCP …
'He liked to daydream about the books which he was going to write … [allegedly]'

5 Why participial relatives are adjective projections

PTCP-RCs are essentially non-finite verb phrases but in many languages they share a good deal of their morphosyntax with adjectives. To date, no account of PTCP-RCs that I am familiar with fully takes this fact into account.[2] In this section I outline the adjectival properties of a variety of PTCP-RCs in Lithuanian, where the parallels with adjectival morphosyntax are particularly close.

Lithuanian participles inflect exactly like adjectives (of a specific declension and accentual class), much like those of Sanskrit. However, Lithuanian adjectives in addition oppose an indefinite declension with a definite declension (LG: 142–147).

(15) a. GOOD: *geras* ∼ *gerasis*
M.SG.NOM M.SG.NOM.DEF

[2] A recent study of these constructions, Ackerman and Nikolaeva (2013), deals for the most part with languages (notably Tundra Nenets) which show little or no adjectival agreement, and in which word types described as 'participles' often behave more like (appositive) nominal phrases than adjectival phrases. Moreover, the focus of their study is the possessive relative clause, in which the head noun takes possessor agreement morphology cross-referencing the subject of the RC. For this reason they treat the PTCP-RCs as based on a generic 'mixed category' type, not a type of adjective. A detailed comparison between their HPSG-Construction Grammar approach and an LFG treatment would be very welcome.

b. BEAUTIFUL: *gražioms* ∼ *gražiesiems*
F.PL.DAT F.PL.DAT.DEF

The definite forms are obligatorily when there is a definite determiner in the NP, but on their own they can serve as the sole exponent of definiteness. Baltic languages lack a definite article. Definiteness is a property only of definite demonstratives, possessives and the like together with the definiteness inflection on an attributive adjective. Definiteness is not marked as such on RelPron-RCs (that is, the relative pronouns don't exhibit the definite ∼ indefinite contrast). Participles, however, inherit the definiteness category, as seen in (16).

(16) stovinči-o-ji moteris
stand-PRS_PRT-F.NOM.SG-DEF woman
'the standing woman'

Finally, one further argument from outside Indo-European suggests that we should encode adjectival properties of PTCP-RCs more explicitly than is possible if we assimilate the PTCP-RCs to RelPron-RCs by positing a REL-PRON attribute at f-structure. Cross-linguistically the PTCP-RCs are distinct from other morphologically expressed RCs. This can be seen from Swahili (Bantu [G42]). In (17) we see typical subject RCs (Ashton, 1944, 111).

(17) Mtu a-na/li/taka-**ye**-soma
person SM-PRS/PST/FUT-YE-read
'a person who is reading/read/will read'

a. Mtu a-soma-**ye**
person SM-read-YE
'a man who reads'

b. Mtu a-ki-soma-**ye** kitabu hiki
person SM-OM-read-YE book this
'a person who reads this book'

The RC is formed using the 'O-of-Reference' (Ashton, 1944), a multifunctional verb affix. The verb form is still finite, however, and shows no adjectival properties whatever, in particular, it shows the subject agreement morphology of a verb, not that of an adjective. These verb forms are therefore not participles. The kinds of f-structure representations appealed to in Lowe's account might well be suited to the Swahili relatives, but that just highlights the fact that they are inappropriate for the adjectival PTCP-RCs.

6 GPFM/LFG analysis of PTCP-RCs

6.1 Lexical categories in GPFM

My analysis will crucially depend on the treatment of transpositional morphosyntax first proposed in Spencer (1999) and elaborated within the Generalized Paradigm

Function Morphology (GPFM) model of Spencer (2013). First, I assume, following many authors, that lexical representations include a representation of argument structure (ARG-STR), distinct from a semantic role representation and from grammatical functions such as subject and object. I also assume that ARG-STR representations include what I will call 'semantic function (SF) roles': 'REF' (nouns), 'EV' (verbs). For adjectives I argue that the SF role is one which mediates attributive modification, A-MOD (A* in Spencer, 1999, 2013; see also Spencer, this volume[3]) Thus, the ARG-STR representation for TALL, PROUD(-OF) will be *tall*⟨A-MOD⟨x⟩⟩, *proud*⟨A-MOD⟨x,y⟩⟩. The usage of A-MOD is shown schematically in (18).

(18) **Swedish**⟨A-MOD$_x$⟨x⟩⟩ **man** ⟨REF$_x$⟩ ≈ λx(**Swedish**(x) ∧ **man**(x))

The notation REF$_x$ indicates that the 'REF' SF role is coindexed with the A-MOD role of the adjective, with the 'x' subscript on A-MOD, REF indicating that the adjective modifies the entity of which 'man' is predicated.

A transposition is a switch in the morphosyntactic category of a lexeme which is not associated with a change in the semantic representation of that lexeme. This is represented by overlaying an additional SF role in the argument structure, a morphological, lexical operation, which nonetheless has repercussions for syntax. In the case of the participle, we derive a representation category A-MOD from one of category EV, as shown in (19).

(19) ⟨EV⟨… x…⟩⟩ ⇒ ⟨A-MOD$_x$⟨EV⟨…x…⟩⟩⟩

In the case of (19) the referent of the noun (REF$_x$ element) that gets modified by the A-MOD category will also be identified with some thematic argument ('x') from the base verb's thematic array.

For languages which are very conservative with respect to the Keenan-Comrie (Keenan and Comrie, 1977) hierarchy for PTCP-RCs (e.g. Indo-European) the A-MOD SF is constrained to co-index only the SUBJECT (cf. Haug and Nikitina, 2012, on Latin participles). However, for languages which have PTCP-RCs on OBJ roles, or roles further down the Keenan-Comrie hierarchy the A-MOD SF is permitted to co-index any participant role on a language-specific basis. I return to this briefly in Section 6.2

A participle, then, is 'of the category' ⟨A-MOD⟨EV⟨…⟩⟩. On a language-specific basis the 'EV' and ⟨…⟩ components are able to license c-structures and f-structure attributes corresponding to the purely verbal categories. For Lithuanian, Sanskrit, and other languages this even extends to details of TAM semantics (Lowe 2015).

[3]I slightly modify the notation in this paper, omitting the '*' device, to avoid potential confusion with the Kleene-star.

6.2 LFG analysis

In lexical representations I assume an ARG-STR attribute which consists of an SF role which has at least two sets of values. The first is the lexical item's Lexemic Index (LI), essentially the 'name' component of the PRED attribute, while the second is a participant role. For prepositions and verbs the participant roles correspond to grammatical functions; for adjectives the principal participant role corresponds to the noun modified by the adjective; for nouns the participant role corresponds to the denotation of the noun itself.

(20) noun:

$$\begin{bmatrix} \text{REF} \begin{bmatrix} \text{LI} & \text{man} \\ \text{ARG1} & [\ ] \end{bmatrix} \end{bmatrix}$$

cf. λx.**man**(x), where x ≋ ARG1 [ ]

(21) verb:

$$\begin{bmatrix} & \begin{bmatrix} \text{LI} & \text{'read'} \\ \text{ARG1} & [\ ] \\ \text{ARG2} & [\ ] \end{bmatrix} \\ \text{EV} & \end{bmatrix}$$

cf. λx,y.**read**(x,y)

(22) attribute (transitive) adjective:

$$\begin{bmatrix} & \begin{bmatrix} \text{LI} & \text{'proud(-of)'} \\ \text{ARG1} & [\ ]_i \\ \text{ARG2} & [\ ] \end{bmatrix} \\ \text{A-MOD} & \end{bmatrix}$$

cf. λx,y.**proud**(x,y)

The 'i' subscript in (22) indicates that the ARG1 is shared with the ARG1 of the head noun (see below):

(23)

$$\begin{bmatrix} & \begin{bmatrix} \text{LI} & \text{'man'} & \\ \text{ARG1} & [\ ]_i & \\ & & \\ \text{A-MOD} & \begin{bmatrix} \text{LI} & \text{'tall'} \\ \text{ARG1} & [\ ]_i \end{bmatrix} & \end{bmatrix} \\ \text{REF} & \end{bmatrix}$$

cf. λx.[**tall**(x) ∧ **man**(x)]

A participle is defined by embedding a EV structure under the A-MOD structure:

(24)
$$\begin{bmatrix} \text{A-MOD} & \begin{bmatrix} \text{LI} & \text{LI}_j \\ \text{ARG1} & [\,]_i \\ \text{EV} & \begin{bmatrix} \text{LI} & \text{`read'}_j \\ \text{ARG1} & [\,]_i \\ \text{ARG2} & [\,] \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

cf. λx,y.**reading**(x,y)

Note that the ARG1 (subject argument) of the verb is shared with the adjectival ARG1. In this way the head noun will (ultimately) be identified as the SUBJ of the participle. Note too that the LI value of the A-MOD is shared with that of the verb (EV), because the participle is a form of the verb lexeme and not a distinct lexeme in its own right.

The participle can serve as the modifier of a noun in just the same way that an ordinary adjective can. Hence, at ARG-STR we have (25):

(25)
$$\begin{bmatrix} \text{REF} & \begin{bmatrix} \text{LI} & \text{`girl'} \\ \text{ARG1} & [\,]_i \end{bmatrix} \\ \text{A-MOD} & \begin{bmatrix} \text{LI} & [\,]_j \\ \text{ARG1} & []_i \\ \text{EV} & \begin{bmatrix} \text{LI} & \text{`read'}_j \\ \text{ARG1} & [\,]_i \\ \text{ARG2} & [\,] \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

I now consider how an eventive predicate embedded under an adjectival A-MOD argument structure is represented at f-structure and at c-structure, beginning with the mapping to f-structure.

To begin with, following Spencer (this volume), I assume that traditional LFG PRED values are fractionated as follows: for all parts of speech, the PRED FN or 'name' part of the PRED value (for instance, the component 'see' in [PRED 'see⟨ SUBJ, OBJ⟩']) is equivalent to GPFM's Lexemic Index (LI). For any part of speech that has a non-trivial argument structure which is expressed as an array of grammatical functions, we separate out that GF array as a separate attribute. Thus, [PRED 'see⟨ SUBJ, OBJ⟩'] becomes (26).

(26)
$$\begin{bmatrix} \text{LI} & \text{`see'} \\ \text{GF-ARRAY} & \langle \text{SUBJ, OBJ} \rangle \end{bmatrix}$$

Clearly, this notational convention has no other effect on our analysis.

For nouns we therefore generally assume an f-description limited to the LI so that the a-structure representation [REF [LI 'girl']] will correspond to the f-structure [LI 'girl']. Some nouns, such as kin terms and meronyms, have a richer argument

structure, as seen in (27), as is also the case with nouns that take clausal complements (*fact, idea, opinion, ...*). Deverbal nominalizations will often inherit (much of) the base verb's argument structure, as will certain deadjectival nominals (*pride in NP, difficulty with, certainty that*).[4]

(27) $\begin{bmatrix} & \begin{bmatrix} \text{LI} & \text{'daughter/hand'} \\ \text{ARG1} & [\ ] \\ \text{ARG2} & [\ ] \end{bmatrix} \\ \text{REF} & \end{bmatrix}$

A verb's f-description is principally defined by its GF-ARRAY, which can generally be defined straightforwardly from the ARG-STR representation.

For an adjective we need to map the ARG-STR representation to the f-structure of an ADJUNCT. This will depend on exactly how we view the f-structure of an attributive adjective. I will follow Haug and Nikitina (2012) in assuming that adjectives define open XADJ f-structures bearing a SUBJ attribute re-entrant with the f-structure of the whole phrase (see (30) below).

Assuming a language with SUBJ-only PTCP-RCs, a participle such as 'reading' has the ARG-STR representation:

(28) $\begin{bmatrix} & \begin{bmatrix} \text{LI} & [\ ]_i \\ \text{ARG1} & [\ ]_j \\ & \\ \text{EV} & \begin{bmatrix} \text{LI} & \text{'read}_i\text{'} \\ \text{ARG1} & [\ ]_j \\ \text{ARG2} & [\ ] \end{bmatrix} \end{bmatrix} \\ \text{A-MOD} & \end{bmatrix}$

The participle's '[ARG1 [$]_j$]' attribute is shared with the embedded EV ARG1 attribute. The participle's '[ARG1 [$]_j$]' attribute is also shared with the LI of the noun antecedent which it modifies, as indicated by the subscripting.

The 'EV' component of the participle's ARG-STR representation licenses a GF-ARRAY and hence, at c-structure licenses a VP (with OBJ, but no SUBJ) or a clause-like structure, ⟨SUBJ, OBJ⟩. The f-descriptions (and a-descriptions) define the correspondence between ARG2 and the OBJ attribute in the PTCP-RC's f-structure.

I have rejected an f-structure analysis of attributive participles as equivalent to RelPron RCs. One of the reasons is because the agreement morphosyntax of the participle is identical to that of an attributive adjective and this is not captured if the PTCP-RC is treated as bearing a covert relative pronoun. For simplicity, I will adopt the proposal of Haug and Nikitina (2012) in their discussion of the morphosyntax of adnominal participles in Latin. These, like the participles of Sanskrit and Lithuanian, double as adjuncts and as complement clauses to verbs of perception and can also be used predicatively and in periphrastic constructions. Haug

[4]Expletives require their own LI even though they have no semantic representation (see also Spencer, this volume).

and Nikitina adopt an attribute AGR which bundles together the agreement features for adjective-noun concord. They assume that the attributive participle is an open adjunct to the noun, whose SUBJ attribute is identified with that of the head noun itself, giving a cyclic f-structure. The participle itself is given its own AGR attribute. This is required in order to account for the unusual mismatched agreement configuration in the 'dominant' construction, illustrated in (29) (from Tacitus' *Annals*, adapted from Haug and Nikitina, 2012: 295).

(29) occisus dictator
kill.PST_PASS_PTCP.NOM.M.SG dictator[M].NOM.SG
Caesar … pulcherrimum facinus
Caesar[M].NOM.SG most.glorious.N.NOM.SG deed[N].NOM.SG
uideretur
seemed
'the slaying of Dictator Caesar seemed … the most glorious deed.'

The point of (29) is that the past passive participle *occisus* is not to be interpreted as an attributive modifier of the syntactic head *dictator Caesar* ('the slain Dictator Caesar'), but as an eventive deverbal nominalization with *dictator Caesar* as the object of the implied base verb *occido* 'kill'.

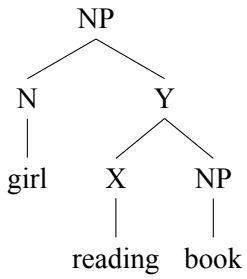
As an instance of standard attributive participial use Haug and Nikitina cite the Latin example *rosa florens*, rose bloom.PRS_PTCP, 'a blooming rose'. On their account, this would have the f-structure shown in (30).

(30)
$$\begin{bmatrix} \text{PRED} & \text{'rose'} & \\ \text{AGR} & \begin{bmatrix} \text{CASE} & \text{NOM} \\ \text{GENDER} & \text{FEM} \\ \text{NUMBER} & \text{SG} \end{bmatrix} & \\ \text{XADJ} & \begin{bmatrix} \text{PRED} & \text{'bloom}\langle\text{SUBJ}\rangle\text{'} \\ \text{AGR} & [\ ] \\ \text{SUBJ} & \begin{bmatrix} \dots \\ \text{AGR} & [\ ]_{i} \end{bmatrix} \end{bmatrix}_{i} & \end{bmatrix}$$

We now simply have to state that it is a property of any category whose 'external' SF role is A-MOD that it has the f-structure AGR attribute. In this way we capture the generalization that is missed when participles are treated as having a covert relative pronoun.

I now turn to the mapping to c-structure. Consider our schematic example of *(a) girl reading (a) book*. The simplest c-structure would be that in (31).

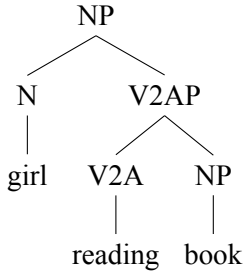
(31)



What is the identity of nodes X, Y? The obvious assumption is that Y is the projection of the head, X, hence, XP. What is the identity of X?

The most straightforward assumption is that X is the c-structure correspondent of a transposition, with ARG-STR representation [A-MOD [EV…]]. The external A-MOD SF role ensures that *reading* has the syntactic privileges of occurrence of an adjective. However, the embedded/internal EV SF role allows X to govern a direct object, too. Following Spencer (this volume) I will label this X node 'V2A' (for 'verb-to-adjective transposition') and so XP will be V2AP. This is an instance of a single-category approach to mixed categories (somewhat similar to the analysis of mixed categories proposed by Lapointe, 1993).

(32)



The PTCP-RCs which relativize on a non-SUBJ GF will require a different set of mappings from a-structure to f-structure, so as to permit the base verb's direct object to be linked to the A-MOD[ARG1] role, and not just the subject, schematically: *the book* [*the girl quietly reading* __ *in the corner*].

In a language with GF-PTCP-RCs we need to assume as many ways of specifying the ARG1 argument of the participle as there are possible relative clause gap types. In the case of a language which permits, say, just relativization on subjects and objects, either the participle's [ARG1 [ ]$_i$] is shared with the EV attribute's ARG1 position, as in SUBJ-only PTCP-RCs or it is shared with ARG2. In the latter case, the OBJ role of the base verb corresponds to the RC gap: if the language has a VP, the c-structure will include a VP(-like) phrase but it will lack a NP OBJ correspondent. On the other hand, it may have a overt NP SUBJ correspondent. This means that the (default) mapping which defines the ARG1 of the EV component will apply, because it is not overridden.

The kinds of non-SUBJ RCs that need to be accounted for are illustrated from

Turkish in (33–36) (adapted from Göksel and Kerslake, 2005, 438).[5] Turkish lacks agreement, so the f-structures are somewhat simpler than in the case of Sanskrit, Lithuanian, or Latin.

(33) oyuncak-lar-ın-ı kır-an küçük kız
toy-PL-3SG.POSS-ACC break-PTCP little girl
'the little girl who breaks/has broken her toys' [SUBJ gap]

(34) her gün okul-da gör-duğ-üm kız
every day school-LOC see-PTCP-1SG.POSS girl
'the girl whom I see at school every day' [OBJ gap]

(35) anne-si-yle tanış-acağ-ım kız
mother-3SG.POSS-COM meet-PTCP-1SG.POSS girl
'the girl whose mother I'm going to meet' [POSS gap]

(36) baş-ın-da şapka ol-an kız
head-3SG.POSS-LOC hat be-PTCP girl
'the girl who has a hat on her head' [POSS gap]

The kind of f-structure I envisage for such cases is illustrated in (37) for (35).

(37)
$$\begin{bmatrix} \text{PRED} & \text{'girl'} \\ \text{XADJ} & \begin{bmatrix} \text{PRED} & \text{'meet}\langle\text{SUBJ,OBJ}\rangle\text{'} \\ \text{SUBJ} & \text{'I'} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'mother'} \\ \text{POSS} & [\ ] \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

The grammar of relative clauses in languages such as Turkish therefore has to furnish appropriate equations to mandate control of the object's possessor function by the head, as well as other non-subject grammatical functions.

Languages differ in the way they permit an overt SUBJ to be expressed in a PTCP-RC relativizing on a non-subject. In Tundra Nenets we see the SUBJ appearing in genitive case and also possessor marking on the head noun, cross-referencing that SUBJ (Ackerman and Nikolaeva's 'Option 2'). In other languages, we see just genitive case marking of the SUBJ, without possessor agreement ('Option 1'). In absolute constructions (that is, not attributive PTCP-RCs proper) we see the SUBJ expressed in various oblique cases (for instance, in Sanskrit: locative/genitive, Ancient Greek: genitive, Latin: ablative, Old Church Slavonic/Lithuanian: dative). However, in other languages the SUBJ of a PTCP-RC can be expressed just as it is in a finite clause. This is seen in the Kiranti language, Limbu, where the SUBJ

[5] The morphosyntax of non-subject PTCP-RCs requires a separate study, so I will not pursue these questions here. A very brief sketch of an LFG analysis of Turkish participial relative clauses is presented in Çetinoğlu and Oflazer (2006, 2009), but it does not address the issues of concern here.

is marked absolutive (38) or ergative (39) depending on the relative clause's transitivity.[6]

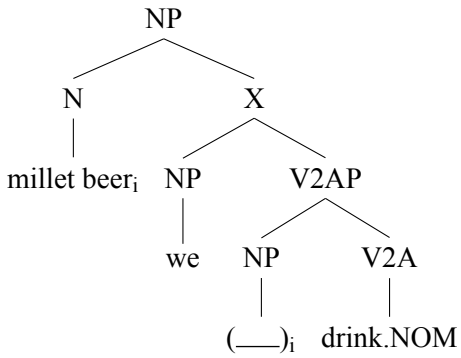
(38) anchige thuŋɛtchugebɛn ti·
we drank.PTCP.3.PATIENT.NOM.ABS millet.beer
kudzaphɛʔr-ɛ
taste.bad-PT
'The millet beer we drank tasted bad.'

(39) aŋga a-mma-re thapt-aŋ-ba ku-saʔ-ʔɛ
I my-mother-ERG bear-PTCP.1SG.NOM her-son-am
'I am [her] son that my mother bore./I am the son my mother bore.'

This raises the question of what is the identity of the node 'X?' in (40, linear order of V2A, NP in V2AP irrelevant),

An approximation to the c-structure of (38) (assuming that the subject position is external to the 'VP' node) is given in in (40) (linear order of V2A, NP in V2AP irrelevant). Again, we need to determine the identity of the node X in (40).

(40)



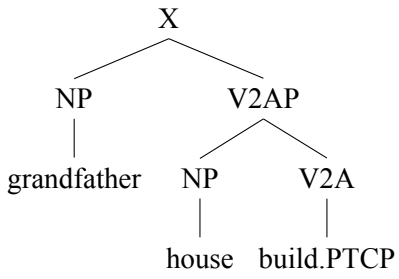
A clue may lie in the participial strategy often used for internally headed RCs, as seen in (41) from the Tungusic language, Udihe (Nikolaeva and Tolskaya, 2001), whose constituent structure is shown in (42), schematically represented in (43).

(41) Bi od'o-i zugdi-we wo:n-di-nii bi bagdi-mi
1SG grandfather-1SG house-ACC make.PRS_PTCP-DAT-3SG 1SG live-1SG
'I live in the house which my grandfather built.'

(42) [[Bi od'o-i] zugdi-we wo:n-di-nii] bi bagdi-mi

[6]The examples are (32) and (39) respectively from van Driem (1987, 196, 197) respective. I have adapted the glossing for the sake of ease of exposition.

(43)



X is in one sense clausal, but it is not a finite clause and it has the function of an attributive modifier. The simplest solution might therefore be to treat X as a projection of V2AP (in the same sense that S can be thought of as a projection of VP). However, the final decision will depend on the specific facts of each language and it will also depend on exactly how we analyse the full array of non-subject participial relative clauses, such as those found in the Turkic languages and those surveyed in Ackerman and Nikolaeva (2013), especially those that realize verbal tense-aspect-mood-voice categories.

7 Excursus: Participial modifiers as extended V heads

In this excursus I briefly consider the possibility of deploying an 'extended head' analysis to PTCP-RCs. Bresnan and Mugane (2006), following Bresnan (1997), propose an analysis of the Gĩkũyũ agent nominal mixed category, deploying the notion of extended head.[7] The agent nominal is derived morphologically from a verb, much like English *-er* nominals, but although the nominal behaves as though it heads a noun phrase with respect to determiners and other nominal modifiers, it also behaves as though it heads a verb phrase with respect to complements and event-oriented modifiers (adverbials). The key example is (44).

(44) ũyũ mũ-thĩĩnj-i mbũri ũũru
1.DEM 1-slaughter-NOM 10.goat badly
'this bad goat slaughterer'

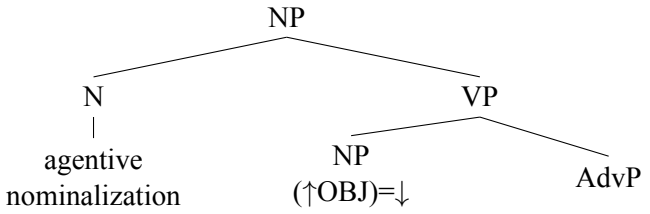
In (44), *mbũri* 'goat' is a direct object, not a complement to a (canonical) noun, and *ũũru* 'badly' is a verb modifier, not an adjective, yet the head, *mũthĩĩnji*, is a noun of Class 1, determined by the (agreeing) demonstrative adjective *ũyũ*. We thus have a case of category mixing comparable to an English example such as *Tom's singing the song loudly*.

The Bresnan and Mugane treatment is discussed in Spencer (2013, 254–256), where it is compared with the kind of approach sketched in this paper. Here I will explore the possibility of extending extended heads to PTCP-RCs.

The c-structure which Bresnan and Mugane assume for the agent nominal is that shown in (45) (cf. Bresnan and Mugane's example (74)):

[7] One can think of the analysis proposed in this paper as cashing out the suggestions made in Bresnan (1997, 14–15), on the basis of an early version of Spencer (1999).

(45) Extended head analysis of agentive nominalization



The agentive nominalization *mũthĩĩnji* is an autonomous word form which therefore occupies a single syntactic terminal. The VP node dominates the various complements and adjuncts that we would normally associate with a fully-fledged verb, but that VP node does not actually dominate a V, rather, the deverbal nominalization under the N node serves as the extended head of the VP node. VP appears under NP and not the other way around by virtue of extended head theory.

To get the analysis to work Bresnan and Mugane need to keep track of the 'derivational history' of the nominalization. They do this by invoking a subscript notation, shown in (46) (Bresnan and Mugane's example (72), p. 227).

(46) mũthĩĩnji: 'agent-of $\langle x$, slaughter$\langle x,y\rangle_v\rangle_n$'

They then propose the lexical entry in (47) (their example (73), p. 228) for the agentive nominal.[8]

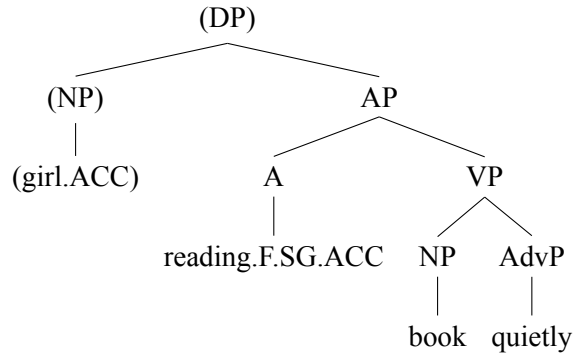
(47) mũthĩĩnji: N: (↑ PRED = 'slaughterer$\langle\langle$(↑ OBJ)$\rangle_v\rangle_n$'
v: VP ∈ CAT(PRED↑)
n: NP ∈ CAT(PRED↑)

If we were to adopt such an approach for the PTCP-RCs then the verb-oriented component of the RC would be represented in c-structure as a VP, while the adjectival external syntax of PTCP-RC as a whole would be reflected in an AP c-structure, as shown schematically in (48). The 'v', 'a' subscripts in (49) correspond to the notational innovations introduced by Bresnan and Mugane to allow the grammar to keep track of the fact that the mixed category (here, the participle) has to be associated both with a VP and an AP c-structure correspondent.[9]

[8]Mary Dalrymple points out to me that the f-descriptions provided by Bresnan and Mugane for the '*v, n*' subscripts in (47) should read *v*: VP ∈ CAT(↑), *n*: NP ∈ CAT(↑) respectively.

[9]This analysis seems to imply that 'reading' is a different lexeme from 'read' because it has a different PRED value. However, this can't be right (and probably is not right for Gĩkũyũ either). No such consequence follows in the GPFM analysis proposed above.

(48) ‘Extended head’ approach extended to participial attributes:



(49) F-structure:
a. read: V: (↑PRED) = ‘read⟨(↑SUBJ)(↑OBJ)⟩$_v$’
b. reading: A: (↑PRED) = ‘reading⟨⟨(↑SUBJ) (OBJ)⟩$_v$⟩$_a$’
v: VP ∈ CAT(PRED↑)
a: AP ∈ CAT(PRED↑)

This type of analysis seems to be feasible for the Indo-European SUBJ-only-PTCP-RC type. However, it is unclear how well it would work for PTCP-RCs more generally, specifically, those in which the relative clause targets a non-subject. The problem is that the c-structure category of the PTCP-RC has to be that of a (real) clause and not just a VP. Yet at the same time, that clause would have to be headed by an adjective. It is for this sort of reason that I argue that we should treat c-structure labels as projections from ARG-STR, specifically SF role, labels.

8 Conclusions

I have argued for an approach to participial relative clauses which treats them on a par with adjectival phrases. This requires us to have an explicit treatment of verb-to-adjective transpositions. I adopt the proposals of Generalized Paradigm Function Morphology (Spencer, 2013, extended to LFG in Spencer, 2015). I assume that argument structure representations for lexemes include a semantic function role attribute, REF (noun), EV, (verb), A-MOD (for attributive adjective). A transposition has a complex semantic function role, so that a participle is (schematically) ⟨A$_x$⟨E…⟩⟩. In Indo-European languages such as Russian, Latin, Sankskrit, Lithuanian, the participle modifies the head noun in the manner of an adjective, including agreement.

I propose that we define mappings from the articulated a-structure lexical representations of GPFM to f-structures and c-structures. This brings several benefits. First, the f-structure of a participial relative is essentially a combination of a clause and a true adjective: there is no need to postulate a covert relative pronoun. Second, we can define the c-structure node labels directly from the SF roles of a-structure.

This means that we obviate the notorious problems of what c-structure category a mixed category such as a participle 'really' is. I conclude with a brief excursus, suggesting that an extended head analysis might be appropriate for the subject-only type of participial relative. On that analysis the relative clause would not be mixed at c-structure but would be an adjective phrase whose head can select a VP complement. However, it is unlikely that this analysis could be extended to participial relatives on non-subjects.

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