Beyond c-structure and f-structure:
On the argument-adjunct distinction in O'dam*

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1 Introduction

- In this talk we discuss the distinction between arguments and adjuncts in the Uto-Aztecan language O'dam. We focus on two types of subordinate clauses previous literature grouped together as complement clauses (Willett 1991).

- We call these two subordinate clause types: Controlled Clausal Complements (CCC), shown in (1), and Non-COMP Subordinate Clause (NCS), shown in (2).

    (1) *Timu-ñi-ch*   *[na=ñi-ch*   *mii]$_{CCC}$*
    finish-1SG.SBJ-PFV SUB=1SG.SBJ-PFV run.SG.PFV
    'I finished running.' (García Salido 2014:283)

    (2) *Sap*   *jup Ø-kaich-'am*   *[na=Ø*   *ba-tu-m-maki-a'*
    REP.UI IT 3SG.PO-say-3PL.SBJ SUB=3SG.SBJ CMP-DUR-MID-give-IRR
    gu   *tumiñ]$_{NCS}$*
    DET money
    'According to them, they said that money will be received.' (García Salido 2014:281)

- We will argue that only CCCs have the grammatical function COMP, while NCSs have the grammatical function ADJ.

- We will additionally argue that NCSs, as in (2), are headless relative clauses and that the object marking on the verb co-references a pronoun that takes the eventuality of the NCS as its referent.

- This presentation will proceed as follows:

    – In §2 we will overview basic background on the O'dam speaking community.

    – Then in §3 we discuss previous work on the argument-adjunct distinction in O'dam and the preverbal quantifier test in §3.1.

    – We then discuss the c-structural shape of O'dam subordinate clauses in §4 and the featurs of CCCs that distinguish them from other subordinate clauses in §4.1.

    – In §4.2s we show that NCSs are distinct from CCCs in both their coreference on the matrix verb and their argumenthood properties.

    – We propose that NCSs are not complements of their matrix verb, but that the verb selects for an OBJ with a referent that is only the eventuality of the NCS, which we back up in §4.2.1 and §4.2.2 with c-structural and interpretational evidence.

    – In §5 we show that the LFG account leads to mismatches between argumenthood diagnostics, and thus must rely on stipulations of argumenthood.

    – Finally, in §6 we show how the framework of Lexical-Realizational Functional Grammar (L_RFG) accounts for the distinction between clausal complements while maintaining a principled definition of argumenthood.

2   The O'dam

- O'dam (glottocode: sout2976) is a Uto-Aztecan language of the Tepiman subgroup, shown in Figure 1. O'dam is spoken primarily in the southern region of Durango and Nayarit, MX, in the part of the Sierra Madre known as the Gran Nayar, shown in Figure 2.

- Southern Tepehuan has 36,543 speakers (INEGI 2015), of which O'dam is the most widely spoken and the best studied of the three varieties. Torres (2018) finds that most O'dam children learn O'dam as their L1, and that O'dam is used in all areas of life, see García Salido and Everdell (2020) for references on all three varieties.
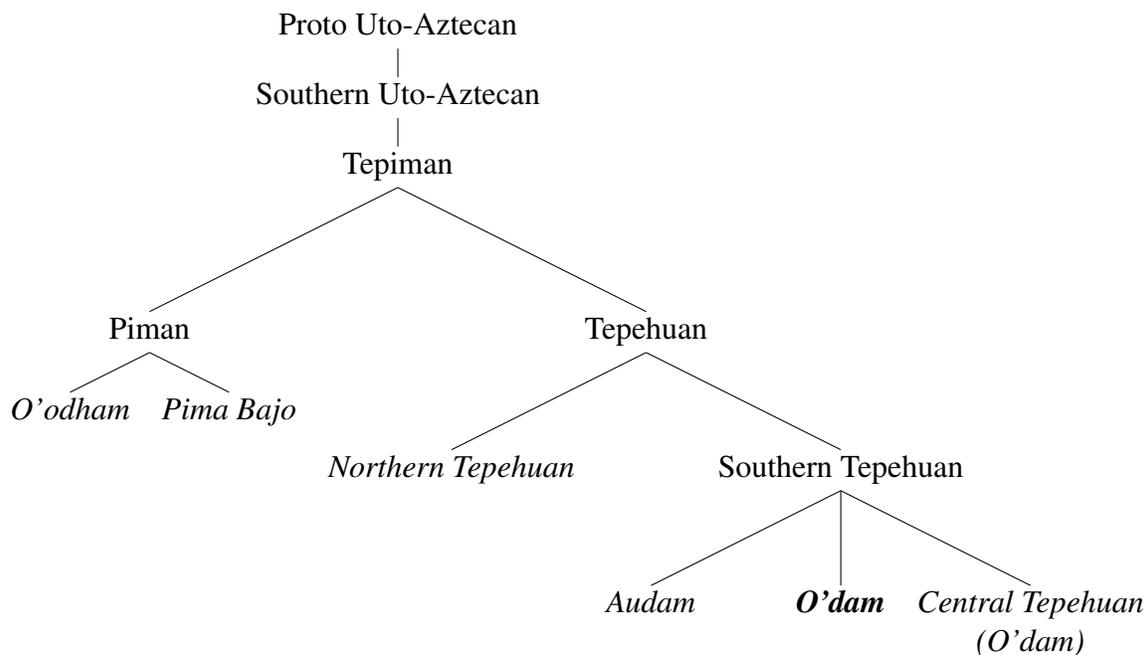
Figure 1: Uto-Aztecan family tree

- The Southern Tepehuan languages are surrounded by other Southern Uto-Aztecan languages: Cora, Huichol and Mexicanero (a variety of Nahuatl), although O'dam generally live in towns consisting of just O'dam or O'dam and mestizos.[1]

- The speakers we work with are fluent in Spanish and O'dam and split their time between Durango City and their respective communities of Juktɨr (Santa María de Ocotán), Koba'ram (La Candelaria) and Suusbhaikam (Los Charcos).

3 Argumenthood in O'dam

- The argument-adjuncts distinction in O'dam is not a clear one. Nominals lack case marking, the only elements required for a clause is a verb, and verbal dependents can occur in any order following the verb, although typically no more than two XP dependents appear in a given clause (Willett 1991; García Salido 2014; Everdell in progress).

- Previous work on O'dam relies on two diagnostics for argumenthood (Willett 1991; Willett and Willett 2013; García Salido 2014)

  - Subjects and Primary Objects are diagnosed based on their co-reference with

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[1]*Mestizo* is the majority ethnic group in Mexico, consisting of people who have mixed European and indigenous heritage. Crucially here Tepehuans do not recognize *mestizos* as Indigenous.
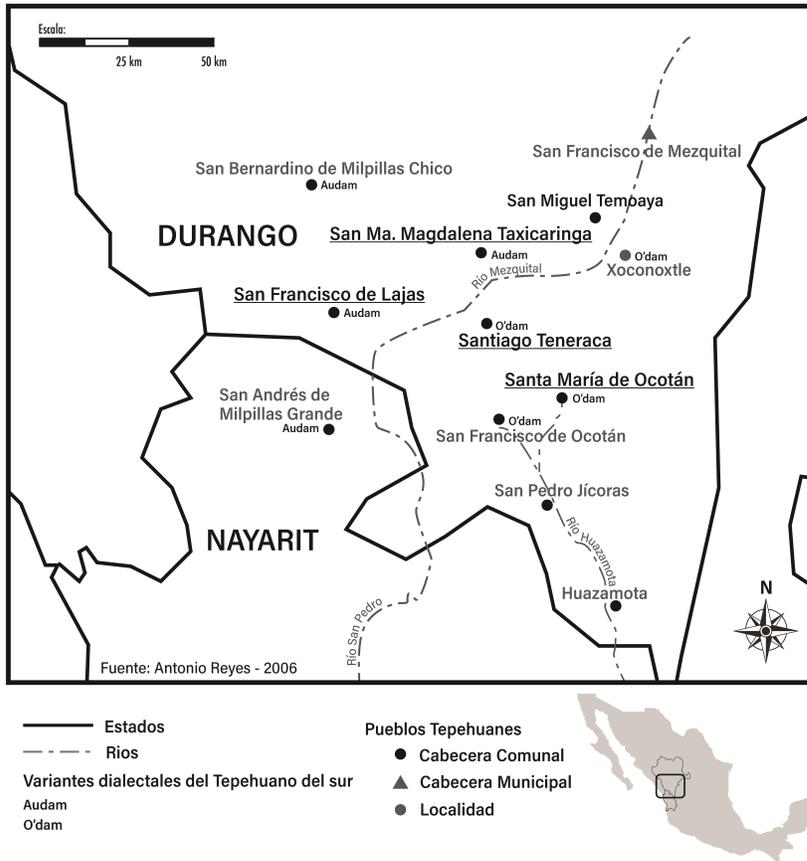
Figure 2: Map of Southern Tepehuan towns in Mexico (García Salido and Everdell 2020:90)

verbal affixes. This is shown with the subject suffix *-ñi* and primary object prefix *ja-* in (3).

– Secondary Objects are objects of ditransitives that lack co-reference on the verb and, therefore, lack any obligatory exponent in the clause. In previous descriptions of O'dam, the status of Secondary Objects as arguments is generally assumed because they are entailed by the verb (e.g. Everdell and García Salido 2021).

– The applicative in (3) licenses a beneficiary for the verb *nɨɨya'* 'see' (Everdell and García Salido 2021). In the gloss we see that the beneficiary is 1SG but this beneficiary which entirely lacks an exponent in the clause and in another context could be any person-number combination. The primary object is the thing seen, shown by the 3PL primary object prefix.

(3) *Añ   gu=x   bu~pui-ch-ɨk   ji   na=ñ*
     1SG.SBJ DET=COP IT~eye-CAUS-PNCT FOC SUB=1SG.SBJ

4

> *bha=**ja**-nɨ'ñ-dha'*   *ma'n*
> DIR =3PL.PO-see-APPL one
>
> 'I only was looking at the ugly ones **for me**.' (García Salido 2014:80)

- The factors determining primary and secondary objecthood are currently not well understood although in texts the primary object is most often the one with the highest animacy and number (García Salido 2014:46ff).[2] Everdell (2021) however finds that primary and secondary objects are symmetrical with respect to argumenthood tests other than verbal co-reference.

- We now turn to the properties of preverbal quantifiers that make them a useful argumenthood test, before turning to CCCs and NCSs.

3.1 Preverbal Quantifiers

- Quantifiers in O'dam are a distributionally defined class (Willett 1991), although many of them also have quantifier semantics. In this talk when we say a quantifier "quantifies" an element we are referring to the f-structural relationship between those elements that corresponds to some s-structural relationship that may or may not actually be quantifier semantics.

- O'dam quantifiers appear in one of two positions in a clause:

  - In the constituent position they quantify whatever XP they are a constituent with, as in (4). In this position the grammatical function of the XP in the larger clause is not relevant.

  - In the preverbal position they quantify arguments of the associated verb and not adjuncts, as in (5), see also Everdell (2021, in progress) for further evidence of preverbal quantifiers as an argumenthood test.

(4) a. *Ø-tɨɨ-ñi-ch*   *[**ma'n** gu   bhan]$_{DP}$ mu*
        3SG.PO-see.PFV-1SG.SBJ-PFV one   DET coyote   DIST.LOWER
        pue'mlo
        town
        'I saw one/a coyote in that town'

    b. *Ø-tɨɨ-ñi-ch*   *gu   bhan [**ma'n** mu*
        3SG.PO-see.PFV-1SG.SBJ-PFV DET coyote one   DIST.LOWER
        pue'mlo]$_{Loc}$
        town
        'I saw the/a coyote in a town (down there)'

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(5) **Ma'n Ø-tɨi-ñi-ch**   [gu bhan]_{Argument} [mu
    one   3SG.PO-see.PFV-1SG.SBJ-PFV DET coyote   DIST.LOWER
    pue'mlo]_{Adjunct}
    town
    'I saw one/a coyote in that town'
    # I say the/a coyote in a town (down there)

- In the preverbal position the eventuality itself is identified as a quantifiable argument, this is shown in (6a), where the quantifier *bɨx* 'all' in (6) can quantify the scale of the verb *nɨiya'*.

- We see in (6b) that the *bɨx* quantifier can quantify the Primary Object of *nɨiya'* 'their teachers'. However, we see DP island effects for preverbal quantifiers in (6c), where *bɨx* cannot quantify the possessor of the object DP.

(6) **Bɨx** *ja-nɨi'-iñ*   [gu ja-mamtuxi'ñ-dham   [gu=ñ
    all   3PL.OBJ-see-1SG.SBJ DET 3PL.POSS-teach-NMLZ DET=1SG.POSS
    a'~mi']_{DPpossessor}]_{DPpossessum}
    PL~friend
    a. 'I see all of the teachers of my friends (e.g. if the teachers are trying to hide)'
    b. 'I see **all of the teachers** of my friends'
    c. *I see the teachers of **all of my friends**

- The correlation between argumenthood and preverbal quantification suggests that quantification is mediated by f-structure, where grammatical functions and argument-hood are encoded, rather than c-structure (see Al Khalaf 2019).

- The functional equation for *bɨx* 'all' is given in (7).

(7)   (↑ AF* QUANT) = ALL

  – Here, AF is a variable over the argumental grammatical functions.
  – The '*' notation indicates a path specification through AF functions, which will be discussed below.
  – The f-structure feature QUANT, and values like ALL, are a simplifying substitute for an account in Glue Semantics (see e.g., Dalrymple, Lowe, and Mycock 2019), which would involve the relevant portion of the path specification.

4 Subordinate clauses

- The basic structure for all subordinate clauses in O'dam, complement or otherwise, are formed by projecting a CP over an S, which is a basic non-subordinate clause (Everdell and Melchin 2021; Everdell in progress).

  – There are various subordinators, see García Salido (2014), however the general subordinator *na* is the only relevant one for our purposes.

- Within a basic clause, the VP is the verb complex. The PreV consists of various scopally ordered non-projecting functional particles that roughly align with the clausal spine (Ramchand and Svenonius 2014), along with topic XPs. The XP position consists of all non-topic phrasal dependents of the verb regardless of grammatical function, see Everdell (in progress) for a fuller discussion of O'dam constituency.

(8)

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                        CP
              ┌──────────┼──────────┐
        (D̂em/Êvid)       C          S
                        na      ┌────┼────┐
                              PreV*  VP   XP*
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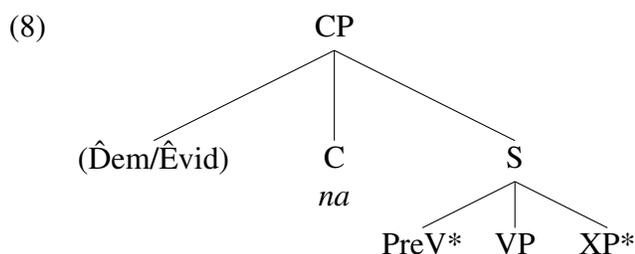
- While all subordinate clauses in O'dam share the same basic c-structural form, previous work grouped CCCs and NCSs as complement clauses because they are associated with special marking on the verb, which we discuss in §4.1 and §**??**.

- We will show that CCCs are true complement clauses, while NCSs are headless relative clauses with the ADJ grammatical function.

4.1 Controlled Complement Clauses

- CCCs, shown in (9), are finite and fully saturated for their arguments, what Stiebels (2007) calls "inherent control."

- Previous work primarily diagnoses controlled clauses with two features (Willett 1991; García Salido 2014):

  1. The controller argument of the matrix clause shows the person-number features of the subject/controlled argument of the Controlled complement.[3]

  2. The controller and controlled arguments must be co-referenced in marking and interpretation, as in (9).[4]

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[3] So far we have not identified controlled objects in O'dam, the controlled argument is always the subject of the controlled clause.

[4] To our knowledge partial control constructions à la Landau (2000) do not exist.

(9) *Na=$\boldsymbol{m}_i$-gu'*   *ba-poder [na=$\boldsymbol{m}_{i/*j}$*   *jich-mantener-ka']$_{Controlled}$*
SUB=3PL.SBJ-ADVR CMP-can SUB=3PL.SBJ 1PL.OBJ-support-EST

ja'p sap   *jum-aa'*
DIR REP.UI MID-think.PFV

'Because they could support us, he thought so.' (lit. Because they$_i$ could they$_{i/*j}$ support them) (adapted from García Salido 2014:283)

- We analyze control verbs as taking the CCC as a COMP argument

  - They also take a direct object (OBJ) that must be coreferenced with the subject of the embedded clause. This means that control verbs in O'dam are ditransitive verbs with the OBJ always taking priority over the COMP for primary objecthood status, a point we return to in §6.

  - The control relationship is specified as in (10), adopted from Asudeh (2005).

    (10) $(\uparrow\text{OBJ})_\sigma = ((\uparrow\text{COMP SUBJ})_\sigma \text{ ANTECEDENT})$

- When a quantifier sits in the preverbal position of a control verb, we find that it can quantify the arguments of both the control verb and the controlled verb.

- This is shown using the the analytical causative *chia'* 'send' in (11) is preceded by the quantifier *dilh* 'only'.

  - In (11a) we see that *dilh* can quantify the subject of *chia'*.

  - In (11b) we see that *dilh* can quantify the co-referenced object of *chia'*, which is also the subject of the Controlled clause.

  - In (11c) we see that *dilh* can quantify the eventuality of the Controlled clause.

(11)   *Dilh jam-chia-mɨ-t*   *na=pim*   *bopooy-a' jix=io'm*
only 2PL.OBJ-send-3PL.SBJ-PFV SUB=2PL.SBJ run.PL-IRR COP=very

   a.   '**Only they** told you.PL to run faster'

   b.   'They told **only you all** (as opposed to anyone else) to run faster'

   c.   'They told you all **to only run** faster (as opposed to do anything else faster)'

- Since the arguments of the CCC are arguments of a COMP function, they fall within the scope of preverbal quantifiers as specified in (7).

- The f-structure for the control construction in (12) is given in Figure 3.

(12)   *Gok jiñ-chia-pi-ch*   *na=ñ*   *jup duñi-a' gu*   *tacos*
two 1SG.OBJ-send-2SG.SBJ-PFV SUB=1SG.SBJ IT do-IRR DET tacos

'You wanted me to make two tacos'

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⎡ PRED   'cause'                                          ⎤
⎢        ⎡ PRED   'pro' ⎤                                 ⎥
⎢ SUBJ   ⎢ PERS   2     ⎥                                 ⎥
⎢        ⎣ NUM    SG    ⎦                                 ⎥
⎢        ⎡ PRED   'pro' ⎤                                 ⎥
⎢ OBJ    ⎢ PERS   1     ⎥ᵢ                                ⎥
⎢        ⎣ NUM    SG    ⎦                                 ⎥
⎢        ⎡ PRED   'make'                          ⎤       ⎥
⎢        ⎢        ⎡ PRED   'pro' ⎤                 ⎥       ⎥
⎢        ⎢ SUBJ   ⎢ PERS   1     ⎥ᵢ               ⎥       ⎥
⎢ COMP   ⎢        ⎣ NUM    SG    ⎦                 ⎥       ⎥
⎢        ⎢        ⎡ PRED   'tacos' ⎤              ⎥       ⎥
⎢        ⎢        ⎢ PERS   3       ⎥              ⎥       ⎥
⎢        ⎢ OBJ    ⎢ NUM    SG      ⎥              ⎥       ⎥
⎣        ⎣        ⎣ QUANT  TWO     ⎦              ⎦       ⎦
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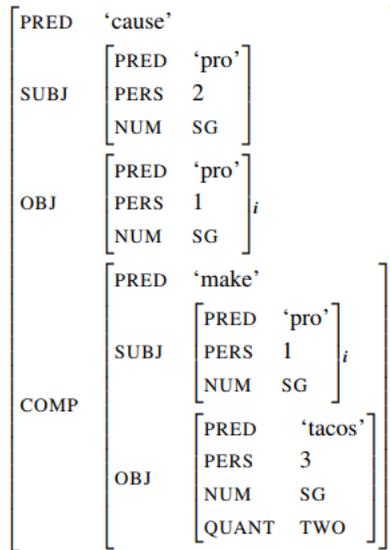
Figure 3: F-structure for CCC

- – Note that in this analysis, control verbs are ditransitive.
- – They pattern with other ditransitives in that they only show agreement with one of the objects/complements.
- – See §5 for further discussion of ditransitives in O'dam.

- We have shown that preverbal quantifiers can quantify through all argumenthood functions of their associated verb.

- For control constructions, treating CCCs as having the COMP function captures the ability for quantifiers in the preverbal position of a control verb to also quantify arguments of the controlled verb.

- We now move to §4.2 where we will see that same is not true of NCSs.

4.2 Non-Controlled Subordinate Clauses

- NCSs are diagnosed by 3SG object co-reference on a transitive verb, as shown in (13).[5]

(13)   *Jix=bhai' jix=Ø-maat*   *[na cham ji'xkat jugio-ka' gu   tu']*ₙcₛ
       COP=good COP=3SG.OBJ-know SUB NEG never eat-EST   DET something
       'Because it is good for him to know that he could not eat it.

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[5]Clausal complements in O'dam must be selected for by the verb and we have no verbs that select for a clausal subject.

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- Most verbs that select for NCSs also permit nominal objects with a DP exponent, as seen in (14), where the 3PL primary object prefix is co-referenced with the DP 'the men who live in Teneraca'.

- However, when the antecedent is an NCS the co-referring verbal object prefix is 3SG even when it has a plural referent, as seen in (15) where the quantifier *bɨx* 'all' enforces a plural interpretation of the referent of the Non-Controlled complement (i.e. the places where my family members live).

(14) *Pɨx cham **ja-ñii'ñ-ap***   *[gu chi~chio'ñ na=m   kio*
      MIR NEG 3PL.OBJ-see-2SG.SBJ DET PL~man   SUB=3PL.SBJ live
      mummu   Chianarkam]$_{DP}$
      DIST.LOWER Teneraca
      'You have not ever seen the men who live in Teneraca'

(15) *Añ   joidham **tɨ-Ø-nɨi***   *[bɨx na=m   pai' kio*
      1SG.SBJ enjoy   DUR-3SG.OBJ-see all   SUB=3PL.SBJ where live
      gu=ñ   pamil]$_{NCS}$
      DET=1SG.POSS family
      'I like all of the (various) places where my family lives'

- When *maat* 'know' takes a NCS, as in (16), we see that the quantifier *bɨx* in the matrix preverbal position can quantify the eventuality of the NCS, in (16a), but not the dependents of the NCS, in (16b) and (16c) respectively.

(16) *Bɨx jix=**Ø-mat-iñ***   *na=m   jaroi' mɨi-'ñ   gu*
      all COP=3SG.OBJ-know-1SG.SBJ SUB=3PL.SBJ someone burn-APPL DET
      ku'a'
      firewood
      a. 'I know who.PL **completely burned the firewood**'
      b. *I know who.PL burned **all of the firewood.**
      c. *I know **all of them** who burned the firewood.

- When *maat* 'know' takes a pronominal complement referring an individual, as in (17), we see that it can quantify the ones who burned the firewood, in (17c), who are now the object of *maat*.

- However, in (17a) we see that now *bɨx* cannot quantify the BURN eventuality like it could in (16a) when *maat* had a NCS.

(17) *Bɨx jix=**ja-mat-iñ***   *na=m   jaroi' mɨi-'ñ   gu*
      all COP=3PL.OBJ-know-1SG.SBJ SUB=3PL.SBJ someone burn-APPL DET
      ku'a'
      firewood

a. *I know who.PL **completely burned the firewood**

b. *I know who.PL burned **all of the firewood.**

c. I know **all of them** who burned the firewood.

- We analyze these verbs as taking the NCS as the function OBJ, rather than COMP as with CCCs.

    - This OBJ is specified as being pronominal, and may be coreferenced with a CP realizing the clause.

    - However, the CP appears in f-structure with the function ADJ, rather than as an argument of the clause

- The lack of preverbal quantification for arguments of the CP is now explained

    - The actual argument of the verb is a pronoun, referring to the embedded eventuality itself.

    - However, the arguments of this eventuality are only specified in f-structure (if at all) in an ADJ structure.

    - Thus they fall outside the path specified by ($\uparrow$ AF$^+$) in our quantifier equation in (7).

- Thus, the f-structure for (18) is shown in Figure 4

    (18) *Bɨx **jix=Ø-mat-iñ***   *na=m*   *jaroi'*   *mɨɨ-'ñ*   *gu*
    all   COP=3SG.OBJ-know-1SG.SBJ SUB=3PL.SBJ someone burn-APPL DET
    ku'a'
    firewood
    'I know who.PL completely burned the firewood' (Lit. I know that people completely burned the firewood)

    - As Figure 4 shows, verbs taking an NCS are transitive rather than ditransitive.

- In this section we have explained that giving the NCSs the ADJ grammatical function correctly captures the behavior of preverbal quantifiers. In §4.2.1 and §4.2.2 we will give evidence that verbs that previous work assumed selected for a NCS actually selects for a pronominal OBJ with an eventuality referent.

4.2.1 CP exponents of NCSs are headless relative clauses

- When the referent of the NCS is not the eventuality, as in (19), we find that there is always a *wh*-word, in this case *pai'* 'where'.

$$
\begin{bmatrix}
\text{PRED} & \text{'know'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{PERS} & 1 \\ \text{NUM} & \text{SG} \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \\ \text{QUANR} & \text{ALL} \end{bmatrix}_i \\
\text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{'burn'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'someone'} \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'firewood'} \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \end{bmatrix} \end{bmatrix}_i \right\}
\end{bmatrix}
$$

Figure 4: F-structure for NCS

(19) *Añ   joidham ti-Ø-nɨi   [bix na=m   **pai'** kio*
 1SG.SBJ enjoy   DUR-3SG.OBJ-see all   SUB=3PL.SBJ **where** live
 gu=ñ   pamil]$_{NCS}$
 DET=1SG.POSS family
 'I like all of the (various) places where my family lives'

- We see in (20) that there is no *wh*-word in the NCS.

(20) *Jix=bhai' jix=Ø-maat   [na cham ji'xkat jugio-ka' gu   tu']*$_{NCS}$
 COP=good COP=3SG.OBJ-know SUB NEG never eat-EST   DET something
 'Because it is good for him to know that he could not eat it.

- García Salido (2021) finds such *wh*-words a diagnostic feature of headless relative clauses, which are always adjuncts, as in (21).

(21) *Añ   jix=io'm tu-jua   [na **gu'** ap   jix=io'm*
 1SG.SBJ COP=hard DUR-work.PFV SUB **why** 2SG.SBJ COP=hard
 tu-jua]$_{headlessRC}$
 DUR-work.PFV
 'I worked hard because you worked hard.' (García Salido 2021:70)

- The syntactic shape of NCSs match that of headless relative clauses when the referent is not an eventuality (i.e. require a *wh*-word).

- This suggests that the complement of the matrix verb is only the eventuality of the NCS, rather than the full clause as with CCCs.

4.2.2 The 'personal' distinction

- The difference in interpretation of verbs selecting for a typical DP object versus an NCS also suggests that for NCSs only the eventuality is the object of the matrix verb.

- In (22) we see two minimally contrastive sentences using the verb *maat* 'know'. Both sentences express that the speaker knows something about the multiple people who burned all of the firewood her friend had collected.

- In (22a) the object of *maat* 'know' is a 3PL pronoun refering to the individuals, which the headless relative clause modifies.

    - This structure expresses that the speaker personally knows the people who burned the firewood.

- In (22b) the object of *maat* is a 3SG pronoun referring to the eventuality, which the headless relative clause modifies.

    - This structure expresses that the speaker did see who burned the firewood but does not know those people personally.

(22)   a. *Bɨx **jix=ja-mat-iñ**   na=m   jaroi' mɨi-'ñ   gu*
          all COP=3PL.OBJ-know-1SG.SBJ SUB=3PL.SBJ who   burn-APPL DET
          ku'a'
          firewood
          'I know who all burned the firewood' (Lit. I know all of them, who burned the firewood)

       b. *Bɨx **jix=Ø-mat-iñ**   na=m   jaroi' mɨi-'ñ*
          all COP=3SG.OBJ-know-1SG.SBJ SUB=3PL.SBJ someone burn-APPL
          gu   ku'a'
          DET firewood
          'I know who.PL completely burned the firewood' (Lit. I know that people completely burned the firewood)

5   Interim summary: The LFG account

- The analysis proposed so far accounts for which constituents can or can't receive preverbal quantification.

    - Quantifiers assign a QUANT feature to any f-structure accessible via a path consisting only of argumental functions

    - The arguments of a CCC are found in a COMP, so they can be quantified.

    - The arguments of an NCS are in an ADJ and cannot be quantified.

13

- However, the set of constituents that can be quantified is wider than the set diagnosed by verbal coreference.

- In ditransitives, only one object argument is coreferenced by verbal morphology, while both may be quantified, as shown in (23), where either the *recipient* or the *theme* may be quantified, while only the recipient is head-marked.

- We know that the primary object in (23) is the recipient because (23) is only acceptable with a 3PL recipient, coreferenced with *ja-*. If the recipient was the secondary object, then it could be any person-number combination.

  (23) *Gok ja-maa-ñi-ch*   *gu   tɨ∼tbi-chuk*
        two 3PL.PO-give.PFV-1SG.SBJ-PFV DET PL∼play-POSSD
        'I gave them two toys.'
        'I gave toys to two (people).'

- We thus have two mismatches between verbal co-reference and preverbal quantification:

  - Secondary objects (non-coreferenced objects of a ditransitive)
  - Properties of the event itself (often the scale)

- While this analysis accounts for the data, the set of grammatical functions that are considered arguments (i.e., the range of the variable AF) must be stipulated.

6   An L$_R$FG analysis

6.1   What is L$_R$FG?

- We now turn to an account in Lexical-Realizational Functional grammar (L$_R$FG; Melchin, Asudeh, and Siddiqi 2020).

- L$_R$FG is a synthesis of Distributed Morphology (DM) as a theory of morphological realization and LFG as a theory of grammatical architecture.

- Like LFG, it is a declarative, representational and constraint-based theory ideally suited to modelling nonconfigurationality, as in O'dam.

- Like DM, it provides a realizational, morpheme-based view of word-formation and is good at modelling complex morphological structures, including those found in highly agglutinative languages such as O'dam (Tallman, Wylie, Adell, Bermudez, Camacho, Epps, Everdell, Gutierrez, Juarez, and Woodbury 2018).

- In L$_R$FG, as in DM, the terminal nodes of the c-structure are not words or morphemes (i.e., they contain no phonological material), but are instead bundles of features which are realized by Vocabulary Items (VIs) at v(ocabulary)-structure.

6.2   The analysis

- Our L_RFG account takes advantage of this distinction between c-structure and v-structure to account for the argumenthood mismatches.

  – In L_RFG, features of all arguments are present in the c-structure nodes that map to the verb's f-structure.

  – However, the VIs that realize these nodes are systematically specified only for certain grammatical functions.

  – In this way, argumenthood and c-structure features are strictly correlated, while the features of the relevant nodes that get overt exponence is dependent on the VIs available to realize them.

- We assume that features of all arguments, including both theme and recipient, are introduced by a node in the c-structure associated with the verb (i.e., in the VP).

- In the c-structure of (23), the node hosting object agreement features, Agr_O, is specified for features of both the primary argument (OBJ, the *recipient*) and the secondary object (OBJ$_\theta$, the *theme*), as in (24).

(24) $Agr_O{}' \;\to\; \ldots \quad Agr_O \qquad\qquad\qquad\qquad \ldots$
$\qquad\qquad\qquad\qquad\quad$ @ObjAgree($\{1|2|3\}$,$\{$SG$|$PL$\}$)

- We use a template for object agreement (Dalrymple, Kaplan, and King 2004), where the optional material allows us to capture transitives and ditransitives in a single template:

(25)   ObjAgree(Pers,Num) := ($\uparrow$ OBJ PERS) = Pers
$\qquad\qquad\qquad\qquad\quad$ ($\uparrow$ OBJ NUM) = Num
$\qquad\qquad\qquad\qquad\quad$ $\begin{pmatrix} (\uparrow \text{ OBJ}_\theta \text{ PERS}) = \text{Pers} \\ (\uparrow \text{ OBJ}_\theta \text{ NUM}) = \text{Num} \end{pmatrix}$

  – Notice that the parameters/arguments of the template are each disjunctions over appropriate values and that the two instances of Pers and Num in the body of the template may therefore vary independently from each other.

- However, the Vocabulary Items that realize Agr_O are only specified for features of one object, as in (26).

(26) $\langle$ [Agr$_O$], $\quad \Phi \left\{ \begin{array}{l} (\uparrow \text{ PLUSO}) = \texttt{\%gf} \\ (\uparrow \texttt{\%gf} \text{ PERS}) = 3 \\ (\uparrow \texttt{\%gf} \text{ NUM}) = \text{PL} \end{array} \right\} \rangle \;\Rightarrow\; ja\text{-}$

  – The label PLUSO is a variable over OBJ and OBJ$_\theta$, as in Findlay (2016, 2020).

- – The arbitrary local name `%gf` ensures that PERSON and NUMBER values are for the same argument.

- – The choice of which of the two PLUSO arguments is expressed is due to a complex interaction between the available VIs and certain pragmatic factors (see for example García Salido 2014:48ff.).

- – However, in either case there will be only one agreement morpheme available in the set of O'dam's VIs for the two object functions.

- We assume that the QUANT features are assigned by the f-description in (7) in the c-structure node of the preverbal quantifier, regardless of surface morphology.

  - – When there is no surface agreement morphology, we take this as evidence that the O'dam Vocabulary lacks such an exponent.

  - – This is cross-linguistically typical with so-called "unmarked" or high-frequency feature combinations; see for example the work of Haspelmath, whose viewpoint is summarized in Haspelmath and Sims (2010:ch. 12).

  - – In these cases in L$_R$FG, because there is no VI, the neighboring VIs in the v-structure *span* the unexpressed features (see, e.g., Haugen and Siddiqi 2016), thus maximally satisfying MostInformative, which resolves the competition between forms (Melchin et al. 2020:273).

7 Conclusion

- Following Everdell (2021)'s overview of O'dam argumenthood tests, we have shown that CCCs and NCSs pattern differently with regards to their argumenthood status, contra previous work that assumed they were both clausal complements.

- While CCCs as clausal complements of their control verb, NCSs pattern with adjuncts of their matrix verb, with the exception of the NCS's eventuality.

- Combined with an analysis of CCCs as COMP and NCS as ADJ, this explains the differences in preverbal quantification of the arguments of the different types of clauses.

- Our analysis of the OBJ of an apparent NCS selecting verb as only having the eventuality of the NCS as a referent, explains the argumenthood status of that eventuality, as well as the varying shape of NCSs and the impersonal interpretation of verbs with the eventuality as their OBJ.

- However, in LFG this account leaves unexplained the mismatches between preverbal quantification and the other main argumenthood diagnostic in O'dam, coreference by verbal affixes. Namely, that coreference only captures a subset of the arguments identified by preverbal quantification.

- These mismatches can be explained in L$_R$FG as mismatches between c-structure terminal nodes and their v-structure exponents, allowing arguments to be consistently present in c-structure.

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