Enrique L. Palancar*, Roberto Zavala Maldonado and
Claudine Chamoreau

Headless relative clauses with a gap: a typological trait of Mesoamerican languages

Abstract: This paper has two main goals. One is to introduce a type of "headless" (or "antecedentless") relative clause that presents a gap strategy and that has not been sufficiently discussed in the typological literature. The other is to show that this type of headless relative clause with a gap is a characteristic trait of Mesoamerican languages, since it exists in many languages of the Mesoamerican linguistic area as an important constructional option in their relativization syntax, independently of the genetic relationships of the language in question. Two types of headless relative clauses are well known to date: one involving a relativization strategy with a relative pronoun (e.g., *I wore what you asked me to wear*) and another with a light head, introduced by Citko (2004. On headed, headless, and light-headed relatives. *Natural Language and Linguistic Theory* 22. 95–126), somewhat comparable to *I wore the one that you asked me to wear*. The third type of headless relative clause discussed here presents a gap (i.e., there is no manifestation of the relativized term in the relative clause). It would be equivalent to saying '*I wore you asked me to wear*'. The phenomenon we study here is interesting both from a typological and areal point of view.

Keywords: headless relative clauses; relativization strategies; gap; Mesoamerica

1 Introduction

In this paper, we introduce a type of headless relative clause which exhibits a gap strategy and which has not been sufficiently discussed in the typological literature. In the literature on relative clauses (henceforth, RCs), we know so far of the existence of

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*Corresponding author: Enrique L. Palancar [enˈrike palaŋˈkar], Centre dʾÉtudes Mexicaines et Centramericaines (CEMCA), Centre National de la Recherche Scientifique (CNRS), Mexico City, Mexico, E-mail: enrique.palancar@cnrs.fr. https://orcid.org/0000-0002-6967-2863
Roberto Zavala Maldonado [roˈberto saˈbala maldoˈnaðo], Centro de Investigaciones y Estudios Superiores en Antropología Social (CIESAS), San Cristobal de las Casas, Mexico
Claudine Chamoreau [kloˈdin ʃamoˈʁo], Structure et Dynamique des Langues (SeDyL), Institut de Recherche pour le Développement (IRD), Villejuif, France

two main types of RCs which, lacking a nominal head, have the same distribution and interpretation as nominal phrases or adpositional phrases in the matrix clause: (i) a well-known type, abundant in European languages like English, which involves a relative pronoun relativization strategy, such as (1a); and (ii) a second type introduced by Citko (2004) which involves a light head, illustrated in Spanish in (1b) with an example that is semantically equivalent to (1a). For convenience, we indicate the edges of RCs with square brackets, and we underline heads, whether nominals or light heads. In the English translations of the examples, we use small caps to indicate the corresponding elements in English to the headless RC in the source language; most examples are translated into English with headless RCs.[1]

(1) a.   *I understand [**what** you say]*
     b.   *entiendo*   **_lo_**   [*que   dices*]
          understand.s1SG.PRS.IND DEF.N SUB say.s2SG.PRS.IND
          'I understand WHAT YOU SAY.'
          (Lit. 'I understand the (thing) that you say.')

In this paper, we treat both types of RCs in (1) under the general rubric of "headless RCs" (see Section 1.1), and we claim that to these two types we need to add a third one. This is exemplified in (2a) from Ocotepec Mixtec (Mixtecan, Oto-Manguean) and in (3) from Huave (Isolate). The peculiarity of this third type is that it exhibits a gap; that is, in the relative construction, there is no grammatical or lexical manifestation of the relativized term (i.e., the entity to which the RC refers), as opposed to the relative

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1 Abbreviations in glosses: ABS absolutive; unpossessed noun; ACC accusative; ADLAT adlative; AF agent focus; AFF affirmative; AN animate; ANA anaphoric demonstrative; APPL applicative; AS adjusted stem; AUGM augmentative; BEN beneficiary; CAUS causative; CLF nominal classifier; COM comitative; COMP complementizer; CONT continuative; COP copula; CPL completive; CPL.I completive for independent clauses; DAT dative; DCS decausative; DECL declarative; DEF definite; DEIX deixis; DEL delimitative; DEM demonstrative; DEP dependent; DES desiderative; DET determiner; DIM diminutive; DIR directional; DISTR distributive; DP determiner phrase; DTV derived transitive verb; DU dual; ENCL enclitic; EP epenthesis; ERG ergative; EXCL exclusive; EXIST existential; EXPL expletive; F feminine; FOC focus; FUT future; GEN genitive; HAB habitual; HON honorific; HUM human; ICPL incomplete; ICPL.D incomplete for dependent clauses; ICPL.I incomplete for independent clauses; IMP imperative; IMPF imperfect; IMPFV imperfective; INAN inanimate; INCH inchoative; INCL inclusive; IND indicative; INDF indefinite; INF infinitive; INSTR instrumental; INTR intransitive; IPFV imperfective; IRR irrealis; ITER iterative; IV intransitive verb; LEN lenis stem; LOC locative; M masculine; MIDD middle; N neuter; NEG negative; NF non-finite; NMLZ nominalizer; NOM nominative; NVIS non-visual; O object; PASS passive; P preposition; PFV perfective; PL plural; PO primary object; POSS possessive; POSTP postposition; POT potential; PRF perfect; PRG progressive; PRO pronominal; PROX proximal; PRS present; PRTCL particle; PST past; R recipient; REL relativizer; REL.PRO relative pronoun; RN relational noun; RPT reportative; RSN reason; S subject (as inflection); S.D subject for dependent clauses; S.I subject for independent clauses; SG singular; S_o subject of an inactive predicate; SS secondary stem; ST stative; STM stimulus; SUB subordinator; SUBJ subject (as a syntactic function); SUBJV subjunctive; TOP topic; TR transitive; TV transitive verb; V verb; VEN ventive; VRS versive.

pronoun *what* in (1a) or the light head *lo* in (1b). In (2a) the headless RC from Ocotepec Mixtec is introduced by the subordinating conjunction *ja*, which is a general subordinator (i.e., not a relative pronoun) that is used, for example, to introduce complement and purpose clauses, as shown in (2b) and (2c). In contrast to Ocotepec Mixtec, the headless RC in (3) from Huave is asyndetic (i.e., it has no subordinator).

OCOTEPEC MIXTEC

(2)   a.   *kaji*   [***ja*** *ki'ín   nda   nu   ji*]
           choose.ICPL   SUB   go.IRR   PL   2   with
           'Choose WHAT YOU'RE GOING TO TAKE (with you).' {Txt}[2]
           (Lit. 'Choose that you're going to go with.')
           (Cruz López 2022: 122)

     b.   *n-nakanì   nda   de*   [***ja*** *sunka   n-ndo'ò   ñoo*
           CPL-tell.CPL   PL   3M.HON   SUB   so   CPL-suffer.CPL   village.1PL.INCL
           ji   Leñu]
           with   S.M
           'It is said that this happened to our village with (the village of) San Miguel.' {Txt}
           (Cruz López 2022: 86)

     c.   *n-vajì*   *nda*   [***ja*** *xti'i   nda   ñoo*]
           CPL-come.CPL   [3]PL   SUB   finish   [3]PL   village.1PL.INCL
           'They came, so that they could wipe out our village.' {Txt}
           (Cruz López 2022: 87)

HUAVE

(3)   …*añol   ndu=n-a-mb   b-a-lyejk*   [*ngu=lyujk-iam*]   *akiejp*
        why   NEG=IRR.1-TR-go   IRR.1-TR-open(tr)   NEG=open(INTR)-IRR   with
        lüw   kam
        key   DEM.PROX
        '…Why should I not go to open with this key WHAT DOESN'T OPEN.' {Txt}
        (Lit. '…Why should I not go and open it doesn't open with this key.')
        (Salminen 2016: 281)

The phenomenon in (2a) and (3) is interesting from a theoretical and typological point of view. On the one hand, the construction at issue involves a structural type of headless RC that has passed virtually unnoticed in the linguistic literature. Its analysis constitutes a challenge for mainstream views of the syntax of relativization, which assumes that relativization involves relative pronouns (Riemsdijk 2008). On the other hand, although having passed unnoticed, it is not a typological rarity,

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2 The abbreviation {Txt} indicates that examples are from natural speech.

because it exists in many Mesoamerican languages as an important constructional option involving the syntax of relativization. This is so to the extent that we propose that it should be taken as a characteristic feature, or trait, of the canonical linguistic profile of a language as Mesoamerican, i.e., as belonging to the Mesoamerican linguistic area proposed in Campbell et al. (1986). The picture is, nonetheless, intricate, as there is much variation across the Mesoamerican languages that employ this type of headless RC with a gap: some use it generally, others in more restricted ways, and others do not have the type at all. To understand its distribution, we propose that headless RCs with a gap constitute an old structural feature of the syntax of relativization in the languages spoken in the Mesoamerican cultural area in pre-Hispanic times, one which developed and diffused in the area through intense language contact among geographically contiguous linguistic communities of different linguistic families (see Section 5). Then, in the natural diachrony of each language over time, speakers of the different languages favored certain structures over others for the syntactic expression of the typical semantics associated with headless RCs. As a result of the variation in the available choices, we obtain complex scenarios in each language and in each family. In the absence of more in-depth and quality studies on the syntax of headless RCs in more languages of Mesoamerica, we can only point here to the typological patterns that we have observed from currently accessible data and our knowledge of these systems to date (see Section 1.3). A more complete picture of the phenomenon should be pursued as more descriptive knowledge of Mesoamerican languages is produced on this subject.

The article is structured as follows. To understand headless RCs with a gap in a Mesoamerican context, in Section 2 we first discuss a set of features that have been proposed as traits of the Mesoamerican linguistic area, and then we give an overview of the syntax of relativization in the languages of the region, mostly to show that a structure involving headed RCs is indeed one of the domains where areal specificity can also be found. In Section 3, we present the extent of headless RCs with a gap, in the languages where we know they exist, based on materials at our disposal. We devote Section 4 to the study of properties of headless RCs with a gap as a type, based on distinctions of definiteness and the range of accessibility in the relativization. In Section 5, we conclude in support for its treatment as a diffused trait, and we show other cases in which it is evident that RC structure has been borrowed in Mesoamerica in contact situations.

But to set up the broader context for all this, we first give a short introduction to headless RCs in general so that we can establish our position regarding the terminology that has been used to talk about them.

1.1 A bird's eye view of headless relative clauses

Headless RCs, also known by many as "free relatives", and less commonly as "ante-cedentless" RCs – see Section 1.2 for the terminological distinction that we adhere to – are RCs without a nominal head. Headless RCs have been the object of study of many works, especially on English and other European languages (to name a few, Hirschbühler 1978; Bresnan and Grimshaw 1978; van der Auwera 1992; Pancheva-Izvorski 2000; Caponigro 2003; and more recently Van Riemsdijk 2006; Šimík 2011, 2021). In the typological liter-ature on the syntax of relativization, however, headless RCs have not enjoyed the same level of attention cross-linguistically as headed RCs. To this end, going beyond the structural biases of European languages, we consider Caponigro (2021) to be the best proposal to date for a typologically useful characterization of headless RCs. Such an approach characterizes headless RCs as the set of constructions having the properties in (4), (based on Caponigro 2021: 5, with slight modifications).

(4)   i.   They are embedded clauses
      ii.   They have a missing constituent – an argument or an adjunct.[3]
      iii. They lack a nominal head that is linked to the missing constituent.
      iv.   They exhibit the same distribution and interpretation as nominal
            phrases or adpositional phrases.

The property in (4i) makes headless RCs subordinate clauses.[4] The property in (4iv) speaks of their function: they serve to make reference to entities (i.e., participants, places, times, etc.) in the same fashion as nominals do. This means that the headless RC in (5a) could be seen as semantically equivalent to (5b)[5] (examples from Nordquist 2020).

(5)   a.   *Sally ordered* [what Jim chose].
      b.   *Sally ordered* A HAMBURGER/COFFEE/A PIECE OF PIE.

The property in (4ii) requires further explanation. Here "a missing constituent" should not be confused with a "gap". A missing constituent in (4ii) refers to the observation

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3 The author further adds "which can sometimes be associated to a resumptive pronominal form", but we have been unable to find an illustrative example of such a situation to include it in the discussion.
4 An anonymous reviewer noted that the claim that headless relatives are embedded clauses is not without controversy, since there are authors working with the generative syntax model who still follow Bresnan and Grimshaw (1978). For such authors, headless RCs are constituents of the type determined by the *wh*-phrase (DP, PP, etc.). We do not follow this analysis, but even if we did, it would be inconsequential for our analysis of headless RCs with a gap, because this type of headless RCs exhibits no *wh*-expressions.
5 This is a semantic property that Caponigro (2003: 10) characterizes as "they can always be replaced with truth-conditionally equivalent DPs or PPs".

that against the background of what should be the default word order of the clause as a matrix clause, there is something that is missing. In such a way, both RCs in (6) have a "missing constituent" (i.e., the object), but only the one in (6b) would have a "gap" for us. Following Comrie (1981: 151), we take a "gap" to be the lack of an overt indication of the role of the head in the RC. When it comes to a headless RC, the head in the RC refers to the relativized term. In other words, there is a gap when there is no realization of the missing constituent inside the RC. The existence of a gap in (6b) is in contradistinction to the structure in (6a), where the relativized term is actually realized by the relative pronoun *what* (Note that the element *that* in (6b) is a subordinator introducing the RC as a subordinate clause (i.e., *that* is not a pronoun)). The missing constituent in both examples in (6) is indicated by [*e*]; the gap in (6b) is indicated by the underlining.

(6)   a.   *Sally ordered* [*what Jim chose [e]*]
        b.   *Sally ordered those* [*that Jim chose [e]*]

The RC in (6b) has been called "semi-free relative" (Smits 1989) or "false free relative" (de Vries 2002). This type of example brings us to the property in (4iii). In (6b), we have the demonstrative *those* serving as the head of the RC, and in this sense, the RC in (6b) is not strictly "headless". However, the "relative construction" in (6b) (in the sense of Lehmann 1986, i.e., the demonstrative *plus* the RC) serves as a functional equivalent to (6a), and because of the property in (4iii), we can regard it as a type of a "headless" RC. In fact, the structure in (6b) can be treated as a type of relative construction that in the linguistic literature, starting from Citko (2004), is thought to involve a "light head".

Not all light heads in light-headed RCs are the same or have the same status. If one follows Citko (2004), the elements serving as canonical light heads are determiners and pronominals that are only associated with RC structure. For example, the Spanish masculine singular determiner *el* in (7a) and the neuter pronominal *lo* in (7b) can be seen as canonical light heads, because outside the relative construction they cannot serve as free pronouns in the same syntactic position. The restriction is shown in the ungrammaticality of (8a), whose reading is only possible as (8b).

(7)   a.   *Sally   pidió   el*   [*que   Jim   escogió*]
           S.   ask_for.s3sg.pst.ind   def.sg.m   sub   J.   choose.s3sg.pst.ind
           'Sally ordered THE ONE THAT JIM CHOSE.'
      b.   *Sally   pidió   lo*   [*que   Jim   escogió*]
           S.   ask_for.s3sg.pst.ind   def.n   sub   J.   choose.s3sg.pst.ind
           'Sally ordered WHAT JIM CHOSE.'

(8)   a.   **Sally pidió el/lo*
           Intended reading: 'Sally ordered it.'

b. *Sally* *lo*   *pidió*
    S.   3SG.ACCU.M/N ask_for.s3SG.PST.IND
    'Sally ordered it.'

In contrast, a demonstrative like *those* in (6b) in written English shows ambiguous behavior between a pronominal (i.e., *Sally ordered those*) and a determiner (i.e., *Sally ordered those ones*). This ambivalence makes it more challenging to characterize its status as a head in the relative constructions in (6b), making it thus a less canonical light head. Viewed in this way, a typology of RC structure involves a continuum of "headedness" (see Epps 2012; Jiménez Jiménez 2021; Mateo Toledo 2021a), in such a way that the relative constructions in (6b) and (7) in English and Spanish, respectively, can be treated as intermediary constructional types between *fully* headed RCs like *the food* [*that Jim chose*] and genuine headless RCs like (6a).[6] However, Caponigro's (2021) characterization of "headless" RCs is functional in spirit, and light-headed RCs are seen as a subtype of headless RCs, because they fulfill all the criteria in (4).

In this regard, under the characterization of headless RCs that we adopt in our analysis, there are then at least three subtypes of headless RCs, all exemplified in both Tlachichilco Tepehua (Totonac-Tepehua) and in Texistepec Popoluca (Mixe-Zoquean), two unrelated languages from Mexico: (i) a headless RC with a relative pronoun in (9); (ii) a headless RC with a light head in (10); and (iii) a headless RC with a gap in (11). In Mesoamerican languages, all types of headless RCs occur in the matrix clause in the same syntactic position of functionally equivalent nominal phrases or adpositional phrases.[7]

To understand the examples in (9)–(11) and others like them that follow, the reader should bear in mind that in analyzing RC structure, we make a categorical distinction between "relative pronouns" and "subordinators". We consider the elements *ta'ayu'* 'who' and *che'* 'what' in (9) as "relative pronouns", because they are elements within the RC that refer to the relativized term by profiling a given aspect of it, whether its animacy, its semantic role, its grammatical number, etc. Relative pronouns often occur at the junction of a RC, but not necessarily.[8] On the other hand, the linking word *yu* in the RCs in

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6 For more nuanced distinctions in the continuum of headedness, see Epps (2012).

7 Unless the headless RC is a heavy constituent, in which case it tends to occur towards the right periphery.

8 An anonymous reviewer recommended illustrating that the interrogative pronouns in examples such as (9) are not the head of the RC. In the generative literature starting from Bresnan and Grimshaw (1978), there is a debate as to whether the interrogative pronoun in similar examples in English is the head of the RC or not. Such a debate is utterly inconsequential for the purpose of this paper, mainly because in the syndetic subtype of headless RC that we study in this paper, exemplified in (11), the elements introducing the RC are complementizers and not pronouns. At times, we give evidence for the status of subordinator of a certain element, like in examples (2) for Ocotepec Mixtec. In other cases, readers are encouraged to go to the source for further information if they remain skeptical as to the analysis reflected in the gloss.

(10a) and (11a) and the enclitic =*pä'* in (10b) and (11b) are subordinators: they introduce the RC as a subordinate clause while being insensitive to any feature of the head or the relativized term (i.e., they are not relative pronouns). More specifically, both *yu* and =*pä'* are subordinators that can only be used to introduce RCs (i.e., they are not general complementizers which may be used to introduce other subordinated clauses such as complement or adverbial clauses, as *ja* in (2) in Ocotepec Mixtec). Following Palancar et al. (2021: 11–18), we label such subordinators "relativizers" (see Section 2 below).

TLACHICHILCO TEPEHUA

(9)   a.   *ka-mi-lh*   [***ta'ayu'*** *uxa-min*]
           IRR-come-PFV   WHO   DES-come
           'THE ONE WHO WANTS TO COME may come.' {Txt}
           (Lit. 'Who wants to come may come.')
           (Senovio Aquino 2022: 240)

TEXISTEPEC POPOLUCA

      b.   *bweenu   ma'-ya   kn-däm-a'-ta'*   [***che'*** *ky-seet-ta'm   bich*]
           good   PFV-already   1>2-say-APPL-2PL   WHAT   ABS2-be-FUT.2PL   2SG$_{PRO}$
           'Well, I've already told you THE THING THAT YOU'RE GOING TO BE.'
           (Díez Alejandre 2019: 76; *apud* Wichmann 1996: 59)

TLACHICHILCO TEPEHUA

(10) a.   *ni-lh=cha*   ___***yucha***___ [*yu   kim-papa   ix-juni-ta*]
           die-PFV=already   3SG$_{PRO}$ REL   POSS1-grandfather   PST-be-PRF
           'THE ONE WHO WAS MY GRANDFATHER is already dead.' {Txt}
           (Lit. 'He who was my grandfather is already dead.')
           (Senovio Aquino 2022: 173)

TEXISTEPEC POPOLUCA

      b.   ___**jepe'**___ [*ma'   na'm=pä'   täkeŋ*];   *jepe'   n-da'aŋ   nje'*
           DEM   PFV   new=REL   [ABS3]enter   DEM   POSS3-husband   COP
           'THE ONE WHO HAS JUST GOT IN, that one is my husband.'
           (Díez Alejandre 2019: 78; *apud* Wichmann 1996: 47)

TLACHICHILCO TEPEHUA

(11) a.   [**yu**   *ka-'achani-ya'*]   *ma   ancha   ka-'an-a'*
           REL   IRR-want-FUT   RPT   there   IRR-go-FUT
           'THE ONE WHO WILL WANT IT will go there.' {Txt}
           (Lit. 'That will want will go there.')
           (Senovio Aquino 2022: 212)

Texistepec Popoluca

b. *jesa   du'k   [y-'oom=**pä'**   shaaŋcha'-das]*
    when   [ABS3]arrive   ERG3-own=REL   watermelon-land]
    'eŋdya   'ee   beeshe'-tuku'-da'a
    not:anymore   [ABS3]be_present   cat-old-AUGM
    'When THE ONE THAT OWNS THE WATERMELON PATCH arrived, the old cat was no
    longer there.'
    (Lit. 'When that owns the watermelon arrived, …')
    (Díez Alejandre 2019: 61; *apud* Wichmann 1996: 5)

The examples in (9)–(11) from Tlachichilco Tepehua and Texistepec Popoluca, together with their translations into English, further illustrate two common phenomena: (i) sometimes the grammar of a language allows for different subtypes of headless RCs to encode the same meaning and function: in Tepehua, for example, the three possibilities are available when the relativized term of the headless RC is the subject of the matrix clause; and (ii), there may be specific grammatical restrictions on the use of certain subtypes: the English clauses that serve as idiomatic translations to most Tepehua and Popoluca examples use a headless RC with a non-canonical light head (i.e., 'the one [who/that…]'). This is because a headless RC with a relative pronoun like the one in (9a) or (9b) is not possible in English when the RC functions as the subject of the matrix clause.

Headless RCs with a gap, like the ones in (11), are not structural oddities in the syntax of relativization. Besides representing a structural type that abounds in Mesoamerica (see Section 3.2), in some of the languages of the region they constitute the default type of a headless RC in natural discourse. We can ascertain that this is the case of Texistepec Popoluca thanks to the corpus study by Díez Alejandre (2019) of the RCs in the texts in Wichmann (1996). Díez Alejandre's corpus consists of 271 RCs in total, and more than half (179/66 %) are headless RCs of the three types in (9)–(11) functioning as arguments or adjuncts in matrix clauses. Note that close to 70 % of them are headless RCs with a gap similar to (11b). The relevant figures are given in Table 1.

Table 1: Headless RCs in Texistepec Popoluca from Díez Alejandre (2019).

Headless RCs with a relative pronoun (6b)	27	15 %
Light-headed RC (7b)	30	17 %
Headless RCs with a gap (8b)	122	68 %
Total	179	100 %

The figures in Table 1 are striking if we take a Eurocentric perspective, where only the other two types are found. This Eurocentrism takes us to what we believe is an important terminological issue in the handling of headless RCs cross-linguistically, which we address in the next section.

1.2 An important note about the terminology associated with headless relative clauses

The term "headless relative clause" is often equated with the term "free relative". The term "headless" is seen as misleading by some linguists who believe that such constructions bear a phonologically empty head that is still syntactically present at some abstract level. In that light, the term "free relative" is seen as preferable, where the adjective *free* is used here to highlight the free syntactic status of RCs in matrix clauses when compared to the modifying function they have involving nouns in headed relative constructions. A "free relative" corresponds thus to what we call a "headless RC with a relative pronoun", like the example in (1a) (or (4a) or (6), for that matter).

But the story gets more complicated. Relative pronouns in English like *what* in (1a) or (5a) are recruited from interrogative pronouns – the so-called *wh*-words or *wh*-expressions. Because of that phenomenon, the term "free relative" is now inextricably linked with the syntax of *wh*-expressions. The syntax of "extraction", which is seen as the common underlying denominator between the syntax of relativization and the syntax of questioning (or focus), is a topic that generated considerable debate in formal syntax in the late 1970s and the 1980s. From this tradition, "free relatives" are often conceptually equated with 'headless RC that exhibit a *wh*-expression' (Caponigro 2003; Caponigro et al. 2013).

However, even if the English situation is cross-linguistically common, the conception bears a disturbing theoretical bias, because there are languages, at least in Mesoamerica, whose relative pronouns in headless RCs do not originate from *wh*-expressions, but mostly from old nominal classifiers. This is, for example, found in the Oto-Manguean languages: in Zapotecan, in Chatino (Campbell 2021) and in Mixtepec Zapotec (Antonio Ramos 2021) and in Tlapanecan, in Iliatenco Me'phaa (Duncan and Torrence 2021). We illustrate the case in Zenzontepec Chatino. Examples in (12) show headless RCs that exhibit the relative pronouns *chu* for humans and *xī* for locations. The pronouns can also occur in headed RCs, like in (13b), or in light-headed RCs, like in (13a). Examples in (14) show the corresponding, semantically equivalent, interrogative pronouns in questions. Such pronouns can also be used, although only rarely, as relative pronouns in canonical "free relatives", as in (15). The pronoun *tukwi* in (14a) and (15a) is not sensitive to an animacy feature value of the referent (i.e., it is used as an equivalent to WHO and WHAT, hence the gloss 'WHICH').

Zᴇɴᴢᴏɴᴛᴇᴘᴇᴄ Cʜᴀᴛɪɴᴏ

(12) a. *n-tyāá*   [***chu***   *nk-yāáʔ*   *liti=Vʔ*]   *nī.jniʔ*
HAB-ITER.give   HUM.REL.PRO   PFV-be_built   home=ANA   thanks
'Hᴇ ᴡʜᴏꜱᴇ ʜᴏᴜꜱᴇ ᴡᴀꜱ ʙᴜɪʟᴛ gives thanks.' {Txt}
(Campbell 2021: 222)

   b. *ná   nt-uxiką   tī   nuwęʔ* [***xī***   *nt-e+yuʔu*]
NEG   HAB-choose   TOP   3ANA   LOC.REL.PRO   HAB-go_down+be_inside[3]
'That doesn't choose ᴡʜᴇʀᴇ ɪᴛ ꜰᴀʟʟꜱ.' {Txt}
(Campbell 2021: 220)

Zᴇɴᴢᴏɴᴛᴇᴘᴇᴄ Cʜᴀᴛɪɴᴏ

(13) a. *tāá=kāʔá=ą̄ʔ*   *tzaka kwentū jiʔi̜* <u>*tzaka*</u> [***chu***   *n-tzaʔą*
POT.give=again=1SG   one   story   GEN   one   HUM.REL.PRO   ST-be_attached
nyaʔne]
animal
'I am going to tell another story ᴏꜰ ᴏɴᴇ ᴡʜᴏ ʜᴀᴅ ᴀɴ ᴀɴɪᴍᴀʟ ꜱᴘɪʀɪᴛ ᴄᴏᴍᴘᴀɴɪᴏɴ.' {Txt}
(Campbell 2021: 219)

   b. *nālá   <u>tyākwé</u>* [***xī***   *n-tyaʔą   nu n-tyaʔą*
NEG.EXIST   road   LOC.REL.PRO   HAB-go_around   SUB   HAB-go_around
jlyá   karrū]
fast   car
'There was no ʀᴏᴀᴅ ᴏɴ ᴡʜɪᴄʜ ᴄᴀʀꜱ ᴡᴏᴜʟᴅ ᴛʀᴀᴠᴇʟ.' {Txt}
(Campbell 2021: 216)

Zᴇɴᴢᴏɴᴛᴇᴘᴇᴄ Cʜᴀᴛɪɴᴏ

(14) a. ***tukwi*/****chu*** *tī   nu nka-ʔne+kwanā kosā   j-ú̜ʔ*   *ntīī*
WHICH   TOP   SUB   PFV-do+thief   thing   GEN-3PL   HAB.think.2SG
'Who do you think stole their things?' {Txt}
(Campbell 2012)

   b. ***wala*/****xī*** *y-aa   tī   kwaʔą̜ʔ*
WHERE   CPL-go   TOP   2PL
'Where did you go?' {Txt}
(Campbell 2014: 337)

Zᴇɴᴢᴏɴᴛᴇᴘᴇᴄ Cʜᴀᴛɪɴᴏ

(15) a. *kwī-nána=wą*   [***tukwi*** *k-aku-wą   nt-ii=wą*]!
IMP-ask_for=2PL   WHICH   POT-eat=2PL   HAB-want=2PL
'Ask for ᴡʜᴀᴛ ʏᴏᴜ ᴡᴀɴᴛ ᴛᴏ ᴇᴀᴛ.' {Txt}
(Campbell 2017: 116)

b. *n-chano=yu*   [***wala*** *nte-taʔą̄=ri=yu*]   *nt-yatę=yu*
    HAB-stay=3SG.M   WHERE   PRG-go_around=only=3SG.M   HAB-sleep=3SG.M
    'He stays just WHEREVER HE IS GOING and he sleeps.' {Txt}
    (Campbell 2021: 220)

Just like Ocotepec Mixtec in (2a), Huave in (3) and Tlachichilco Tepehua and Texistepec Popoluca in (11), Zenzontepec Chatino is also a language with headless RCs with a gap. This is shown in (16), where the RC is used to make reference to a human referent. Here the element *nu* introducing the RC is a general subordinator not just a relativizer, because it is used to introduce complement clauses, as shown in (17).

Zᴇɴᴢᴏɴᴛᴇᴘᴇᴄ Cʜᴀᴛɪɴᴏ

(16) yākwá tāká [**nu** nka-suʔū tī   j-nāáʔ]
      there exist SUB PFV-teach TOP DAT-1SG
      'There lives ᴛʜᴇ ᴏɴᴇ ᴡʜᴏ ᴛᴀᴜɢʜᴛ ᴍᴇ.' {Txt}
      (Lit. 'There exists that taught me.')
      (Campbell 2021: 222)

(17) *lyakwā nēē   jy-ą́ʔ*   [**nu** *kwīchí* [**nu** *léē.rūʔ jlyū*]
      why   order.2SG DAT-1SG SUB jaguar SUB very   large[3]
      tz-akī́ʔyá=ą̄ʔ]?
      POT-go_bring=1SG
      'Why did you order me to go and bring a jaguar that was very large?' {Txt}
      (Campbell 2021: 207)

Caponigro (2021) coins the term "super-free" for the type of headless RC in (16) that represents the object of our study. The underlying idea is that one should keep the term "free relative" for headless RCs with a *wh*-expression like (12), given how widespread the term is in the literature – although it remains unclear how to accommodate the relative pronouns in examples like (12) and (13). The term "super-free" is suggested informally, arguing that headless RCs like the one in (16) "are even 'freer' than FRs [free relatives] in lacking a *wh*-expression as well" (Caponigro 2021: 18). We do not adopt the term "super-free" here. We prefer the label "headless RCs with a gap" since we are of the opinion that naming structural types of headless RCs attending to relativization strategy is more convenient, because it is more descriptive. We also fail to share the impression that headless RCs with a gap are more independent than headless RCs with a relative pronoun, and by choosing a descriptive term rather than a constructed one, we avoid the bias that the relativization strategy involving a relative pronoun related to a *wh*-expression should be seen as more basic in the syntax of headless RCs in general, especially given the degree to which headless RCs with a gap represent a common constructional type in Mesoamerican languages, as we plan to show in the next sections.

2 Relativization in Mesoamerican languages

'Mesoamerica' is the name given to a historical region and cultural area in southern North America and most of Central America, whose core extends from Central Mexico to Guatemala (Kirchhoff 1943). Linguistically, Mesoamerica is also a geographical region with significant diversity. The geographical core of Mesoamerica involves hundreds of languages classified in no less than 12 language families. The language families include: (i) the Uto-Aztecan family with the small Nahua subfamily (plus the Corachol and Tepehuan subfamilies, which are outliers to Mesoamerica); (ii) the Mixe-Zoquean family with two diverse branches: Mixean and Zoquean; (iii) the Totonac-Tepehua family with two branches: Tepehua and Totonac; (iv) the Mayan family with its seven branches: Huastecan, Yucatecan, Ch'olan, Tseltalan, Q'anjob'alan, Mamean and K'ichee'an; (v) the small Chontal family of Oaxaca; and the seven language families of the Oto-Manguean stock (the Chiapanec-Manguean family being extinct): (vi) Amuzgan; (vii) Chinantecan; (viii) Mixtecan; (ix) Oto-Pamean; (x) Popolocan; (xi) Tlapanecan; and (xii) Zapotecan. Since Rensch (1976), the families in (vi) to (xii) are assumed by most to be genetically related, but the divergences among them are so great that, together with the outstanding levels of their own internal diversity, they should be considered as top-level typologically as each one of the other language families in the region. To these language families, we need to add at least three language isolates; two spoken at the geographical core (Purhépecha and Huave) and one at the southern periphery (Xinca).

Despite Mesoamerica's linguistic diversity, the languages of the area show a great deal of structural convergence. This suggests that the best way to understand Mesoamerica is to view it as a linguistic melting pot that came about after centuries of intense cultural and linguistic contact among speakers of neighboring languages, as well as among speakers of local languages and speakers of non-local languages with prestige status, both socially and in terms of religion. As the political-military hegemony of different ethnic groups rose and fell, the non-local languages were displaced one after the other. Campbell et al. (1986) proposed to understand this linguistic melting pot in terms of the linguistic area model and they advanced five traits to define the area: (i) non-verb-final basic word order; (ii) a nominal possession construction of the type "her-dog the woman" for 'the woman's dog'; (iii) the encoding of oblique and adverbial relations by possessed relational nouns; (iv) the existence of vigesimal numeral systems; and (v) the existence of widespread semantic calques.

Of these five traits proposed in the late 1980s, the first three are the only ones that are genuinely systemic and we know now that none of them hold (see Palancar et al. 2021). As for (i) and (ii), we know that spoken at the core of Mesoamerica, many of the

Mixe-Zoquean languages show verb-final traits (Boudreault 2009; De la Cruz Morales 2016; Guzmán Guzmán 2012; Jiménez Jiménez 2014; Ramírez Muñoz 2016; Santiago Martínez 2015; Zavala Maldonado 2000) and the same goes for Purhépecha (Capistrán 2002; Chamoreau 2017). Similarly, both the Zoquean languages (Boudreault 2009; De la Cruz Morales 2016) and Purhépecha have genitive case (Chamoreau 2017). As for (iii), we also know now that the use of relational nouns is common and widespread outside Mesoamerican borders.

The trait in (iv) is strictly cultural, so it does not count for defining a linguistic area. We are left with the trait in (v). This trait comes from some previous work on the subject carried out by Thomas C. Smith-Stark, published at a later stage as Smith-Stark (1994). Smith-Stark observed that in the languages of the Mesoamerican cultural area, many words in the lexicon reflect similar concepts (e.g. the wrist is called 'neck (of the hand)'; a boa is called 'deer snake'; a score is called 'man' or 'person'; etc.). This descriptive fact is commonly accounted for as the outcome of intense lexical borrowing in the languages of the area in ancient times, primarily achieved through lexical calques. But lexical borrowings by way of calquing could be well seen as borderline cases between culture and language, in the same way as number systems are, so, strictly speaking, neither trait (iv) nor trait (v) is a systemic linguistic feature.[9]

In order to achieve a proper characterization of Mesoamerica as a linguistic area it would be ideal to find systemic traits that hold. Ideally the traits in question would at least include (a) traits shared by all the languages in the area; (b) traits that are uniquely area-specific from a typological point of view; and/or (c) traits that are found elsewhere in the world, but they are rare elsewhere, while common in the area. In this respect, Smith-Stark (1988) proposes a syntactic feature involving the syntax of interrogation (sometimes transferable to the syntax of relativization) which he calls "pied-piping with inversion" and which we treat as a type (b) feature; that is, a uniquely Mesoamerican trait. Here in a language with prepositions, the phrase [preposition/relational noun + complement] is found in the reverse order in

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9 An anonymous reviewer pointed out to us that excluding semantic calques would seem to imply that the lexicon is not something that pertains to language, when the lexicons and the structure of lexemes of unrelated languages have converged over millennia due to language contact. In our view, calling the wrist the 'hand's neck' in different neighboring languages cannot be taken to be a systemic feature at the same level as convergence in the grammatical encoding of such notions (e.g., genitive phrases, genitive classifiers, formal treatment of part-whole relations, etc.). In other words, we fail to see how the lexicon can be used to define a linguistic area at the same level as grammatical calquing or borrowing. Lexical convergence among different languages in a geographical area by way of calques or borrowings reflects language contact as a product of cultural contact involving particular views of conceptualizing the world. Convergence in grammatical encoding is genuinely systemic, because it is not a direct product of cultural contact.

interrogatives.[10] Besides pied-piping with inversion, following Palancar et al. (2021), we claim that RC structure is the place to find typical Mesoamerican traits.

We can isolate the Mesoamerican languages from neighboring languages by considering the morphosyntax of their relativization strategies. All Mesoamerican languages exhibit RCs that are finite, so we can say that finite RCs constitute a Mesoamerican trait. This is in clear contrast to the nominalizing morphosyntax found in the treatment of RCs languages in Mesoamerica's neighboring regions. In the northern border, northern Uto-Aztecan languages like Yaqui have RCs with the internal syntax of NPs, like in the headed and headless RCs in (18), which instantiate a case of object relativization.

YAQUI

(18) a. *u*   *bisikleeta*   [*in*   *jinu-ka-'u*]   *sikili*
          DET bicycle   GEN1SG buy-PFV-O.NMLZ be_red
          'The bicycle that I bought is red.'
          (Álvarez González 2012: 73)

      b. *u*   [*itom*   *nu'upa-ka-'u*]   *kaa*   *jaleki*
          DET GEN1PL   bring-PFV-O.NMLZ   NEG   be_enough
          'WHAT WE BROUGHT is not enough.'
          (Álvarez González 2012: 86)

While in the North of Mexico there are Uto-Aztecan languages that have both nominalized RCs and finite RCs, such as Choguita Rarámuri (Caballero 2022), as one moves further south, the Uto-Aztecan languages found in the northern outlier regions of the Mesoamerican area all exhibit only finite RCs, like O'dam (Southeastern Tepehuan) in (19).

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10 The phenomenon is illustrated in Poqomam (Mayan) in (i). We account for it as a diffused syntactic calque from an ancient verb-final language with postpositions, possibly the same Mixe-Zoquean language from which headless RC with a gap were originally borrowed (see Section 5) (examples from Smith-Stark 1988: 8–9).

POQOMAM

(i)   a. *ʔih-Ø-kaːn-s-j-i*   [*r-uʔuːm*   *ʔixoq*]
          CPL-ABS3-die-CAUS-PASS-INTR   POSS3-CAUSE   woman
          'He was killed by a woman.'

      b. *haʔ*   [*maj*   *r-uʔuːm*]   *ʔih-Ø-ʔan-ar-i*
          INTERR WHO   POSS3-CAUSE   CPL-ABS3-do-PASS-INTR
          'For whom did they do it?'

O'ᴅᴀᴍ

(19) *jix=bhai'* *na=Ø*   *juu- ka'* *gu* *atulh* [**na=pim makia'**]
      ᴄᴏᴘ=good   ꜱᴜʙ=s3ꜱɢ warm-ꜱᴛ ᴅᴇᴛ *atole* ꜱᴜʙ=s2ꜱɢ give.ɪʀʀ
      'It is good to warm the *atole* (corn-based drink) that you will give her.' {Txt}
      (García Salido 2021: 65)

At the opposite end, in the languages at Mesoamerica's southern borders, RCs start to display nominal features again. This is shown in (20) from Pesh, a Chibchan language from Honduras.[11] Pesh, despite having internal finite predicates, treats RCs externally as syntactic nominals, because they can receive nominal case. The instrumental case enclitic =*yo* occurring at the right edge of the adnominal RC in (20) indicates that the referent of the head noun works as an instrument in the event depicted by the RC.

Pᴇꜱʜ

(20) a. *kukarska* [*ye?-ha*   *ta-ka-Ø-i]*=**yo**   *Ø-uh-a-ri*
          hoe   small-ɴᴍʟᴢ o1-hit-s3ꜱɢ-ᴘꜱᴛ=ɪɴꜱᴛʀ o3ꜱɢ-hide-s1ꜱɢ-ᴘꜱᴛ
          'I hid the hoe with which the small boy hit me.'
          (Chamoreau 2021a: 292)
      b. [*ta-ye?*   *katũʃk-i-wa*]=**yo**   *akiõh* *Ø-ka-a-ri*
          ᴘᴏꜱꜱ1-small work-s3ꜱɢ-ᴘʀꜱ=ɪɴꜱᴛʀ edge   o3ꜱɢ-make-s1ꜱɢ-ᴘꜱᴛ
          'I sharpened ᴛʜᴇ ᴏɴᴇ ᴛʜᴀᴛ ᴍʏ ꜱᴏɴ ᴜꜱᴇꜱ ᴛᴏ ᴡᴏʀᴋ ᴡɪᴛʜ.' {Txt}
          (Chamoreau 2021b: 542)

As far as relativization strategies are concerned, Palancar et al. (2021) show that in headed RCs, Mesoamerican languages predominantly use the gap strategy. The strategy has two subtypes, which can be (and usually are) found in the same language, but with idiosyncratic differences in distribution.[12] There is the syndetic type, where there is a linking word, and the asyndetic one, which involves RCs that are not introduced by an explicit linking word, equivalent to the so-called "contact relative clause" in English traditional grammar. Tlachichilco Tepehua (Totonac-Tepehua) is a language with both subtypes of headed RCs with a gap. The two subtypes are illustrated by the two contiguous utterances in (21) coming from the same natural text (Senovio Aquino 2022: 90).

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11 An anonymous reviewer wondered why we do not give examples of South American languages. Mesoamerica is located to the south of North America and the geographical area bordering it to the south is Central America, where the Chibchan languages, among others, are found.
12 For example, Campbell (2021) claims that the use of the two subtypes in Zenzontepec Chatino (Zapotecan) revolves around the specificity of the head nominal.

TLACHICHILCO TEPEHUA

(21) a. *alin*   *kumpañerus* [*ix-ta-lha'an-ta*   *de a cinco*   *milh*]
      exist   comrade   PST-S3PL-take-PRF   of.5   thousand
      'There were comrades that carry 5 000 pesos.' {Txt}

    b. *alin*   *kumpañerus* [***yu*** *ix-ta-lha'an-ta*   *seis*   *milh*]
      exist   comrade   REL   PST-S3PL-take-PRF   6   thousand
      'There were comrades that carry 6 000 pesos.' {Txt}

The syndetic RC subtype can in turn be introduced by one of three different types of linking words:

(i) a general subordinator that also introduces other types of subordinated clauses (i.e., complement and/or adverbial clauses), such as the one in Ocotepec Mixtec (Mixtecan; Oto-Manguean) in (2), in Zenzontepec Chatino (Zapotecan; Oto-Manguean) in (16)–(17) or in O'dam (Tepiman; Uto-Aztecan) in (19).

(ii) a subordinator that is specific to RC structure, which we call a "relativizer", like the conjunction *yu* in Tlachichilco Tepehua (Totonac-Tepehua) in (22). In Mixe-Zoquean, the relativizer is the only linking word that occurs in clause-final position. As the relativizers in all the languages of this family are cognate, the fact that they all stem from a common historical source indicates that this type of RC is very old, as is the order OV, still present in many Mixe-Zoquean languages. Example (23) is from San Miguel Chimalapa Zoque (Mixe-Zoquean).

TLACHICHILCO TEPEHUA

(22)   *jantu*   *ka-'alin-a'*   *lapanati* [***yu*** *ka-ba-lh*   *kim*-patron]
     NEG   IRR-exist-FUT   person   REL   IRR-be-PFV   POSS1-boss
     'There won't be anyone who will be my boss.' {Txt}
     (Senovio Aquino 2022: 81)

SAN MIGUEL CHIMALAPA ZOQUE

(23)   [Ø=*tsij-pa*=***pɨ'k***]   *pɨn*   *'ɨy=nuk-'ok.mang-xuk-wɨ*
     S3.I=stone-ICPL.I=REL   man   A3.I=grab-start-3PL-CPL.I
     'They began to attack the man who stones.' {Txt}
     (Jiménez Jiménez 2021: 97)

(iii) a determiner which agrees in deixis with the determiner of the definite NP encoding the head. The type is not widespread, but it is, nonetheless, specific to Mesoamerica. It is at least found in Mazahua (Oto-Pamean, Oto-Manguean) (see

Rivera Sánchez forthc.), in Acazulco Otomi (Oto-Pamean, Oto-Manguean), shown in the two headed RCs in (24); in Cora (Corachol, Uto-Aztecan) in (25); and in some Mayan languages of the K'ichean subgroup (see Can Pixabaj 2021; Guarcax González 2016) and the Tseltalan subgroup (see Polian and Aissen 2021).

Acazulco Otomi

(24)   *pero=**na***   *ngü*[*=**na**=g+´ra*   *nu=a*]
         but=DET.PROX.SG   house=DET.PROX.SG_{DEIX}=s2:IMPFV   see=ENCL
         ko=´r='yot'e   ***k'a**=´m=chí*   *t'u=ga*[*=**k'a**=bi*
         FOC=POSS3SG=property   DET.NVIS.SG=POSS1=DIM   son=1=DET.NVIS.SG_{DEIX}=IMPFV[s3]
         dü=a]
         LEN/die=ENCL
         'But this house you see here, it's the property of my late son.'
         (Lit. '…my son who died.') {Txt}
         (Hernández-Green 2021: 120)

Cora

(25)   *ne-wá?a-u-séih*   *í*   *ti?irí:-¢e*
         1SG-PO3PL-CPL-see   DET   child-PL
         [*í*   *ti*   *Petra*   *tek^wára?i-se*   *wá?a-u-tatíhči-te?e*]
         DET**deix**   s3SG[SUB]   P.   hen-PL   PO3PL-CPL-grasp-APPL:R
         'I saw them, the children who Petra gave hens to.'
         (Vázquez Soto 2002: 330)

We do not analyze the relativization strategy in (24)–(25) as involving a relative pronoun, because we do not conceive of deixis as a semantic feature of the head noun, but as a property of the higher structure (the DP) in which the head noun is embedded. However, because the strategy in (24)–(25) uses a determiner, when the RC functions as a headless structure we analyze it as a RC headed by the determiner serving as a light head.

When the requirement of agreement in deixis is lost, the determiner becomes a relativizer,[13] which can be reanalyzed further as a general subordinator, as has happened, for example, to the determiners *te* and *ti* in Tseltal and Tsotsil (Mayan). Only in such cases we consider that the RC involves a gap. The case is shown in Tseltal in (26a), where the headed RC in question further exhibits a relative pronoun relativization strategy. An example of a headless RC with a gap is given in (26b), while

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13 The determiner may also become a relative pronoun if it signals the deixis of the relativized head in the RC with respect to the speech act event, independent of what happens in the matrix clause.

example (26c) illustrates the use of the subordinator *te* as a complementizer introducing a complement clause.[14]

Tseltal

(26) a. *ay-Ø*   *ox-tul*   *winik-etik* [*te* *mach'a-tik* *te* *ma* *la*
          EXIST-ABS3 three-CLF   man-PL   SUB who-PL   SUB NEG CPL
          s-k'an-Ø   *x-ch'uun-Ø*   *te* *Dios*]
          ERG3-want-ABS3   ERG3-believe-ABS3 DET god
          'There are three men who didn't want to believe in God.' {Txt}
          (Polian and Aissen 2021: 412)
     b. *melel* *yak-otik*   *s-nop-el*   *away* [*te* *ch'in* *alal-otik=e*]
          truth PRG-ABS1PL   ERG3-learn-INF EXPL   SUB DIM   child-ABS1PL=DET
          'Those of us who were children were learning it.' {Txt}
          (Lit. '…that we were children')
          (Polian 2013: 792)
     c. *ya*   *a-na'*   [*te* *ya=nanix*   *a-toj=a*]
          ICPL ERG2-know[ABS3] SUB ICPL-indeed ERG2-pay=ADV
          'You know that you'll have to pay it for sure.' {Txt}
          (Polian 2013: 816)

On the other hand, as asyndetic RCs are not introduced by an explicit syntactic connector, the RC in question (except when the RC exhibits an adposition in situ or when the predicate is inflected in a special subordinating mood) looks like a matrix clause superficially. It is only interpreted as an instance of a RC thanks to prosodic cues, which commonly involve a RC forming an intonational unit together with the head nominal. An example of an asyndetic headed RC is given in (27) from Copala Triqui (Mixtecan, Oto-Manguean). Here, apart from prosody, the presence of the declarative marker *a⁴*, occurring at sentence final position, further shows that the asyndetic RC *naj³ daan³²* 'is lying over there' is syntactically embedded in the structure containing the nominal head.

Copala Triqui

(27) *naanj¹³* *vaa³²*   *tu3³vo⁴* *txii¹³* *daan³²* [*naj³* *daan³²*] *a⁴*
      so   be_located tube   large   DEM   lie   DEM   DECL
      'So it's that large tube THAT IS LYING OVER THERE.' {Txt}
      (López Espinosa 2022: 86)

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14 Note that example (26a) further shows the use of *te* as a determiner in the phrase *te Dios* 'God'. An anonymous reviewer pointed out that the fact that a determiner and a subordinator have the same phonological form might have important implications for how the subordinate clauses are understood. While we do not have particular objections to this observation, we remind the reader that the case in Mayan is not that extraordinary typologically, as we also find it involving English *that*.

On the other hand, while all languages in the area exhibit the relative pronoun strategy in headed RCs, in many of them this strategy is ONLY found to relativize a locative. This restriction is not uniquely Mesoamerican though, as it is also found in non-Mesoamerican languages like Pesh (Chamoreau 2021a). In headless RCs, on the other hand, the relative pronoun strategy is common for other roles (see the various works in Caponigro et al. 2021).

3 Providing context for headless relative clauses with a gap in Mesoamerica

3.1 Headless relative clauses with a gap outside Mesoamerica

Headless RCs with a gap have generally passed unnoticed in the literature on the syntax of RCs, but one finds them in Maltese and in Irish. The examples in (28) are from Maltese.

MALTESE

(28)　a.　[*li*　*xtra-t*　　*mingħand-ek*], *ġie-ts'*　　　*għand-i*　　*illum*
　　　　COMP　buy.PFV-3SG.F　from_at-ACC2SG　come.PFV-3SG.F　till_at-GEN1SG　today
　　　　'THE ONE WHO BOUGHT (something) from you came to me today.'[15]
　　b.　*għamil-t*　[*li*　*għid-t-l-i*]
　　　　do.PFV-1SG　COMP　say.PFV-2SG-DAT-1SG
　　　　'I did WHAT YOU TOLD ME.'
　　　　(Lit. 'I did that you told me.')
　　　　(Sadler and Camilleri 2018: 125)

The case of Irish headless RCs is shown in (29). Relativization in Irish commonly involves a type of RC with the particle a^N (analyzed as a RC complementizer by McCloskey 2001). This particle introduces a RC that involves a resumptive strategy in headed RCs like 29a). This is in contradistinction to headless RCs, which are also introduced by a^N, like in (29b), but exhibit a gap,[16] (the superscript notation ^{N} makes reference to a specific type of stem mutation triggered on the verb of the verbal predicate in the RC).

IRISH

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15 There is a translation error in the in the source: '…bought from me' should have been '…bought from you'.
16 Headless RCs like (29b) are treated as amount RCs by Oda (2012), because they convey a maximal interpretation, as suggested by the translation.

(29) a. *an   scríbhneoir [aN   molann   na   mic léinn   é*]
the   writer   REL   praise   the.PL   students   him
'the writer whom the students praise'
(McCloskey 1979: 6, *apud* Oda 2012: 13)

  b. *d'ól   sé   [aN   bhfuair   sé* _]
drank   he   REL   got.DEP   he
'He drank ALL HE GOT.'
(Lit. 'He drank that he got.')
(Christian Brothers 1999: 145, *apud* Oda 2012: 30)

The absence of headless RCs with a gap in the literature could in principle be taken as an indication of the fact that they are rare cross-linguistically, but the very fact that they have been reported recently in both Maltese and in Irish, two languages spoken in the periphery of the linguistic area of Standard Average European (Haspelmath 2001) with its wealth of RC structure involving relative pronouns (Comrie 1998, but see Fiorentino 2007 for a critique), suggests that the type of headless RC that we study here may be more widespread than previously thought.[17]

3.2 Headless relative clauses with a gap in Mesoamerica

While apparently not very common elsewhere, headless RCs with a gap constitute a common type of structure in Mesoamerica, which we have only recently become aware of.[18] Headless RCs with a gap are found in different languages from different families all across the Mesoamerican area; see Map 1. We know about them either because they have been reported as such in the recent descriptive literature on these languages, or because we have found them in the linguistic materials available to us on these languages:

– In the Mixe-Zoquean languages (Zavala Maldonado 2021): (i) in the Zoquean family, in Ocotepec Zoque (De la Cruz Morales 2023:234, ex. 40); San Miguel Chimalapa (Jiménez Jiménez 2014: 626–632, 2021:114-115); Sierra Popoluca (López Márquez

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17 In Modern Greek, the complementizer *óτι* 'that' and the relative pronoun *ó,τι* 'whatever, anything that…' are homophonous, pronounced as /'o.ti/. The phonic merger may have syntactic consequences for the emergence of headless RCs with a gap in this language.

18 The phenomenon we study here has gone unnoticed in the eyes of linguists until recently. We believe this is mainly due to two reasons: (i) because we knew little about headless RCs in general until recently, and (ii) because syntactic analyses of Mesoamerican languages was mainly carried out through elicitation methods from Spanish, where the use of Spanish free relatives has biased the data. We report here on the phenomenon based only on recent work in which we know for certain that extensive research on headless RCs has been carried out on natural speech data.

2021: 505–506); Texistepec Popoluca (Díez Alejandre 2019:37, 60–75); (ii) in Mixean, in Tamazulápam Mixe (Santiago Martínez and Zavala Maldonado 2018: 26, exes. 93–96).

- In the Totonac-Tepehua family, in Tlachichilco Tepehua (Senovio Aquino 2022: 252–259, exes. 65–75).
- In the Mayan languages from almost all branches of family: (i) in Yucatecan, in Yucatec Maya (AnderBois and Chan Dzul 2021:467–469; Gutiérrez Bravo 2015: 130–134, exes. 36–40); (ii) in Ch'olan, in Ch'ol (Vázquez Álvarez and Coon 2021: 399, exes. 124–126); (iii) in Tseltalan, in Tseltal and Tsotsil (Polian and Aissen 2021: 437–438, exes. 123–125); (iv) in Q'anjob'alan, in Q'anjob'al (Mateo Toledo 2021b:320–321, exes. 465, 467, 499), Chuj (Royer 2021: 355–356, ex. 105), and Tojolab'al (Vázquez Hernández 2022: 175–177, exes. 69–75); (v) in K'ichee'an, in K'iche (Can Pixabaj 2021: 285–286, exes. 75–79), and Kaqchikel (Guarcax González 2016:235–237, exes. 101–104).
- In the Uto-Aztecan languages of the Mesoamerican area, in Cora (Vázquez-Soto 2002: 294, ex. 13) and Tlaxcala Nahuatl (Flores Nájera 2021: 106–107, exes. 65–69).
- In languages from different families of the Oto-Manguean stock: (i) in the Mixtecan family, in Ocotepec Mixtec (Cruz López 2022:123–125); (ii) in the Oto-Pamean family, in Tilapa Otomi (Palancar 2021: 274–275, exes. 47–52); Matlatzinca (Palancar and Carranza Martínez 2021: 168–170, exes. 56–60); San Agustín Mextepec Mazahua (Rivera Sánchez forthc.: Chap. 6 (exes.19, 21–22; 27–28, 44; 92; 95–96)) and San Pedro Potla Mazahua (Mora-Bustos 2019: exes. 1a, 20a, 30b, 31b, 32e); (iii) in the Popolocan family, in Ixcatec (Adamou and Costaouec 2019: 8–9, ex. 28); (iv) in the Tlapanecan-Subtiaban family, in Iliatenco Me'phaa (Duncan and Torrence 2021: 210–211, exes 68–71); and (v) in the Zapotecan family, in Zenzontepec Chatino (Campbell 2021:220, exes 81–82).
- In the two isolates Purhépecha (Nicolás Reyes forthc.) and Huave (Salminen 2016: 281).

Much work remains to be done on the RC syntax of many languages from Mexico and Central America to get a more complete picture of the distribution of the type in the region. However, the present state of our knowledge already allows us to conclude that the occurrence of this typologically rare type across many different languages from different families from all over the region cannot be explained as a chance outcome of language change, but reveals a typical Mesoamerican trait involving RC syntax induced by language contact. We develop a possible scenario for this in Section 5, but before doing so we present a number of situations involving headless RCs with a gap that we have identified in the area.
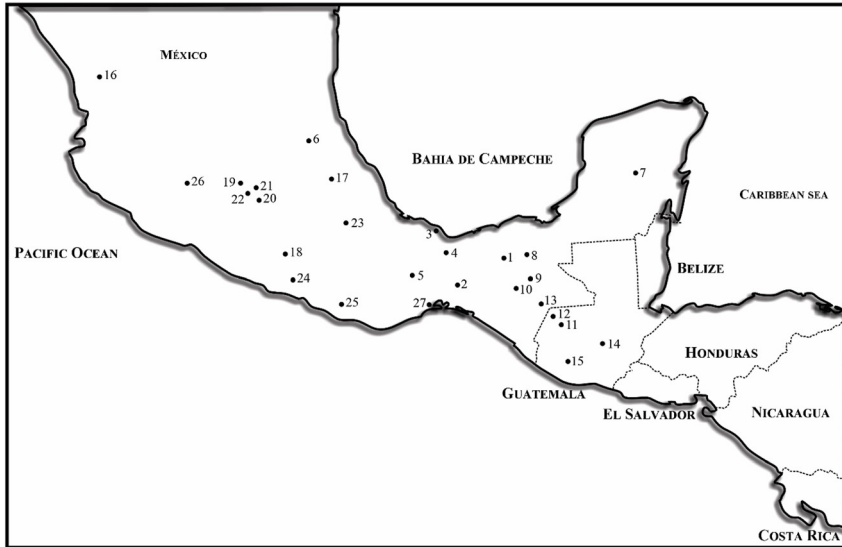
Map 1: Mesoamerican languages with headless RCs with a gap: 1. Ocotepec Zoque; 2. San Miguel Chimalapa; 3. Sierra Popoluca; 4. Texistepec Popoluca; 5. Tamazulápam Mixe; 6. Tlachichilco Tepehua; 7. Yucatec Maya; 8. Ch'ol; 9. Tseltal; 10. Tsotsil; 11. Q'anjob'al; 12 Chuj: 13. Tojolab'al; 14. K'iche; 15. Kaqchikel; 16. Cora; 17. Tlaxcalan Nahuatl; 18. Ocotepec Mixtec; 19. Matlatzinca; 21. San Agustín Mextepec Mazahua; 22. San Pedro Potla Mazahua; 20. Tilapa Otomi; 23. Ixcatec; 24. Iliatenco Me'phaa; 25. Zenzontepec Chatino; 26. Purhépecha; 27. Huave. © The authors.

4 Peculiarities of headless relative clauses with a gap

4.1 Distinctions involving definiteness in headless relative clauses with a gap

In this section, we examine the various correlations that we have observed between the syntactic subtype of headless RC with a gap (syndetic or asyndetic) and the degree of definiteness exhibited by the referent encoded by the RC (definite or indefinite).

We have mentioned that the gap strategy is the most common relativization strategy for headed RCs in Mesoamerican languages. The following generalization applies to headless RCs: no language uses the gap strategy for headless RCs if it does not

use it for headed RCs as well.[19] In this respect, Mesoamerican languages commonly have two subtypes of headed RC with a gap: syndetic and asyndetic. However, there are languages with ONLY one subtype.

When the language in question has only one subtype, whether the syndetic or the asyndetic, that subtype is also found in headless RCs with a gap. Then, a situation can arise where that subtype is used to express definite or indefinite reference. This situation is illustrated in Ch'ol (Mayan) in (30) and in Iliatenco Me'phaa (Tlapanecan) in (31) for the syndetic subtype; and in Tilapa Otomi (Oto-Pamean) in (32) for the asyndetic one. Examples in (a) have definite reference; examples in (b) have indefinite reference. As illustrated by in (30b) and (32b), indefinite reference is most naturally triggered when the RC is the subject of an existential predicate.

CH'OL

(30)   a.   [*ta'=**bä***   *i-ch'äm-ä-Ø*   *ma*]   *ta'=bi*   *sajty-i-Ø.*
            PFV=REL   ERG3-take-TV-ABS3   DIR.go   PFV=RPT   die-IV-ABS3
            '(They say that) it was THE ONE WHO TOOK IT WHO DIED.' {Txt}
            (Lit. '…it was that they took it died.')

       b.   *añ-Ø =äch*   [*mu'=**bä***   *i-mero*   *cha'l-eñ-oñ-la*   *tyi*   embidiar]
            EXIST-ABS3 =AFF   IMPFV=REL   ERG3-just   do-DTV-ABS1-PL   P   envy
            'There is indeed SOMEONE WHO ENVIES US.' {Txt}
            (Lit. 'There is indeed that envies us.')
            (Vázquez Álvarez and Coon 2021: 399)

ILIATENCO ME'PHAA

(31)   a.   *ma̠-xn-a̠a̠*   [***rí***[20]   *na-nd-áa'*]
            IRR.1SG-give-2SG   SUB   IMPFV-want-2SG
            'I'll give you THAT WHICH YOU WANT.'
            (Lit. 'I'll give you that you want.')

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19 The opposite does not apply: not every language that has the gap strategy for headed RCs employs the strategy for headless RCs.

20 Duncan and Torrence (2021) treat the subordinator *rí* as an "inanimate complementizer", as opposed to another element, *tsí*, which they treat as an "animate complementizer". We believe that this analysis can be improved by another one that avoids associating pronominalization features to complementizers. For us, *tsí* is an animate classifier that functions as a relative pronoun. We assume that the relativization of animate referents is achieved by a relative pronoun strategy, leaving all other cases for the gap strategy. *Rí* is a general subordinator which is also used to introduce complement, temporal and purpose clauses. The semantic association of *rí* with inanimate referents in RCs is therefore not inherent but contextual. That the language treats animate referents differently in relativization is not surprising, given that animacy is a ubiquitous semantic feature in the grammar of Tlapanecan languages (Suárez 1983).

b. *mbá*   *mi'tsú*   *ika*   *indií'* *ágá'yá*   [*rí* *mekho*]
   INDF.INAN time   PRG.go.s3AN tiger IRR.look_for SUB IRR.eat.s3AN
'One time the tiger was looking for SOMETHING TO EAT.' {Txt}
(Lit. '…was looking that he would eat.')
(Duncan and Torrence 2021: 210)

TILAPA OTOMI

(32) a. porke   *kha*   *ti*   *zo='ku=wi*
   because LOC.FOC PFV.IRR[s3] SS/arrive_there.AS=there=DU
   [*nkhonts'e*   *yí*   *kha'ni*]
   [IPFV]NOT_EXIST[s$_o$3] DEF.PL.POSS3 person
'Because THOSE WHO HAVE NO FAMILY end up there (with him).' {Txt}
(Lit. '…their family doesn't exist end up there (with him).')

b. porke   *hi=nkho=[gata*   *ntx'o='mbe*]
   because NEG=[IPFV]NOT_EXIST.AS[s$_o$3]=ADLAT.IRR.s1 MIDD/walk=DU.EXCL
'Because I have NOBODY TO GO TO (to ask for help).' {Txt}
(Lit. '…there isn't I shall go with.')
(Palancar 2021: 274–275)

Like Tilapa Otomi, Q'anjob'al (Mayan) is a language with only asyndetic headless RCs with a gap. However, in contrast to Tilapa Otomi, asyndetic headless RCs in Q'anjob'al can only be used with an indefinite interpretation, although the entity to which the headless RC makes reference may be highly anaphoric in context. This is shown in (33), which further shows that in Q'anjob'al, like in all Mayan languages, asyndetic headless RCs with a gap are only used as subject of an existential predicate.

Q'ANJOB'AL

(33)   Context: "Lukaxh and Mikin will cook dinner for some friends; they planned to cook chicken, but their dog ate all the chicken last night. Mikin bought some more in the morning, but Lukaxh does not know this. Then, when Lukaxh says: 'There is no chicken left', Mikin replies … to state that there is in fact the chicken she bought in the fridge."
   ay-Ø   [*max-Ø*   *w-aq'-ok-toq*   *y-ul*   refri]
   EXIST-ABS3   CPL-ABS3   ERG1SG-give-DIR-DIR POSS3-in   fridge
'There is SOME [chicken] THAT I PUT INTO THE FRIDGE.'
(Lit. 'There is I put into the fridge.')
(Mateo Toledo 2021b: 320–321)

On the other hand, languages may have both types of headless RC with a gap: syndetic and asyndetic. When this happens, we start seeing preferences involving the choice

of subtype. In no language in the region are the two subtypes of headless RCs exchangeable to the same degree as they seem to be in the context of headed RCs. There are various situations, but we can start with the one found in Tojolab'al (Mayan) and illustrated in (34) and (35). In this situation, the syndetic type is used for definite reference as in (34a), while the asyndetic one is used for indefinite reference only, as in (35a).

Tojolab'al

(34) a. *cham-Ø=ta*   [*it*   *j-ts'un-u-Ø=i'*]
          die-ABS3=already   REL   ERG1-sow-TR-ABS3=ENCL
          'What I sowed died.'
          (Lit. 'That I sowed died.')
          (Vázquez Hernández 2022: 175)

      b. **ay-Ø*   [*it*   *wa*   *s-nuts-u-Ø-e'*   *ja*   *yal*   *untik=i'*]
          EXIST-ABS3   REL   ICPL   ERG3-chase-TR-ABS3-3PL   DET   DIM   child=ENCL
          Intended reading: 'There are some that chase the little children.'
          (Lit. 'There are they chase the little children.')
          (María Rosalinda Vázquez Hernández pers. comm.)

Tojolab'al

(35) a. *ay-Ø*   [*wa*   *s-nuts-u-Ø-e'*   *ja*   *yal*   *untik=i'*]
          EXIST-ABS3   ICPL   ERG3-chase-TR-ABS3-3PL   DET   DIM   child=ENCL
          'There are some that chase the little children.'
          (Lit. 'There are they chase the little children.')
          (Vázquez Hernández 2022: 175)

      b. **jak-Ø=ta*   [*s-mak'-a-w-on*]
          come-ABS3=already   3ERG-hit-TR-EP-1ABS
          Intended reading: 'The one who hit me came by.'
          (Vázquez Hernández 2022: 175)

Tseltal, also a Mayan language, is like Tojolab'al. This is shown in (36) and in (37), but in Tseltal we have rare textual examples like the one in (37b) which point to the extension of the use of the asyndetic type as a definite expression.[21]

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21 The subordinated clause headed by *te* in (36a) can further be interpreted in Tseltal as a temporal adjunct clause ('they bring us when we work') or as a purpose adjunct clause ('they bring us for us to work') (Polian 2013: 792). This is further evidence that *te* is a general subordinator.

Tseltal

(36) a. *ya   y-ik'-otik   tel   [te   ya   x-'a'tej-otik=e]*
ICPL   ERG3-call-ABS1PL   DIR:come+NF   SUB   ICPL   ICPL.INTR-work-ABS1PL=DET
'They bring THOSE OF US WHO WORK.' {Txt}
(Lit. 'They bring that we work.')
(Polian 2013: 792)

b. **ay-Ø*   [*te*   *ya   x-ch'i-Ø-ik   ta   tsa'-wakax*]
EXIST-ABS3   SUB   ICPL   ICPL-grow-ABS3-PL   P   dung-cow
Intended reading: 'There are SOME (species of mushrooms) THAT GROW ON COW
DUNG.'
(Gilles Polian pers. comm.)

Tseltal

(37) a. *ay-Ø   [ya   x-ch'i-Ø-ik   ta   tsa'-wakax*]
EXIST-ABS3   ICPL   ICPL-grow-ABS3-PL   P   dung-cow
'There are SOME (species of mushrooms) THAT GROW ON COW DUNG.' {Txt}
(Lit. 'There are they grow on cow dung.') {Txt}
(Polian and Aissen 2021: 437)

b. *ma   x-tuhun-Ø   [la   aw-ich'-Ø-ik   tal]   che*
NEG   ICPL-be_useful-ABS3   CPL   ERG2-take-ABS3-PL   DIR   PRTCL
'THE ONE YOU BROUGH*t* is useless.' (talking about sticks required to make a
trap) {Txt}
(Lit. 'You brought is useless.')
(Polian and Aissen 2021: 438)

Matlatzinca (Oto-Pamean) is like Tseltal, but here the asyndetic subtype in (38) is a
well-established construction for both definite and indefinite, whereas the syndetic
one in (39) cannot be used for indefinite reference.

Matlatzinca

(38) a. [*me   n   to   meriu*] *tu   táni n   to   pari   'ix   n   to*
have   CLF   DIM   money   S3SG.CPL   buy   CLF   DIM   horse   and   CLF   DIM
burro
donkey
'THE ONE WHO HAS MONEY buys a horse or a donkey.' {Txt}
(Lit. 'Has money buys a horse or a donkey.')
(Palancar and Carranza Martínez 2021: 169)

b. o *wa'* [*ma'* *hih-k'i*]
    or   EXIST   S3SG.IMPF   teach-O2SG
    'Or there's SOMEONE WHO TAUGHT YOU.' {Txt}
    (Lit. '…there is s/he taught you.')
    (Palancar and Carranza Martínez 2021: 170)

MATLATZINCA

(39) a. *ga*   *khwen*   *hóhya* [***n*** *gu*   *khana*   *pax-kwentu*]
    PRTCL   S1PL.INCL.ICPL   forget   REL   S3SG.ICPL   well   keep.AS-talk
    'And we forget about THE ONE WHO HAS A GOOD COMMAND OF THE LANGUAGE…' {Txt}
    (Lit. '…we forget about that s/he has a good command of the language')
    (Palancar and Carranza Martínez 2021: 168)

b. *o wa'* [***n*** *ma'* *hih-k'i*]
    or   EXIST   REL   S3SG.IMPF   teach-O2SG
    Intended reading: 'Or there's SOMEONE WHO TAUGHT YOU.'

Finally, there are languages with both subtypes of headed RCs with a gap, but which use only one subtype for headless RCs. When this happens, the situations that we have found involve three possibilities:

(i) There are only asyndetic headless RCs and they only have indefinite reference. This happens in many Mayan languages. However, the structure often conveys specificity of the referent. This is shown by the contrast between (40a) and (40b) from Santa Lucía Utatlán K'iche' (Mayan). Here, the referent of the headless RC in (40a) is non-specific, whereas in (44b) is specific, but the construction involves change of verbal diathesis since the agent in focus is required. In all such languages, definite readings are conveyed by free relatives (i.e., headless RCs introduced by relative pronouns from *wh*-expressions).

SANTA LUCÍA UTATLÁN K'ICHE'

(40) a. *e*   *k'o* [*ka-k-eqaj*   *b'i*   *sii'*]
    ABS3PL   EXIST   ICPL-ERG3PL-carry   DIR   firewood
    'There are (people) WHO CARRY FIREWOOD.'
    ('There are they carry firewood.')

b. *Ø*   *k'o* [*k-Ø-eqa-**n***   *b'i*   *r-e*   *le*   *sii'*]
    ABS3SG   EXIST   ICPL-ABS3SG-carry-AF   DIR   ERG3SG-RN   DET   firewood
    'There is SOMEONE (a specific person) WHO CARRIES THE FIREWOOD.'
    ('There is it's by him the firewood is carried.')
    (Can Pixabaj 2021: 285)

(ii) There are only syndetic headless RCs and they only have definite reference. This is a common situation. It is found in Zenzontepec Chatino (Zapotecan) (Campbell 2021); in Ocotepec Mixtec (Mixtecan) (Cruz López 2022); in Ixcatec (Popolocan) (Adamou and Costaouec 2019); in Purhépecha (Isolate) as illustrated in (41) and in Tlaxcala Nahuatl (Uto-Aztecan) in (42). As shown in (41b), a light-headed RC with an indefinite pronoun as head must be used to convey indefinite reference in Purhépecha. Example (42b) from Tlaxcala Nahuatl further shows that an indefinite reading is not possible with an existential predicate. To attain such a reading, a free relative must be used, as in (42c).

Purhépecha

(41) a. *ja+la-s-Ø-ti*   [***enka**=ri*   *mi-ti-Ø-Ø-ka*]
          be_located-PRF-PRS-IND.S3   SUB=S2SG   know-face-PRF.SUBJV-PRS-SUBJV
          'There's THE ONE THAT YOU KNOW.'
          (Lit. 'There's that you know.')
          Not possible for: 'There's *someone that you know.*'
      b. *ja+la-s-Ø-ti*   **__ne-ma__**   [*enka=ri*
          be_located-PRF-PRS-IND.S3   someone-INDF   SUB=S2SG
          mi-ti-Ø-Ø-ka]
          know-face PRF.SUBJV-PRS-SUBJV
          'There's SOMEONE THAT YOU KNOW.'
          (Gerardo Nicolás Reyes pers. comm.)

Tlaxcala Nahuatl

(42) a. *nikan   Ø-kin-reconoseroa-h*   [***den**   a-wel   Ø-m-ewa-h*]
          here   S3-O3PL-recognize[IPFV]-PL   SUB   NEG-well   S3-MIDD-lift[IPFV]-PL
          'Here they recognize THOSE WHO CANNOT GET UP.' {Txt}
          (Lit. 'Here they recognize that cannot get up.')
          (Flores Nájera 2021: 107)
      b. *Ø-kah*   [***den**   ti-k-ixmati*]
          S3SG-be[IPFV]   SUB   S2SG-OP3SG-meet[IMPF]
          'There's THE ONE THAT YOU KNOW.'
          Not possible for: 'There's *someone you know.*'
          (Lucero Flores Nájera pers. comm.)
      c. *amo   Ø-kah*   [***tlen**   se   Ø-ki-kwa-s*]
          NEG   S3SG-be[IPFV]   WHAT   INDF_PRO   S3-O3SG-eat-IRR
          'There is nothing to eat.' {Txt}
          (Lit. 'There isn't WHAT ONE MAY EAT.')
          (Flores Nájera 2021: 95)

(iii) There are only syndetic headless RCs and they can have either definite or indefinite reference indistinctly. This happens in Tlachichilco Tepehua (Totonac-Tepehua). For this, compare (43a) with (43b). Here the RC exhibits the alternative relativizer *yuchu*, exchangeable in all contexts for the relativizer *yu.*

TLACHICHILCO TEPEHUA

(43) a. *tus   ta-lhaa'a-lh*   [***yuchu*** *ix-lan-ta-w*]
          even   S3PL-take-PFV   REL   PST-carry-PRF-S1PL
          'They even took WHAT WE CARRIED.' {Txt}
          (LIT. 'They even took that we carried.')
          (Senovio Aquino 2022: 254)

     b. *alin* [***yuchu*** *lay   ka-manu-ni-n*   *la*   *migrasion*]
          EXIST REL   be_able IRR-put_in-BEN-O2SG the   immigration_police
          'There is SOMEONE WHO CAN ACCUSE YOU TO THE IMMIGRATION POLICE.' {Txt}
          (Lit. 'There is that can accuse you to the immigration police.')
          (Senovio Aquino 2022: 254)

A summary of the attested situations that we have discussed, in the order that we have presented them, is given in Table 2. The situations we find across Mesoamerican languages in Table 2 suggest the existence of a strong correlation between degree of definiteness of the referent of the headless RC and subtype of RC with a gap that is used to build that reference. We propose that there is a canonical functional mapping between syndetic headless RCs with a gap and their use to convey definite reference, and between asyndetic headless RCs with a gap and indefinite reference. This is the situation that we find in Tojolab'al. This means that the syndetic subtype is used by default when the referent is definite (e.g., Tseltal, Purhépecha, Nahuatl), while the asyndetic subtype is preferred for indefinite reference (although probably specific) (e.g., Q'anjobal, K'iche'). As we do not seem to find the opposite situation, where the syndetic subtype is only used for indefinite reference, with asyndetic for definite, we thus depart from the canonical situation to understand other situations. For example, when a given headless RC with a gap is used for both definite and indefinite reference, we consider that this is the result of an extension of the use of the construction in question, indicated by the directionality of the arrows (→/←) in Table 2, from syndetic definite to indefinite (e.g., Chol, Me'phaa, Tepehua), and from asyndetic indefinite to definite (e.g., Tilapa Otomi, Matlatzinca), (*n/a* non-applicable; ✓ attested use of the construction; *X* impossibility of using the construction for this reading; # indicates an emergent reading).

The fact that syndesis is linked to definiteness may have to do with the fact that many subordinators in RC structure in Mesoamerican languages, either relativizers or general subordinators, stem from definite determiners. As the grammaticalization

Table 2: Correlation of definiteness and subtypes of headless RCs with a gap.

Subtype of RC with a gap		Headed RCs	Headless RCs			Languages and examples
			DEF		INDEF	
One subtype	Asyndetic	No	n/a		n/a	Chol (30), Me'phaa (31)
	Syndetic	Yes	✓	→	✓	
	Asyndetic	Yes	✓	←	✓	Tilapa Otomi (32)
	Syndetic	No	n/a		n/a	
	Asyndetic	Yes	X		✓	Q'anjobal (33)
	Syndetic	No	n/a		n/a	
Two subtypes	Asyndetic	Yes	X		✓	Tojolab'al (34–35)
	Syndetic	Yes	✓		X	
	Asyndetic	Yes	✓#	←	✓	Tseltal (36–37)
	Syndetic	Yes	✓		X	
	Asyndetic	Yes	✓	←	✓	Matlatzinca (38–39)
	Syndetic	Yes	✓		X	
	Asyndetic	Yes	X		✓	K'iche' (40)
	Syndetic	Yes	X		X	
	Asyndetic	Yes	X		X	Purhépecha (41), Nahuatl (42)
	Syndetic	Yes	✓		X	
	Asyndetic	Yes	X		X	Tepehua (43)
	Syndetic	Yes	✓	→	✓	

into subordinators continues, they are likely to hold out longer in definite contexts, but in some languages the original semantics of the linker becomes more bleached as the linker is used in indefinite contexts. In contrast, asyndetic RCs are free from the definite constraint imposed by definite linkers and their structure is perceived as ideal to convey indefinite reference.[22]

    Finally, in Table 3 we give other possible situations that we have not found attested so far in the languages that we have studied, together with what we believe are improbable situations that are not likely to be found.

4.2 Accessibility of relativization in headless relative clauses with a gap

In headless RCs, most Mesoamerican languages allow relativization of most syntactic functions with the gap strategy (in the sense of Keenan and Comrie 1977). The common situation is illustrated in San Miguel Chimalapa Zoque (Mixe-Zoquean) in

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22 We are grateful to an anonymous reviewer for this invaluable observation.

Table 3: Other possible and improbable situations involving definiteness and headless RCs with a gap.

Subtype of RC with a gap		Headed RCs	Headless RCs			Languages and examples
			DEF		**INDEF**	
One subtype	Asyndetic	No	n/a		n/a	Possible, but not attested (yet)
	Syndetic	Yes	✓		X	
Two subtypes	Asyndetic	Yes	X		✓	Possible, but not attested (yet)
	Syndetic	Yes	✓	→	✓	
	Asyndetic	Yes	✓	←	✓	Possible, but not attested (yet)
	Syndetic	Yes	X		X	
	Asyndetic	Yes	✓	←	✓	Possible, but not attested (yet)
	Syndetic	Yes	✓	→	✓	
	Asyndetic	Yes	✓		X	Improbable
	Syndetic	Yes	X		✓	
	Asyndetic	Yes	✓	←	✓	Improbable
	Syndetic	Yes	X		✓	
	Asyndetic	Yes	✓		X	Improbable
	Syndetic	Yes	✓	→	✓	

the examples in (44), where a headless RC with a gap can be employed for the relativization of subjects, objects, instruments, comitatives and possessors (Jiménez Jiménez 2014: 362–363).

San Miguel Chimalapa Zoque

(44) a. Relativized intransitive subject:
mas   antes   [Ø=jej-xuk-wɨ=**pɨ'**]   ya   'iy=lastim-tsɨk-xuk-wɨ
more before s.ɪ3=live-3PL-CPL.I=REL NEG A3=hurt-do-3PL-CPL.I
ney   'awin
POSS.PL.1EXCL sibling
'Those who lived the longest before did not hurt our brothers.' {Txt}
(Lit. 'That lived the longest before did not hurt our brothers.')

b. Relativized transitive subject:
[miyones   mi=ofrests-tsɨk-wɨ=**pɨ'**]   Ø=min-wɨ
millions   PO2=offer-do-CPL.I=REL   s.ɪ3=come-CPL.I
'The one who offered you millions came.'
(Lit. 'That offered you millions came.')

c. Relativized primary object:
Ø=xuk-wɨ   ['iy=kɨx-wɨ=**pɨ'**]
s.ɪ3=finish-CPL.I   A3=eat-CPL.I=REL
'S/he finished what s/he ate.'
(Lit. 'S/he finished that s/he ate.')

    d.   Relativized secondary object:

        yampa   *Ø=pitsim-wɨ*   [*'ɨy=tsi'-wɨ=**pɨ'***]
        PRF.NEG   S.I3=exit-CPL.I   A3=give-CPL.I=REL
        'WHAT HE GAVE HIM has not come out.' {Txt}
        (Lit. 'That he gave him has not come out.')

    e.   Relativized instrumental oblique:

        'in=juy-wɨ   [*bi* *yoya* *'in=yak-ka'-wɨ=**pɨ'**   **pɨ't**]
        A1=buy-CPL.I   DET   pig   A1=CAUS-die-CPL.I=REL   POSTP:INSTR
        'I bought THE THING I KILLED THE PIG WITH.'
        (Lit. 'I bought that I killed the pig with')

    f.   Relativized comitative oblique:

        [*ti=tik-'ɨy-wɨ=**pɨ'**   **jinang**]   *'in='ix-wɨ*
        S.I1=house-VRS-CPL.I=REL   POSTP:COM   A1=see-CPL.I
        'I saw THE ONE WITH WHOM I GOT IN.'
        (Lit. 'I saw that I got in with.')

    g.   Relativized possessor:

        'in='ix-pɨk-we   [*'ɨy='une*   *Ø=ka'-wɨ=**pɨ'**]
        A1=see-grasp-CPL.I   POSS3=child   S.I3=die-CPL.I=REL
        'I knew THE ONE WHOSE CHILD DIED.'
        (LIT. 'I knew that his/her child died.')

As the situation in San Miguel Chimalapa Zoque in (44) is found elsewhere, we take it to represent that the construction is perceived by speakers to be an optimal encoding device to make reference to entities that participate in states of affairs as arguments of the matrix predicate. This means that at a semantic level the gap in the headless RC readily indexes an entity, a being. However, when it comes to handle the encoding of circumstances associated to states of affairs, the situation is different, as languages differ greatly as to the degree they allow for a headless RC with a gap to make reference to such circumstances. In some, like San Miguel Chimalapa Zoque, cause/reason, time and manner cannot be encoded, as shown in (45) (Jiménez Jiménez 2014: 363).[23]

SAN MIGUEL CHIMALAPA ZOQUE

(45)   a.   Relativized cause/reason:

        *'in='ixxɨ   [*ti=tij-wɨ=**pɨ'**=**ko**]
        A1=see-CPL.I   S.I1=go:come_back-CPL.I=REL=POSTP:RSN
        Intended reading: 'I saw it BECAUSE OF THE ONE I CAME BACK FOR.'

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23 For the expressions of such notions, speakers may use headless RCs with a relative pronoun, headed RCs with head nouns equivalent to "the time that", "the manner how", or simply by adverbial subordinate clauses.

b.   Relativized time:
['ɨn='ix-wɨ=**pɨ'**=ji*]   *Ø=mɨ'-'ɨy-wɨ*
A1=see-CPL.I=REL=POSTP:LOC   S.I3=wife-VRS-CPL.I
Intended reading: 'She got married WHEN I SAW HER.'

c.   Relativized manner:
* [*'ɨm=tung-'a-pa=**pɨ'k**=ji*]   *tɨ=gust-tsɨk-pa*
S.I2=walk-INCH-ICPL.I=REL=POSTP:LOC   OP1-like-do-ICPL.I
Intended reading: 'I like HOW YOU WALK.'

In languages like Tlachichilco Tepehua (Totonac-Tepehua), the construction is allowed for a cause/reason, in (46a), where it is treated as an applied argument of the predicate via the applicative *lhii-*, but it is not for time or reason, as there is no applicative marker for these notions (Senovio Aquino 2022: 257–258).

Tʟᴀᴄʜɪᴄʜɪʟᴄᴏ Tᴇᴘᴇʜᴜᴀ

(46)   a.   Relativized cause/reason:
*jaantu   mati'   k-'atsa-y   [yuu   k-**lhii**-'aqxaw-lh]*
NEG   someone s1sG-know-IMPFV REL   s1sG-RSN-get_upset-PFV
'Nobody knows *the* REASON WHY I GOT UPSET.'[24]
(Lit. 'Nobody knows THAT I GOT UPSET FOR.')

b.   Relativized time:
**laqabiti-lh*   [*yuu   ali-lh   k'aatan*]
[s3sG]faint-PFV   REL   EXIST-PFV   party
Intended reading: 'He fainted WHEN THERE WAS A PARTY.'

c.   Relativized manner:
**k-tapaatsa-lh*   [*yuu   ix-tapatsaa-y   kim-papa*]
s1sG-work-PFV   REL   PST-work-IMPFV   POSS1-grandfather
Intended reading: 'I work as my grandfather used to work.'

The relativization of time and manner is even rarer, but the construction is attested in Sierra Popoluca (Mixe-Zoquean) for time, as shown in (47).[25]

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24 An anonymous reviewer points out the possibility that this example could be mistaken to be an interrogative complement. The reader should note that the headless RC is introduced by a relativizer and not by an interrogative pronoun.

25 An anonymous reviewer has pointed out to us that the time interpretation in this example may be pragmatically inferred and that the example just means 'his death (Lit. that he lost) arrived'.

Sɪᴇʀʀᴀ Pᴏᴘᴏʟᴜᴄᴀ

(47)   Relativized time:
        Ø-nuk-wɨ   *[ʔiga*   *Ø-tokoy-wɨ*]
        ᴀʙs3-arrive-ᴄᴘʟ   sᴜʙ   ᴀʙs3-lose-ᴄᴘʟ
        'The time of his death arrived.' {Txt}
        (Lit. 'That he lost arrived.')
        (López Márquez 2021: 506)

In contrast, as far as our knowledge goes, the relativization of a locative adjunct is never allowed, illustrated in (48) in San Miguel Chimalapa Zoque.

Sᴀɴ Mɪɢᴜᴇʟ Cʜɪᴍᴀʟᴀᴘᴀ Zᴏǫᴜᴇ

(48)   Relativized locative:
        ['ɨm=po'-wɨ=pɨ'***   *'ang=ji*]   *ti=ye'ts-tam-wɨ*
        ᴀ2=be_born-ᴄᴘʟ.ɪ=ʀᴇʟ   ʀɴ:mouth=ᴘᴏsᴛᴘ:ʟᴏᴄ   s.ɪ1=arrive-1/2ᴘʟ-ᴄᴘʟ.ɪ
        Intended reading: 'We got to (the place) ᴡʜᴇʀᴇ ʏᴏᴜ ᴡᴇʀᴇ ʙᴏʀɴ.'
        (Jiménez Jiménez 2014: 363)

The restriction affecting the relativization of locatives as in (48) responds, however, to a more general situation. In headed RCs across all Mesoamerican languages, the locative adjunct relation is the only one that can always be naturally relativized by means of the relative pronoun strategy, to the extent that in many languages, the relative pronoun strategy is in fact obligatory for relativizing locatives.[26] In contrast, all other positions, core or peripheral, are susceptible to relativization by the gap strategy in headed RCs. The situation involving the relativization of locatives in headed RCs affects headless RCs as well. No language in Mesoamerica uses a headless RC with a gap to make reference to a place. For that purpose, headless RCs with locative relative pronouns must be used. This is shown in (49a) in San Miguel Chimalapa Zoque, where the locative pronoun comes from an interrogative expression (i.e., a free relative), as shown in (49b). At times, different types of locative pronouns are found in the same language for headless RCs, like in San Pedro Mixtepec Zapotec (Zapotecan), which may use the interrogative *pà* 'ᴡʜᴇʀᴇ' or the locative pronouns *zàndè/làdnè* (Antonio Ramos 2021: 231, 247, 255).

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26 This restriction is not exclusive to the languages of the region. To the south of Mesoamerica it is also found in Chibchan languages, reported for example in Pesh (Chamoreau 2021b) and Cabecar (González Campos and Lehmann 2021). To the north it is found in the Uto-Aztecan languages, which require a special locative nominalizer (Álvarez González 2012).

San Miguel Chimalapa Zoque

(49)   a.   Interrogated locative:
         tey   ***ju***   *'im=yak-ka'-tam-Wɨ*   *ka'*   *'anmal?*
         now   WHERE   A2=CAUS-die-PL.SAP-CPL.I   DIST   animal
         'Now, where did you kill that animal?' {Txt}
         (Jiménez Jiménez 2014: 342).
   b.   Relativized locative:
         tø=ye'ts-tam-wɨ   [***ju***   *woy-wit-kuy*   *Ø=pɨ't-pa=jɨ*]
         S1.I=arrive-PL.SAP-CPL.I   WHERE   roll-walk-NMLZ:INSTR   S3I=pass-ICP.I=LOC.POSTP
         'We arrived WHERE THE CHARIOT PASSES BY.' {Txt}
         (Jiménez Jiménez 2014: 355).

5 The spread of headless relative clauses with a gap in Mesoamerica: discussion and concluding remarks

In this paper, taking a functional typological perspective on the syntax of RCs, we have presented ample evidence for the existence of a third type of headless RC that is characterized by the fact that it exhibits a gap relativization strategy. The other two reported types in the typological literature are headless RCs with a light head and headless RCs with a relative pronoun, which include 'free relatives' if the pronoun is recruited from a *wh*-expression (Caponigro 2003: 10). We have also shown that, although a headless RC with a gap is not a common type cross-linguistically (if it had been, it would have been reported much earlier), it is neither a typological *rarum*, because it is found in many Mesoamerican languages belonging to many different linguistic families. In fact, the phenomenon is so widespread in the region that it cannot be interpreted as due to chance; that is, as an outcome of isolated changes affecting the RC syntax of different languages in an independent way from what happens in neighboring languages. Accordingly, we have proposed that headless RCs with a gap constitute a characteristic areal trait of Mesoamerican languages, and we suggest it should be seen as a result of the diffusion of certain traits of RC structure among the ancestor languages of today's languages. The diffusion was made possible from the intense language contact between the different neighboring linguistic communities mostly before the arrival of the Spaniards. This intense linguistic contact in turn further nurtured the cultural convergence of Mesoamerica. However, it could be argued that the scenario that we propose necessarily entails that RC

structure can be borrowed; especially when it comes to headless RCs. There is evidence that this has indeed been the case in Mesoamerica:

– The Ch'olan languages (Ch'ol and Chontal) of the Mayan family acquired the Wackernagel relativizer enclitic = *bä* as a borrowing from a Zoquean language of the Mixe-Zoquean family (Palancar et al. 2021). These two Mayan languages also borrowed from Zoquean prenominal headed RCs, which are absent from Mayan, and they seem to have emulated the usage of headless RCs with a gap from Zoquean too, as these RCs are used in Ch'olan with the same distribution as in Zoquean, when no other Mayan language uses them with the same ease.

– Sierra Popoluca, a Zoquean language from the Gulf Zoque subgroup, acquired the subordinator *ʔiga* from a neighboring Nahua variety, most probably from Pajapan Nahuat. The phenomenon is interesting, because in Pajapan Nahuat, RCs are introduced by the relativizer *yen*, while *ʔiga* is only used in complement clauses (Peralta Ramírez 2017). From this situation, Sierra Popoluca first borrowed the Nahuat conjunction as a complementizer, and then extended it to the syntax of RCs with a gap as a natural replacement of native relativizer *=ʔpV*. In headless RCs with a gap, such as the one in (47) above, the replacement was restricted to RCs that serve as subjects of intransitive matrix predicates (López Márquez 2021), while the native construction continued to be used for this and other functions.

– In different unrelated languages from Mesoamerica (e.g., Tilapa Otomi, Texistepec Popoluca, etc.), the string *lo que* from Spanish light-headed RCs of the type in [*lo* [*que dices*] [DEF.N [SUB say.S2SG.PRS.IND]] 'what you say' (Lit. 'the that you say'), has been reanalyzed as the single word *loke* and it is now used as an inanimate relative pronoun exclusively circumscribed to headless RCs. This is illustrated in (50) from Tilapa Otomi, where the headless RC works as a causal adjunct of the matrix predicate.

Tɪʟᴀᴘᴀ Oᴛᴏᴍɪ

(50)   [**loke**   bi   kha]   bi   mba
         REL.PRO.INAN   PFV[S3]   do   PFV[S3] SS/go
         'He went away ғᴏʀ ᴡʜᴀᴛ ʜᴇ ᴅɪᴅ.' {Txt}

In order to understand the typological situation that we observe in Mesoamerica concerning headless RCs with a gap, it makes sense to account for the spread of this construction as resulting from the diffusion dynamics originating from intense language contact. The question remains as to which linguistic group the type originated in. In this respect, there is one thing we know for sure: the language was not Nahuatl, because Nahuatl is a newcomer to the Mesoamerican region, and its native Uto-Aztecan syntax was deeply influenced by the linguistic trends of the languages spoken in the area (Kaufman 1974: 46–50; Kaufman and Justeson 2009),

including headless RCs with a gap. However, Nahuatl must have contributed to the preservation of the type in a later period in the history of Mesoamerica at a time when it served as a lingua franca during the Aztec empire. The type must be very old, and it is likely that it was native to an ancient Mixe-Zoquean language,[27] now lost, which may have been the prestigious language of the ruling class of the Teotihuacan civilization (see Kaufman and Justeson 2007, 2009).[28]

We suspect that the diffusion of the type must indeed have happened before the time of Teotihuacan's fall in the seventh century AD.[29] The type is found in Tilapa Otomi (Oto-Pamean, Oto-Manguean), which is the most conservative Otomi language (Palancar 2012). The fact that it exists in this Otomi language suggests that it could be traced back to Proto-Otomi-Mazahua, because Otomi is believed to have split from Mazahua at the time of the abandonment of Teotihuacan (Hopkins 1984). Resisting in Tilapa Otomi, the other modern languages of the family that emerged from the dialectal diversification of both Otomi and Mazahua in the colonial times of New Spain instead privileged headless RCs of the free relative type or the light head type (Hernández-Green 2021, Palancar 2008).[30] However, as we have seen in Section 4.3, the type showed resilience in Mazahua in the grammatical context of clefts.

The present proposal has been made possible by the results of a body of recent research on the syntax of relativization in several languages of the Mesoamerican area (for example in the works in Caponigro et al. 2021; Palancar et al. 2021). This research has shed new light on headless RCs, being firmly empirical, and based on large samples of natural speech data resulting from the documentation efforts carried out in the languages in question. The traditional methodology used to obtain data on relativization in the Mesoamerican languages involved elicitation from Spanish, and as such, the output has always been biased by the syntax of Spanish free relatives from the input. Although much remains to be done, the high-quality work generated so far on the structure of RCs in the languages of this area of the world has allowed us to establish that headless RCs with a gap are

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27 We know that the type is old in Mixe-Zoquean, because most languages of the family have the type and they have it encoded by cognate morphology.

28 It is well known that the city of Teotihuacan played a fundamental role in the configuration and diffusion of Mesoamerican culture with its specific cultural traits (religion, mythology, art, way of life, etc.) (Manzanilla 2017). It is also known that Teotihuacan society was multi-ethnic, and it is therefore believed that it was also multilingual, but with an aristocracy speaking a prestige language.

29 Asyndetic headless RCs with a gap are also found in Matlatzinca, which Cazes (1971) claimed split from Otomi-Mazahua well before the Christian era. The fact that headless RCs with a gap exist in this language could be equally interpreted as an Otomian relic or because of the diffusion of the type, as Matlatzinca was once spoken throughout the vast territory of the Valley of Toluca.

30 The diversity in the marking used for this purpose is an indication of its innovative character.

common enough in Mesoamerica to allow us to treat them with certainty as a distinctive trait of the Mesoamerican linguistic area.

Nevertheless, as shown in Section 3.1, we need to remind ourselves that such constructions are not confined to Mesoamerican languages: they are found not only in distant languages like Maltese and Irish, but also in some South American languages, where they involve nominalization constructions. For instance, example (51) from Mẽbengokre is illustrative of the type (the gap in the RC is indicated by [e]).

MẼBENGOKRE

(51)   [*a-je* **[e]** *o   mry   bĩn*]   *dja   ga   i-m   a-ngã*
          2-ERG   INSTR   animal   kill.NMLZ   FUT   2NOM   1-DAT   2>3-give.V
          'Give me WHAT YOU USE TO KILL GAME.' (Salanova 2010: 60)

It remains an open question for future research, beyond the scope of this paper, whether constructions akin to (51) show areal distributions that may align with the perimeters of identified linguistic areas in the South American subcontinent, and whether it could be argued that such constructions might be understood as constitutive features of those areas in the same fashion as we have proposed for Mesoamerica.

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