UDC 81-114.4
DOI: 10.31862/2500-2953-2023-3-33-64

**J. Olguin Martinez**

Illinois State University,
Normal, 61761, USA

# ‘Until’ clauses in typological perspective

Based on a sample of 218 languages, the paper shows that most languages tend to use conjunctions and converbs for expressing ‘until’. In a number of languages, these markers appear to be diachronically connected to case markers (e.g. dative case markers), verbs (e.g. ‘to arrive’), nouns (e.g. ‘edge’), and adverb(ial)s meaning ‘only’. Also discussed are other rare strategies, which seem to show clear areal patterns. In particular, some languages from Mali use an ‘until’ clause with a verb meaning ‘to get tired’ to express ‘for a long time’, and some languages from Mesoamerica use ‘until’ clauses with expletive negative markers.

**Key words:** ‘Until’ clauses, adverbial clauses, typology, areality, language contact

FOR CITATION: Olguin Martinez J. ‘Until’ clauses in typological perspective. *Rhema*. 2023. No. 3. Pp. 33–64. DOI: 10.31862/2500-2953-2023-3-33-64

© Olguin Martinez J., 2023

Контент доступен по лицензии Creative Commons Attribution 4.0 International License
The content is licensed under a Creative Commons Attribution 4.0 International License

DOI: 10.31862/2500-2953-2023-3-33-64

**Х. Ольгин Мартинес**

Государственный университет штата Иллинойс,
61761 г. Иллинойс, США

# Зависимые клаузы со значением временной границы в типологической перспективе

На основании выборки из 218 языков мы показываем, что в большей части языков значение ограничения ситуации во времени выражается с помощью союзов и конвербов. В части языков показатели диахронически связаны с падежными показателями (напр., дативными), глаголами (напр., со значением ‘прибывать’), существительными (напр., со значением ‘граница’) и наречиями и адвербиалами со значением ‘только’. В статье также обсуждаются другие более редкие стратегии выражения искомого значения, которые оказываются ограничены конкретными языковыми ареалами. В частности, в некоторых языках Мали значение ограничения ситуации во времени выражается с помощью глагола со значением ‘устать’, что подчеркивает длительность ограниченной ситуации, а в некоторых языках Мезоамерики клаузы со значением ограничения во времени используются с показателями эксплетивного отрицания.

**Ключевые слова:** ограничение времени ситуации, временные клаузы, адвербиальные клаузы, типология, языковые контакты

ДЛЯ ЦИТИРОВАНИЯ: Ольгин Мартинес Х. Зависимые клаузы со значением временной границы в типологической перспективе // Рема. Rhema. 2023. № 3. С. 33–64. DOI: 10.31862/2500-2953-2023-3-33-64

## 1. Introduction

Temporal clauses expressing **terminal boundary** [‘until’ clauses] mark the endpoint of a situation expressed in the main clause [Kortmann, 1997, p. 85; Hetterle, 2015, p. 48]. Two types of ‘until’ constructions have been distinguished in the literature [Karttunen, 1974; Mittwoch, 1977]. First, there are ‘until’constructions in which the main clause appears with a durative

predicate (1). In this construction, the 'until' clause indicates the endpoint or end-period of the main clause situation [Kortmann, 1997, p. 85]. Second, there are 'until' constructions in which the main clause appears with a non-durative predicate and a negative marker [see de Swart et al., 2022], as in (2).[1]

(1) *Danny will sleep **until** the party starts.*

(2) *Danny will **not** put his hat on **until** the party starts.*

The constructions in (1) and (2) are formally similar. In a literal sense, (2) exactly parallels (1), since the situation 'Danny will not put his hat on' continues up to the point where the situation 'the party starts' occurs. However, the function of (2) is rather different, namely to say that Danny will only put his hat on when the party starts. Accordingly, 'until' constructions as in (2) are not taken into account in the present study. Another reason for not including examples like (2) stems from the fact that there are few relevant examples in the sample sources.

Two little understood areas of 'until' clause constructions are the crosslinguistic variation in the expression of this semantic relation, and its areality [but see Wälchli, 2018].[2] A number of 'until' clause-linking devices that are crosslinguistically rare occur in areal clusters, suggesting that language contact has played an important role in their distribution, that is, it is statistically unlikely that these languages have undergone such a rare developmental process independently of one another. Their a reality is a puzzle because speakers seem to have replicated these devices with native material (i.e. pattern replication). The theoretical importance of exploring areal clusters of clause-linking devices has been highlighted by various typological studies. K. Schmidtke-Bode mentions that a large-scale sample can do a great deal to help us gain a better understanding of the areal dynamics that lead a particular clause-linking device to spread in a particular area [Schmidtke-Bode, 2009, p. 202]. A. Martowicz notes that exploring areal clusters and the direction of spread is an area of research that would be worth pursuing in future studies, and large-scale samples can do a great deal to explore this domain [Martowicz, 2011, p. 327]. Likewise, K. Hetterle points out that exploring areal patterns of clause-linking devices is a domain that deserves

[1] There are other types of 'until' constructions proposed in the literature. For instance, Georgieva and Muraviev (2018) mention that there are 'until' constructions including a result/degree (e.g. *beat x until x dies*). Giannakidou (2003) notes, based on data from Greek, that there are 'until' construction in which a main clause occurs with a present perfect verb form and with a negative marker.

[2] 'Until' clauses have also received some attention in specific language families, such as Uralic [see Muraviev, 2017].

to be studied in future studies [Hetterle, 2015, p. 269]. Accordingly, analyzing the areality of 'until' devices seems to be a good next step.

The present research explores the form of 'until' clause-linkage patterns, and the areality of a number of 'until' devices. The organization of this paper is as follows. Section 2 addresses methodological questions relating to the language sample used and the collection and analysis of the data. The database consists of 218 languages for which it was possible to find sufficient information on the grammar of 'until' clauses. Additionally, in order to enhance the quality of the data, native speakers and linguistic fieldworkers on a number of languages were consulted to confirm certain analyses and to discuss alternative ones. Section 3 analyzes the range of clause-linkage patterns expressing 'until' relations in the sample. Special attention is paid to the diachronic sources of 'until' devices (e.g. terminative/limitative case markers, verbs meaning 'to arrive). Section 4 explores the areality of two rare clause-linkage patterns: 'Until getting tired' used for expressing 'for a long time' in Mali, and 'until' clauses occurring with expletive negative markers in Mesoamerica. Section 5 reviews the conclusions and implications of the paper.

## 2. Sample

The present study explores the crosslinguistic variation of 'until' clause-linking strategies. Accordingly, determining the languages that will serve as data sources for exploring the amount of variation in this domain is an important methodological step. In asking about the possible range of crosslinguistic variation, we are speaking of the range of variation that characterizes some particular sample of human languages [Comrie, 1993, p. 4]. To do so, we must equip ourselves with a sample representative of human languages, with respect to the phenomenon that we are investigating, i.e. 'until' clause-linking strategies. However, while this points the way towards a solution, it does not automatically provide a solution. This stems from the fact that we still need to ask the following question: What is the basis of such a sampling procedure?

It goes without saying that the range of variation in this domain can be addressed by simply including every one of the world's approximately 7,000 languages in the study. However, this is impractical in that not all languages have been described with respect to the phenomenon under investigation. Furthermore, even if one had access to adequate sources for all 7,000 languages, it would be time-consuming to include them all [Miestamo et al., 2016, p. 235] and the sample would be unbalanced [Comrie, 1989, p. 10]. With this in mind, typologists rely on samples smaller than 7,000 languages.

In the typological literature, there have been several proposals for sampling. Note, however, that the adoption of one sampling method over another

depends on the type of research question(s) to be explored. If one is interested in exploring statistical testing of tendencies and correlations, probability samples can do a great deal to uncover valid statistical generalizations. On the other hand, if one is interested in exploring the crosslinguistic diversity of the encoding of one specific phenomenon, variety samples are the best method in that they can reveal even the rarest strategies or types of expression in the domain explored [Rijkhoff et al., 1993, p. 171].

As for probability samples, they are meant to explore crosslinguistic frequencies of features, correlations between them, or other statistical measures. For these types of samples, it becomes crucial that the samples have as few biases as possible that could distort the numbers [Miestamo et al., 2016, p. 235]. The methods proposed in [Dryer, 1989; Perkins, 1989] are designed especially for this purpose. However, note that the requirement that the languages be independent units makes it rather difficult to construct a good probability sample. Even with a sample of relatively small size, it is impossible to include only languages that are completely independent of each other in these respects [Rijkhoff, Bakker, 1998, p. 265].

Variety sampling aims at capturing as much of the world's linguistic diversity as possible. Accordingly, the more languages in sample, the better equipped it is to capture the crosslinguistic variety of the phenomenon under study. In this regard, it is likely that by taking into account a large sample, no linguistic features, not even the rarest ones, are disregarded. There are two sampling methods that have been designed for variety sampling: The Diversity Value method proposed by [Rijkhoff et al., 1993; Rijkhoff, Bakker, 1998], and the Genus-Macroarea method proposed by [Miestamo, 2005]. The Diversity Value method proposed by [Rijkhoff et al., 1993; Rijkhoff, Bakker, 1998] is designed as a method for building variety samples. In this method, genetic stratification is done by taking into account any classification representable in tree format. The number of languages to be considered from each genetic grouping is measured by taking into account its internal diversity. This is done by calculating its diversity value. The Genus-Macroarea method proposed by [Miestamo, 2005] has been used for building variety samples. In this method the primary genetic stratification is made at the genus level, and the primary areal stratification at the level of macro-areas. There are two variants of this method: A bottom-up and a top-down variant [Miestamo et al., 2016, p. 247].

In the present study, a sample of 218 languages based on the Genus-Macroarea method proposed by [Miestamo, 2005] is taken into account. In particular, the bottom-up variant of the method is adopted. The languages of the sample are shown in Table 1. Using this type of sample maximizes the likelihood of finding the different types that occur crosslinguistically.

*Table 1*

**Languages of the sample per macro-area**

| Macro-area | Sample languages | Sum |
|---|---|---|
| Africa | !Xun, Bangime, Beja, Boko, Duka, Emai, Eton, Fongbe, Gaahmg, Gumuz, Hadza, Hausa, Hebrew, Ik, Iraqw, Izi, Jalkunan, Kabba, Kisi, KoyraChiini, Lango, Lele, Lumun, Ma'di, Majang, Makary Kotoko, Mbembe, Mbodomo, N/uuki, Ngiti, Noon, Nubian, Sidaama, Somali, Supyire, Tamashek, Ts'ixa, Tommo So | 38 |
| Australia | Anindilyakwa, Arrernte, Bardi, Bininj Gun-Wok, Gaagudju, Gamilaraay, Garrwa, Gooniyandi, Gurr-Goni, Kalkatungu, Kayardild, Mangarrayi, Marrithiyel, Meryam Mir, Miriwung, Nakkara, Ngankikurungkurr, Nyangumartha, Wagiman, Wambaya, Worrorra | 21 |
| Eurasia | Abkhaz, Ainu, Armenian, Atong, Bantawa, Baoan, Basque, Bru, Bunan, Burushaski, Dargwa, Dhimal, English, Finnish, Galo, Georgian, Greek, Hungarian, Ingush, Japanese, Japhug, Kayah Monu, Kasong, Ket, Kharia, Khmer, Khwarshi, Korean, Lao, Lawa, Lezgian, Lithuanian, Malto, Mandarin, Mongsen Ao, Nuosu, Palula, Persian, Pnar, Russian, Saami, Semelai, Spanish, Tamil, Tangsa, Telugu, Tundra Nenets, Turkish, Udihe, Udmurt, Welsh, Xong, Yukaghir, Zoulei | 54 |
| North America | Alacatlatzala Mixtec, Amuzgo, Ayutla Mixe, Barbareño Chumash, Cherokee, Central AlaskanYup'ik, Chitimacha, Chontal, Cora, Creek, Crow, Cupeño, Haida, Huasteca Nahuatl, Lillooet, Maricopa, Musqueam, Ottawa, Onondaga, Papantla Totonac, Rama, San Gabriel Huastec, Sahaptin, Slave, Southeastern Tepehuan, Teribe, Tzeltal, Ute, Uxpanapa Chinantec,Warihio, Yaqui, Yuchi | 32 |
| Papunesia | Abau, Abui, Aghu, Amele, Awtuw, Balantak, Barupu, Batak, Begak, Bilua, Hatam, Ilocano, Inanwatan, Indonesian, Kaluli, Komnzo, Makasae, Manambu, Marind, Maybrat, Momu, Moskona, Motuna, Namia, Oksapmin, Paiwan, Puyuma, Rukai, Saaroa, Savosavo, Tagalog, Tetun, Thao, Tidore, Tina Sambal, Toqabaqita, Urim, West Coast Bajau, Wooi, Yimas | 40 |
| South America | Aguaruna, Alto Perené, Apinajé, Baure, Cavineña, Cholón, Cubeo, Epena Pedee, Garifuna, Huitoto, Hup, Iquito, Kakua, Kokama Kokamilla, Kwaza, Macushi, Mako, Mamaindé, Mapuche, Matsés, Mosetén, Movima, Paez, Paresi, Paumarí, Piro, Sanuma, Tariana, Trumai, Urarina, Yagua, Yauyos Quechua, Yurakaré | 33 |

In the Genus-Macroarea method, constructing a sample without predetermined sample size means, at its simplest, picking one language from every genus for which the available literature gives sufficient information on the grammar of the phenomenon under study. Based on this, it was possible to find sufficient information on one language in each of exactly 218 genera (i.e. 218 genera out of 543), which accounts for the final sample of 218 languages. The languages of the sample are situated in different macro-areas (see Table 2). While an ideal language sample would also be areally balanced, it is difficult to come up with a variety sample that is both genetically and areally balanced, for the simple reason that some macro-areas have more genera than others. Furthermore, some macro-areas are better represented than others because of the availability and quality of the sources. Note that no additional steps have been taken into account to improve areal balance, e.g. by omitting genera from macro-areas that contain more genera, given that this would disrupt the genetic balance of the sample and increase the probability that I would accidentally miss construction types that are attested but crosslinguistically rare. As is shown in Table 2, Eurasia is somewhat overrun presented in comparison to the other macro-areas, i.e. Australia, North America, and South America.

*Table 2*

**Number of genera included in the sample**

| Macro-area | Number of genera | Number of genera in the sample | Coverage, % |
|---|---|---|---|
| Africa | 77 | 38 | 49.35 |
| Australia | 43 | 21 | 48.83 |
| Eurasia | 82 | 54 | 65.85 |
| North America | 95 | 32 | 33.68 |
| Papunesia | 136 | 40 | 29.41 |
| South America | 110 | 33 | 30.00 |
| Total | 543 | 218 | 40.14 |

## 3. Clause-linkage patterns

'Until' clauses are encoded with different clause-linking devices in the languages in the sample. Many languages use **conjunctions** for expressing 'until' (3). These are morphemes that may appear in different positions in the clause over which they operate, i.e. they may appear

at the beginning of the dependent clause [Kortmann, 1997, p. 72]. Conjunctions tend to link two clauses whose internal structure shows no evidence of subordinative status, that is, both clauses have fully inflected verbs identical to verbs of ordinary main clauses. Clauses in constructions encoded with conjunctions may be presented in a different order without changing the meaning expressed by the complex sentence construction [Mauri, 2008, p. 84].

(3) Bardi (Nyulnyulan)
*goorr* *ing-arr-a* *gaara* ***gardi*** *ingirr-iidi-ngirr*.
poke 3PL.SBJ-poked-3SG.OBJ[3] sand until 3PL.SBJ-touched-3PL.OBJ
'They poked the sand until they touched them (the turtle eggs).'
[Bowern, 2012, p. 650]

Languages may also resort to **converb** constructions. These involve a special verb form that does not appear in independent declarative clauses [Cristofaro, 2003, Ch. 3] and indicates a semantic relation holding between clauses, as in the Maricopa example in (4). The order of clauses in such constructions encoded may be altered without changing the meaning expressed by the complex sentence construction. Converbs are part of the inflectional paradigm of verbs and thus in paradigmatic contrast to other inflectional morphemes [Haspelmath, 1995, p. 4].

(4) Maricopa (Yuman)
ˈ*-ashvar-k* ˈ*-uuva-**ingk*** ˈ*-nˈay-sh* *vaa-k*.
1SG.SBJ-sing-SS 1SG.SBJ-be.LOC-until 1SG.POSS-father-SBJ come-REAL
'I sang until my father came.' [Gordon, 1986, p. 274]

A number of languages in the sample convey 'until' relations with **less-grammaticalized clause-linkage patterns**. These strategies are semantically non-specific. For instance, languages may use an asyndetic pattern for

[3] Abbreviations: 1 – first person; 2 – second person; 3 – third person; AB – absolutive; ACC – accusative; ADD – additive; ADJ – adjective; ADV – adverbial; APPL – applicative; ASSERT – assertive; AUX – auxiliar; AV – actor voice; CAUS – causative; CL – classifier; COMPL – completive; COMPULS – compulsory; CONJ – conjunction; CONT – continuous; CVB – converb; DAT – dative; DEF – definite; DEIC – deictic; DET – determiner; DEVERB – deverbal; EP – epenthesis; ERG – ergative; FACT – factual; FIN – finite; FUT – future; GIV – given; HAB – habitual; IMP – imperative; INCH – inchoative; INCL – inclusive; IND – indicative; INDEF – indefinite; INSTR – instrumental; INTRANS – intransitive; IPFV – imperfective; IRR – irrealis; ITER – iterative; LIG – ligature; LOC – locative; MED – medio; MIDDL – middle; NARR – narrative; NEG – negative; NMLZ – nominalizer; NOM – nominative; OBL – oblique; PASS – passive; PERF – perfect; PFV – perfective; PL – plural; POSIT – position; POSP – postposition; POSS – possessive; PREP – preposition; PROG – progressive; PROPR – proprietary; PROSP – prospect; PRS – present; PST – past; PTCP – participle; PURP – purpose; RDP – reduplication; REAL – realis; REC – reciprocal; SEQ – sequential; SG – singular; SS – same subject; SUB – subordinator; TA – tense aspect; THEM – theme; TRANS – transitive; VOL – volitional.

conveying ‘until’. An asyndetic construction consists of two clauses without any structural element linking them, as in (5).

(5) Aghu (Trans-New Guinea / Awju-Dumut)
*dii* *bu* *bē-dke* *napi* *da-xe*.
sago DUR pound-1SG mother come-REAL.SG
‘I pounded sago until my mother came.’ [van den Heuvel, 2016, p. 74]

The asyndetic ‘until’ construction in (5) is the most frequent less-grammaticalized pattern attested in the sample. However, there is one language that shows a different asyndetic ‘until’ pattern. In Toqabaqita, ‘until’ constructions are formed with a complex construction in which the verb of the main clause is reduplicated and is followed by the verb *lae* ‘to go’ which is also reduplicated (6) [Lichtenberk, 2008, p. 1201].

(6) Toqabaqita (Austronesian / Oceanic)
*wane* *baa* *ki* *kera* ***taa-tari**-a* *botho* *baa*,
man that PL 3PL.NON.FUT RDP-chase-3SG.OBJ pig that
***laa-lae***, *keka* *raqu-a*.
RDP-go 3PL.SEQ catch-3SG.OBJ
‘The men kept chasing the pig, until they caught it.’ [Lichtenberk, 2008, p. 1201]

Comparable formations can be found in other Oceanic languages, not included in the database. Vera’a conveys ‘until’ with an asyndetic construction (7). In this example, the sequence of linguistic forms reflects the sequence of experiences in the real world. In (7), the verb of the main clause (i.e. *n̄ōr* ‘gnaw’) is repeated and is followed by the verb *van* ‘to go’ which is reduplicated.

(7) Vera’a (Austronesian / Oceanic)
*di=n* ***n̄ōr*** ***n̄ōr*** ***va-van*** *dōmētētaka=m* *mēlē’*.
man=TA gnaw gnaw RDP-go wild.kava=TA break
‘He chewed and chewed until the wild kava broke.’ [Schnell, 2011, p. 209]

There are other Oceanic languages in which the verb of the main clause is not reduplicated. Instead, a verb meaning ‘to go’ is reduplicated or repeated several times. Alex François (pers. comm.) informs me that this construction is known as the **durative-result construction**. He mentions that in this construction there is no segmental lexeme or morpheme that could translate as ‘until’. The actual equivalent of ‘until’ is an asyndetic construction that follows an iconic order. In this construction, the main clause situation

stretches out in time (through the reduplication or repetition of a verb meaning ‘to go’) and the second situation encoded with the dependent clause comes as a result. Accordingly, what the reduplicated or repeated verb ‘to go’ does in this type of construction is to indicate the stretching out in time of the main clause situation.

In Lelepa, ‘until’ meanings are denoted with the asyndetic construction in (8). In this example, the ‘until’ interpretation arises due to iconicity of sequencing. The verb of the main clause is not reduplicated. Instead, the main clause appears with the verb *pan* ‘to go’ which is repeated for indicating a long duration of the previous situation, i.e. ‘he sang it’. S. Lacrampe points out that this constructional property also aids in the ‘until’ interpretation of the construction in (8) [Lacrampe, 2014, p. 395]. She also mentions that the number of times that *pan* ‘to go’ is repeated is iconic in that it reflects the duration of the situation expressed in the main clause, that is, the number of iterations of the verb *pan* ‘to go’ correlates with the length of time the speaker wants to portray.

(8) Lelepa (Austronesian / Oceanic)
*malange* *e=legat=ia* ***pan*** ***pan*** ***pan*** *e=ga*
then 3SG.SBJ=sing=3SG.OBJ go go go 3SG.SBJ=IRR
*nou*.
be.finished
‘Then he sang it on and on until he was done.’ [Lacrampe, 2014, p. 113]

‘Until’ clauses formed with conjunctions and converbs (205/218 = 94.04%) are more frequent than ‘until’ clauses realized with less-grammaticalized patterns (13/218 = 5.96%), as is illustrated in Table 3.

*Table 3*

**Frequency of ‘until’ clause-linkage patterns**

| Type of clause-linkage pattern | Frequency | Percentage |
|---|---|---|
| Conjunctions | 164 | 75.22 |
| Converbs | 41 | 18.80 |
| Less-grammaticalized patterns | 13 | 5.96 |
| Total | 218 | 100.00 |

## 3.1. Diachronic sources

Diachronic information is not explicitly available for a large portion of the languages included in the sample. Accordingly, the present study

can make only a modest contribution to the source-oriented explanations in diachronic-typological investigations of ‘until’ devices. However, for a number of sources, it has been possible to determine that conjunctions and converbs encoding ‘until’ clauses appear to be diachronically connected to (1) case markers (e.g. dative case markers, allative or lative case markers, and terminative/limitative case markers), (2) verbs (e.g. ‘to arrive’), (3) nouns (e.g. ‘edge’, ‘border’, ‘end’, or ‘limit’), and (4) adverb(ial)s meaning ‘only’. Evidence for a given diachronic source is explicitly discussed by the authors of the grammars, and may come from reconstruction, partial homophony, or identity between the source and the target. In what follows, we will survey a few languages, focusing on a number of factors that seem to have played a role in the diachronic development of ‘until’ devices.

### *3.1.1. Case markers*

‘Until’ devices are derived from various case markers in the languages in the sample: dative case markers, allative or lative case markers, and terminative/limitative case markers. Each of these oblique case markers is dealt with in turn.

The first category is that of dative case markers. Four languages in the database contain ‘until’ devices derived from dative case markers. An example can be found in Epena Pedee. In (9), the clause-linking device *-a* developed from a dative case marker [Harms, 1994, p. 154]. The remaining languages in the sample showing this development are Australian languages: Arrernte, Wambaya, and Wagiman. In many languages around the world, dative case markers may also develop into clause-linking devices encoding other types of adverbial clause constructions [Schmidtke-Bode, 2009, p. 89]. It is likely that the most well-known extension of dative case markers to the domain of adverbial clause-linkage is dative case markers to purpose clauses.

(9) Epena Pedee (Choco)
*kʰari-pá-ri* *hásta* *kʰĩ́ra* *pa-ru-má-**a***.
sing-HAB-PRS until face arrive-PRS-LOC-CVB
‘(The singer) sings until she (the shaman) revives.’ [Harms, 1994, p. 154]

Allative or lative case markers may also develop into ‘until’ devices. In total, three languages denote ‘until’ with devices derived from allative or lative case markers. In Udihe, ‘until’ constructions are realized with *-tigi*. This marker can be etymologically traced back to a lative case marker [Nikolaeva, Tolskaya, 2001, p. 738]. The remaining languages in the sample with this pattern are Australian languages: Nyangumartha and Gooniyandi.

The development of allative or lative case markers into 'until' devices appears to be an instance of a more general process whereby spatial concepts, including motion in space, are used as structural templates for expressing temporal concepts [see Kuteva et al., 2019, p. 55].

(10) Udihe (Altaic / Tungusic)

| *ŋiča* | *aziga* | *sagdi* | *odo-i-**tigi*** | *igi-si-e-ni*. |
|---|---|---|---|---|
| little | girl | big | become-PTCP.PRS-CVB | feed-IPFV-PST-3SG |

'(The man) used to feed a little girl (his future wife) until she grew up.' [Nikolaeva, Tolskaya, 2001, p. 738]

Terminative/limitative case markers may also develop into 'until' devices. In total, five languages in the database show this development. In these languages, the core function of these case markers, when used in noun phrases, is to denote a movement that goes all the way to its endpoint. In Yauyos Quechua, the dependent clause of an 'until' construction is marked with the clause-linking device *-kama* (11). This marker is diachronically connected to a limitative case marker [Shimelman, 2017, p. 308]. The remaining languages in the sample with a similar pattern are Bunan, Hungarian, Manambu, and Cholón.

(11) Yauyos Quechua (Quechuan)

| *traki* | *palta-nchik-pis* | *pushllu-na-n-**kama***, | *puri-nchik*. |
|---|---|---|---|
| foot | soul-1PL-ADD | blíster-NMLZ-3-CVB | walk-1PL |

'We walked until blisters formed on the soles of our feet.' [Shimelman, 2017, p. 308]

### *3.1.2. Verbs*

In some languages in the sample, the 'until' device can be traced back to a verb meaning 'to arrive' or 'to reach'. This diachronic development seems to be very common in Austronesian languages. In Begak, the conjunction *sawot* developed from a verb meaning 'to arrive' [Goudswaard, 2005, p. 178]. This observation has not gone unnoticed and echoes [Jonsson, 2012, p. 131], who shows that various Austronesian languages employ verbs meaning 'to arrive' or 'to go' for encoding 'until' constructions. This development can be interpreted as being part of a more general process whereby languages use a spatial metaphor (sometimes called fictitious motion) to refer, not to the motion of an agent, but to the (metaphorical) motion in time of a situation.

(12) Begak (Austronesian / North Borneo)

| *da* | *gə-tuttug* | *ino,* | | | | |
|---|---|---|---|---|---|---|
| PROG | AV-fall.out | yonder | | | | |
| ***sawot*** | *nong* | *a-matay* | *tu* | *bəgko* | *asu* | *di* |
| CONJ | OBL | NON.VOL-dead | too | also | dog | over.there |

'Its fur fell out on and on, until her friend had no money.'
[Goudswaard, 2005, p. 178]

It has been noted that many Oceanic languages employ serial verbs for expressing 'until'. In Tamambo, *hisi* 'to touch / to reach' cooccur with the verb *vano* 'to go' for indicating 'until' (13). T. Crowley, in his description of Paamese serial verbs, calls this construction **limit serial verbs** [Crowley, 2002, p. 76]. He notes that the serialization of these verbs gives rise to the meaning 'until' in Paamese and other Oceanic languages spoken in Vanuatu, e.g. Neverver [Barbour, 2012, p. 345].[4]

(13) Tamambo (Austronesian / Oceanic)

| *mo-iso* | ***mo*** | ***vano*** | ***mo*** | ***hisi*** | *arua-na* | *hisa-na* |
|---|---|---|---|---|---|---|
| 3SG.SBJ-finish | 3SG.SBJ | go | 3SG.SBJ | touch | two-3SG | name-3SG |

*Jara*.
Jara
'Afterwards, (time went on and on and on) until the second one called Jara.' [Jauncey, 2011, p. 407]

Besides Oceanic languages spoken in Vanuatu, there seem to be other languages where a serial verb composed of a verb meaning 'to go' and verb meaning 'to reach / to touch' is used for conveying 'until'. In Hatam, the serial verb *ug pek* 'go reach' marks the endpoint of the situation expressed in the main clause:

[4] There are Oceanic languages spoken in Vanuatu in which a conjunction developed from a verb meaning 'to reach / to arrive' and a causative marker [Jauncey, 2011, p. 406]. A closer look reveals that this is attested not only in Oceanic languages, but also in West Papuan languages. In particular, North Halmaheran languages seem to have a parallel clause-linkage pattern. Various North Halmaheran languages have 'until' constructions encoded with a conjunction whose etymology is a verb meaning 'to reach / to arrive' plus a causative marker. A case in point comes from Ternate. In this language, temporal boundary is indicated with *sigado* 'until'. R. Hayami-Allen mentions that this clause-linking device may have once been morphologically complex, comprising the causative marker *si* and the verb *gado* 'to reach / to arrive' [Hayami-Allen, 2011, p. 77]. Another example comes from Tobelo. 'Until' constructions are realized with *hiadono* 'until'. G. Holton points out that the etymology of this clause-linkage device is easy to identify in that the prefix *hi-* is a causative marker and *adono* is a verb meaning 'to reach / to arrive' [Holton, 2003, p. 65].

(14) Hatam (West Papuan)
*i-bong* *kikau* ***ug*** ***pek*** *njap-big-yo-ti*.
3PL.SBJ-sleep continually go reach daylight-not-yet-NMLZ
'They slept until it was morning.' [Reesink, 1999, p. 137]

Another language in the sample that employs a similar pattern is Moskona. In this language, a serial verb composed of *eyja* 'to go' and *éysaha* 'to reach' is used for indicating 'until'. Interestingly, this pattern is used for introducing a temporal or locational peripheral argument (15). This language employs a different device for signaling an 'until' relation holding between clauses. In (16), the clause introduced with *jida* 'until' indicates the terminal boundary of the situation expressed in the main clause [Gravelle, 2010, p. 347].[5]

(15) Moskona (East Bird's Head)
*bua* *bi-en* *mar* *no-mai-i* ***eyja*** ***éysaha*** *jig* *ofof*.
2SG.SBJ 2SG-do thing DEIC.NMLZ-far-GIV go reach LOC border
'You did that (clearing underbrush) up to the border.' [Gravelle, 2010, p. 307]

(16) Moskona (East Bird's Head)
*bua* *bi-osot* *mar* *efeyu* *no-mai-i*
2SG.SBJ 2SG-read thing patterned DEIC.NMLZ-far-GIV
***jida*** *bi-eigen* *tum*.
until 2SG-know onto
'Read the writing until you learn it.' [Gravelle, 2010, p. 347]

### *3.1.3. Nouns*

Nouns meaning 'edge', 'border', 'end', or 'limit' can also come to be reinterpreted as 'until' devices. Tamil resorts to the clause-linking *varai* for expressing 'until'. This conjunction can be traced back to a noun meaning 'end/limit' [Lehmann, 1993, p. 335]. T. Kuteva et al. mention that this diachronic development is mainly attested in African languages (e.g. Swahili *mpaka* 'border'[6]) [Kuteva et al., 2019, p. 81]. They point out that the use of locational nouns meaning 'edge', 'border', 'end', or 'limit' in the expression of 'until' is a general process whereby locational nouns give rise to typically spatial or temporal grammatical markers.

[5] One diachronic source not attested in the database is the following. It has been shown that various Oceanic languages spoken in Papua New Guinea have 'until' devices developed from a verb 'to be able to'. In Mandara, a serial verb construction composed of the verb *tuir-* 'to stand' and the verb *-oit* 'to be able to' indicates an 'until' relation [Hong, and Hong 2003, p. 34]. Another example comes from Papapana. In this language, the modal verb *eangoi* 'to be able to' developed into an 'until' device [Smith-Dennis, 2020, p. 287].

[6] It has been proposed that many Eastern African languages have copied the Swahili noun *mpaka* 'border' for expressing 'until' [Mous, 2020].

(17) Tamil (Dravidian / Southern Dravidian)
*Kumaar varu-kir-a* ***varai****-kk-um, naan kaattiru-nt-een*.
Kumar come-PRS-ADJ end-DAT-INCL 1SG.SBJ wait-PST-1SG.SBJ
'I waited until Kumar came.' [Lehmann, 1993, p. 335]

In many Oceanic languages not included in the sample, 'until' clause-linking devices are identical in form with a locational noun meaning 'border/edge'. In Tinrin, 'until' constructions are realized with the conjunction *nrîrrinrî* (18). This device originated from the locational noun 'border/edge' in combination with the third person possessive marker *-nrî* [Osumi, 1995, p. 291].

(18) Tinrin (Austronesian / Oceanic)
*ria go trua rri ru nrî fadre mêrrê tôrrô*
1PL.INCL then wait 3PL at there with PL torch
*amwairrù,* ***nrîrrinrî*** *fwirri gu-ha nrâ rri*.
aforesaid CONJ hear sound-speak POSS 3PL
'We then waited for them there with the torch, until we heard their sound.' [Osumi, 1995, p. 291]

Gumawana shows a similar situation to Tinrin in that 'until' constructions are formalized in a parallel way. In this language, an 'until' relation is signaled with *anatuwana* (19). This conjunction is said to be decomposable into the passive voice marker *a-*, the third person possessive marker *na-*, and the locational noun *tuwana* 'border/edge' [Olson, 1992, p. 357].

(19) Gumawana (Austronesian / Oceanic)
*i-kaiaka i-na-vada* ***anatuwana*** *i-boboina*.
3SG.SBJ-remain CONT-3SG.POSS-house CONJ 3SG.SBJ-well
'He remains in his house until he is well.' [Olson, 1992, p. 357]

### *3.1.4. Adverb(ial)s meaning 'only'*

There is evidence in the database of the present study that 'until' devices can be traced back to adverb(ial)s meaning 'only'. This is attested in Bininj Gun-Wok, Majang, Marrithiyel, and Ngankikurungkurr. In Ngankikurungkurr, the clause-linking device *napa* 'until', originated from an adverb(ial) meaning 'only' (20) [Hoddinott, Kofod, 1988, p. 117].

(20) Ngankikurungkurr (Southern Daly / Ngankikurungkurr)
*yedi leli tye mumba yi pallak mem* ***napa***.
3SG.SBJ.go.PST walk PST road and tired 3SG.SBJ.say.PRS CONJ
'He walked along the road until he was tired.' [Hoddinott, Kofod, 1988, p. 117]

Another language in which an adverb(ial) meaning ‘only’ is the source of an ‘until’ clause-linking device is Bininj Gun-Wok. In this language, the etymology of the verbal form *djal-* ‘until’ is an adverb(ial) meaning ‘only’ [Evans, 2003, p. 656].[7]

(21) Bininj Gun-Wok (Gunwinyguan)
*gabarri-**djal**-noihme-noihme* *dja* *ga-rrung-bebme*.
3SG-CVB-ITER.fuck-RDP and 3SG-sun-appear
‘They just keep fucking until the sun comes up.’ [Evans, 2003, p. 657]

Given that the Australian languages discussed above are not genetically related and, that ‘only’ used for conveying ‘until’ is not common crosslinguistically, it is likely that language contact may have taken place here. A closer look reveals that other Australian languages contain ‘until’ devices that can be traced back to adverb(ial)s meaning ‘only’. In particular, this seems to be very common in Pama-Nyungan languages. In Bilinarra, the clause-linking device *=rni* derived from an adverb(ial) meaning ‘only’ [Meakins, Nordlinger, 2014, p. 386].

(22) Bilinarra (Pama-Nyungan)
*garu-nggu* *dirl* *ba-ni* *marluga* *ngarlaga-ngga*
child-ERG hit.head hit-PST old.man head-LOC
*gungulu-g-ba=**rni***
bleed-FACT-EP=CONJ
‘A kid hit the old man on the head until he bled.’ [Meakins, Nordlinger, 2014, p. 386]

A look-alike construction is also attested in Djinang. A terminal boundary relation is expressed in this language with the conjunction *yarimipmi* (23). This marker is the result of the contraction of the adverb(ial) *yarimi* ‘only’ with the delimitative casemarker *-pmi* [Waters, 1989, p. 108].

(23) Djinang (Pama-Nyungan)
*ngarri* *nyini-dji* *djili* *walirr* *bunyin-dji* *yirrpi-gi*
1SG.NOM sit-FUT this.LOC sun buttock-INSTR set-FUT
***yarimipmi***.
CONJ
‘I will keep sitting here until the sun sets.’ [Waters, 1989, p. 113]

Another example is found in Martuthunira. In this language, a terminal boundary relation is indicated with the connective *yirla*. This clause-linking device developed from an adverb(ial) meaning ‘only’. A. Dench shows that

[7] This is the only language in the sample in which an ‘until’ clause-linking device occurs in a main clause. It is not clear how this should be analyzed.

it is easy to relate the development of adverb(ial)s meaning ‘only’ into ‘until’ markers. In this diachronic scenario, he mentions that “an activity continues as long as the condition expressed by the constituent over which *yirla* has scope continues to be not the case. Only once the condition is satisfied does the activity cease” [Dench, 1995, p. 187].

(24) Martuthunira (Pama-Nyungan)
*ngurnaa* *kayulu-u* *jarruru* *manku-layi* *wantitha-rninyji*
that.ACC wáter-ACC slowly get-FUT throw-FUT
*panyu-npa-waa* ***yirla***.
good-INCH-PURP CONJ
‘Get the water out slowly and keep throwing it away until it comes clean.’ [Dench, 1995, p. 187]

A. Dench mentions that, from a historical perspective, it is likely that this clause-linkage pattern arose out of expressions involving *yirla* ‘only’ and the verb *kuntirri* ‘to cease doing’, as can be seen in the example in (25). Note that it is not clear whether this also applies to the other Australian languages discussed above.

(25) Martuthunira (Pama-Nyungan)
*ngayu* *parla-marta-rru* *pariingku-lha*
1SG.NOM rock-PROPR-now hit-PST
*kulhany-ku* ***yirla*** ***kuntirri-layi***.
squashed-ACC only cease.doing-FUT
‘I hit it with a rock stopping only when it was squashed’ [Dench, 1995, p. 187]

This section has analyzed the crosslinguistic diversity of ‘until’ markers in the languages in the sample. For a number of languages, it has been possible to determine that conjunctions and converbs encoding ‘until’ clauses appear to be diachronically connected to (1) case markers (e.g. dative case markers, allative or lative case markers, and terminative/limitative case markers), (2) verbs (e.g. ‘to arrive’), (3) nouns (e.g. ‘edge’, ‘border’, ‘end’, or ‘limit’), and (4) adverb(ial)s meaning ‘only’. The following section pays close attention to the areality of a number of ‘until’ clause-linkage patterns.

## 4. Areality: Two case studies

It has been proposed that rare linguistic patterns have high genetic stability and strong resistance to areal influence [Nichols, 1992, p. 181]. However, this paper shows that even rare linguistic patterns may be diffused through language contact. A number of languages in the sample show striking parallelisms in types of ‘until’ clause-linkage patterns that are quite unusual

crosslinguistically. In particular, some languages from Mali use an 'until' clause with a verb meaning 'to get tired' to express 'for a long time', and some languages from Mesoamerica contain 'until' clauses with expletive negative markers. Some hypotheses are offered regarding the directionality of spread of these 'until' strategies, identifying the source.

## 4.1. 'Until getting tired' and 'for a long time'

In a number of West African languages, the 'until' clause appears with a verb meaning 'to get tired'. This construction is crosslinguistically rare. The 'until' clause does not necessarily denote literal weariness or physical fatigue. Instead, this construction is used in contexts where speakers express that they carried out an activity for a very long time.

In Bangime, the 'until' clause marked with *hà* 'until' appears with *báándì* 'to get tired' (26). This is a common way to emphasize duration and intensity of the situation expressed in the main clause, not necessarily involving physical fatigue. Accordingly, the example in (26) denotes the idea 'I cried for a very long time' [Heath, Hantgan, 2018, p. 501]. Constructions encoded with *hà* 'until' may also appear in contexts in which they do not occur with the verb *báándì* 'to get tired' (27). In this construction, *hà* 'until' marks the end point of the situation expressed in the main clause.

(26) Bangime (Isolate)

| *ŋ̀* | *ʒíí*$^{n}$ | ***hà***=*à* | *ŋ̀* | *báándì*. |
|---|---|---|---|---|
| 1SG.SBJ | weep.PFV | until=COMPL | 1SG.SBJ | get.tired.PFV |

'I cried for a very long time (lit. I cried until I got tired).' [Heath, Hantgan, 2018, p. 501]

(27) Bangime (Isolate)

| *ŋ̀* | *déŋgò* | ***hà*** | *Séédù* | *à* | *Ø* | *twáá* | *gāndà*. |
|---|---|---|---|---|---|---|---|
| 1SG.SBJ | wait.PFV | until | Seydou | COMPL | 3SG.SBJ | arrive.PFV | place |

'I waited until Seydou arrived.' [Heath, Hantgan, 2018, p. 498]

Tommo So has a similar construction. In the example in (28), the first clause in linear order denotes a prolonged activity and is followed by a clause meaning 'until I got tired' emphasizing the extreme prolongation of the main clause situation. Note that *hálè* 'until' can also be found in other contexts in which a verb meaning 'to get tired' does not appear in the 'until' clause. However, unlike the construction in (28), the 'until' clause in the example in (29) indicates the endpoint or end-period of the main clause situation.

(28) Tommo So (Dogon)
*bíré bìr-áa* ***hálè*** ***mí*** ***ɔ́ŋŋ-íy-aa***.
work work-PFV until 1SG.SBJ get.tired-MED.PASS-PFV
'I worked for a very long time (lit. I worked until I got tired).'
[McPherson, 2013, p. 451]

(29) *bíré bìr-ée* ***hálè*** *kɛ̀ɛ̀lɛ́ díyɛ̀-go mí bɛ̀l-ì*.
work work-NON.FIN until money big-ADV 1SG.SBJ find-PFV
'I worked until I found (=made) a lot of money.' [McPherson, 2013, p. 452]

In what follows, I explore whether other Dogon languages also have a similar 'until' construction.

### *4.1.1. Verb meaning 'to get tired' and 'until': Dogon*

Besides Tommo So, there are other Dogon languages that contain an 'until' construction appearing with a verb meaning 'to get tired'. An example comes from Bunoge. In (30), the first clause in linear order denotes a prolonged situation, and the following clause encoded with *fá* 'until' emphasizes the extreme prolongation of the situation of the first clause. The 'until' clause does not denote literal weariness or physical fatigue [Heath, 2014, p. 299]. Instead, it exaggerates the duration and intensity of the situation denoted with *námà ŋ̀ témè* 'I ate meat'. Accordingly, the meaning of the construction in (30) is that of 'I ate meat for a very long time'. 'Until' constructions encoded with the conjunction *fá* can also be attested in communicative scenarios in which the 'until' clause does not occur with a verb meaning 'to get tired', as in (31), where the 'until' clause indicates the endpoint or end-period of the main clause situation.

(30) Bunoge (Dogon)
*námà ŋ̀ témè* ***fá*** ***ŋ̀*** ***dɛ́nɛ̀***.
meat 1SG.SBJ eat.meat.PFV until 1SG.SBJ get.tired.PFV
'I ate for a very long time (lit. I ate meat until I got tired).' [Heath, 2014, p. 299]

(31) Bunoge (Dogon)
*àyá-ŋgù nálè mbà*.
3PL-ACC give.birth.PFV.3PL.SBJ PFV
'Their mothers bear them.'
***fá*** *dó*:*wà, sòjó dà*:*-gè bô*.
until die.IPFV.3PL.SBJ person evil-PL be.3PL.SBJ
'They are weak people until they die.' [Heath, 2014, p. 303]

Other Dogon languages with a similar pattern are Togo Kan [Heath, 2015, p. 241], Penange [Heath, 2016, p. 255], and Tiranige [Heath, 2017, p. 264].

### *4.1.2. Discussion*

'Until' clauses that occur with a verb meaning 'to get tired' are common in Dogon languages. Furthermore, Bangime seems to have a similar pattern. The question is: Did Bangime copy this pattern from Dogon languages?

Bangime is a language isolate spoken in the Dogon high plateau in eastern Mali. It has no obvious genetic relatives in West Africa. Bangime is the name of the language, and Bangande denotes the ethnicity [Heath, Hantgan, 2018, p. 1]. Neighboring languages of Bangime are Tiranige (Dogon family), Jenaama (Bozo family), and Fula (Atlantic-Congo). Tiranige-speaking villages occur both on the high plateau to the east and the base of the cliffs to the north. There is some intermarriage between Bangande and Tiranige-speaking people, and therefore a degree of bilingualism [Heath, Hantgan, 2018, p. 3]. Jenaama is spoken by so-called Marka-Jalla people in Namagué and Kargué villages, which are located at or near the opening of the valley, so they are immediate neighbors, but by tradition there is no intermarriage between Bangande and Jenaama and therefore very little bilingualism [Heath, Hantgan, 2018, p. 3]. Fula is spoken both in several villages and hamlets in the plains west of the Bangande valley. Fula is also the main lingua franca in the area and is used in weekly markets at Sambere (Sundays) and Konna (Thursdays), which are located on the Sevare to Gao highway. Both of these markets are frequented by Bangande people, who go there on foot or on donkey carts [Heath, Hantgan, 2018, p. 3].

As mentioned in Section 4.1.1, Tiranige has an 'until' construction used in contexts where speakers express that they carried out an activity for a very long time [Heath, 2017, p. 266]. One hypothesis is that Bangime speakers copied the 'until' pattern from Tiranige.

'Until getting tired' as a way of expressing 'for a very long time' is pervasive in West African languages. This section has only provided a glimpse of how this pattern may have spread in a specific zone (i.e, Bangime speakers may have copied the pattern from Tiranige). Accordingly, it does not do justice to the areality of this pattern in other zones in West Africa. For instance, 'until getting tired' as a way of expressing 'for a very long time' is attested in many Manding varieties (Western Mande), and it is possible that Manding was involved in its diffusion across West Africa, given its use as a lingua franca in a large part of West Africa (Denis Creissels pers. comm.). However, this pattern is also found in Wolof (*batàyyi* 'until getting tired'), spoken in a zone in which Manding does not fulfill the role of lingua franca. This is an area that deserves further scrutiny.

Before leaving the present section, mention should be made of the following. Many West African languages have an ‘until’ construction used for expressing a prolongation of an activity similar to the one described above. However, in these languages, the ‘until’ clause does not appear with a verb meaning ‘to get tired’, as in the Logba example in (32), marked with *tsyɔ̃* ‘until’. The Logba pattern (i.e. leaving unexpressed the predicate of ‘until’) is a common way of expressing ‘for a long time’. Note that *tsyɔ̃* ‘until’ can also be used for expressing a terminal boundary situation holding between clauses (33).

(32) Logba (Atlantic-Congo / Kwa)
*o-gridi* *ó-dzí* ***tsyɔ̃***.
CL-story SG-take.off until
‘The story continues for a long time.’ [Dorvlo, 2008, p. 240]

(33) Logba (Atlantic-Congo / Kwa)
*a-bó-zi=ɛ́* ***tsyɔ̃*** *nɖú* *m-bí-bé* *iyɛ́* *nu*.
2SG-FUT-cook=3SG.OBJ until water SBJ-FUT-well.cooked 3SG in
‘You will cook it until the water will be well cooked in it.’ [Dorvlo, 2008, p. 347]

Another example can be found in Noon. The construction marked with *bi* ‘until’ in (34) is used in contexts where speakers express that they carried out an activity for a very long time. In this simple clause, the predicate is repeated several times for expressing intensity and duration of the situation and this is followed by the conjunction *bi* ‘until’, which simply marks the end of the durative situation [Soukka, 2000, p. 272]. Construction marked with *bi* ‘until’ can also be found in contexts expressing terminal boundary relations (35).

(34) Noon (Atlantic-Congo / Cangin)
*ya* *yaa* *tíin* *ya* *yaa* *tíin* *ya* *yaa* *tíin* ***bi***.
3SG PROG walk 3SG PROG walk 3SG PROG walk until
‘He walks and walks and walks for a long time.’ [Soukka, 2000, p. 272]

(35) Noon (Atlantic-Congo / Cangin)
*tíid-aa* ***bi*** *fu* *hot* *ɓoh-aa*.
walk-IMP until 2SG see baobab-IRR.SUB
‘Walk until you see the baobab.’ [Soukka, 2000, p. 279]

A closer look reveals that the pattern leaving unexpressed the predicate of ‘until’ is common in languages spoken in Côte d’Ivoire, such as Kru and Kwa languages. In Godié, ‘for a long time’ is indicated with a construction marked with *-aaa* ‘until’ (36). The device *-aaa* ‘until’ also indicates the endpoint of a situation expressed in the main clause (37).

(36) Godié (Atlantic-Congo / Kru)
*pɛliɔ lä ɔ-ku-lɔɔ-**aaa**.*
priest.DEF say 3SG-be-there-until
'The priest said he had been around for a very long time.' [Egner, 2015, p. 66]

(37) Godié (Atlantic-Congo / Kru)
*wa yä-blɔɔ bhlü-**aaa**-kpazebhleku wa yä-blɔɔ mʊ*
3PL PERF-road pound-until-NARR 3PL PERF-road POSP
*mimi-kpazebhleku.*
do.half-NARR
'They go on the road until they reach half way.' [Egner, 2015, p. 108]

A Kwa language with a similar pattern is Baule. In this language, *lélé* 'until' signals a prolongation of an activity (38). This marker is also used for expressing a terminal boundary relation holding between clauses (39). Denis Creissels (pers. comm.) informs me that Ivorian French has a similar pattern for signaling 'for a long time' (*'Il a marché jusqu'à'* 'I walked for a long time'). This construction is simply impossible in European French (even in non-standard varieties). Accordingly, it is very likely that this pattern was copied by speakers of Ivorian French from Ivorian languages (i.e., Kru and/or Kwa languages). It remains to be explored how this pattern spread in these zones in Africa.

(38) Baule (Atlantic-Congo / Kwa)[8]
*màn dì jùmân **lélé**.*
1SG.PFV do work until
'I worked for a long time.'

(39) Baule (Atlantic-Congo / Kwa)
*ń kà wà **lélé** bé bá.*
1SG.FUT stay here until 3PL.FUT come
'I'll stay here until they come.'

## 4.2. 'Until' clauses and expletive negative markers

There a number of languages in the sample in which negation in 'until' clauses does not modify the truth value of the proposition in which it occurs. This type of marking in clause-linkage constructions is known as **expletive negation** [Abels, 2005; Delfitto, 2020; Espinal, 2000]. In Modern Russian, expletive negation may occur in 'until' clauses (40) [Abels, 2005]. Expletive

[8] Examples provided by Denis Creissels (pers. comm.).

negation in ‘until’ clauses is also attested in other Slavic languages not included in the sample, such as Bulgarian and Ukranian [see Wälchli, 2018, p. 204]. Besides Russian and other Slavic languages, it has been noted many languages of Eastern Europe and South Asia also contain ‘until’ clauses with expletive negative markers [Wälchli, 2018, p. 190].

(40) Russian (Indo-European / Slavic)
*ja* *budu* *stučat’*, ***poka*** ***ne*** *otkrojut.*
1SG.NOM 1SG.FUT knock.IPFV.INF until NEG 3PL.open.PFV.PRS
‘I will knock on the door until they open.’ [Iordanskaja, Mel’čuk, 2009, p. 51]

Given that ‘until’ clauses with expletive negation have received a great deal of attention in languages of Eastern Europe and South Asia, I will restrict my attention to the areality of this pattern in Mesoamerica. In two Mesoamerican languages in the sample, negative markers in ‘until’ clauses do not modify the truth value of the proposition in which it occurs, as is shown in the following examples:[9]

(41) Huasteca Nahuatl (Uto-Aztecan / Aztecan)
*nopa* *diablo* *tla-tsotsona* *tla-tsotsona* *tla-tsotsona* *biolin*,
DET devil INDEF.OBJ-play INDEF.OBJ-play INDEF.OBJ-play violin
***asta*** ***ke*** ***amo*** *tlahuelchihua-k-e*.
until that NEG get.angry-PFV-PL
‘The devil played the violin for a long time, until they (men) got angry.’

(42) San Gabriel Huastec (Mayan)
*teʔ-en-Ø* *teʔ-en-Ø*,
3SG.ABS.laugh-MIDDL-COMPL 3SG.ABS.laugh-MIDDL-COMPL
***asta*** ***ke*** ***jab*** *tsiʔk’al-Ø*.
until that NEG urinate-COMPL
‘He laughed for a long time, until he peed himself.’

The parallelisms cannot be explained as a common inherence, because the languages are not genetically related. The most likely explanation is language contact, because the languages are spoken in the same geographical region (Veracruz), but it is difficult to see how such rare patterns could be transferred from one language to another. In what follows, I analyze whether other languages genetically related to Huasteca Nahuatl and San Gabriel Huastec contain similar ‘until’ clause-linkage patterns.

[9] The Huasteca Nahuatl and San Gabriel Huastec data cited in this paper come from the fieldwork of the author.

### *4.2.1. Huasteca Nahuatl 'until' clauses*

Huasteca Nahuatl is a Southern Uto-Aztecan language that belongs to the Aztecan genus of the Uto-Aztecan language family. Besides Huasteca Nahuatl, other Aztecan languages do not seem to have similar 'until' clause-linkage patterns.

In Acaxochitlán Nahuatl, 'until' clauses are marked with the conjunction *asta* 'until'. Either the negative marker *ach-* or *amo* can appear in the 'until' clause. However, in this scenario, they have negative import. Accordingly, if the 'until' clause in (43) appeared with the negative marker *ach-* or *amo*, the constructions would be understood as: 'They were teasing each other until they did not kill each other.'

(43) Acaxochitlán Nahuatl (Uto-Aztecan / Aztecan)
*mo-kua-topek-ti-a-k-e* *mo-kua-topek-ti-a-k-e*,
REC-head-push-LIG-AUX-PFV-PL REC-head-push-LIG-AUX-PFV-PL
*asta* *mo-mik-ti-k-e*.
until REC-die-CAUS-PFV-PL
'They were teasing each other, until they killed each other.'

In a similar fashion, Ometepec Nahuatl *asta* 'until' clauses can be marked with the negative marker *ach-* or *amo*, as is shown in (44) and (45). However, these negative markers lexically contribute to negation.[10] Without the negative markers, the truth value of the 'until' proposition is modified: 'He sang until everyone fell asleep.'

(44) Ometepec Nahuatl (Uto-Aztecan / Aztecan)
*ki-tsahtsi-ki* *ki-tsahtsi-ki* ***asta*** ***ach****-koch-ke-ki* *nochi*.
3SG.OBJ-sing-PFV 3SG.OBJ-sing-PFV until NEG-sleep-PL-PFV everyone
'He sang until everyone couldn't sleep.'

(45) Ometepec Nahuatl (Uto-Aztecan / Aztecan)
*ki-tsahtsi-ki* *ki-tsahtsi-ki* ***asta*** ***amo*** *koch-ke-ki* *nochi*.
3SG.OBJ-sing-PFV 3SG.OBJ-sing-PFV until NEG sleep-PL-PFV everyone
'He sang until everyone couldn't sleep.'

In Tetelcingo Nahuatl (45) and Michoacan Nahuatl (46), 'until' clauses are encoded with the conjunction *asta* 'until'. Unlike, the Nahuatl examples discussed above, it was not possible to determine whether negation is expletive.

[10] The Acaxochitlán Nahuatl and Ometepec data come from the fieldwork of the author.

(46) Tetelcingo Nahuatl (Uto-Aztecan / Aztecan)
*ki-tu-tu-toka-tinemi-ya* ***asta*** ***ke***
3SG-RDP-RDP-follow-go.around-IPFV until that
*o-mo-ksi-k$^{w}$ah-to*.
PST-REFL-foot-wood-become.tired
'He chased him around until his feet were tired out.' [Tuggy, 1979, p. 136]

(47) Michoacan Nahuatl (Uto-Aztecan / Aztecan)
*de umpa pewa-k k-ana-k in cocomahli,*
from there begin-PFV 3SG.OBJ-get-PFV DET clothes
***asta*** *milini-k.*
until flame-PFV
'Then it began to get at the clothes, until they burst into flame.' [Sischo, 1979, p. 369]

### *4.2.2. San Gabriel Huastec 'until' clauses*

San Gabriel Huastec is a Mayan language. There are some thirty Mayan languages. This family is divided into Huastecan, Yucatecan, Ch'olan-Tseltalan, Greater Q'anjob'alan, and Eastern Mayan (Mamean-K'ichean) [Campbell, 2017, p. 44]. Besides San Gabriel Huastec, other Mayan languages do not seem to have 'until' clauses appearing with expletive negative markers.

An example comes from Yucatec Maya. In this language, the conjunction *tak* 'until' is used for expressing a temporal boundary relation (48). Clauses introduced with this clause-linking device can be negated syntactically with the negative marker *ma'* (Eladio Ramos, pers. comm.). If the *tak* 'until' clause in (48) occurred with the negative marker *ma'*, it would modify the truth value of the proposition: 'It will happen until I don't die.'

(48) Yucatec Maya (Mayan)
*yaan u y-úuch-ul* ***tak*** *ken kiim-ik-en.*
COMPULS 3SG.ERG EP-happen-IND until PROSP die-IRR-1SG.ABS
'It will happen until I die.' [Ceh moo, 2011, p. 87]

A look-alike situation is attested in Akateco. 'Until' clauses are encoded with the conjunction *masanta* (49). The negative marker *man* can occur in *masanta* 'until' clauses (Arnoldo Gutierrez, pers. comm.). In this scenario, the negative marker lexically contributes to negation: 'Juan was sleeping until you did not arrive.'

(49) Akateco (Mayan)

| | | | |
|---|---|---|---|
| *wey-an-Ø* | *š-Ø-y-ʔun* | *nax* | *sunik,* |
| sleep-POSIT-3SG.ABS | COMPL-3SG.ABS-3SG.ERG-do | man | Juan |
| ***masanta*** | *š-ač-xul-i.* | | |
| until | COMPL-2SG.ABS-arrive-INTRANS | | |

'Juan was sleeping until you arrived.' [Zavala Maldonado, 1992, p. 248]

### *4.2.3. Discussion*

The examples shown in the previous sections should have made it clear that negation is expletive in 'until' clauses in Huasteca Nahuatl and San Gabriel Huastec. These languages are spoken in the same area (Veracruz) and they are not genetically related. In addition, it was shown that negative markers in 'until' clauses in other languages genetically related to these languages are not expletive. Instead, they modify the truth value of the proposition in which they occur. It is clear that language contact may have played a role in the diffusion of this clause-linkage pattern. Here it is proposed that Huasteca Nahuatl served as the source of the diffusion of the 'until' pattern.

The evidence to support this hypothesis comes from asymmetric bilingualism. There are a number of San Gabriel Huastec speakers who also speak Huasteca Nahuatl (Roberto Cora, pers. comm.). Many San Gabriel Huastec people make *sacahuil*, a giant 3.5-foot-long tamale which is the local festival specialty. San Gabriel Huastec people usually go to the markets around the area where they spend the day selling bowls of *sacahuil* and cups of coffee. For the most part, they use Nahuatl to talk to everyone who passes by. Note that Huasteca Nahuatl speakers do not consider important to learn San Gabriel Huastec. This socio-cultural context seems to be a case of asymmetric bilingualism, defined as a "situation whereby a community speaking language A tends to become bilingual in another language B, while the reverse is not true. Because speakers of B tend not to learn language A, this increases the social pressure upon A speakers to eventually shift to language B" [François, 2012, p. 99].

Further evidence that supports that Huasteca Nahuatl served as the source of the diffusion of the 'until' pattern is the following. It has been proposed that San Gabriel Huastec, and other indigenous languages spoken in Veracruz copied other clause-linkage patterns from Huasteca Nahuatl [Olguin Martinez, 2022]. An example comes from 'let alone' clauses. In Huasteca Nahuatl, the 'let alone' clause is introduced with the conjunction *menos*.[11] This clause-

[11] In 'let alone' constructions, the 'let alone' clause indicates a situation whose actualization is regarded as less probable in relation to another situation [Croft, 2022, p. 545; Fillmore et al., 1988, p. 523].

linking device is a loanword from Spanish.[12] Note that the *menos* ‘let alone’ clause occurs with the negative marker *amo*. This negative marker is also expletive and can be omitted without affecting the interpretation holding between clauses (50).

(50) Huasteca Nahuatl (Uto-Aztecan / Aztecan)
*ki-ih-lia* *amo* *yoyon-paka-s*,
3SG.OBJ-say-APPL NEG clothes-wash-FUT
***menos*** (***amo***) *ya* *ki-tlati* *nochicahui-tl*.
CONJ NEG 3SG.SBJ 3SG.OBJ-burn firewood-ABS
‘She said (yesterday) that she would not wash her clothes, let alone burn the firewood.’

*tenana* *tle* *nopa* *okichpil-me* *kin-ku*
mother that DET kid-PL 3PL.OBJ-grieve
*pampa* *teki-ti-k* *hueyi*.
because work-CAUS-PFV big
‘The mother of the kids was worried because she (always) works a lot.’

A similar pattern is also attested in San Gabriel Huastec. In the example in (51), ‘let alone’ is expressed with a construction in which the clause introduce with *panada* is negated syntactically with the standard negative marker *jab*. The negative marker can be omitted without affecting the semantic relation holding between clauses.

(51) San Gabriel Huastec (Mayan / Mayan)
*jab* *ʔu=tʃoʔo:b* *hitama:ʔ* *tsiʔ-itʃ*,
NEG 1SG.ERG=know who come-COMPL
***pa-nada*** (***jab***) *ʔu=tʃoʔo:b* *hant’o* *ti* *tsiʔ-itʃ*.
for-nothing NEG 1SG.ERG=know why SUB come-COMPL
‘I don’t know who came (to my house), let alone why he came.’

## 5. Final remarks

This paper has set out to describe ‘until’ constructions in a sample of 218 languages. In most languages in the database, ‘until’ constructions are formed with conjunctions and converbs. For a number of sources, it has been possible to determine that conjunctions and converbs appear to be diachronically connected to (1) case markers (e.g. dative case markers, allative or lative case

[12] In Spanish, *mucho menos* ‘let alone’ clauses cannot occur with the negative marker no ‘not’. Accordingly, the occurrence of the negative marker *amo* seems to be an internally motivated development in Huasteca Nahuatl.

markers, and terminative/limitative case markers), (2) verbs (e.g. 'to arrive'), (3) nouns (e.g. 'edge', 'border', 'end', or 'limit'), and (4) adverb(ial)s meaning 'only'. A number of factors involved in the diachronic development of 'until' devices were discussed, e.g. the development of verbs meaning 'to arrive' / 'to reach' into 'until' can be interpreted as being part of a more general process whereby languages use a spatial metaphor (sometimes called fictitious motion) to refer, not to the motion of an agent, but to the (metaphorical) motion in time of a situation. It has also been shown that some rare strategies are only attested in particular areas of the world. In particular, some languages from Mali use an 'until' clause with a verb meaning 'to get tired' to express 'for a long time', and some languages from Mesoamerica use 'until' clauses with expletive negative markers. Interestingly, the forms of the strategies are not the same. Given that these strategies are crosslinguistically rare and are only found in languages not genetically related spoken in the same area, diffusion through language contact is most likely to have taken place.

There are a number of aspects relevant to the study of 'until' clauses that this study could not address. Accordingly, they remain to be investigated by future studies, and in what follows some potentially fruitful areas are mentioned. First, in a number of languages in the sample, 'until' clauses are formally marked as subordinate, but conventionally used as main clauses (e.g. the Spanish construction *!Mira, hasta que llegaste a tiempo!* lit. 'look, until you arrived on time!'). These constructions seem to be instances of insubordination, i.e. "the conventionalized independent use of a formally subordinate clause" [Evans, 2007, p. 377]. This 'until' pattern has the illocutionary force of an exclamation, that is, the 'until' clause has come to serve another function (e.g. surprise). The analysis of the functions of insubordinate 'until' clauses seems a promising area.

Second, for some large genera, this study could only take into account one language (e.g. Oceanic). Therefore, the next step is to explore the typology of the expression of terminal boundary within particular large genera. This will enable us to explore internal diversity and try to come up with more fine-grained typological generalizations.

Third, many Dogon and Mesoamerican languages in the sample contain a construction as the following: 'From the moment he was born until the moment he died, he never prayed.' This type of construction involves a point of departure (i.e. 'from' clause), and an endpoint (i.e. 'until' clause). The question is: Do languages employ the same clause-linkage pattern for forming 'until' clauses and 'from…until' constructions? This domain also remains an unexplored territory and open for future research.

Fourth, it is not clear whether languages tend to encode clausal 'until' constructions and nominal 'until' constructions (e.g. 'The kids stayed awake

until midnight') in the same way. Clausal and nominal 'until' constructions are semantically related. However, this is an area that has not been subject to typological scrutiny yet. The question then is: Are there any structural similarities between clausal and nominal 'until' constructions?

We hope that this crosslinguistic study will be valuable as a general overview of 'until' constructions, and that it will help linguistic researchers to come up with more accurate descriptions in the future.

## References


Abels, 2005 – Abels K. Expletive negationin Russian: A conspiracy theory. *Journal of Slavic Linguistics*. 2005. Vol. 13. Pp. 5–74.

Barbour, 2012 – Barbour J. A grammar of Neverver. Berlin, 2012.

Bowern, 2012 – Bowern C. A grammar of Bardi. Berlin, 2012.

Campbell, 2017 – Campbell L. Mayan history and comparison. *The Mayan languages*. J. Aissen, N.C. England, R. Zavala Maldonado (eds.). Language Routledge, 2017. Pp. 43–61.

Ceh Moo, 2011 – Ceh Moo M. El llamado de los tunk'ules. T'ambilákmentunk' ulilo'ob. México, 2011.

Comrie, 1989 – Comrie B. Language universals and linguistic typology. 2nd ed. Oxford, 1989.

Comrie, 1993 – Comrie B. Language universals and linguistic typology: Databases and explanations. *Sprachtypologie und Universalienforschung*. 1993. Vol. 46. Pp. 3–14.

Cristofaro, 2003 – Cristofaro S. Subordination. Oxford, 2003.

Croft, 2022 – Croft W. Morphosyntax: Constructions of the world's languages. Cambridge, 2022.

Crowley, 2002 – Crowley T. Serial verbs in Oceanic: A descriptive typology. Oxford, 2022.

Delfitto, 2020 – Delfitto D. Expletive negation. *The Oxford handbook of negation*. V. Déprez, M.T. Espinal (eds.). Oxford, 2020. Pp. 255–268.

Dench, 1995 – Dench A.C. Martuthunira, a language of the Pilbara region of Western Australia. Canberra, 1995.

Dryer, 1989 – Dryer M.S. Large linguistic areas and language sampling. *Studies in Language*. 1989. Vol. 13. Pp. 257–292.

Dorvlo, 2008 – Dorvlo K. A grammar of Logba (Ikpana). Utrecht, 2008.

Egner, 2015 – Egner I. Discourse features of Godié narrative. Summer Institute of Linguistics. Electronic working papers. 2015.

Espinal, 1992 – Espinal M.T. Expletive negation and logical absorption. *The Linguistic Review*. 1992. Vol. 9. Pp. 333–358.

Espinal, 2000 – Espinal M.T. Expletive negation, negative concord and feature checking. *Working Papers in Linguistics*. 2000. Vol. 8. Pp. 47–69.

Evans, 2003 – Evans N. Bininj Gun-wok: A pan-dialectal grammar of Mayali, Kunwinjku and Kune. Canberra, 2003.

Evans, 2007 – Evans N. Insubordination and its uses. *Finiteness*: *Theoretical and empirical foundations*. I. Nikolaeva (ed.). Oxford, 2007. Pp. 366–431.

Fillmore, Kay, O'Connor, 1988 – Fillmore C.J., Kay P., O'Connor M.C. Regularity and idiomaticity in grammatical constructions: The case of *let alone*. *Language*. 1988. Vol. 64. No. 3. Pp. 501–538.

François, 2012 – François A. The dynamics of linguistic diversity: Egalitarian multilingualism and power imbalance among Northern Vanuatu languages. *International Journal of the Sociology of Language*. 2012. Vol. 214. Pp. 85–110.

Georgieva, Muraviev, 2018 – Georgieva E., Muraviev N. Aspect-negation interaction in Komi and Udmurt non-finite 'before'/'until'-clauses. Handout of paper presented at Syntax of the World's Languages 8, 2018.

Giannakidou, 2003 – Giannakidou A. A puzzle about until and the present perfect. *Perfect explorations*. A. Alexiadou, M. Rathert, A. von Stechow (eds.). Berlin; New York, 2003. Pp. 101–132.

Gordon, 1986 – Gordon L. Maricopa morphology and syntax. Berkeley, 1986.

Goudswaard, 2005 – Goudswaard N. The Begak (Ida'an) language of Sabah. Utrecht, 2005.

Gravelle, 2010 – Gravelle G.J. A grammar of Moskona: An East Bird's Head language of West Papua, Indonesia. Ph.D. dis. University of Amsterdam. 2010.

Harms, 1994 – Harms P.L. Epena Pedee syntax. Dallas, 1994.

Haspelmath, 1995 – Haspelmath M. The converb as a cross-linguistically valid category. *Converbs in cross-linguistic perspective*. M. Haspelmath, E. König (eds.). Berlin, 1995. Pp. 1–55.

Hayami-Allen, 2001 – Hayami-Allen R. A descriptive study of the language of Ternate, the Northern Moluccas, Indonesia. Ph.D. dis. University of Pittsburgh. 2001.

Heath, 2014 – Heath J. A grammar of Bunoge. Ms. 2014.

Heath, 2015 – Heath J. A grammar of Togo Kan. Ms. 2015.

Heath, 2016 – Heath J. A grammar of Penange. Ms. 2016.

Heath, 2017 – Heath J. A grammar of Tiranige. Ms. 2017.

Heath, Hantgan, 2018 – Heath J., Hantgan A. A grammar of Bangime: Language isolate of Mali. Berlin, 2018.

Hetterle, 2015 – Hetterle K. Adverbial clauses in cross-linguistic perspective. Berlin, 2015.

Hoddinott, Kofod, 1988 – Hoddinott W.G., Kofod F.M. The Ngankikurungkurr language (Daly River Area, Northern Territory). Canberra, 1998.

Holton, 2003 – Holton G. Tobelo. Munich, 2003.

Hong, 2003 – Hong S., Hong H. Grammar essentials of the Mandara language of New Ireland province. Ms. 2003.

Iordanskaja, Mel'čuk, 2009 – Iordanskaja L., Mel'čuk I. Semantics of the Russian conjunction *poka* 'while, before until'. *Von Grammatischenkategorien und Sprachlichenweltbildern, die Slavia von der Sprachgeschichte bis Zurpolitsprache*. T. Berger, M. Giger, S. Kur, I. Mendoza (eds.). München, 2009. Pp. 253–262.

Jauncey, 2011 – Jauncey D.G. Tamambo, the language of West Malo, Vanuatu. Canberra, 2011.

Jonsson, 2012 – Jonsson N. Temporal and co-varying clause combining in Austronesian languages. Semantics, morpho-syntax and distributional patterns. PhD dis. Stockholm University. 2012.

Karttunen, 1974 – Karttunen L. Until. *Chicago Linguistic Society*. 1974. Vol. 10. Pp. 283–297.

Kortmann, 1997 – Kortmann B. Adverbial subordination: A typology and history of adverbial subordinators based on European languages. Berlin, 1997.

Kuteva et al., 2019 – Kuteva T., Heine B., Hong B. et al. World lexicon of grammaticalization. 2nd ed. Cambridge, 2019.

Lacrampe, 2014 – Lacrampe S. Lelepa: Topics in the grammar of a Vanuatu language. PhD. dis. Australian National University. 2014.

Lehmann, 1993 – Lehmann T. A grammar of Modern Tamil. Pondicherry Institute of Linguistics and Culture, 1993.

Lichtenberk, 2008 – Lichtenberk F. A grammar of Toqabaqita. Berlin, 2008.

Martowicz, 2011 – Martowicz A. The origin and functioning of circumstantial clause linkers: A cross-linguistic study. PhD. dis. University of Edinburgh. 2011.

Mauri, 2008 – Mauri C. The irreality of alternatives: Towards a typology of disjunction. *Studies in Language*. 2008. Vol. 32. Pp. 22–55.

McPherson, 2013 – McPherson L. A grammar of Tommo So. Berlin, 2013.

Meakins, Nordlinger, 2014 – Meakins F., Nordlinger R. A grammar of Bilinarra: An Australian aboriginal language of the Northern Territory. Berlin, 2014.

Miestamo, 2005 – Miestamo M. Standard negation: The negation of declarative verbal main clauses in typological perspective. Berlin, 2005.

Miestamo, Bakker, Arppe, 2016 – Miestamo M., Bakker D., Arppe A. Sampling for variety. *Linguistic Typology*. 2016. Vol. 20. Pp. 233–296.

Mittwoch, 1977 – Mittwoch A. Negative sentences with until. *Chicago Linguistic Society*. 1997. Vol. 3. Pp. 410–417.

Mous, 2020 – Mous M. Transfer of Swahili ‘until’ in contact with East African languages. *Advances in contact linguistics*: *In honour of Pieter Muysken*. N. Smith, T. Veenstra, E.O. Aboh (eds.). Amsterdam; Philadelphia, 2020. Pp. 218–233.

Muraviev, 2017 – Muraviev N. Semantic and pragmatic properties of the ‘until’ clauses in three Finno-Ugric languages. Handout of paper presented at the University of Zürich. 2017.

Nichols, 1992 – Nichols J. Linguistic diversity in space and time. Chicago, 1992.

Nikolaeva, Tolskaya, 2001 – Nikolaeva I., Tolskaya M. A grammar of Udihe. Berlin, 2001.

Olguin Martinez, 2022 – Olguín Martínez J. Temporal adverbial clauses in the languages of the world: Clause-linking strategies. Ph.D. dis. University of California, Santa Barbara. 2022

Olson, 1992 – Olson C. Gumawana: Grammar sketch and texts. *Papers in Austronesian Linguistics 2*. M.D. Ross (ed.). Canberra, 1992. Pp. 251–430.

Osumi, 1995 – Osumi M. Tinrin grammar. Honolulu, 1995.

Perkins, 1989 – Perkins R.D. Statistical techniques for determining language sample size. *Studies in Language*. 1989. Vol. 13. Pp. 293–315.

Reesink, 1999 – Reesink G.P. A grammar of Hatam, Bird’s Head peninsula, Irian Jaya. Canberra, 1999.

Rijkhoff, Bakker, 1998 – Rijkhoff J., Bakker D. Language sampling. *Linguistic Typology*. 1998. Vol. 2. Pp. 263–314.

Rijkhoff et al., 1993 – Rijkhoff J., Bakker D., Hengeveld K., Kahrel P. A method of language sampling. *Studies in Language*. 1993. Vol. 17. Pp. 169–203.

Schmidtke-Bode, 2009 – Schmidtke-Bode K. A typology of purpose clauses. Amsterdam; Philadelphia, 2009.

Schnell, 2011 – Schnell S. A grammar of Vera'a: An Oceanic language of North Vanuatu. Ms. 2011.

Shimelman, 2017 – Shimelman A. A grammar of Yauyos Quechua. Leipzig, 2017.

Sischo, 1979 – Sischo W.R. Michoacan Nahuatl. *Studies in Uto-Aztecan Grammar Volume 2, Uto-Aztecan Grammar Sketches*. R.W. Langacker (ed.). Dallas, 1979. Pp. 307–380.

Smith-Dennis, 2020 – Smith-Dennis E. A grammar of Papapana: An Oceanic language of Bougainville, Papua New Guinea. Berlin, 2020.

Soukka, 2000 – Soukka M. A descriptive grammar of Noon. Munich, 2000.

Swart, Tellings, Wälchli, 2022 – Swart H. de, Tellings J., Wälchli B. *Not … until* across European languages: A parallel corpus study. *Languages*. 2022. Vol. 7. Pp. 1–33.

Tuggy, 1979 – Tuggy D. Tetelcingo Nahuatl. *Studies in Uto-Aztecan Grammar Volume 2, Uto-Aztecan Grammar Sketches*. R.W. Langacker (ed.). Dallas, 1979. Pp. 1–140.

Wälchli, 2018 – Wälchli B. 'As long as', 'until' and 'before' clauses: Zooming in on linguistic diversity. *Baltic Linguistics*. 2018. Vol. 9. Pp. 141–236.

Waters, 1989 – Waters B. Djinang and Djinba – A grammatical and historical perspective. Canberra, 1989.

Zavala Maldonado, 1992 – Zavala Maldonado R. Acateco de la frontera sur. México, 1992.

The article was received on 31.01.2023
Статья поступила в редакцию 31.01.2023

## About the author / Сведения об авторе

**Jesus Olguin Martinez** – PhD (Linguistics); assistant professor in Theoretical Linguistics, Illinois State University, Normal, USA

**Хесус Ольгин Мартинес** – PhD (лингвистика); доцент по специальности «теоретическая лингвистика», Государственный университет штата Иллинойс, г. Нормал, США

ORCID: https://orcid.org/0000-0002-4555-4213
E-mail: olguinmartinez@ucsb.edu