

Noun juxtaposition for predication, possession, and conjunction: Beyond ambiguity avoidance

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Abstract

This paper asks whether ambiguity avoidance influences the use of certain linguistic forms, using noun juxtaposition as a case study. Noun juxtaposition is one of the strategies for expressing predication, possession, and conjunction, and is widely used across the world's languages. Despite its extensive use, few studies have investigated noun juxtaposition cross-linguistically. One notable exception is Frajzyngier et al. (2002), who argue that the use of noun juxtaposition is constrained within a single language due to ambiguity avoidance. However, counterexamples to this hypothesis exist. This study points out that their sample is skewed towards African languages, and thus, their findings likely reflect African areal patterns. From this perspective, a comprehensive cross-linguistic examination of noun juxtaposition is still lacking. Therefore, based on a balanced 72-language sample, this paper explores which functions tend to be expressed by noun juxtaposition, whether there are any areal patterns concerning its use, and whether its use is constrained by ambiguity. Since noun juxtaposition is, by definition, the most efficient strategy for these three functions in terms of formal complexity, the research conducted in this study contributes to discussions on whether ambiguity or efficiency is more important for the use of certain linguistic forms. Based on the empirical findings, this study suggests that efficiency plays a more important role than ambiguity.

Keywords: noun juxtaposition; ambiguity; efficiency; predication; possession; conjunction

1. Introduction

Ambiguity and efficiency are important factors in explaining the use of certain linguistic forms. However, they can be opposed to each other. The more efficient a form is, the more ambiguous it tends to be. In this paper, I investigate which is more important for the use of a certain linguistic structure: ambiguity or efficiency, through the examination of noun juxtaposition as a case study. In terms of formal complexity, noun juxtaposition can be considered the simplest (and most efficient) form for expressing meanings conveyed by noun phrases, as it does not use any formal markings to indicate its function. In this sense, the examination of noun juxtaposition is well-suited to the discussion of whether ambiguity or efficiency is more significant.

Noun juxtaposition is one of the strategies (in the sense of Croft 2022 and Haspelmath 2024a) for predication, adnominal possession, and conjunction, and it also serves other functions (see Section 3 for the scope of the survey in the present paper). While it is not found in all the world's languages, this strategy is attested in many languages worldwide. This is illustrated in examples (1)-(3), which are drawn from six macroareas.

(1) Predication¹

- a. Warao (wba; Isolate, South America, Guyana; Romero-Figueroa 1997: 11)

yatu hotarao

you non.Warao

'You are non-Warao.'

- b. Jaminjung (djd; Mirndi, Yirram; Australia; Schultze-Berndt 2000: 109)

ngayug gurrany gujarding ngunggina

1SG NEG mother 2SG.POSS

'I am not your mother.'

(2) Possession

- a. Tommo So (dto; Dogon, Escarpment Dogon; Mali; McPherson 2013: 191)

bé níné

they aunt

'their aunt'

¹ In this paper, the notation and glosses of examples may differ from those in their original sources. All information on the geographical and genealogical distribution of languages is based on Glottolog 5.0

- b. Haida (hai; Isolate, North America, Canada; Enrico 2003: 709)

Joe ʔisgyaan Bill ʔaww

Joe and Bill mother.SG

‘Joe’s and Bill’s mother’

(3) Conjunction

- a. Ulwa (yla; Keram, Ulmapo; Papua New Guinea; Barlow 2023: 354)

yeta yena ala

man woman PL.DIST

‘the boys and girls’

- b. Dolgan (dlg; Turkic, Common Turkic; Russian Federation; Däbritz 2022: 320)

n’el’ma-lar, muksut-tar, o:mul-lar

nelma-PL muksun-PL Arctic.cisco-PL

‘nelmas, muksuns and Arctic ciscos (fish names)’

Although noun juxtaposition is used worldwide, it has not been extensively investigated cross-linguistically. A notable exception is Frajzyngier et al. (2002), who examine the predicational and possessive functions of noun juxtaposition and argue that its use within a single language is constrained by ambiguity. However, as mentioned in Section 2, since the sample of languages in their study is skewed towards African languages, their investigation is not truly worldwide. Thus, it remains to be explored which functions tend to be expressed by noun juxtaposition, whether there are any areal patterns concerning its use, and whether the claim that the use of noun juxtaposition is constrained by ambiguity is supported. In this paper, I present an examination of noun juxtaposition across the world’s languages by investigating a balanced sample of 72 languages. Based on the results, I conclude that the use of noun juxtaposition is not constrained by ambiguity. Instead, these results suggest that human languages tend to prioritize efficiency over avoiding ambiguity. This conclusion offers empirical support for the claims made by Piantadosi et al. (2012) and Wasow (2015). As they claim, ambiguity is not always avoided, and the importance of ambiguity avoidance can sometimes be overrated.

2. Previous studies

As mentioned in Section 1, few studies examine whether there are cross-linguistic

tendencies in the use of noun juxtaposition, even though it is employed for a few functions widely. One notable exception is Frajzyngier et al. (2002).

Frajzyngier et al. (2002: 155) argue that a language does not allow the systematic use of the same formal niche for different functions, that is, a language does not allow systematic ambiguity of grammatical constructions. For the purposes of examining their larger claim, they investigate two functions that can be expressed by noun juxtaposition, namely equational predication and modification of one noun by another.² They conclude that (i) if equational predication in the unmarked present tense is coded by noun juxtaposition, modification requires a marker, and (ii) if modification is coded by noun juxtaposition, equational predication requires a marker. The following examples, (4) and (5), from Hdi (xed; Afro-Asiatic, Chadic) and Mupun (sur; Afro-Asiatic, Chadic) instantiate (i) and (ii), respectively, with the markers indicated in bold.

(4) Hdi (Afro-Asiatic, Chadic; Frajzyngier et al. 2002: 165)

a. Equational clause

m̀nd-á ráyá mbítsá
man-GEN hunt Mbitsa
'Mbitsa is a hunter.'

b. Modification

hlúwí-á k̀rì
meat-GEN dog
'dog meat'

(5) Mupun (Afro-Asiatic, Chadic; Frajzyngier et al. 2002: 162–163)

a. Equational clause

wur a wat
he COP thief
'He is a thief.'

² As is evident from (4b) and (5b), what they refer to as modification is, in fact, adnominal possession. I follow their use of this terminology when reviewing their study.

b. Modification

siwol laa
 money child
 ‘child’s money’

However, this observation is problematic. In fact, counterexamples to their claim are found in some languages. For example, Sentani (set; Sentanic, Nuclear Sentanic) and Labwor (lth; Nilotic, Western Nilotic) use noun juxtaposition for both functions, as in (6) and (7).

(6) Sentani predication and modification (Sentanic, Nuclear Sentanic; Mayer 2021: 63)

Awansi Jacobus mænggə fa.
 Awansi Jacobus girl young
 ‘Awansi is Jacobus’s daughter.’

(7) Labwor (Nilotic, Western Nilotic; Heine & König 2010: 30; 61)

a. Predication

mánón bɔ̀ɔ
 that bɔ̀ɔ
 ‘It is bɔ̀ɔ vegetable.’

b. Modification

ət dhákó
 house woman
 ‘woman’s house’

Frajzyngier et al.’s (2002) hypothesis is mainly based on African languages, particularly Chadic languages, as their sample includes 11 African languages out of a total of 33 languages. This is why their claim is biased toward African areal patterns and does not work cross-linguistically (see also Kazama 2011 for a critique of Frajzyngier et al. 2002).

Thus, while Frajzyngier et al. (2002) claim that the use of noun juxtaposition is motivated or constrained by ambiguity, it remains largely unexplored whether this claim holds cross-linguistically. Consequently, questions arise as to whether there are

distributional tendencies in the use of noun juxtaposition across languages and areas, and if such tendencies exist, whether they can be explained in terms of ambiguity or efficiency. This paper aims to answer these questions. The next section is dedicated to the preparation for the survey.

3. Definition of terms and the scope of the study

3.1. Noun juxtaposition

To conduct typological research on noun juxtaposition, we need to define it as a comparative concept (Haspelmath 2007a, 2010). In the present study, *noun juxtaposition* is defined as in (8).

(8) Noun juxtaposition

Noun juxtaposition is a structure in which two (or more) nouns occur adjacent to each other in a single construction, and neither of the nouns is marked by a formal marker that indicates a relationship between them.³

This definition requires three comments on *noun*. First, it is generally not straightforward how nouns can be compared cross-linguistically, because different languages have different word classes (Evans 2000). In this paper, *noun* is treated as part of universally available concepts (Haspelmath 2023a: 23), as defined in (9).

(9) Noun (Croft 1991: ch.2, 2000, 2001: ch.2, 2022: 714; Haspelmath 2023a)

A noun is a word that is used as an argument of a verb, that is, the head of a referring phrase, and it denotes an object without any additional markers.

This definition of *noun* singles out only typical nouns. Of course, other semantic classes, such as action and property can form nouns, but they need additional markers in many cases (e.g., *walk-walking*; *kind-kindness*). However, this paper does not address such nouns that require additional markers.

Second, this paper addresses structures in which at least one of the elements involves noun phrases (hereafter referred to as NP). As I mentioned earlier, this paper

³ I name such formal markers *function indicators*.

investigates whether ambiguity plays a role in explaining the use of certain linguistic forms through the examination of noun juxtaposition, as argued by Frajzyngier et al. (2002). The structures that they examined involve at least one NP as an element. For example, predication involves two NPs, such as *[My mother]_{NP} is [her teacher]_{NP}*, and possession involves at least one NP, such as in *[his father]_{NP}'s house*.

Third, this paper includes pronouns within its scope (e.g. (1), (2a), (5a), and (7a), among others). This is because investigating pronouns is also useful for achieving our aims, such as examining which functions are typically expressed by noun juxtaposition, whether there are any areal patterns regarding its use, and whether its use is constrained by ambiguity.

In (8), noun juxtaposition is defined as one of the strategies used to express certain functions (see Croft 2022 and Haspelmath 2024a for the distinction between strategies and functions). One of the aims of the present paper, as mentioned earlier, is to investigate which functions are typically expressed by noun juxtaposition. Therefore, it is important to determine which functions to focus on in this study. Noun juxtaposition can be used not only for predication and possession but also for coordination and other functions, such as apposition. However, this paper focuses only on predication, possession, and conjunction. This is because these functions are often expressed by noun juxtaposition, as mentioned in the following subsections, and there is also potential ambiguity between them. Similar to predication and possession, conjunction involves two NPs as well, such as *[my sister]_{NP} and [her brother]_{NP}*.⁴ Before looking at these three functions in detail, I make six comments on the scope of the survey and explain why functions other than predication, possession, and conjunction are excluded.

First, as I mentioned earlier, this paper focuses on noun phrases and excludes clauses from consideration. Therefore, juxtaposed clauses, such as complementation in Thai (tha; Thai-Kadai, Kam-Tai; Iwasaki & Ingkaphirom 2005: 253–255) are beyond the scope of this study.

Second, the present study does not deal with noun modifiers. This is because there are languages in which nouns and adjectives are not distinguished by morphosyntactic criteria (Plungian 2011: 75). For instance, Huallaga Quechua (qub; Quechuan, Quechua I) does not differentiate between nouns and adjectives

⁴ A reviewer questions whether there is ambiguity between clauses and phrases, but it is indeed reported in several grammars. For example, in Sentani, noun juxtaposition is ambiguous in its interpretation between predication and adnominal possession (Mayer 2021: 64).

morphosyntactically, as illustrated in (10). Therefore, all of its property-modificational constructions could fall under the scope if noun modifiers were taken into account (this is relevant to the definition of noun above).

(10) Huallaga Quechua (Quechuan, Quechua I; Weber 1989: 36)

- a. *rumi wasi*
stone house
'stone house'
- b. *hatun wasi*
big house
'big house'

Thus, this paper excludes noun modifiers, such as (11a), an example from Araona (aro; Pano-Tacanan, Tacanan), and so-called generic-specific construction such as (11b), an example from Kayardild (gyd; Tangkic, Southern Tangkic) even if noun juxtaposition is used. In Araona, juxtaposed nouns express several meanings other than possessive, such as modification (see Emkow 2006: ch. 13.7.4), and in Kayardild, a generic noun naming a class or use of entities and a specific noun are juxtaposed (see Evans 1995: ch. 6.3.4).

(11) a. Araona (Pano-Tacanan, Tacanan; Emkow 2006: 381)

nāi bēne
rain side
'rain side'

b. Kayardild (Tangkic, Southern Tangkic; Evans 1995: 244)

wanku-ya kulkiji-y
elasmobranch-LOC shark-LOC
'a shark'

Third, the present study excludes *apposition* from consideration. This is because almost all languages can use the juxtaposition strategy for apposition to some extent (see Hackstein 2003 for the definition of apposition and Logvinova 2024 for the relationship between apposition and juxtaposition). For example, Russian (rus; Indo-

European, Balto-Slavic) and Japanese (jpn; Japonic, Japanesic) are typically regarded as languages in which noun juxtaposition is rarely used except for predication. However, these languages can also use it for apposition, as in (12). Thus, the use of noun juxtaposition for apposition does not seem to be theoretically motivated or constrained.

(12) a. Japanese (Japonic, Japanesic)

Nihon = no syuto Tokyoo = ni ik-u.

Japan = GEN capital Tokyo = ALL go-NPST

‘I will go to Tokyo, the capital of Japan.’

b. Russian (Indo-European, Balto-Slavic; Timberlake 2004: 152)

Ozero Bajkal gluboko.

lake.N.SG Baikal.M.SG deep

‘Lake Baikal is deep.’

Fourth, the present study excludes *compounding* from the scope of the survey. In some languages, possessive compounds and conjunctive compounds (co-compounds in Wälchli 2005) are formed, as possessive compounds in (13).

(13) Bunaq (bfn; Timor-Alor-Pantar, Bunak; Schapper 2022: 350)

deu puqup

house roof

‘house roof’

This study excludes compounds from the scope of the investigation because compounding involves only Ns, not NPs according to the definition of *compound* proposed by Haspelmath (2023c).

(14) Compound (Haspelmath 2023c: 288)

A compound is a form (consisting of two adjacent roots) that instantiates, or was created by a compound construction, namely, a construction consisting of two strictly adjacent slots for roots that cannot be expanded by full nominal, adjectival, or degree modifiers).

At this point, there is no potential ambiguity between compounding and the three functions in question. Thus, compounding does not contribute to the discussions about whether ambiguity plays a role in the use of certain forms, which are explored in this study.

Fifth, in many cases, the use of noun juxtaposition is restricted to certain conditions, and thus, strategies other than noun juxtaposition can be used in a similar (or the same) way. For example, Yélî Dnye (yle; Isolate, Papunesia) uses a comitative case for conjunction in addition to the noun juxtaposition strategy, as illustrated in (15).

(15) Yélî Dnye (Isolate, Papunesia; Levinson 2022: 163)

a. *Yidika Mwonî*
Yidika Mwonî
'Yidika and Mwonî'

b. *Yidika Mwonî k:i*
Yidika Mwonî COM
'Yidika and Mwonî'

In this paper, noun juxtaposition is considered to be used in a language if it is employed under certain conditions. I do not investigate the specific conditions under which noun juxtaposition can be used or the difference in semantics and/or information structure between noun juxtaposition and non-juxtaposition strategy. This is because the primary purpose of this study is to examine the relationships between functions, rather than within a single function.

Sixth, in this paper, I do not consider intonation and/or other phonological means. Indeed, such phonological means might be a function indicator in noun juxtaposition. However, as Mithun (1988: 357) notes regarding coordination, the intonational linking of concepts can be universal in spoken language. In addition, phonological effects are quite diverse and cannot be easily generalized across languages (Haspelmath 2023b). Therefore, they are excluded from the scope of this study.

In the following subsections, I examine three functions, namely, predication, adnominal possession, and conjunction which are the focus of this study in detail.

3.2. Predication

In many languages, nouns in juxtaposition can express a predicational relationship.

For example, Kalamang (kgv; West Bomberai, Kalamang), Kugu Nganhcara (uwa; Pama-Nyungan, Paman), and Duhumbi (cvj; Sino-Tibetan, Kho-Bwa) are among such languages, as in (16).

(16) a. Kalamang (West Bomberai, Kalamang; Visser 2022: 293)

kon se guru, tumtum kon guru
 one already teacher children one teacher
 ‘One is already teacher, one child is teacher.’

b. Kugu Nganhcara (Pama-Nyungan, Paman; Smith & Johnson 2000: 389)

iiru thata
 this.ABS frog
 ‘This is a frog.’

c. Duhumbi (Sino-Tibetan, Kho-Bwa; Bodt 2020: 396)

otɕʰi ɕoj Pema-aʔ
 this bull pema-GEN
 ‘This bull is Pema’s.’

In the literature, various subfunctions of predication are distinguished. For example, Haspelmath (2024b) introduces the neologism *duonominal construction* and subdivides it into two types, namely equational clauses and classificational clauses. On the other hand, Croft (2022: ch. 10.1) distinguishes predicational and identificational clauses, based on Stassen (1997: ch. 3.6).⁵ Actually, concerning the terms *predication* and *predicational nominal* that have been used in this paper so far, there are cases where they should be regarded as *identification* rather than predication. In many cases, the juxtaposition strategy is used for all subfunctions of predication. However, there are a few languages that use the juxtaposition strategy for only one of these subfunctions. This is the case with Yuchi (yuc; Isolate, North America), where only equational clauses use juxtaposition, as illustrated in (17).

⁵ He further subdivides the identificational clause into presentational and equational clauses.

(17) Yuchi (Isolate, North America)

a. Equational clause (Linn 2001: 416)

Josephine senõ se-laga.
Josephine NC:F 3F.POSS-grandmother
'Josephine is her grandmother.'

b. Classificational clause (Linn 2001: 415)

Simon 'wa p'athl'ě.
Simon COP chief
'Simon is chief.'

In this paper, I do not distinguish types of predication, such as equational and classificational, and instead use the cover term *predication* for them. This is because the distinctions among these subfunctions vary from one linguist to another, and there is no consensus on the matter. For example, Haspelmath (2024b) makes a distinction between types of predication based on form, while Croft (2022) and Stassen (1997) base their distinctions on cognitive differences (mental-files). Many other proposals (e.g., Payne 1997: ch. 6) have also been made (see Haspelmath 2024b for a summary of the literature). Since the present study does not pursue an appropriate distinction between subfunctions within a single function, such as predication, and instead examines the relationship between use of noun juxtaposition for several functions, a strict distinction between subfunctions within a function is not required. Thus, if a language uses noun juxtaposition for any subfunction of predication, regardless of the type, I consider this language as one that can use the juxtaposition strategy for predication.

The definition of *noun juxtaposition* employed in this paper excludes nouns in the so-called predicative form from noun juxtaposition because they indicate a predicational relationship. Thus, the predicative noun in (18) from Kolyma Yukaghir (yux; Yukaghir, Kolymic) is not counted as an element consisting of noun juxtaposition.

(18) Kolyma Yukaghir (Yukaghir, Kolymic; Maslova 2003: 437)

Momušā laqidi'e čistē čumu amun-ek.
Momusha tail entirely all bone-PRED
'The whole tail of Momusha is only bones.'

In some languages, predicative nouns are regarded as stative verbs because of their predicational function. This is the case with the predicative noun \emptyset -*k^w3b33* in (19) from Ubykh (uby; Abkhaz-Adyge, Ubykh).

(19) Ubykh (Abkhaz-Adyge, Ubykh; Fenwick 2011: 155)

v-3^w3nk^h \emptyset -*k^w3b33*
 the-flea 3SG.ABS-man
 ‘The flea is a male.’

However, it falls under the definition of a noun provided in (9). Thus, (19) can be considered an example of noun juxtaposition in a cross-linguistic context.

3.3. Adnominal possession

Noun juxtaposition can express an adnominal possessive relationship. For example, Ju|'hoan (kyz; Kxa, Ju-Kung), Amur Nivkh (niv; Nivkh, Amur Nivkh), and Rama (rma; Chibchan, Core Chibchan) can use it to express adnominal possession, as illustrated in (20).

(20) a. Ju|'hoan (Kxa, Ju-Kung; Dickens 1992: 17)

n!hai *!xúí*
 lion tail
 ‘the lion’s tail’

b. Amur Nivkh (Nivkh, Amur Nivkh; Nedjalkov & Otaina 2013: 9)

ətək *χaj*
 father pigeon
 ‘father’s pigeon’

c. Rama (Chibchan, Core Chibchan; Grinevald 1990: 94)

tangkit (*aing*) *ariira*
 bow (POSS) string
 ‘the string of the bow’

In the present study, a *possessive construction* is defined functionally, following

previous work in typology, especially Haspelmath (2017) and Koptjevskaja-Tamm (2003):

(21) Possessive construction

A possessive construction is a construction that expresses ownership (e.g., *my name*), kinship (e.g., *my mother*), or part-whole relationship (e.g., *my head*).

As is well-known, there are languages that distinguish alienable possession and inalienable possession (Bugaeva et al. 2022; Haspelmath 2017; Nichols 1988). Some languages use the juxtaposition strategy for inalienable possession. For example, Kakabe (kke; Mande, Western Mande) and Wappo (wao; Yuki-Wappo, Wappo) use the juxtaposition strategy only for inalienable possession, as in (22) and (23).

(22) Kakabe (Mande, Western Mande)

a. Alienable possession (Vydrina 2017: 92)

mùséé là sáákòè
woman.ART POSS bag.ART
'woman's bag'

b. Inalienable possession (Vydrina 2017: 92)

mùséè bólè
woman.ART hand.ART
'woman's hand'

(23) Wappo (Yuki-Wappo, Wappo)

a. Alienable possession (Thompson et al. 2006: 26)

ah te-me? papel' peh-khi?
1SG.NOM 3SG-GEN book look-STAT
'I am looking at his/her book.'

b. Inalienable possession (Thompson et al. 2006: 15)

c'ic'a khap-i ke?te-khi?
bird wing-NOM broken-STAT
'The bird's wing is broken.'

Interestingly, in Apurinã (apu; Arawakan, Southern Maipuran), inalienable nouns use the noun juxtaposition strategy, and nouns require an unpossession marker when unpossessed, as illustrated in (24).

(24) Apurinã (Arawakan, Southern Maipuran)

a. Inalienable possession (Facundes 2000: 152)

kema kuwu
 tapir head
 ‘tapir’s head’

b. Unpossession (Facundes 2000: 153)

kuwĩ-txi
 head-NPOSS
 ‘the head’

However, there are also languages that use the juxtaposition strategy only for alienable possession. This is the case with Ndjébbana (djj; Maningrida, Nakkara-Ndjébbana) in (25).

(25) Ndjébbana (Maningrida, Nakkara-Ndjébbana)

a. Alienable possession (McKay 2000: 195)

marddúrdđiba ngáyabba
 heart I
 ‘my heart’

b. Inalienable possession (McKay 2000: 208)

díla-ngaya
 eye-her
 ‘her eye’

In this paper, all cases of noun juxtaposition are taken into account regardless of the type of possession, namely alienable or inalienable. The reason for this is that the distinction between alienable and inalienable depends on how the terms are defined. Previous studies show disagreement in the usage of the terminology *alienability*. In Cristofaro (2023), the terms *alienable* and *inalienable* are defined from a functional

(notional) perspective, whereas in Nichols (1988), they are defined from a formal (hybrid) perspective. The functional definition classifies nouns as (in)alienable based on their inherent meaning, such as kinship terms and body parts, and these classifications remain consistent across languages. In contrast, the formal (or hybrid, in the sense of Haspelmath 2024a) definition identifies nouns as inalienable when they use a shorter (or zero) form in the alienability split. Consequently, the nouns classified as inalienable vary from language to language. Since the present study focuses on the syntactic structure (strategy), specifically noun juxtaposition, and investigates whether it exhibits ambiguity in relation to other functions, rather than within a single function, I do not explore which subfunctions of possession are typically expressed by noun juxtaposition.

3.4. Conjunction

Nouns in juxtaposition can express a conjunctive relationship. This is exemplified in Southern Pomo (peq; Pomoan, Russian River and East), Bukiyip (ape; Nuclear Torricelli, Kombio-Arapesh-Urat), and Matses (mcf; Pano-Tacanan, Panoan) as in (26).

(26) a. Southern Pomo (Pomoan, Russian River and East; Walker 2020: 335)

miy:a-me-∅ miy:a-t^he-∅
3-father-AGT 3-mother-AGT
'her father and mother'

b. Bukiyip (Nuclear Torricelli, Kombio-Arapesh-Urat; Conrad & Wogiga 1991: 64)

ot-uk élmatok at-unú élman
one-3SG.F woman one-3SG.M man
'one woman and one man'

c. Matses (Pano-Tacanan, Panoan; Fleck 2003: 805)

sentá-n chëshëid-n
uakari.monkey-ERG spider.monkey-ERG
'uakari monkeys and spider monkeys'

As mentioned earlier, I include conjunction because it involves NPs, and there is potential

ambiguity between predication, adnominal possession, and conjunction. However, it should be noted that the examples in (26) may deviate from the definition of noun juxtaposition in (8), according to Haiman (1983).⁶ This author argues that iconic markers also function as coordination markers. For example, in (26c), ergative markers are used not only as ergative markers but also as coordination markers. However, I do not follow this idea. I have two reasons for this. First, dedicated coordination markers can be used regardless of the presence of these iconic markers. As shown in (27a), the coordination marker *chedo* can be used when iconic markers are present, whereas the juxtaposition strategy can also be employed without these iconic markers, as in (27b). Thus, the difference between the presence and absence of iconic markers does not contribute to the meaning of coordination.

(27) Matses (Pano-Tacanan, Panoan; Fleck 2003: 803; 812)

- a. *mëcueste-n capa chedo-n*
 agouti-ERG squirrel too-ERG
 ‘agoutis and squirrels’
- b. *titado pachid*
 peach.palm manioc
 ‘peach plam fruits and/or manioc’

Second, iconic markers can be found in contexts other than coordination. In (28a), iconic markers are used in predication, and in (28b), they are used in adnominal possession.

(28) a. Russian (Indo-European, Balto-Slavic)

Moj otec moj učitel’.
 1SG.POSS.M father 1SG.POSS.M teacher
 ‘My father is my teacher.’

b. Tima (tms; Katla-Tima, Tima; Alamin Mubarak 2009: 131)

k-ubay k-ahunɛn
 SG-cup SG-woman
 ‘woman’s cup’

⁶ I owe this point to a reviewer.

In coordination, by definition, units of the same syntactic status are construed together. Since they share the same status, they tend to have iconic markers. However, this does not mean that these iconic markers function as coordination markers.

This paper deals only with conjunction, a type of coordination. Phrase coordination is typically subdivided into conjunction and disjunction based on function, and noun juxtaposition is sometimes used for disjunction as well, as in (29).

(29) Ngarinyin (ung; Worrوران, Ngarinyin; Spronck 2015: 38)

kanangkurr aru dolad warndij mo₂-y₂i-nyi-nu
dog snake hole create 3N.SBJ-be-PST-2SG.OBJ
'It could become a dog, snake, or hole for you.'

However, this paper does not consider disjunction because information on disjunction in reference grammars tends to be much less detailed than conjunction. *Conjunction* is defined as follows:

(30) Conjunction (cf. Croft 2022: 680; 682; Haspelmath 2007b: 1)

Conjunction is a type of coordination that is a syntactic construction in which two or more units of the same status are construed into a larger unit and represents some sort of grouping together in the relevant context.

For conjunction, some languages allow the connection of more than two conjuncts.⁷ When coordinating more than two coordinands (multiple coordinands), many languages permit the omission of function indicators. This is illustrated in the following example (31) from Haspelmath (2007b: 12).

(31) West Greenlandic (Eskimo-Aleut, Eskimo; Haspelmath 2007b: 12 from Fortescue 1984: 127)

tulu-it qallunaa-t kalaall-il = lu
Englishman-PL Dane-PL Greenlander-PL = and
'Englishmen, Danes and Greenlanders'

The first two coordinands in (31) and their English translation do not have any marker.

⁷ The use of the terms is based on Croft (2022); Haspelmath (2004; 2007b).

In this sense, this falls under the definition of noun juxtaposition in the present paper. However, I do not consider such examples because the function indicator (*lu* in (29)) appears to reflect the relationship of the entire phrase.

The definition of conjunction above excludes the construction that is called *inclusive constructions* in Goddard (1985: 51) and Langlois (2004: 118–19), as well as *associative constructions* in Dunn (1999: 172). This is illustrated in the following examples (32) from Chukchi (ckt; Chukotko-Kamchatkan, Chukotian) and Pitjantjatjara (pjt; Pama-Nyungan, Desert Nyungic).

(32) a. Chukchi (Chukotko-Kamchatkan, Chukotian; Dunn 1999: 172)

ətləyə-t əmmemə
parent-3PL.ABS mother.3SG.ABS
'the father and mother'

b. Pitjantjatjara (Pama-Nyungan, Desert Nyungic; Langlois 2004: 118)

Annie-nya tjana Sydney-lakutu a-nu.
Annie-NOM 3PL.NOM Sydney-ALL go-PST
'Annie and her friends went to Sydney.'

In these examples, the reference of one of the coordinands (*əmmemə* and *Annie-nya*, respectively) is included in the other coordinand (*ətləyə-t* and *tjana*, respectively). In this sense, these coordinands do not have the same status.

The definition of noun juxtaposition in (8) excludes examples which contain function indicators from the scope of the survey. For instance, Telugu (tel; Dravidian, South Dravidian) and Sanuma (xsu; Yanomamic, Sanumá) examples in (33) and (34) are not classified as noun juxtaposition, because lengthened final vowels can be considered indicators in Telugu, and a summary phrase can be considered an indicator in Sanuma, respectively.

(33) Telugu (Dravidian, South Dravidian; Krishnamurti & Gwynn 1985: 325)

a.	<i>aayana</i>	b.	<i>miiru</i>	c.	<i>aayanaa miiruu</i>
	he		you.PL		he and you

(34) Sanuma (Yanomamic, Sanumá; Borgman 1990: 35)

pumotomö *a*, *samonamaniwö* *a*, *ĩ* *naha* *kule-i*, *tökö*
opossum.man 3SG bee.man 3SG REL like be-INDF 3DU

ku-kö-ma

stay-FOC-COMPL

‘Opossum-man and Bee-man stayed.’

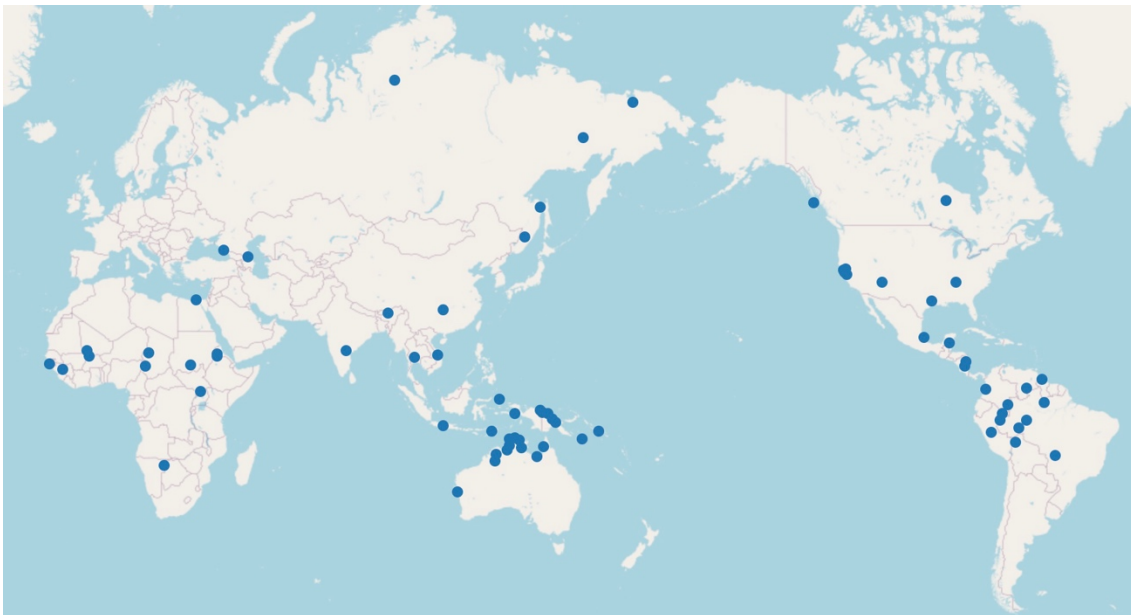
4. Language sample

Several sampling methods have been proposed in the typological literature (Miestamo et al. 2016; Rijkhoff et al. 1993; Di Garbo & Napoleão de Souza 2023; Rijkhoff & Bakker 1998, among others). Since every sampling method has its own strengths, the type of typological sampling best suited depends on the research question. Probability sampling, for example, is used to examine correlations and tendencies, while variety sampling is used for exploratory research, specifically, for examining variation.

Insofar as the present study aims to investigate whether ambiguity plays a more important role than efficiency in explaining the use of certain linguistic forms, a probability sample seems more appropriate. However, another aim of this paper, such as investigating which functions are typically expressed by noun juxtaposition cross-linguistically, requires a variety sample. Therefore, independence and representativeness are equally important for this study. To ensure the independence of languages, the sample includes one and only one language from each genus as proposed by Miestamo et al. (2016). Even though in their method the areal stratification is made at the level of macro-areas and the number of languages in each macro-area is proportional to the number of genera within that macro-area, this study does not follow that approach. The reason for this is that this study also aims to examine areality in relation to the use of noun juxtaposition. As mentioned in Section 2, since the hypothesis in Frajzyngier et al. (2002) is proposed based on the sample biased toward African languages, there is a possibility that the use of noun juxtaposition exhibits some areal patterns. Thus, this paper has an equal number of languages per macro-area.

In this way, I survey a sample of 72 languages, consisting of 12 languages from each macro-area, as shown in Map 1. The decision regarding the number of languages in the sample is somewhat arbitrary, but 12 languages seem sufficient to investigate areality, because Frajzyngier et al. (2002) include 11 African languages. As defined

in (8), noun juxtaposition is a structure that serves as one of the strategies for predication, possession, and conjunction. Thus, not all languages use it for these three functions. For example, I could not find noun juxtaposition used for these three functions in Molalla (mbe; Isolate, North America; Pharris 2006), Choguita Rarámuri (tar; Uto-Aztecan, Southern Uto-Aztecan; Caballero 2022), and Karelian (krl; Uralic, Finnic; Novak et al. 2022). The sample intentionally excludes languages where noun juxtaposition is not used for the three functions in question. Almost all sources are reference grammars or grammar sketches. The selection of languages is based on data accessibility. Complete information on the sample and sources is provided in Appendix A. All information on the geographical and genealogical distribution of languages is based on Glottolog 5.0.



Map 1. Languages of the sample.⁸

5. Results of the worldwide survey

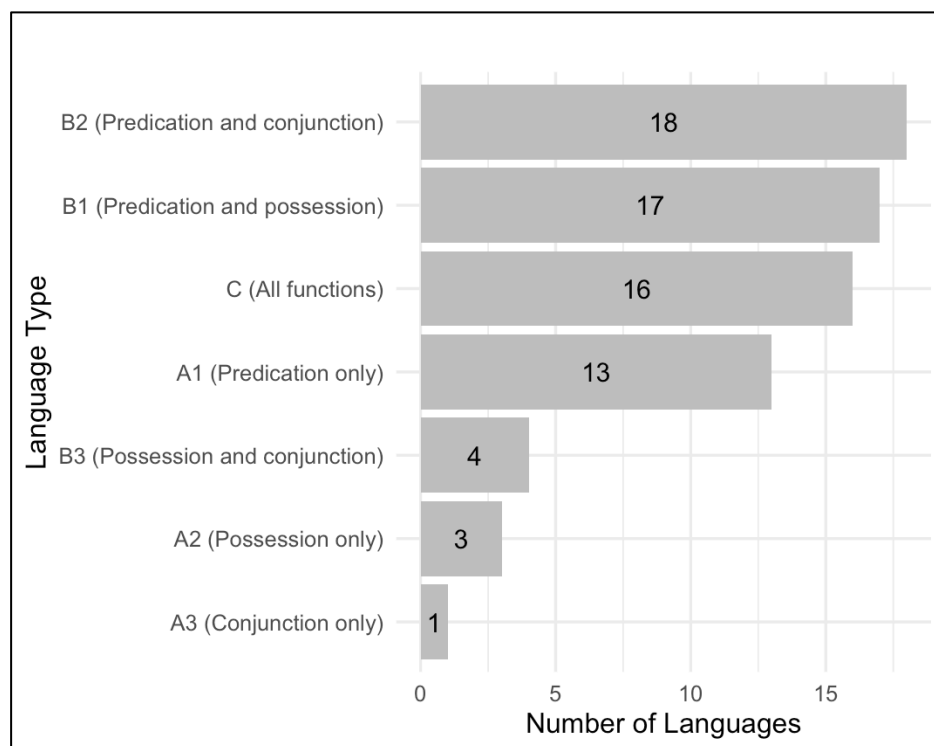
In this section, I present the results of the survey. Since this study investigates a one-form-three-function relationship, there are seven logically possible language types, as shown in (35).

⁸ All maps in this paper were created with the help of Lingtypology (Moroz 2017).

(35) Language types based on the distribution of noun juxtaposition

- a. (one function) Predication only (A1)
Possession only (A2)
Conjunction only (A3)
- b. (two functions) Predication and possession (B1)
Predication and conjunction (B2)
Possession and conjunction (B3)
- c. (all functions) Predication, possession, and conjunction (C)

All types are attested in the sample, but the ratio is not equal. For example, the predication and conjunction type (B2) accounts for 25%, while the conjunction only type (A3) accounts for just 1.4% (see Graph 1).



Graph 1. Distribution of noun juxtaposition in the sample.

The remainder of this subsection provides concrete examples for each language type.

5.1. Predication only type (A1)

There are thirteen languages in this type in the sample. An example is Dazaga (dzc;

Saharan, Western Saharan), where noun juxtaposition can be used for predication, as illustrated in (36a), but overt markers are required to express possession and conjunction, as in (36b) and (36c).

(36) Dazaga (Saharan, Western Saharan; Walters 2016: 145; 128; 173)

a. Predication

àrĩ àì ájá nír
 woman this mother 1SG.POSS
 ‘This woman is my mother.’

b. Possession

fúrcì g^wǎní=ηà
 dung camel = GEN.SG
 ‘camel’s dung’

c. Conjunction

fírí-a=jé képtí=jè
 arrow-PL = and bow = and
 ‘arrows and a bow’

5.2. Possession only type (A2)

Three languages in the sample fall into this type. In Tommo So, a copula and associative markers are used for predication and conjunction, respectively, while possession can be expressed through noun juxtaposition, as shown in (37).

(37) Tommo So (Dogon, Escarpment Dogon; McPherson 2013: 340; 190; 211)

a. Predication

Ú mí ánígè=jì
 2SG 1SG friend = COP
 ‘You are my friend.’

b. Possession

Sána bàbè
 Sana uncle
 ‘Sana’s uncle’

c. Conjunction

ɛ̃njɛ = le jàmdúlu = le
chicken = ASSOC donkey = ASSOC
'a chicken and a donkey'

5.3. Conjunction only type (A3)

Only one language, specifically Patwin (pwi; Wintuan, Patwin) is classified under this type in the sample. In this language, noun juxtaposition can express conjunction, as in (38c), while predication and possession require function indicators, as in (38a) and (38b).

(38) Patwin (Wintuan, Patwin; Lawyer 2015: 294; 93; 190)

a. Predication

ʔew ʔi-s bi:t
PROX.SG.SBJ COP-FIN meadowlark
'That is a meadowlark.'

b. Possession

wita-no nun
man-POSS gun
'the man's gun'

c. Conjunction

san-č'iyak kat^hit-se-ktu
sun-old.man falcon-chief
'Old Man Sun and Falcon Chief'

5.4. Predication and possession type (B1)

There are seventeen languages in this type. For instance, Labwor can use noun juxtaposition for both predication and possession, but it requires an overt marker for conjunction, as illustrated in (39).

(39) Labwor (Nilotic, Western Nilotic; Heine & König 2010: 30; 61; 98)

a. Predication

mánón b̀̀́

that b̀̀́

‘It is b̀̀́ vegetable.’

b. Possession

̀̀́t dhákó

house woman

‘woman’s house’

c. Conjunction

̀̀́cú̀̀́ gín_kí dhákó

man and woman

‘the man and the woman’

5.5. Predication and conjunction type (B2)

Eighteen languages in the sample fall into this type. In Nhanda (nha; Pama-Nyungan, South-West Pama-Nyungan), noun juxtaposition can express both predication and conjunction, but possession requires a genitive marker, as illustrated in (40).

(40) Nhanda (Pama-Nyungan, South-West Pama-Nyungan; Blevins 2001: 66; 57; 134)

a. Predication

ngana-bagaa inya uthu?

who-PROP this dog

‘Whose dog is this?’

b. Possession

uthu-wu thudu-ra

dog-GEN meat-3OBL

‘the dog’s meat’

c. Conjunction

acijadi-wana mirla-wana

clothes-1PL rug-1PL

‘our clothes and our rugs’

5.6. Possession and conjunction type (B3)

Four languages in the sample are classified under this type. In Matses, noun juxtaposition can be used for both possession and conjunction, but a copula is required for predication, as shown in (41).

(41) Matses (Pano-Tacanan, Panoan; Fleck 2003: 944; 764; 805)

a. Predication

ubi dësi ne-e-c

1ABS Dësi COP-NPST-IND

‘I am Dësi.’

b. Possession

bucu podo

cecropia leaf

‘leaves of cecropia trees’

c. Conjunction

senta-n chëshëid-n

uakari.monkey-ERG spider.monkey-ERG

‘Uakari monkeys and spider monkeys’

5.7. All functions type (C)

Sixteen languages in the sample can use noun juxtaposition for all functions, as illustrated in (42).

(42) Ndjébbana (Maningrida, Nakkara-Ndjébbana; McKay 2000: 292; 195; 306)

a. Predication

Njanabbárdakka yírrìddjanga.

trevally (fish) Yírrìddjanga

‘The trevally is Yírrìddjanga.’

b. Possession

marddúrdđiba *ngáyabba*
 heart I
 ‘my heart’

c. Conjunction

warakkála, *karndóya*
 long.yam round.yam
 ‘long yams and round yams’

6. Discussion

In this section, I observe the distributional tendencies of noun juxtaposition and make several generalizations based on the results presented in the previous section. In addition, I make a theoretical suggestion based on these observations. All data on the distribution are presented in Appendix B.⁹

6.1. Distributional tendencies of noun juxtaposition

As shown in Graph 1 in Section 5, noun juxtaposition can express predication in 64 languages (89%) of the sample. One observation can be made at this point.

(43) Observation 1

There is a strong tendency for noun juxtaposition to be used for predication.

Also, in many cases, noun juxtaposition can be used for two or three functions. In the sample, 55 languages (76%) exhibit this tendency.

(44) Observation 2

Many languages use noun juxtaposition for more than one function.

Since these two observations represent strong tendencies, the cases where they do not apply deserve some attention, specifically A2 (Possession only), and A3 (Conjunction

⁹ Almost all of the examples of noun juxtaposition considered in the present paper can be found in CrossGram (<https://crossgram.cld.org/>).

only). In the remainder of this subsection, I examine each type in detail.

Concerning A2, all the languages classified under A2 in the sample are African languages, and at this point, an observation can be formulated as in (45). This type may be commonly observed in African languages, which, along with the African pattern below, may explain why Frajzyngier et al. (2002) reached their conclusion: noun juxtaposition can be used for either predication or possession within a single language (see Section 2). It should be noted, however, that this observation cannot be generalized to all languages classified as A2 being African because I am aware of non-African languages that can also be classified under this type outside of the sample, such as Welsh (cym; Indo-European, Celtic; see Koptjevskaja-Tamm 2002: 144; 2003: 649).

(45) Observation 3

A language that uses noun juxtaposition for only possession among predication, possession, and conjunction is an African language.

Languages that use noun juxtaposition only for conjunction (A3) are very rare. Only one language, Patwin, belongs to this type in the sample. This rarity seems to allow for a generalization like (46) as a very strong tendency, but I am skeptical about such a generalization.

(46) Generalization (tentative)

If a language uses noun juxtaposition for conjunction, the language uses at least one of the other functions.

I present three reasons for caution. First, the data are not sufficient to support such a generalization. As noted in Observation 1, most of the world's languages that use noun juxtaposition for at least one of the three functions in question can use it for predication. Only eight languages do not use it for predication in the sample.

Second, it seems that there is no correlation between the use of noun juxtaposition for conjunction and that for predication or possession. As is well-known, many conjunction markers have been grammaticalized or borrowed recently (Haspelmath 2007b: 8; Mithun 1988). Consequently, noun juxtaposition for conjunction tends to be marginalized into specific functions or is altogether replaced by other marking strategies (Stassen 2000: 10). As Mithun (1988: 351) notes, the way markers emerge

varies from language to language, but noun juxtaposition has been replaced with a non-juxtaposition strategy as the general trend all over the world (Stassen 2000: 10). Thus, the result of the present survey may be considered a reflection of this process of replacement that has been completed, is currently ongoing or is expected to occur in the future.¹⁰ Indeed, the emergence of a non-juxtaposition strategy is often attributed to ambiguity in the interpretation of noun juxtaposition. For example, Borise & É Kiss (2023) argue that conjunction markers have emerged in Khanty (Uralic, Khantyic) due to ambiguity. While this explanation may hold true, the results of the present study do not support the idea of an ambiguity between the use of noun juxtaposition for conjunction and its use for predication or possession. This is because almost all languages that use noun juxtaposition for conjunction also make use of it for one or two other functions. If a language developed conjunction markers to avoid ambiguity among the three functions, we would expect to find more languages classified as A3, since noun juxtaposition would not exhibit ambiguity if it were solely dedicated to conjunction. Thus, while ambiguity might arise in the interpretation of subfunctions within a function (e.g., among conjunction, disjunction, and adversative coordination within coordination), such ambiguity does not seem to exist among different functions.

Third, the scope of each function is different. The present study addresses three functions: predication, possession, and conjunction. The scope of conjunction is smaller than that of predication and possession. As mentioned in Section 3, both predication and possession have several subfunctions, which are all taken into consideration. In contrast, conjunction, as considered in this study, is a subfunction of coordination. Thus, the potential for noun juxtaposition to be used for conjunction is likely lower than that for predication and possession.

Thus, languages rarely use noun juxtaposition exclusively for conjunction, however, this fact may not be generalized as in (46).

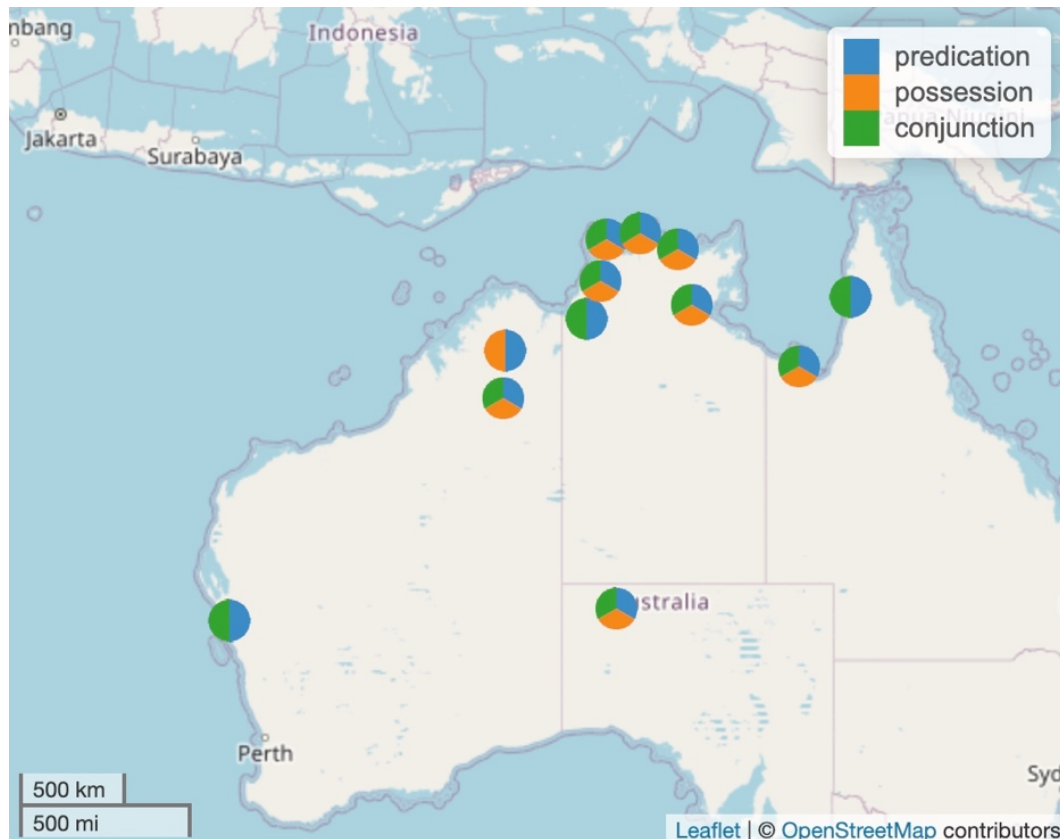
6.2. Areal patterns

In the previous subsection, I presented general observations based on the results. In this subsection, I report on several areal patterns.

¹⁰ This fact is also concretely illustrated in relatively recent grammars, such as those of Papuan Malay (pmy; Austronesian, Malayo-Polynesian; Kluge 2017: 558) and Sumerian (sux; Isolate, Eurasia; Jagersma 2010: 95–100).

6.2.1. Australia

Let us first consider the Australian languages.



Map 2. Distribution of noun juxtaposition in Australian languages.¹¹

As shown in Map 2, all Australian languages in the sample use noun juxtaposition for two or three functions, one of which is predication. In other words, types not involved in predication, such as the possession and conjunction type (B3) are absent in Australia.

(47) Australian pattern

Australian languages typically use noun juxtaposition for two or three functions, one of which is predication.

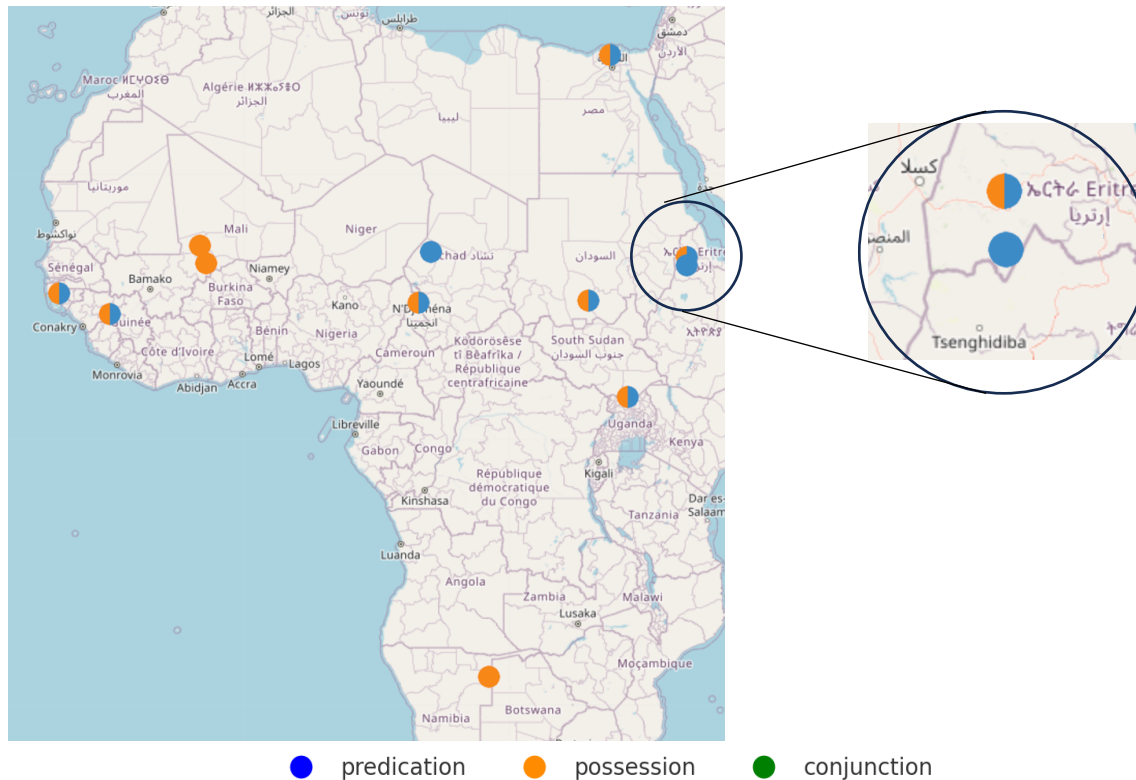
The extensive use of noun juxtaposition in Australian languages is well-known (e.g.,

¹¹ In all the maps below, blue indicates the use of noun juxtaposition for predication, orange indicates possession, and green indicates conjunction.

Evans 1995: 313; Sadler & Nordlinger 2010). However, (47) elaborates on this by providing empirical information about functions expressed by noun juxtaposition.

6.2.2. Africa

As mentioned in Observation 3, languages classified as the possession only type (A2) are typically found among African languages. This can be considered as an African characteristic. However, African languages exhibit another pattern as well.



Map 3. Distribution of noun juxtaposition in African languages.

As shown in Map 3, no African language in the sample uses noun juxtaposition for conjunction.

(48) African pattern

African languages use noun juxtaposition for predication and/or possession.

Regarding the absence of the juxtaposition strategy for conjunction in African languages, this has already been noted by Stassen (2000: 9). Since the results of the present survey replicate his findings, this can be generalized as follows:

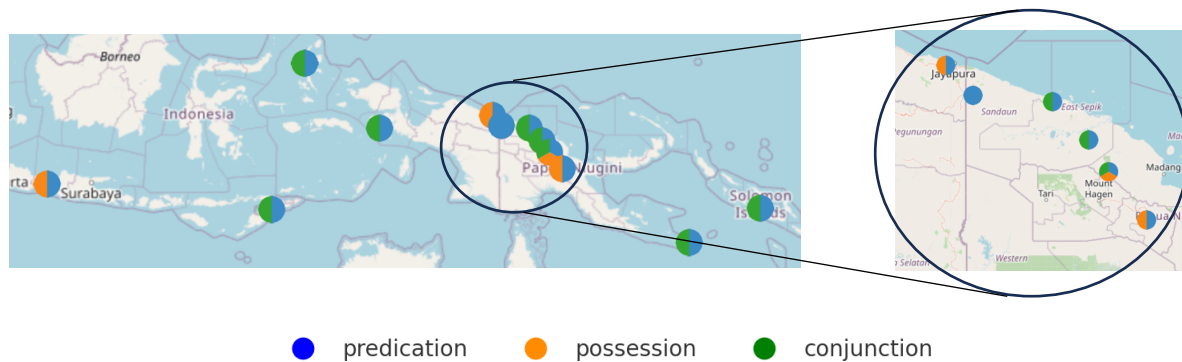
(49) Generalization 1: Noun juxtaposition in African languages

African languages rarely use noun juxtaposition for conjunction.

As mentioned earlier, the fact that Frajzyngier et al. (2002) focus only on predication and possession (even though noun juxtaposition can also be used for conjunction) may be attributable to this African pattern.

6.2.3. *Papunesia*

Papunesian languages also show an interesting pattern, as illustrated in Map 4.



Map 4. Distribution of noun juxtaposition in Papunesian languages.

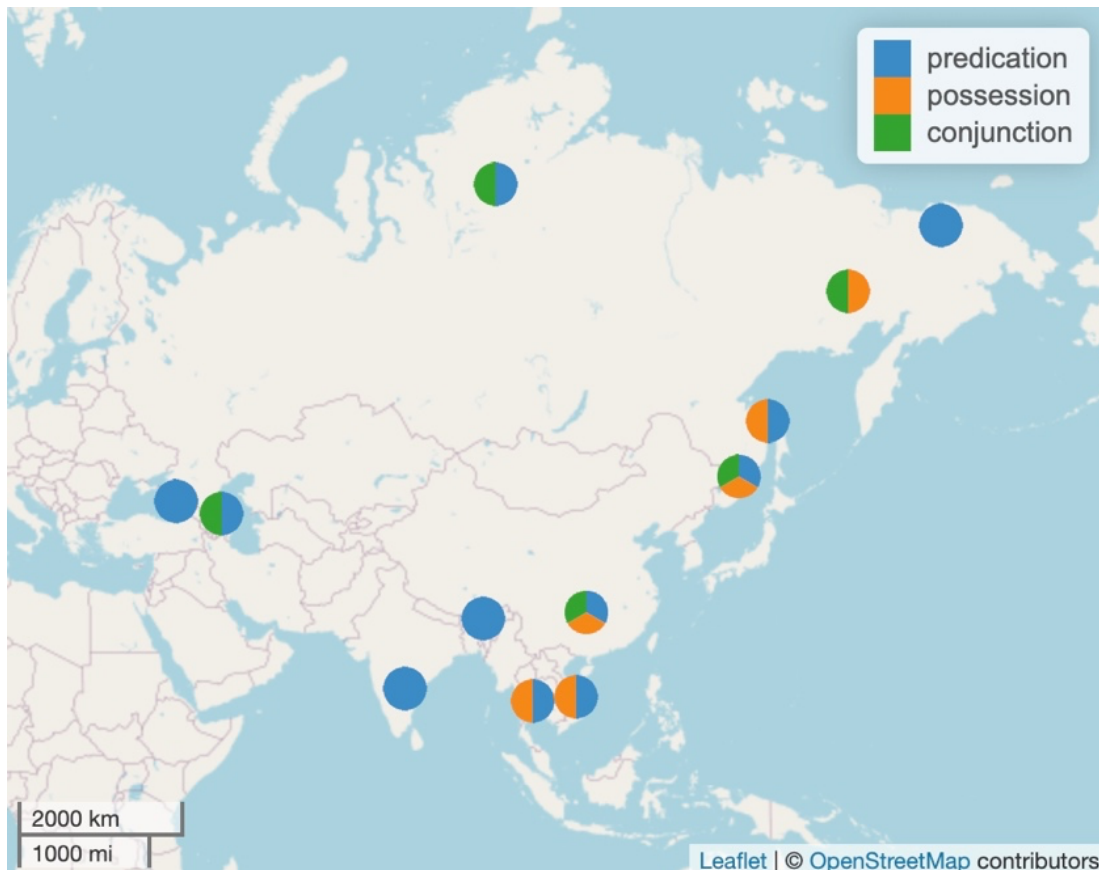
As shown in Map 4, all Papunesian languages in the sample use noun juxtaposition for predication.

(50) Papunesian pattern

Papunesian languages use noun juxtaposition at least for predication.

6.2.4. *Eurasia*

The distribution of language types among Eurasian languages is illustrated in Map 5.



Map 5. Distribution of noun juxtaposition in Eurasian languages.

Many Eurasian languages in the sample use noun juxtaposition for more than one function. When it is used only for one function, it is for predication. Interestingly, possession seems to appear in eastern languages on the map. However, further research is required to determine whether the use of noun juxtaposition for possession is a characteristic feature of eastern languages in Eurasia.¹²

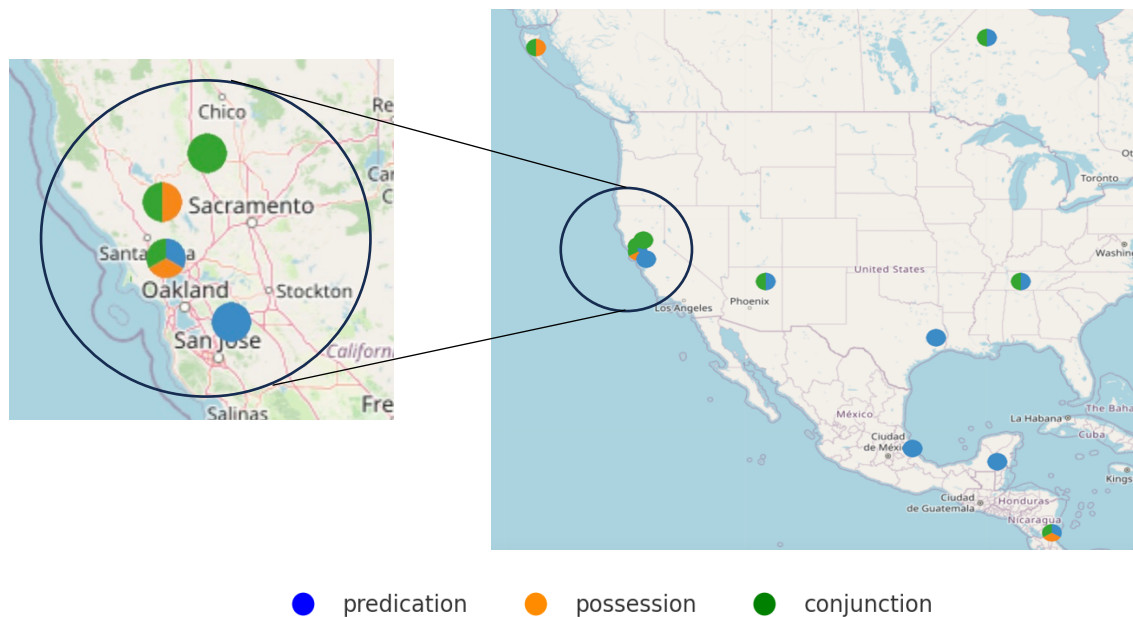
(51) Eurasian pattern

Eurasian languages do not use noun juxtaposition exclusively for possession or conjunction.

6.2.5. North America

The distribution of language types among North American languages is illustrated in Map 6.

¹² I owe this point to the editors.



Map 6. Distribution of noun juxtaposition in North American languages.

All types except for A2 are attested among North American languages.

(52) North America pattern

North American languages do not use noun juxtaposition exclusively for possession.

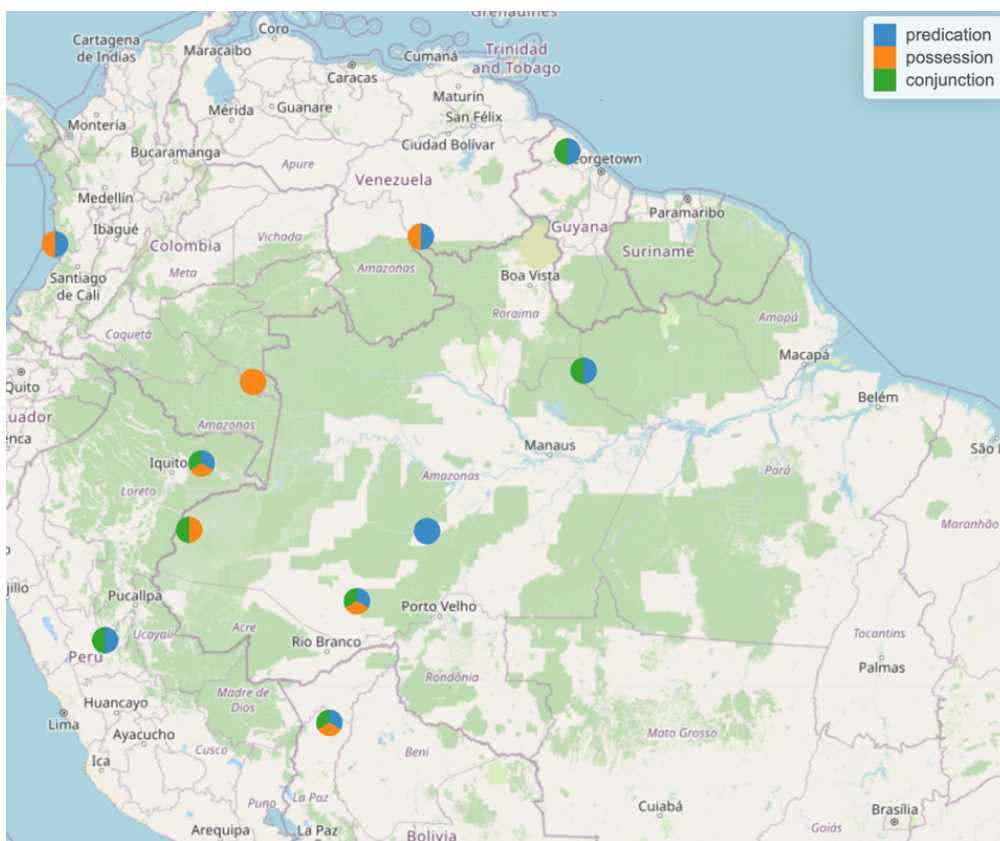
6.2.6. South America

The distribution of language types among South American languages, as illustrated in Map 7, is quite similar to that of Eurasian languages.

Many South American languages in the sample use noun juxtaposition for more than one function. When it is used only for one function, it is for predication.

(53) South American pattern

South American languages do not use noun juxtaposition exclusively for possession or conjunction.



Map 7. Distribution of noun juxtaposition in South American languages.

6.3 Ambiguity versus efficiency

In the preceding two subsections, we observed the results of the present survey concerning generality and areality. Since the investigation in terms of areality does not contradict general observations in (43) and (44), these two observations seem to be generalizable. Therefore, the following generalizations can be made:

(54) Generalization 2: Functions typically expressed by noun juxtaposition

If a language can use a structure of noun juxtaposition, it is predominantly used for predication in most cases.

(55) Generalization 3: The number of functions expressed by noun juxtaposition

If a language can use a structure of noun juxtaposition, it typically serves more than one function.

Generalization 3 contradicts the observation proposed by Frajzyngier et al. (2002),

which challenges the hypothesis that the use of noun juxtaposition is constrained by ambiguity avoidance. Rather, the present study suggests that the use of noun juxtaposition should be explained by efficiency (Hawkins 2014: Section 2.2; Haspelmath 2017). Since noun juxtaposition, by definition, can be considered the most efficient form in terms of formal length, it is potentially the most ambiguous. Ambiguity and efficiency are important factors in explaining the use of specific forms (e.g., Hankamer 1973; Levshina 2022, respectively), though they can oppose each other. When speakers use simpler forms, listeners may misunderstand the speaker's intentions. Therefore, the question of which is prioritized – ambiguity or efficiency – has been a topic of discussion in explaining the use of certain forms. The present study implies that ambiguity across functions does not significantly influence the use of certain forms, and it is not always avoided, as demonstrated through the examination of noun juxtaposition, a structure well-suited for investigating this issue. Instead, human languages tend to prefer simpler (more efficient) forms, with ambiguity being resolved through other means, such as context, word order, and/or phonological factors.¹³ Thus, the use of a certain linguistic form (noun juxtaposition in this case) should be explained in terms of efficiency rather than ambiguity avoidance. This is consistent with the claims made by Piantadosi et al. (2012) and Wasow (2015).

7. Conclusion

In this paper, I have investigated noun juxtaposition, using a balanced sample of 72 languages, and claimed that the use of certain linguistic forms, such as noun juxtaposition should be explained by efficiency rather than ambiguity. Although noun juxtaposition is used worldwide, it has rarely been studied cross-linguistically. One notable exception is the work of Frajzyngier et al. (2002), who argue that the use of noun juxtaposition is constrained by ambiguity avoidance. However, the present paper does not support this hypothesis and finds that their observations are biased toward African areal patterns. Rather, this study finds that languages predominantly use noun juxtaposition for predication, and it typically serves more than one function. Since noun juxtaposition is, by definition, the most efficient yet ambiguous form, these generalizations suggest that efficiency is more prioritized over ambiguity in explaining the use of noun juxtaposition. Also, ambiguity across functions does not

¹³ The investigation of the factors that contribute to resolving ambiguity falls outside the scope of the present study and requires further research.

significantly influence the use of certain forms, and it is not always avoided. This is consistent with the claims made by Piantadosi et al. (2012) and Wasow (2015). Thus, the present paper can be regarded as a case study that contributes to the discussion of whether ambiguity or efficiency is prioritized in language.

Acknowledgements

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Abbreviations

1 = 1 st person	ERG = ergative	NOM = nominative
2 = 2 nd person	F = feminine	OBJ = object
3 = 3 rd person	FIN = finite	OBL = oblique
ABS = absolutive	FOC = focus	PL = plural
AGT = agentive	GEN = genitive	POSS = possessive
ALL = allative	IND = indicative	PRED = predicative
ART = article	INDF = indefinite	PROP = proprietive
ASSOC = associative	LOC = locative	PROX = proximate
COM = comitative	M = masculine	PST = past
COMPL = completive	N = neuter	REL = relative
COP = copula	N- = non-	SBJ = subject
DIST = distal	NC = noun class	SG = singular
DU = dual	NEG = negative	STAT = stative aspect

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Appendix

Appendix A provides genealogical information on the sample languages based on Glottolog 5.0, along with the references consulted. Appendix B includes information on the functions that can be expressed by noun juxtaposition in each language and their corresponding references. In Appendix B, “Yes” indicates that noun juxtaposition can be used for the function, while “–” signifies that the use of noun juxtaposition for that function cannot be found in the indicated sources.

Appendix A: A list of the sample languages.

Area	Language	Family	References	
Africa	Tommo So	Dogon	McPherson (2013)	
	Ju 'hoan	Kxa	Snyman (1970); Dickens (1992)	
	Kakabe	Mande	Vydrina (2017)	
	Koyra Chiini	Songhay	Heath (1999)	
	Dazaga	Saharan	Walters (2016)	
	Egyptian Arabic	Afro-Asiatic	Gary & Gamal-Eldin (1982)	
	Nara	Isolate	Omda Ibrahim Elnur (2016)	
	Bagirmi	Central Sudanic	Stevenson (1969)	
	Labwor	Nilotic	Heine & König (2010)	
	Kunama	Isolate	Bender (1996)	
	Tima	Kalta-Tima	Alamin Mubarak (2009)	
	Mankanya	Atlantic-Congo	Gaved (2020)	
	Australia	Kugu Nganhcara	Pama-Nyugan (Paman)	Smith & Johnson (2000)
		Nhanda	Pama-Nyugan (South-West Pama-Nyugan)	Blevins (2001)
Gooniyandi		Bunaban	McGregor (1990)	
Jaminjung		Mirndi	Schultze-Berndt (2000); Schultze-Berndt & Simard (2012)	
Ndjébbana		Maningrida	McKay (2000)	
Pitjantjatjara		Pama-Nyugan (Desert-Nyungic)	Langlois (2004)	
Jiwadja		Iwaidja Proper	Capell (1962)	
Tiwi		Isolate	Lee (1987); Osborne (1974)	
Ngarinyin		Worrorran	Coate & Oates (1970); Spronck (2015)	
MalakMalak		Northern Daly	Birk (1976)	

Area	Language	Family	References
Eurasia	Kayardild	Tangkic	Evans (1995)
	Ngalakgan	Gunwinyguan	Merlan (1983)
	Chukchi	Chukotko-Kamchatkan	Dunn (1999)
	Kolyma	Yukaghir	Maslova (2003)
	Yukaghir		
	Sanzhi Dargwa	Nakh-Daghestanian	Forker (2020)
	Xong	Hmong-Mien	Sposato (2021)
	Ubykh	Abkhaz-Adyge	Fenwick (2011)
	Amur Nivkh	Nivkh	Nedjalkov & Otaina (2013)
	Thai	Thai-Kadai	Iwasaki & Ingkaphirom (2005)
	Telugu	Dravidian	Krishnamurti & Gwynn (1985)
	Udihe	Tungusic	Nikolaeva & Tolskaya (2001)
	Dolgan	Turkic	Däbritz (2022)
	Duhumbi	Sino-Tibetan	Bodt (2020)
North America	Sedang	Austroasiatic	Smith (1979)
	Haida	Isolate	Enrico (2003)
	Salinan	Isolate	Shaul (2020)
	Yucatec Maya	Mayan	Bolles & Bolles (2014)
	Wappo	Uki-Wappo	Thompson et al. (2006)
	Yuchi	Isolate	Linn (2001)
	Alabama	Muskogean	Lupardus (1982)
	Misantla	Totonacan	MacKay (1999)
	Totonac		
	Rama	Chibchan	Grinevald (1990)
	Severn Ojibwa	Algic	Todd (1970)
	Hopi	Uto-Aztecan	Langacker (1977); Jeanne (1978)
	Southern Pomo	Pomoan	Walker (2020)
	Patwin	Wintuan	Lawyer (2015)
Papunesia	Ulwa	Keram	Barlow (2023)
	Yélf Dnye	Isolate	Levinson (2022)
	Bunaq	Timor-Alor-Pantar	Schapper (2022)
	Hua	Nuclear Trans New Guinea (Kainantu-Goroka)	Haiman (1980)
	Indonesian	Austronesian	Sneddon et al. (2010)
	Sentani	Sentanic	Mayer (2021)
	Kobon	Nuclear Trans New Guinea (Madang)	Davies (1981)
	Lavukaleve	Isolate	Terrill (2003); Terrill (2004)

Area	Language	Family	References
South America	Imonda	Border	Seiler (1985)
	Bukiyip	Nuclear Torricelli	Conrad & Wogiga (1991)
	Sahu	North Halmahera	Visser & Voorhoeve (1987)
	Kalamang	West Bomberai	Visser (2022)
	Hixkaryana	Cariban	Derbyshire (1979)
	Matses	Pano-Tacanan (Panoan)	Fleck (2003)
	Apurinã	Arawakan	Facundes (2000)
	Warao	Isolate	Romero-Figueroa (1997)
	Araona	Pano-Tacanan (Tacanan)	Emkow (2006)
	Huallaga Quechua	Quechuan	Weber (1989)
	Epena	Chocoan	Harms (1994)
	Yagua	Pebe-Yagua	Payne (1985)
	Sanumã	Yanomamic	Borgman (1990)
	Paumarí	Arawan	Chapman & Derbyshire (1991)
	Bororo	Bororoan	Crowell (1979)
	Retuarã	Tucanoan	Strom (1992)

Appendix B: All data of the sample.

Language	Predication	Possession	Conjunction	References
Tommo So	–	Yes	–	McPherson (2013: 339-349; 183; 211-213)
Ju 'hoan	–	Yes	–	Snyman (1970: 127); Dickens (1992: 17; 33)
Kakabe	Yes	Yes	–	Vydrina (2017: 74; 92; 118)
Koyra Chiini	–	Yes	–	Heath (1999: 143-148; 84-85; 113-116)
Dazaga	Yes	–	–	Walters (2016: 143-147; 63; 173-177)
Egyptian Arabic	Yes	Yes	–	Gary & Gmal-Eldin (1982: 61; 48-49; 36-37)
Nara	Yes	Yes?	–	Omda Ibrahim Elnur (2016: 73; 39; 49)
Bagirmi	Yes	Yes	–	Stevenson (1969: 163; 57; 182)
Labwor	Yes	Yes	–	Heine & König (2010: 29-30; 61; 98)
Kunama	Yes	–	–	Bender (1996: 41-43; 18-19; 23)
Tima	Yes	Yes	–?	Alamin Mubarak (2009: 202; 130-131; 96)
Mankanya	Yes	Yes	–	Gaved (2020: 124-125; 136; 104)
	(restricted)			
Kugu Nganhcara	Yes	–	Yes	Smith & Johnson (2000: 389, 418; 428; 434)
Nhanda	Yes	–	Yes	Blevins (2001: 46, 62, 66, and ff.; 66, 57; 133-134)
Gooniyandi	Yes	Yes	Yes	McGregor (1990: 294-302; 252-253, 261; 284-285)
Jaminjung	Yes	–	Yes	Schultze-Berndt (2000: 109; 63-69, 184-185, and ff.); Schultze-Berndt & Simard (2012: 1052)
Ndjébbana	Yes	Yes	Yes	McKay (2000: 292; 195; 306-307)
Pitjantjatjara	Yes	Yes	Yes	Langlois (2004: 85; 84); Bowe (1990: 43)
Jiwadja	Yes	Yes	Yes	Capell (1962: 164; 155; 160)
Tiwi	Yes	Yes	Yes	Lee (1987: 285-286); Osborne (1974: 74); Lee (1987: 230-231)
Ngarinyin	Yes	Yes	–	Coate & Oates (1970: 66); Spronck (2015: 39; 38)
MalakMalak	Yes	Yes	Yes	Birk (1976: 126, 153; 106; 122, 148)

Language	Predication	Possession	Conjunction	References
Kayardild	Yes	Yes	Yes	Evans (1995: 313-314; 247-249; 250)
Ngalakgan	Yes	Yes	Yes	Merlan (1983: 57-61; 82; 148)
Chukchi	Yes	–	–	Dunn (1999: 83, 317-318; 149-151; 172-174)
Kolyma Yukaghir	–	Yes	Yes	Maslova (2003: 437-441; 290; 316-318)
Sanzhi Dargwa	Yes (restricted)	–	Yes	Forker (2020: 429-430; 574-575; 506)
Xong	Yes (restricted)	Yes	Yes	Sposato (2021: 402; 389; 395)
Udykh	Yes	–	–	Fenwick (2011: 155-156; 46-51; 62)
Amur Nivkh	Yes	Yes	–	Nedjalkov & Otaina (2013: 37-38; 1, 9, 14; 56-58)
Thai	Yes	Yes	–	Iwasaki & Ingkaphirom (2005: 228-229; 65-66; 10, 171-172)
Telugu	Yes	–	–	Krishnamurti & Gwynn (1985: 308-310; 76, 82; 325-327)
Udihe	Yes	Yes (restricted)	Yes	Nikolaeva & Tolskaya (2001: 608-609; 785-786; 647-648)
Dolgan	Yes	–	Yes	Däbritz (2022: 362; 157-169; 320)
Duhumbi	Yes	–	–	Bodt (2020: 395-397; 281; 594-595)
Sedang	Yes	Yes	–	Smith (1979: 116-117; 76-77; 154)
Haida	–	Yes	Yes	Enrico (2003: 211-212, but 135-136; 706, 709; 1079)
Salinan	Yes	–	–	Shaul (2020: 83; 80; 106)
Yucatec Maya	Yes	–	–	Bolles & Bolles (2014: 21; 20; 65)
Wappo	Yes (restricted)	Yes	Yes	Thompson et al. (2006: 103; 15-16; 22-23)
Yuchi	Yes	–	Yes	Linn (2001: 416-417; 383-390, 398; 511)
Alabama	Yes	–	–	Lupardus (1982: 217; 94-100; 239-240)
Misantla Totonac	Yes	–	–	MacKay (1999: 404-405; 347-352; 436)
Rama	Yes	Yes	Yes?	Grinevald (1990: 96, 130; 94; 239)

Language	Predication	Possession	Conjunction	References
Severn Ojibwa	Yes	–	Yes	Todd (1970: 79; 32-34; 41)
Hopi	Yes	–	Yes	Langacker (1977: 40); Jeanne (1978: 112-125); Langacker (1977: 160)
Southern Pomo	–	Yes (restricted)	Yes	Walker (2020: 170-171, 243, 270; 154; 335)
Patwin	–	–	Yes	Lawyer (2015: 294-295; 92, 142-148; 190)
Ulwa	Yes	–	Yes	Barlow (2023: 320; 175-179; 353)
Yéli Dnye	Yes	–	Yes	Levinson (2022: 284-286; 165; 163)
Bunaq	Yes	–	Yes	Schapper (2022: 131-132; 329; 225)
Hua	Yes	Yes	–	Haiman (1980: 345; 366; 249-)
Indonesian	Yes	Yes	–	Sheddon et al. (2010: 242; 148-150; 347)
Sentani	Yes	Yes	–	Mayer (2021: 63-64; 45; 39)
Kobon	Yes	Yes	Yes	Davies (1981: 41-42; 57; 72)
Lavukaleve	Yes	–	Yes	Terrill (2003: 240; 93-97); Terrill (2004: 431)
Imonda	Yes	–	–	Seiler (1985: 154; 62-63; 68-69)
Bukiyip	Yes	–	Yes	Conrad & Wogiga (1991: 90-91; 65; 63-64)
Sahu	Yes	–	Yes (restricted)	Visser & Voorhoeve (1987: 59; 53-54; 54)
Kalamang	Yes	–	Yes	Visser (2022: 293; 217-227; 146, 185)
Hixkaryana	Yes	–	Yes	Derbyshire (1979: 36-37; 69-70; 45-46)
Matses	–	Yes	Yes	Fleck (2003: 944-950; 764; 805)
Apurinã	Yes	Yes	Yes	Facundes (2000: 504; 152-153; 426)
Warao	Yes	–	Yes	Romero-Figeroa (1997: 11, 38; 44-45, 90-91; 12-13)
Araona	Yes	Yes	Yes?	Emkow (2006: 407-408; 41-42; 690)
Huallaga	Yes	–	Yes	Weber (1989: 24; 54-55; 20, 347-348)
Quechua				
Epena	Yes	Yes	–	Harms (1994: 33-34; 49-52; 55)

Language	Predication	Possession	Conjunction	References
Yagua	Yes	Yes	Yes	Payne (1985: 57-58; 155-156, 83-86; 97, 83-86)
Sanuma	Yes	Yes (restricted)	–	Borgman (1990: 20-21; 127; 34-35)
Paumarí	Yes	–	–	Chapman & Derbyshire (1991: 168-169; 256-259; 189)
Bororo	Yes	–	–?	Crowell (1979: 38-39; 214-217; 241-245)
Retuarã	Yes	Yes	–	Strom (1992: 129; 5, 48; 39)

CONTACT

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