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Negation in clause linkages¹

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1. INTRODUCTION

The linguistic subfield of language documentation lends itself well to the study of language phenomena which are pragmatically-oriented, precisely because it encourages the creation of annotated, genre-stratified corpora which cover a wide range of speech and discourse styles, in various settings. One such pragmatically oriented phenomenon - linguistic negation – constitutes an area of grammatical analysis for which the availability of context dependent information will dramatically improve descriptive, theoretical and pedagogical treatments. The importance of contextualisation of negative utterances is clear from a number of studies that explicitly discuss the contextual setting for the use of negative constructions. Research of this type has shown that the scope of negation may be entirely contextually determined (Kroskrity 1984) and that the use of a negation strategy may be attributable to information structure, specifically whether a proposition is discourse old or new, and explicitly activated in discourse (Schwenter 2005). Within cognitive linguistics, inter-speaker variability in the acceptability of certain negative constructions can be resolved by examining the contextual setting of an utterance (Fauconnier 1985, 1994). Based on differences between the formal encoding of interrogation and negation cross-linguistically, Thompson (1997) proposes that the formal encoding of negation as a property of predicates rather than clauses/sentences or larger utterances, is attributable to their use in discourse. Despite the enriched understanding of negation phenomena that follows from these studies, little has been done to date to draw together ideas on how negation might be analysed in a corpus of natural speech in an unfamiliar language. Treatments of negation in the typological literature (Givón 1978, Dahl 1979; Dryer 1989; Payne 1985a; Honda 1996; Forest 1993; Miestamo 2005) have been restricted to examining negation constructions that consist of either a main clause – whether verbal and indicative (cf. the definition of standard negation proposed by Miestamo 2005), prohibitive (van der Auwera & Lejeune 2005), a non-verbal or existential predicate (Croft 1991; Eriksen 2005; Veselinova 2007) or main clause that subcategorises for a subordinate complement clause (e.g. Payne's (1985a) 'higher negative verb' and the theoretical literature on neg-raising (Horn 1978, 2001)). As with most typological work, this is, in part, motivated by the convenience and comparability associated with elicited materials and restrictions based on data availability in cross-linguistic research.

However, a large body of evidence from languages across the world demonstrates that the form and use of negators is determined by their usage in several different types of discourse unit larger than a single clause or predicate, and, furthermore, such structures may have properties that are different from independent clauses. The object of this paper is to examine the variation seen in discourse units consisting of more than one clause in order to provide a backdrop for analysing negation data in a corpus of discourse data. While discourse rarely provides the neat structures that one might wish to elicit for comparative purposes (i.e. to control for the presence of absence of other categories or properties), there are several key benefits of taking a discourse-oriented approach to describing negation. First, all the recorded examples are genuinely naturalistic, even if some are judged to be erroneous. One can be sure

¹ This paper was written as part of the ELAP funded NegTyp project, a typological research project aimed at improving our understanding of negation from a discourse-oriented cross-linguistic perspective. I gratefully acknowledge the comments and suggestions of two anonymous reviewers; any remaining errors are my own.

therefore, that the data collected has not been forced into the mold of another language through direct elicitation.

Second, because all examples from discourse are necessarily situated in a context, the information structure of the construction is provided by virtue of its situation in a larger text. This might further be augmented by metadata, which can add a further dimension to this information (e.g. information about hierarchical relationships between participants).

A third major benefit of investigating negation in clause linkages— and perhaps the most important one — is that relationships between predicates/clauses, that would not be seen through their elicitation in isolation, may be revealed. This paper deals with negation in complex sentences consisting of more than one clause. Constructions consisting of more than one clause linked together by some formal mechanism will be referred to as clause linkages.

One starting point for dealing with any given linguistic phenomenon in discourse structure is to consider what types of clause linkage structures the language has. For instance, Longacre (2007) identifies a major distinction between languages that predominantly co-rank verbs in coordinate structures and those that use chaining structures to link clauses together. In clause chains a hierarchical relationship exists between verbs that occupy a privileged linear position at the chain periphery, and the structurally restricted verbs that follow or precede these verbs respectively. In languages where the dominating verb occurs in chain-initial position, the inflectionally restricted verbs that follow are called consecutive or sequential verbs. In languages where the dominating verb is chain-final, the restricted verbs are called medial verbs (Longacre 2007: 375).² Coranked clauses exhibit a greater degree of structural independence than those in a chain, such that they have the features associated with independent sentences. In practice, there are many different clause-combining structures with language-specific variation in terms of which properties differentiate the structure types.

In Role and Reference Grammar, Foley and Van Valin (1984) and Van Valin (2005) distinguish between three clause-combining types, based on the types of relationships that exist between clauses. They distinguish between three different types of NEXUS (i.e. syntactic linkage) called COORDINATION, COSUBORDINATION and SUBORDINATION. This three-way distinction has proven to be useful in distinguishing different types of clause juncture found in disparate groups of languages (e.g. Van Valin 2005: 183-7, Good 2003). The three different types of clauses linking are distinguished on the basis of two binary features EMBEDDEDNESS and DEPENDENCY. A clause is considered to be embedded if it fulfils an argument role of another clause. Only subordinate clauses are considered to be embedded. Coordinate and cosubordinate clauses are not embedded and can be distinguished from each other in terms of dependency. Clauses are considered to be dependent when they cannot be independently marked for clause level operators. Operators at the clause level include status, tense, evidentials and illocutionary force.³ Illocutionary force is argued to take scope over all the other clause level operators (Foley and Van Valin 1984: 220-4), and since negation and illocutionary force are argued to be the only clause level operators all languages have, illocutionary force is particularly important in establishing dependency of clauses (Van Valin 2005). In this view, a clause is cosubordinate to a main clause if it obligatorily shares the illocutionary force of the main clause, but is not embedded within it. For example, if the main clause is interrogative, the cosubordinate clause must be part of what is questioned. Common

² See the papers in Brill (2010) for recent accounts.

³ According to Van Valin (2005: 9) ‘tense and status situate the proposition expressed by the clause within temporal and realis-irrealis continua; evidentials indicate the epistemological basis for the state of affairs (the proposition plus tense and status operators) expressed, ...while illocutionary force specifies the type of speech act.’ The category of *status* includes epistemic modals and external negation (Van Valin (2005: 9).

illocutionary distinctions include declarative, interrogative, imperative, prohibitive, hortative and optative (Hengeveld 2004: 1191).

More recently, Bickel (2010) has argued for a multivariate approach to distinguishing different types of clause linkage, whereby nexus is considered in terms of the sets of variables that capture all the dimensions of variation across which different structures are similar or different, both cross-linguistically and language internally. The parameters of variation he discusses include the position of the clause, the level at which the clause adjoins to the main clause, the scope of illocutionary and tense operators, the relative finiteness of the dependent and main clause and what range of morphosyntactic forms are permitted in the dependent clause such as question words, (constituent) focus, illocutionary force, tense and status markers. However, due to a lack of sufficient analysis in the data sources used, he excludes the scope of negation from the parameters he directly codes in his multivariate analysis of clause linkages (although he does discuss examples of negation in clause-linkages).

Bickel's (2010) multivariate approach to the properties of clause linkages seems appropriate for dealing with the properties of negation in clause linkage structures since one cannot assume that the properties of negative and affirmative clause chains are consistent with each other, and the extent to which they can differ is not currently known.

With Bickel's multivariate approach to clause linkages in mind it seems clear that there are two sets of additional variables that are particularly important for descriptive and typological work on negation in clause linkages, namely the LOCUS (i.e. the formal position) and SCOPE (i.e. the semantic domain) of negation. Locus variables must be distinguished from scope variables, since the formal marking of negation does not always coincide with its semantic scope. The following locus variables will be exemplified in this paper:

(1) Locus variables

- (i) MAIN (negation is formally marked in the main clause only)
- (ii) DEPENDENT (negation is formally marked in a dependent clause only)
- (iii) ALL (negation is formally marked in all linked clauses)
- (iv) NONE (negation is not marked or is marked externally to the clause)

Adopting and extending the terminology used by Bickel (2010) for describing the scope of illocutionary force, it is possible to distinguish between several scope possibilities for negation operators in clause linkages:

(2) Scope variables

- (i) LOCAL (scope is limited to main clauses)
- (ii) SUBJUNCT (scope is limited to dependent clauses)
- (iii) DISJUNCT (scope extends to the main or the dependent clause but never to both)
- (iv) CONJUNCT (scope extends to the main clause and the dependent clause)
- (v) EXTENSIBLE (scope extends to either the main clause alone, or to both the main clause and the dependent clause, but never to the dependent clause alone)
- (vi) ABSENT (the linkage is affirmative)

These variables will prove to be central in distinguishing the characteristics of the various types of clause linkage examined and more distinctions will be added as they become relevant.

For the sake of convenience, the paper is arranged into three main sections. In §2, I discuss the use of negative strategies found in coordinated clauses. Then in §3, the characteristics of negation in clause linkage structures comprising clauses with a modifying function are examined. Negation in clause linkage structures where a dependent clause is subcategorised for as an argument of a main clause is discussed in §4. Conclusions are provided in §5.

2. NEGATION & COORDINATION STRUCTURES

The COORDINATE STRUCTURES, typical of European languages, combine units of equal rank, known as COORDINANDS, into a linked structure.⁴ When the coordinands are clauses, this is sometime referred to as PARATAXIS. Following Haspelmath (2007), the term coordination is used broadly in this paper to refer to various types of coordinate structure, including those described as conjunction ('and'), disjunction ('or'), adversative coordination ('but') and causal coordination ('for').

Coordinated clauses are easiest to identify when the relationship between them is formally coded by an overt COORDINATOR. When coordinands are linked through the use of an overt coordinator (like 'and' or 'but'), coordination is SYNDETIC. When coordination is achieved without a coordinator, through JUXTAPOSITION, it is known as ASYNDETIC coordination. One and the same language may have more than one means of achieving coordination of equally ranked units. For instance, in Chechen, equally ranked affirmative sentences can be linked together using either the coordinator *t'q'a*, as in (3a), or through juxtaposition of the coordinated sentences, as in (3b):⁵

⁴ Co-ranking structures can be contrasted with clause-chaining structures.

⁵ The abbreviations used in this paper are: 1 = first-person, 2 = second person, 3 = third-person, 4 = fourth-person, ABSOLUTE = absolute, ABS = absolutive, ACC = accusative, AGR = agreement, ALIEN = alienable, ANT = anterior, ANTIP = antipassive, APPR = apprehensive mood, ART = article, ASP = aspect, AUX = auxiliary, B = B series, BGEN = gender prefix, CAUS = causative, CNC = a noun class prefix - continuous, COP = copula, CSTV = causative mood, CTMP = contemporative mood, CVB = converb, DAT = dative, DEC = decausative, DEF = definite, DFNT = definite mode, DGEN = gender prefix, DIR = direct case, DPRIV = deprivative, DUR = durative, DX = deictic proclitic, ERG = ergative, FUT = future, HORT = hortative, HUM = human, ICP = intransitive copy pronoun, IMP = imperative, IMPF = imperfect, IND = indicative mood, INE = inessive, INF = infinitive, INS = instrumental, INTR = intransitive, IRR = (prospective) irrealis, JGEN = gender prefix, LIM = limiting particle, LOC = locative case, MASC = masculine, NEG = negation, NMLZR = nominalizer, NOM = nominative, OBJ = object, OPT = optative mood, PANT = progressive anterior, PART = partitive, PERM = permissive, PL = plural, POS = possessor, PRS = present, PRCL = particle, PST = past tense, PST2 = past used in dependent contexts, PTCL = participle, PURP = purposive, R = realis, REDUP = reduplication, REFL = reflexive, S = sole argument of intransitive verb, SBJ = subject, SBJV = subjunctive, SG = singular, SIM = simultaneous converb, SUB = subordinate, TEL = telic, TEMP = temporal converb, TR = transitive, UNDER = locative adposition, V = verb, VDIM = verbal diminutive, VGEN = gender prefix, WP = witnessed past.

(3) Chechen (Good 2003: 123, 130)

a. Ahwmada ch'aara iicara t'q'a Marajamas cicig doexkira
 Ahmed.ERG fish buy.WP and Mary.ERG cat sell.WP
 'Ahmed bought a fish and Mary sold a cat.'

b. Dwadeallarg t'iehwa du xinderrig hwalxa du
 DX.go.ANT.CVB.NMZLR behind D.be.PRS future front D.be.PRS
 'Time is behind me, the future is ahead of me.'

In Chechen asyndetic coordination, there is a lack of a strong prosodic break between the two coordinands, thus distinguishing coordination from purely sequential juxtaposition of independent clauses. In some languages, coordination through juxtaposition of clauses is coupled by unifying phonological properties and a prosodic boundary between the coordinands (Longacre 2007). This contrast demonstrates that the prosodic properties of coordinate structures vary between languages.

The following discussion centres first on some of the characteristics of negative coordination in some more familiar European languages to demonstrate variation encountered in this domain, before examining similar structures in some less familiar languages. While no extensive cross-linguistic study of negation in coordinate structures exists, negative coordination has been discussed in a number of typologically oriented or areal studies, most notably Payne (1985b: 37-41), Bernini & Ramat (1996: 100-6), and Haspelmath (2007). A detailed overview of coordination in Functional Grammar can be found in (Dik 1997: 189-214).

In English, negative sentences, including those sharing an elided subject can be coordinated syndetically using the conjunction *and*. In (4a) and (4b), each of the coordinands are negative sentences that could stand alone as independent grammatical utterances, and they are each specified independently for their illocutionary force. In (4a) the first clause is declarative and the second clause is interrogative (as indicated by subject-auxiliary inversion). In (4b) the first clause is declarative and the second clause is a negative imperative (i.e. a prohibition). In (4c) the sentences are both declarative and share the same subject but have different modal characteristics. In each case the locus of negation is a main clause and the scope of negation is local to the clause in which it is found. For instance, the scope of negation in the first clause in (4d) does not (and cannot) extend to the second clause.

- (4) a. [Otto doesn't like mushrooms] and [doesn't Kaspar dislike broccoli?]
 b. [Molly hasn't done the dishes] and [don't bother asking her to do them!]
 c. He_i [doesn't eat meat] and (he_i) [can't abide people who wear leather.]
 d. She_i [isn't a vegetarian] and (she_i) [loves talking about meat.]

If the relative order of the clauses in (4a-d) is inverted, only (4c-d) remain felicitous, even though each coordinand in (4a-d) can function as an independent clause. This indicates that the ability to successfully coordinate clauses is in part related to information packaging, and not just the illocutionary force of the clauses (see Cosme 2008 for comparative work on information packaging in English, Dutch and French clause linkage structures). In a multivariate analysis, these clauses can be coded for their illocutionary force, their tense and modal characteristics, the scope and locus of negation (if present) and whether they share any arguments (and if so, which ones). In terms of the linkage strategy, there is syndetic

coordinator *and* that occurs between the two coordinands. Each coordinand should be considered separately, since they may have independent illocutionary force. In order to distinguish between the coordinands it seems most sensible to identify them by their linear order. For instance, in (4d), COORDINAND1 precedes the coordinator *and*, while COORDINAND2 follows it. In COORDINAND1, the locus of negation is the main clause, and the scope is local to the main clause (i.e. it does not – and cannot – extend to the second coordinand). In COORDINAND2, there is no negation marking and the clause is affirmative.

While the scope of negation in English negative sentences coordinated with *and* is local to the clause in which it is found, when verb phrases sharing the same subject and negated finite auxiliary are coordinated with *and*, as in (5a), both coordinands appear to fall within the scope of the same negative clitic =n't, suggesting this is an example of VP coordination. When the coordinands differ in tense, and/or have different subjects, as in (5b-c), neither the auxiliary nor the negative clitic can be absent, as (5d-e) suggest. By being aware of which characteristics are different or the same between coordinands, the conditions under which coordination takes place become clearer.⁶

- (5) a. Molly didn't [wash the plates] and (Molly didn't) [hoover the floor] (so she won't get her pocket money this week).
 b. Molly [didn't wash the plates] and (Molly) [doesn't care about it].
 c. [Molly didn't wash the plates] and [Otto doesn't care about it].
 d. *Molly [didn't wash the plates] and [care about it].
 e. *[Molly didn't wash the plates] and [Otto care about it].

One way to distinguish (5a) from other possible structures in a multivariate analysis would be to say that while the locus of negation in COORDINAND1 is the main clause, there is no locus of negation in COORDINAND2. In terms of scope, however, negation is local in both coordinands. In contrast in (5b-c), the locus is the main clause, and scope is local in each coordinand.

Given the correct intonation pattern – with prosodic prominence given to the coordinator – the syntactic string in (5a) can be used to stress that while each of the two units belongs to a coordinate structure, they are each considered separately (c.f. 'Molly either washed the plates or hoovered the floor').⁷ This is most felicitous if used to refute an incorrect presupposition or assertion (i.e. if the proposition underlying one or both of the coordinands is untrue) as in (6a). This intonation pattern is not felicitous if the second coordinand is affirmative (note that the second coordinand in (6b) shares the same illocutionary force and tense as the first). The adversative coordinator *but* is required when affirmative and negative clauses are contrasted as separately considered alternatives in a coordinate structure, as in (6c). Two negative clauses can also be coordinated by *but* only if negation of the first clause gives rise to the presupposition that is then cancelled by the second clause, as in (6d).

⁶ For more on ellipsis and gapping in coordination see Haspelmath (2007: 37-45) and Repp (2009).

⁷ Haspelmath (2007: 15-16) calls this *emphatic coordination*.

- (6) a. Molly didn't [wash the plates] AND [hoover the floor] (she only washed the plates).
 b. ?Molly didn't [wash the plates] AND [hoovered the floor].
 c. Molly didn't [wash the plates] but [hoovered the floor] (instead).
 d. [Molly didn't wash the plates for the dinner party] but [her guests don't mind eating off dirty ones].

Coordination of verb phrases can also be achieved with the disjunctive coordinator *or*. In (7a), the two affirmative coordinands are considered to be mutually exclusive. However when clauses coordinated by *or* are in the scope of negation, it has a conjunctive function, such that both coordinands are considered separately as in (7b) (cf. Molly hasn't washed the plates and hasn't hoovered the floor). An alternative negative linkage strategy involves the use of negative coordinators *neither...nor*, as in (7c). In (7c) *neither* precedes the first coordinand, and *nor* precedes the second. (7b) and (7c) differ in that the *neither...nor* construction draws attention to the fact that the coordinands are part of a coordination structure, and thus considered separately.

- (7) a. Molly has [washed the plates] or [hoovered the floor].
 b. Molly hasn't [washed the plates] or [hoovered the floor].
 c. Molly has neither [washed the plates] nor [hoovered the floor].

The same forms can also be used for the contrastive negative coordination of other constituents such as NPs, as in (8a), but cannot be used for the coordination of negative sentences (8b). Coordination of 'affirmative' sentences using *neither...nor* seems permissible if both affirmative assertions are refuted, as in (8c). In this example, negation marking is EXTERNAL to the linked clauses.

- (8) a. Neither [Molly] nor [Rosie] washed the plates (so they'll both be grounded)
 b. *Neither Otto doesn't like mushrooms nor Kaspar doesn't like broccoli.
 c. ?Neither Otto likes mushrooms nor Kaspar likes broccoli (so you are wrong on both counts).

The coordinators *neither* and *nor* are different from *and*, *but*, and *or* in that they typically occur together, and can be characterised as preceding the coordinand with which they are associated, rather than occurring between two coordinands. When two coordinators are required simultaneously to create a coordinate linkage, the structure is BISYNDETIC. Where more than two coordinators are required simultaneously, the coordination is polysyndetic. Pairs of coordinators like this are referred to as CORRELATIVE when at least one of them always occurs with the other. However, both *neither* and *nor* can occur in other types of construction, albeit with different distributions, suggesting that this is not a condition on the use of inherently negative linkage strategies. For instance, *neither* may occur as the only negator in a coordinate structure, as in (9):

(9) Neither of them had washed or dressed.

In contrast, *nor* requires a preceding negative clause, although this need not be uttered by the same speaker, and can be interrupted by other material in discourse. The constructed discourse between Otto, Rosie and Kaspar in (10) demonstrates this point:

(10) Otto: I don't like broccoli.

Rosie: Go on, have some. It's delicious.

Kaspar: Nor do I. It's gross. (cf. I don't either. It's gross.)

Note that even without Rosie's intervention, Otto and Kaspar's contributions to the discourse would not be grammatical if uttered as a single clause and therefore cannot be an instance of one speaker completing the utterance of another; in (11a) the first person singular pronominal forms index different referents in (10). Compare this with (11b), where the reference issues are resolved:

(11) a. *I don't like broccoli, nor do I.

b. I don't like broccoli, nor does he.

However, the subject auxiliary inversion in (11b) indicates that it does not have the constituent order of a regular independent declarative main clause, and the illocutionary force of the linkage can only be declarative.

The data from English and Chechen discussed so far, demonstrates that in coordinate structures, we can distinguish between three ways of formally encoding the type of coordination strategy (Haspelmath 2007). In a broad sense, any clause linkage device can be characterised in one of the following ways:

(12) Linkage mechanisms

(i) SYNDETTIC

(ii) BISYNDETTIC/POLYSYNDETTIC

(iii) ASYNDETTIC

We also saw that prosodic prominence and intonation may contribute to the interpretation of coordination structures, but these could accompany any segmental means of marking a linkage. Non-prosodic linkage mechanisms (coordinators, subordinating conjunctions, complementisers) can be characterised in terms of their form and position in relation to the linked clauses. When coordination is bisyndetic, constraints on each coordinator should be considered separately as they may have different co-occurrence restrictions:

(13) Restrictions on the use of linkage mechanisms

(i) GENERAL (linker can be used in both affirmative and negative contexts)

(ii) NEGATIVE (linker is restricted to negative contexts)

(iii) AFFIRMATIVE (linker is restricted to affirmative contexts)

English *and* can be used to link negative and affirmative clauses and is therefore a GENERAL linker. *Neither* and *nor* are inherently NEGATIVE and are thus restricted to negative contexts.

Restrictions on what can be coordinated, and by what means differ from language to language. For instance, in Italian clausal coordinands require the use of the standard verbal negator *non* before the verb of COORDINAND1 and the linking particle *né* preceding the verb of the COORDINAND2 (Haspelmath 2007: 17-8), as in (14a). When negative sentences are coordinated, *né* also precedes COORDINAND2, as in (14b):

(14) Italian (Bernini & Ramat 1996: 100, own data)

a. Giovanni non parla né si muove.

Giovanni NEG speaks NEG.ALT REFL moves

‘Giovanni neither speaks nor moves.’

a. Giovanni non parla né Maria si muove.

Giovanni NEG speaks NEG.ALT Maria REFL moves

‘Giovanni doesn’t speak nor does Maria move.’

In COORDINAND1 negation is formally manifested in the main clause, but it is not marked in COORDINAND2. In both coordinands the scope is local. The linkage is achieved syndetically. Noun phrases are coordinated as negative alternatives using the correlative linkage mechanism *né...né*, which cannot be used with clausal or sentential coordinands.

(15) Italian (Bernini & Ramat 1996: 100)

Né Giovanni né i suoi compagni volevano andarsene.

NEG.ALT Giovanni NEG.ALT ART.PL his companion.PL want.IMPF leave.INF

‘Neither Giovanni nor his companions wanted to leave.’

The Italian data demonstrate that an adequate description of negation in clause linkage structures will discuss whether constituents smaller or larger than the clause can be linked using the strategy as that used to link clauses. It also shows that the form and position of negators may vary according to linkage type, and whether a particular coordinand is the first or second coordinand in the structure.

In Hungarian (Ugric, Uralic) the form of negators used in coordinate structures is determined not just by the syntactic properties of the coordinands, but also by their semantic properties.

First, consider sentence coordination. In (16), each of the independent sentences is negated with *nem*. This form is used for both the negation of indicative verbal main clauses and constituent negation. Each verb in the coordinated structure is preceded by *sem* ‘nor’ which indicates that the constituent within its scope is just one of the negative situations or non-participants under consideration. Since two or more alternatives must be considered, I refer to these particles as markers of NEGATED ALTERNATIVES.⁸

⁸ I have modified the translation of this example, in order to arrive at a more felicitous structure in English. The type structure evident in the translation of (16) provided by Kenesei, Vago & Fenyevesi (1998: 117) is awkward in English, i.e. ??*Neither Anna was reading in the garden, nor was Peter studying in his room.*

(16) Hungarian (Kenesei, Vago & Fenyvesi 1998: 117)

Sem [Anna nem olvasott a kertben],
 NEG.ALT Anna NEG read the garden.INE

sem [Péter nem tanult a szobában]
 NEG.ALT Peter NEG studied the room.INE

‘Anna wasn’t reading in the garden, nor was Peter studying in his room.’

In (16) the locus of negation is the main clause, and scope is local in both coordinands. The clause linkage is achieved bisyndetically by inherently negative linkage mechanisms preceding each coordinand.

When coordination is of verb phrases sharing the same subject, *sem* precedes each coordinand, resulting in sequences of *sem* followed by verbal predicates negated with *nem*. In (17) *sem* is realised with the allomorph *se*.

(17) Hungarian (Bernini and Ramat 1996: 102)

János se [nem beszél], se [nem mozdul]
 Janos NEG.ALT NEG speaks NEG.ALT NEG moves

‘Janos neither speaks nor moves.’

The negative coordinator *sem* is also used to coordinate infinitival verb forms as in (18), where *sem* precedes each coordinand and co-occurs with the clausal negation *nem*. This example differs from (17) in that there is only one finite verb, and thus *nem* occurs only once.

(18) Hungarian (de Groot 1994: 155)

Nem szabad sem [inni], sem [enni]
 NEG allow NEG.ALT drink.INF NEG.ALT eat.INF

‘It is not allowed to eat nor to drink (i.e. eating and drinking are not permitted).’

The example in (19) demonstrates that three different subject referents can be coordinated in the same construction. In each case, the coordinand is preceded by *sem*. In the English translation, the first coordinand is preceded by *neither* and subsequent coordinands are preceded by *nor*; provided that the first and final coordinands are marked with their respective negative forms, intermediate coordinands need not be marked with *nor* as indicated by the brackets in the translation of (19):

(19) Hungarian (Kenesei, Vago & Fenyvesi 1998: 117)

Sem Richárd, sem Anna, sem Péter nem olvasta a könyvet
 NEG.ALT Richard NEG.ALT Anna NEG.ALT Peter NEG read.DEF the book.ACC

Neither Richard, (nor) Anna, nor Peter has read the book.

The coordinator *sem* is proposed to have developed diachronically from a fusion of the conjunction *is* ‘also’ and the negator *nem* (Kenesei, Vago & Fenyvesi 1998: 118). When used as the only negator in a clause, *sem* functions as a negative additive meaning ‘not also’, as in (20a). The use of scalar focus particles as the basis for negative coordinators seems to be

common, at least in the languages of Europe (Haspelmath 2007:17). Here, *sem* follows the constituent it marks (i.e. *Anna*) unlike in (19). If the constituent follows the verb, then *nem* must be employed in preverbal position, as in (20b).

(20) Hungarian (Kenesei, Vago & Fenyvesi 1998: 116)

- a. Anna *sem* olvasta a könyvet
 Anna NEG.ALT read the book.ACC
 ‘(In addition to others) Anna too didn’t read the book.’
- b. Nem olvasta a könyvet Anna *sem*
 NEG read the book.ACC Anna NEG.ALT
 ‘(In addition to others) Anna too didn’t read the book.’

In summary then, negative coordinate constructions involving the negative *nem* and the negative coordinator *se(m)* can be used for sentences, predicates, infinitival complements and noun phrases. The coordinator *se(m)* can be used on its own in a preverbal position, or as part of bisyndetic strategy.

However, *sem* is not used to coordinate all types of clauses. When the negative coordinative structure involves the predication of the location/existence of different referents, ‘coordination’ is no longer achieved with negative conjunctions, but with the affirmative conjunction *és* ‘and’, together with two different forms of the negative copula used for this purpose. In (21), the first clause employs the negative copula *nincs(en)*, while the second clause has the correlative negative copular *sincs(en)*.

(21) Hungarian (de Groot 1994: 149)

- Zsuzsa *nincs* itt, és Péter *sincs*
 Zsuzsa NEG.COP.3SG here and Peter NEG.ALT.COP.3SG
 ‘Zsuzsa is not here, and neither is Peter.’

This Hungarian data demonstrates that different linkage strategies behave differently in terms of the way negation is expressed. The semantic constraints on the use of a particular strategy are therefore paramount for understanding the behaviour of particular clause linkages.

Outside of Europe, negative coordinators are less prominent in descriptions (Haspelmath 2007: 17) and other types of coordinate structure may be attested. In West Greenlandic (Eskimo, Eskimo-Aleut) selection of the appropriate strategy for coordination depends on the syntactic properties of the coordinands and whether their subjects are coreferential. For instance, negative sentences must be coordinated with the *aammalu* coordinator. Each clause in (22) contains its own mode of negation (including an allomorph of the negative verb *juminaat* ‘be not good’ in the second clause) and is marked with indicative mood:

(22) West Greenlandic (Fortescue 1984: 124)

mattak mama-nngil-aq aammalu immiaq
 mattak taste.good-NEG-3SG.IND also home.made.beer
 imi-ruminaap-puq
 drink-be.not.good-3SG.INDIC

‘The mattak doesn’t taste good, nor is the home-made beer drinkable.’

Negative predicates which share the same subject referent can be coordinated with the particle *imaluuniit* ‘or’, or with clitics *=luunniit* ‘(not) even’ or *=lu* ‘and’. Different constraints are associated with each of the coordinators. For instance, in (23a), two negative clauses that share a subject are coordinated with *imaluuniit* ‘or’. The coordinator occurs between the two clauses, which are both negated with an allomorph of the negative suffix *-nngil* and marked with indicative mood. In contrast, when two negative clauses with coreferential subject are coordinated using *=luunniit*, the enclitic attaches to the second clause. In (23b), the linked clauses are negated in the same way as in (23a), yet differ in mood. In coordinate structures of this kind, it is normal for one of the clauses to be in the contemporative mood, as with the second clause in (23b).

(23) West Greenlandic (Fortescue 1984: 123)

- a. [aningaasa-ati-qa-nngil-aq] imaluunniit [piqa-nnigit-su-usaar-puq]
 money-ALIEN-have-NEG-3SG.IND or have-NEG-INTR.PTCL-pretend.to-3SG.IND
 ‘He has no money, or pretends not to.’
- b. [aningaasa-ati-qa-nngil-aq] [piqa-nnigit-su-usaar-luni] = luunniit
 money-ALIEN-have-NEG-3SG.IND have-NEG-INTR.PTCL-pretend.to-4SG.CTMP=or
 ‘He has no money, or pretends not to.’

The linkage mechanism here is general in that it may be used in affirmative and negative contexts. While *=luunniit* can be used to coordinate affirmative phrases, its use is particularly associated with coordinating negative clauses (Fortescue 1984: 123). The same coordinator is used with nominalised conjoined clauses, where negative habitual/inability readings are intended. In (24) the conjoined clauses are nominalised with (an allomorph of) *-niq*.

(24) West Greenlandic (Fortescue 1984: 124)

immu-a [tuppallirsaa-ginaar-niq] ajur-puq
 milk-her comfort-only-NMLZR NEG-3SG.IND

[qaarsillar-tit-si-innar-nir] = luunniit

satisfy.hunger-CSTV-ANTIP-only-NMLZR=or

‘Her milk would not just comfort or satisfy’ (i.e. her children; it also had other good qualities).

Again, *=luunniit* attaches to the second coordinand in (24), which occurs after the inflected negative verb *ajur*, (sometimes glossed as ‘be bad’, but also used as the only negative element in a clause). Note that as with the negative coordinator *sem* in Hungarian, *=luunniit* is associated with scalar additive functions. In negative clauses it is associated with meaning ‘even’, as in (25a) while in affirmatives it has rather more vague sense of ‘at least/or

something’, as in (25b). As with other enclitics used for the purpose of modification, it has a preference to occur after the first constituent in the clause.

(25) West Greenlandic (Fortescue 1984: 113)

- a. niuirtur = luunniit aningaasa-ati-qa-nnigil-aq
 shopkeeper=even money-ALIEN-have-NEG-3SG.IND
 ‘Not even the shopkeeper has money.’
- b. immiaaqqa-mil = luunniit pi-laar-langa
 beer-INS=even get-a.bit-1SG.OPT
 ‘Let me have a beer at least.’

While West Greenlandic is unlike English, Hungarian and Italian in lacking a distinct set of negative coordinators, coordination of clauses may influence the form of negation because of the restriction in the mood of the coordinated clauses. For instance, in (26), the two verbal predicates are coordinated with the clitic =*lu* ‘and’. The verb of the first clause, *ajur* ‘be bad’ is marked with *-rani*, which cumulatively expresses the fourth-person singular form of the negative contemporative mood.⁹ The verb of the second clause *pitsaa* is negated with *-nnigil* and is also marked as indicative with *-aq* (Fortescue 1984: 124):

(26) West Greenlandic (Fortescue 1984: 124)

- silá [ajur-luinna-rani] = lu [pitsaa-lluinna-nngil-aq]
 weather be.bad-completely-4SG.NEG.CTMP=and be.good-completely-NEG-3SG.IND
 ‘The weather was neither completely bad nor good.’

These coordinate structures differ from those familiar in Europe in that the negative marking always occurs on the verbs, and there are no negative coordinators.

3. NEGATION OF ADJOINED DEPENDENT CLAUSES

While paratactic structures typically involve two independent clauses, other linkages involve at least one dependent clause. Potential differences between the negation strategies used in main and dependent clauses have received some attention in the literature on negation (Payne 1985a), but little is known about the limits on negation in dependent clauses from a cross-linguistic perspective, mainly because typological work on negation has focused on its properties in independent clauses.

It is possible to broadly distinguish between different types of dependent clauses based on whether they function as SUBCATEGORISED ARGUMENTS of main predicates (discussed in §4) or whether they MODIFY the main clause or predicate. Van Valin (2005) and Bickel (2010) distinguish between dependent clauses that adjoin to a predicate or verb (ad-V), and those that adjoin to an entire clause (ad-S). This distinction accounts for the fact that some adjoined clauses can be embedded within a main clause (because they adjoin at a level within the main clause) and those that do not (because they adjoin at the periphery of a main clause).

⁹ The fourth-person in West Greenlandic is a feature of the switch-reference system.

3.1 Adverbial and converbial clauses

In Ingush (Nakh, Nakh-Dagestanian; Russia), the form and position of negation marking in complex clause structures differs when the locus of marking is the main clause or dependent clause or both. When the locus of negation is the main clause only, as in (27a), negation is marked with the verbal suffix *-anz*. Only the main clause is in the scope of negation here, therefore the scope can be described as local. When the locus of negation is both the main clause and the dependent clause, different negators are used in each, as in (27b). Negation in chained clauses is indicated by the proclitic *ca=* (Peterson 2001: 150). When the locus of negation is the dependent clause only, as in (27c), the negative clitic *ca=* is again hosted by a converb, in this case the sequential converb *loq-az* ‘play’. This time the scope is restricted to the dependent adjoined clause, and is therefore referred to here as SUBJUNCT.¹⁰

(27) Ingush (Peterson 2001: 145, 151, 150)

- a. [tajsiet j-iilx-aca,] muusaa v-ax-anz-ar
 Aisha JGEN-cry-TEMP.CVB Musa VGEN-go-NEG-PST
 ‘When Aisha cried, Musa didn’t go.’
- b. [bod sejsa ca=sejsa-ča,] meaq merz xal-ac
 dough rise NEG=rise-TEMP.CVB bread good be-NEG
 ‘When the dough does not rise, the bread is not good.’
- c. muusaa-z [gitaar=?a ca=loq-az,] gealie iiz-ar
 Musa-ERG guitar=?a NEG=play-SIM.CVB cigarette smoke-PST
 ‘Musa smoked a cigarette without playing the guitar.’

In (27), the dependent clauses are indicated by brackets. The bracketing in (27c) indicates that the adjoined clause is embedded within the main clause. The clauses in this example also share the same subject (i.e. *Musa*), and relationship between the main and dependent clause slightly different from that of the dependent clauses in (27a-b). Since the negators used in main and dependent clauses differ, and restrictions on the use of negators in dependent clauses may vary, each linkage structure can be characterised by the following variables:

(28) Negators in dependent clauses

- (i) RESTRICTED (negation marking in dependent clauses is expressed by forms restricted to dependent clauses)
- (ii) BANNED (negation marking is not allowed in the dependent clause)
- (iii) CONSTRAINT-FREE (negation marking is not regulated by dependency)

The difference between the forms of negation used in Ingush main and dependent clauses indicates that the construction in (27b) can be described as RESTRICTED in terms of the negators in the dependent clause.

¹⁰ Restrictions on the position of the negator used in subordinate clauses *ca* is discussed in more detail in Peterson 2001.

Within the domain of adjoined clauses, structures within languages may differ in terms of the negation strategy employed based on the level of adjunction. In Chechen (Nakh, Nakh-Dagestanian; Russia), there is a distinction between two major types of dependent clause that differ according to a variety of characteristics. Following the distinction made by Foley and van Valin (1984), Good (2003) describes these adjoined dependent clauses as co-subordinate (29a) and subordinate (29b).

(29) Chechen (Good 2003: 125)

- a. Ahwmad, zhwala ‘a iecna, vilxira
 Ahmed dog and buy.ANT.CVB VGEN.cry.WP
 ‘Ahmed bought a dog and cried.’
- b. Ahwmad zhwala iecna, Marjam jilxira
 Ahmed dog buy.TEMP.CVB Mary JGEN.cry.WP
 ‘When Ahmed bought a dog, Mary cried.’

According to Good (2003: 125-7) no single syntactic diagnostic can be used to distinguish the two types of clausal linkages because of Chechen’s flexible syntax. However, five different properties distinguish canonical instances of each type. First, only three verb forms (the simultaneous, anterior and present anterior) can be used in co-subordinate structures – the anterior in (29a), while subordinate clauses can be headed by a variety of converbs, e.g. the temporal verb form in (29b). Second, chained clauses are always marked with preverbal ‘a, which never occurs in subordinate clauses. Third, chaining structures typically involve several chained clauses, while subordinate clauses typically occur with only the matrix clause. The clause-chaining structure in (29a) is thus atypical in this respect. The fourth property is that chained clauses nearly always share a single subject with the matrix clause. This constraint does not apply to subordinate clauses; in (29b) the matrix and dependent clauses do not share the same subject. The fifth property involves long-distance reflexivisation, and is not discussed here (see Nichols (2001) for details).

Just as coordinate, cosubordinate, and subordinate linkages in Chechen differ in terms of their syntactic behaviour, the scope of negation within these structures is also subject to different constraints. For instance, within cosubordinate structures, negation marked in the main clause has local scope, as in (30a). If the adjoined clause is semantically negative, it must also be formally marked. In each recorded case, if a chained clause is formally negated, the finite clause is also negated (Good 2003: 146), as exemplified in (30b).

(30) Chechen (Good 2003: 146)

- a. Cicko, ch’aara ‘a goj, ‘i ca bu’u
 cat.ERG fish ‘a see.PANT.CVB 3SG.ABS NEG BGEN.eat.PRS
 ‘The cat, having seen the fish, didn’t eat it.’
- b. Cicko, ch’aara ‘a ca goj, ‘i ca bu’u
 cat.ERG fish ‘a NEG see.PANT.CVB 3SG.ABS NEG BGEN.eat.PRS
 ‘The cat, having not seen the fish, didn’t eat it.’

In light of the terminology introduced in §1, the locus for negation in (30b) is ALL the clauses in the chain, while the semantic domain of negation is CONJUNCT.

In Chechen subordinate structures, the main and dependent clause can be independently negated, but the scope of negation is restricted to the clause in which it is marked. In (31a) the main clause is negated, but the dependent clause is not, whereas the opposite situation holds in (31b) in which the subordinate clause is negated and the main clause is affirmative.

(31) Chechen (Good 2003: 153)

a. Maliika c'a je'acha, Ahwmad irs dolush
 Malika house JGEN.come.TEMP.CVB Ahmed happiness DGEN.be.SIM.CVB
 vaacara.
 VGEN.be.WP.NEG
 'When Malika came out, Ahmed wasn't happy.'

b. Maliika c'a ca je'acha, Ahwmad irs dolush
 Malika house NEG JGEN.come.TEMP.CVB Ahmed happiness DGEN.be.SIM.CVB
 vara.
 VGEN.be.WP
 'When Malika didn't come out, Ahmed was happy.'

Chechen Subordinate structures therefore behave differently from Chechen Co-subordinate forms under negation in that negation in the dependent clause is SUBJUNCT and thus independent of the occurrence of semantic negation in the main clause. Main clause scope is thus LOCAL, and limited to the main clause.

In Puma (Tibeto-Burman; Nepal) three different nonfinite converbs impose different scope restrictions on negation in adjoined clauses (Bickel 2010, Schackow et al., in press). These are referred to as the Simultaneous converb, the Purposive converb, and the Negative converb. Simultaneous converbs depict events that are simultaneous with the state of affairs in the main clause. The Purposive converb is used to indicate the purpose of motion only. The Negative converb indicates the relationship between an event that hasn't taken place and the event depicted in the main clause.

Simultaneous converbs in Puma impose a DISJUNCT SCOPE such that negation marked on the main verb, has scope over either the adjoined clause or main verb clause. Crucially, negation may not take scope over both clauses concurrently. Therefore, while either of the translations in (32) are possible, the same syntactic string in Puma cannot be translated with conjunct scope, i.e. it cannot be interpreted as 'Not chatting, we do not work/We do not work without chatting.'

(32) Puma (Schackow et al., in press)

gaph mu-so kama pA-mu-e-min
 talk.NOM do-SIM.CVB work.NOM NEG-do-1PLS-PL.NEG
 1. 'Chatting, we do not work.'
 2. 'We work without talking.'

This situation contrasts with cosubordinate structures in Chechen where either local or conjunct scope is possible, but not subjunct scope.

While in Puma negative marking in the main clause can have disjunct scope over Simultaneous clause, the Purposive converb does not permit this alternation. For instance, in (33), the negation marking on the main verb *puks* 'go' has scope over its locus only, and not

the Purpose clause. The main clause scope is therefore local. To negate the Purposive clause the negative particle *pee* is used after the converb, as in (33b). Scope of negation marking in the dependent clause is thus subjunct, and not regulated by negation of the main clause.

(33) Puma (Schackow et al., in press)

- a. bhok ca-si pʌ-puks-en
 party.meal.NOM eat-PURP.CVB NEG-go-NEG.PST
 ‘He did not go to the party to eat.’ (i.e. he did not go’.)
- b. bhok ca-si pee, kha-cop-si puks-a
 party.meal.NOM eat-PURP.CVB NEG ANTIP-look-PURP.CVB go-PST
 ‘He did not go to the party to eat, but to look at people.’

While they differ in terms of the scope of negation, the Simultaneous and Purposive converbs are similar in that they both require that their S or A argument is covert, and that its reference be controlled by the main clause. This indicates clearly that each variable concerning dependency of a clause should be considered individually.

A third type of converbial clause in Puma, the Negative converb, is used to indicate that a ‘main event takes place without some other event happening in relation to the main event’ (Schackow et al., in press). It differs from the other converbs in that it is marked morphologically by the converbial prefix *maen-*, rather than by suffixation. Furthermore, unlike the other converbial clauses, all arguments can be (although usually are not) overt and the arguments of the converbial clause do not have their reference controlled by the main clause. Here, the locus of negation is the converbial clause, and the main clause is not in the scope of negation. Again the scope of negation marking in the dependent clause is subjunct and not regulated by negation of the main clause.

(34) Puma (Schackow et al., in press)

- puks-a khakhutd-a ghasa men-pak
 go-IMP become.night-PST grass.NOM NEG.CVB-arrange
 ‘Go! It’s getting dark and the grass isn’t cut yet.’

In contrast to the variation across converbial clauses found in Puma, converbial clauses in Burushaski, a language isolate from Pakistan, may be interpreted as having either conjunct or disjunct scope (Bickel 2010). In (35), locus of negation marking is the main clause. In the first two possible interpretations of this structure, the scope of negation is disjunct – only one of the clauses falls within the scope of negation. In the first interpretation it is the main clause, while in the second interpretation it is the dependent clause. In the third interpretation, the scope is conjunct and both clauses are interpreted as falling in the scope of negation. In Burushaski converbial clauses, the scope of main clause negation is highly variable.

(35) Burushaski (Tikkanen 1995: 511)

khíruman sis majít-ar n-úu-nin
 some people mosque-DAT CVB-3PL.HUM.SBJ(go)-CVB
 nimáaz ay-é-č = á-am.
 prayer NEG-do-DUR=AUX-3PL.HUM.SBJ

1. 'Having gone to the mosque some people do not pray' (but read)
2. 'Some people do not pray after getting to the mosque.' (but after getting up)
3. 'Some people do not go to the mosque and do not pray.'

The examples presented here from Ingush, Chechen, Puma and Burushaski demonstrate that there is no one type of scope associated with particular dependent structures, and that clause linkages of this kind should be investigated in terms of the locus of negation in the structure (whether it is formally marked in the main clause, dependent clause or all clauses) and what the scope of negation is for a particular linkage (whether the scope is local, subjunct, disjunct, conjunct or extensible).

3.2 Adverse consequence clauses

Dependent clauses expressing the adverse consequences of particular event often receive distinct encoding through the use of a specific clause linkage strategy. Adverse consequence clauses are often called 'lest clauses', 'negative purpose clauses' or 'apprehensives'. They are particularly prominent in Australian languages (Dixon 2002), Austronesian languages (Lichtenberk 1995) and the languages of Amazonia (Vuillemet 2010). The semantic property these constructions have in common concerns highlighting the *potential adverse consequences* of an event. In some languages, adverse consequence clauses require the use of a negator that is used to negate other types of clauses, giving credence to the view that adverse consequence clauses and negation are related phenomena.

In Miya (West Chadic, Afro-Asiatic; Nigeria), adverse consequence clauses are expressed through the use of the purposive 'preposition' *àadama*, followed by a negative subordinate clause, in (36). The locus of negation is the dependent clause and the scope of negation in this construction is subjunct.

(36) Miya (Schuh 1998: 143, 145, 140)

a. món pùwa mír [àadama tá biy káy(a) aa sàba kír = uw]
 I hid money so.that NEG PRCL take SBJ those.who theft=NEG
 'I hid the money lest thieves steal it.'

Miya adverse consequence clauses employ the negative strategy used in negative subjunctive clauses, including prohibitions and negative hortatives, of the type illustrated in (37a-b).

(37) a. Miya (Schuh 1998: 145, 140)

fà ta tsərá-f-uw
 2SG.MASC NEG.SBJV stop-ICP-NEG
 'Don't (SG.MASC) stop!'

- b. wíy ta jiy b-ùws ée tsə̀gaya tsə̀pər camàz = úw
 someone NEG.SBJV/HORT PRTCL go-ICP to squat urination night=NEG
 ‘Let no one go to urinate at night.’

Negative subjunctive clauses are marked by the pre-verbal negative particle *tá/ta* and a clause final negative clitic, =’w/=úw. The negative particle has a high tone with third person subjects (marked with an acute accent) and a low tone elsewhere (which is unmarked) (Schuh 1998: 145). The preverbal negative particle is similar in form to the hortative particle *ta*. Hortative *ta* has low tone with third person subjects, and is not permitted with first-person or second-person subjects. This suggests that negation in (36b) is marked solely by the negative clitic =’w/=úw (i.e. that *ta* is not a negative marker) or that indefinite forms like *wíy* behave differently from other third person subjects in terms of their ability to collocate with a high tone form of the hortative particle.

The semantic connection between events that will have adverse consequences, prohibitions and negation may have several plausible alternative explanations. One hypothesis in this regard concerns (i) the potential that a particular situation will arise and (ii) which discourse participant is responsible for taking the evasive action required to avoid that situation. Like prohibitions, adverse consequence clauses often require some response from the addressee. Like negatives in general, they describe some unrealised event that is contrasted with alternative possible version of reality (Bond, in press).

In Kubokota (Oceanic, Austronesian; Solomon Islands) adverse consequence clauses are marked with the particle *keta*, which introduces a clause that details the situation to be avoided by virtue of the preceding evasive action. The adverse consequence clause is usually in marked as Prospective Irrealis indicated through the form of the subject pronoun of the clause, as in (38). The Prospective Irrealis is usually used to express imminence and/or certainty of an event, and in can be used in imperatives. Possible or probable events are expressed using the Future Irrealis markers (Chambers 2009: 101-4). In this construction, the speaker details the evasive action she has taken to avoid the adverse consequences of the clause introduced by *keta* (i.e. the certainty that the addressee would otherwise become/remain hungry).

- (38) Kubokota (Chambers 2009: 145)

Qa koini raro gu beto muna gani-gani [keta mu burana]
 1SG.R just cook.in.pot LIM then 2.FUT REDUP-eat lest 2.IRR hungry
 ‘I’ve just cooked and you will eat, lest you be hungry.’

Chambers (2009: 145) notes that the use of *keta* is not restricted to dependent clauses; it frequently occurs clause initially in warnings to an addressee about the undesirable consequences of an event, as in (39).

- (39) Kubokota (Chambers 2009: 145)

Keta mu lotu ko mu paleka
 lest 2.IRR fall so 2.IRR wound
 ‘Be careful not to fall and hurt yourself.’

While the *keta* clause in (38) details potentially adverse consequences of an event averted by the speaker, the adverse consequences of the event in (39) must be evaded by the addressee.

The ability of negative consequence clauses to occur as independent clauses in some languages makes these constructions look rather like prohibitions or imperatives. For instance, in Hup (Vaupés-Japurá; Columbia, Brazil), apprehensives (i.e. adverse consequence clauses) do not necessarily occur as part of a clause linkage, and can function as independent clauses, as in (40a). In this example, apprehensive mood is marked on the uninflected verb stem by lexically conditioned tone. In this sense, apprehensives can be distinguished from imperatives, which always have a high-tone or falling allophone on the last syllable of the stem. Furthermore, while imperative CV stems generally take a stem final (epenthetic) [h], this is not the case with apprehensives (Epps 2008: 630-633).

(40) Hup (Epps 2008: 631)

a. ʔám-ǎn tih g'ǎç

2SG-OBJ 3SG bite.APPR

(Watch out) he'll bite you!

b. nǎw =yiʔ díʔ mǎʔ bíʔ, ʔám hup = hǒk

good=TEL VDIM UNDER work.IMP 2SG REFL=sawing.motion.APPR

'Go a bit more carefully on the last part; you'll cut yourself.'

Unlike imperatives, apprehensives are not limited to having second person subjects. For instance, in (40a), there is a third-person singular subject. In each of these examples, the addressee is responsible for avoiding the adverse consequences described.

3.3. Secondary predicates

In some languages, there is a special type of predicate combining strategy in which a main predicate is accompanied by a secondary predicate interpreted as an adjunct of the main clause. The secondary predicate typically encodes a state that holds for one of the participants of the main clause, and they are therefore a type of PARTICIPANT-ORIENTED ADJUNCT (Himmelman and Schultze-Berndt 2005a). This participant is known as the CONTROLLER of the secondary predicate. Participant-orientation is the main feature distinguishing secondary predicates from most other types of adverbial adjuncts, which tend to modify events, i.e. are more likely to be EVENT-ORIENTED ADJUNCTS. For instance, in (41a), the participant-oriented secondary predicate *drunk* indicates a state that holds of its controller *Otto*, the subject of the main predicate, while in (41b) the event-oriented manner adverbial modifies the verb.

(41) a. Otto left the party [drunk].

b. Otto left the party [drunkenly].

Secondary predicates are called depictives when (i) they are part of the focus domain of the clause in which they appear, and (ii) 'the state referred to by the depictive holds true at the same time as the event described by the main predicate (and may have held true before that point in time and keep on holding true after it)' (Himmelman and Schultze-Berndt 2005a: 17). In English both the main predicate and depictive predicate are usually in the scope of negation (Himmelman and Schultze-Berndt 2005a), indicating that depictive structures typically have conjunct scope, as in (42a). By giving contrastive prosodic prominence to either the main or secondary predicate it is also possible to indicate disjunct scope:

- (42) a. Otto didn't leave the party [drunk], he's still here and hasn't touched a drop.
 b. Otto didn't leave the party [DRUNK], he was as sober as a judge when he left.
 c. Otto didn't LEAVE the party [drunk], he ARRIVED drunk.

Depictive secondary predicates contrast with circumstantial secondary predicates, which contribute presupposed information to the utterance (Himmelmann and Schultze-Berndt 2005a: 18-19). In English, circumstantials appear to be outside the scope of negation, and are not part of the focus domain, as in the examples in (43), taken from (Himmelmann and Schultze-Berndt 2005a: 16). Consequently, (43a) does not have the implicature '*this food is supposed to be nice not cold*', nor is (43b) necessarily interpreted as implicating '*I can work not hungry*.' With English circumstantials, the scope of negation is local to the main clause.

- (43) a. This food is not supposed to be nice [cold].
 b. I can't work [hungry].

Secondary predicates can sometimes be distinguished from clause linkages in terms of their behaviour under negation, as illustrated with data from Udihe (Tungusic, Altaic; Russia).¹¹ One clause-combining pattern in Udihe is characterised by the use of juxtaposed clauses that share a semantic referent, but do not formally share a constituent. As such, there is no indication of syntactic dependency between the clauses. When the second clause in a structure of this kind (indicated with brackets in the following examples) is negative, it refers to the absence of a particular entity. These constructions often contain a partitive case marked noun, as in (44a), or some index (e.g. the third-person singular suffix *-(i)ni*) that anaphorically refers to an element in the first clause, as in (44b).

(44) Udihe (Nikolaeva & Tolskaya 2001: 656)

- a. Nua-ni ŋua-ini zugdi-du [p'a:-la anči]
 he-3SG sleep-3SG house-DAT window-PART NEG.COP
 'He sleeps in a house without windows. (lit. He sleeps in a house. There are no windows.)'
- b. Teugi-je tuduze-we mulexi do-lo-ni [zawaŋku-ni anči]
 put-IMP.2SG potatoes-ACC bucket inside-LOC-3SG handle-3SG NEG.COP
 'Put the potatoes in the bucket without a handle. (lit. Put the potato in the bucket. There is no (its) handle.)'

Partitive clauses of the type in (44a) can also be used as depictive secondary predicates, which are necessarily dependent on a main predicate. In Udihe, the subject, or sometimes the object of a main predicate controls an agreement relation for number marked on the predicate of the depictive (i.e. the depictive is the target for agreement). This property distinguishes depictives from qualificative adverbs, which do not take plural agreement (Nikolaeva & Tolskaya 2001: 701) and from the juxtaposed structures in (44). When used as a secondary predicate, the negative copula *anči* receives instrumental case marking, as in (45), or remains

¹¹ For more on negation in secondary predication in individual languages, see the papers in Himmelmann and Schultze-Berndt (2005b).

unmarked for case. In this example, the secondary predicate does not share any case forms with the arguments of the main predicate.

(45) Udihe (Nikolaeva & Tolskaya 2001: 146)

Bui-we-ni [ku'ai-la anči-zi] b'a-kta-wan-ta-i-ze
 animal-ACC-3SG ear-PART NEG.COP-INS get-DEC-CAUS-PERM-2SG-HORT
 Make the animals not hear, (as if) they are deaf (lit. without ears).

While these secondary predicates do not employ a negation strategy that is distinct from independent clauses, they can be embedded within the main clause, and receive distinct case marking, indicating that they are part of a distinct structure.

3.4 Negative harmony

It is well known that the presence of a negator in a clause may have consequences for the form or presence of other inflectional categories (Aikhenvald and Dixon 1998, Miestamo 2005). In Nunggubuyu (Nunggubuyu, Australian; Northern Territory), the presence of negation may determine the form of verbs, predicators, arguments, adjuncts and particles within its scope. While the form of these items is determined by negation, the forms themselves are not inherently negative, since they also occur in non-negative contexts (see Heath 1984: 163-173, 338-9 for details). For instance, there are two sets of pronominal prefixes in Nunggubuyu, A and B. In the Past Negative, verbs within the scope of negation must have a Set B prefix, with Set A prefixes restricted to Past Actual affirmatives. Similarly, they must have a Past 2 suffix rather than a Past 1 suffix – which is restricted to Punctual Past Actual affirmatives (Heath: 1984: 338). Furthermore, nouns and demonstrative pronouns must be marked with an obligatory noun class prefix (the form of which is determined by the inflectional class of the noun itself) when in the scope of negation. For instance in (46), the demonstrative *ji* 'here' and the noun *ɲuɽa* 'fire' are marked with the noun class prefix *ana-*, the verb is inflected with the Past2 suffix, with the form *-ni*. Other allomorphs of the Past2 suffix include *-ɲi*, and *-y* with further allomorphs involving either vowel lengthening or processes resulting replacement of stem final vowels with a different long vowel (See Heath 1984: 413 for discussion).

(46) Nunggubuyu (Heath 1984: 527)

wa:ri ɲijaŋ ana:-ji ambaŋujina-ni ana-ɲuɽa
 NEG more CNC-here it.neared.them-PST2 CNC-fire
 'The fire did not get close to them.'

This phenomenon is referred to as negative harmony by Heath (1984: 526). The boundary for the application of negative harmony, frequently corresponds to a clause-like unit, as in (46), but can extend across multiple predicates (47). Juxtaposed predicative nuclei can be negated by a single negative word, when they 'involve verbs (occasionally other predicative words) which, in context, designate actions or situations that are identical (as in simple verb repetitions), overlapping, or otherwise closely associated, so that this extended negative context is not totally arbitrarily (open ended). The domain for the application of this harmony is the scope of negation. In (47), both verbs bear the first-person singular Set B Subject Marker and the Past 2 suffix, the exact form of which is determined by the lexical class of the verb. If the second verb were not in the scope of negation, it could not be inflected in this way.

(47) Nunggubuyu (Heath 1984: 529)

wa:ri ŋa = ŋaɖugumbi:-ni ŋaŋ = jama:
 NEG 1SG.B=fish(v)-PST2 1SG.B=do.thus.PST2
 ‘I didn’t fish like that.’

From a functional perspective, this alternation between the inflectional characteristics of the verb in and out of the scope of negation is useful because it provides a way of determining clause boundaries in a language where this is fairly obscure, and clarifies the extent of the scope of negation, i.e. whether it is restricted to a single predicate or across multiple predicates (Heath 1984: 340). In this type of clause linkage negation is formally manifested in the main clause and the scope is conjunct. The linkage is asyndetic and there are semantic constraints on what types of predicate can be dependent.

4. NEGATION & SUBCATEGORIZED CLAUSES

The formation of negative structures in some languages requires the use of a negative verb that subcategorises for a clausal complement. This type of construction, sometimes referred to as ‘higher negative verb’ construction following Payne (1985a: 207-212), is of particular interest here since it demonstrates that clause linkages are sometimes the only productive means of expressing negation in declaratives.

The clearest cases of negative verbs subcategorising for complement clauses are found when a negative verb exhibits the morphosyntactic behaviour of other verbs, i.e. it takes the inflectional categories associated with regular verbs, and there is a complementiser indicating the presence of a clausal complement.

Both Payne (1985) and Miestamo (2005) discuss the case of the Tongan higher negative verb *‘ikai* because the evidence for making the claim for a bi-clausal structure is particularly convincing. In Tongan, regular verbs and *‘ikai* can each be preceded by the same range of different aspect particles in main clauses, including the completive/non-continuing particle *na’e* in (48). However, the aspect particle *ke* is restricted to subordinate clauses. The structure of (48b) is identical to the structure of other verbs taking full sentential complements, such as *ngali* ‘seem’.

(48) Tongan

a.	Na’e	‘alu	‘a	Siale	b.	Na’e	‘ikai	[ke	‘alu	‘a	Siale]
	ASP	go	ABSOLUTE	Charlie		ASP	NEG	ASP	go	ABSOLUTE	Charlie
	‘Charlie went.’					‘Charlie didn’t go.’					

The position of pronouns in negative complex sentences also demonstrates that *‘ikai* subcategorises for a clausal complement. In (49a), the pronominal subject *ne* ‘he’ occurs between the aspect particle and the verb *fai* ‘do’. In negative sentences, the pronominal subject occurs between the aspect particle and verb of the complement clause, as in (49b), providing evidence for the clausal status of the complement of *‘ikai*. Furthermore, placement of pronominal subject of the verb of a complement clause between the negative verb and preceding aspect particle is not possible, as demonstrated by the ungrammatical example in (49c).

present, the agreement affix attaches to the auxiliary. If the subject of the subcategorised clause is first-person or second-person, it is marked by a pronoun before the auxiliary, as in (51a), or by zero if third-person. If the subcategorised clause contains an active transitive predicate comprising an auxiliary and lexical verb, a similar pattern holds (51b), but if there is no auxiliary in an active transitive predicate with a third-person subject, the clause is nominalised, as in (51c).

(51) Musqueam (Suttles 2004: 120)

- | | | | |
|----|---------------------------|----|------------------------------|
| a. | <i>ʔəwə cən ni·n némí</i> | b. | <i>ʔəwə niʔəs kʷəcnaṁxəs</i> |
| | ʔəwə [cən niʔ-ən némí] | | ʔəwə [niʔ-əs kʷec-n-àmx-əs] |
| | NEG 1SG AUX-1SG.SUB go | | NEG AUX-3SUB look-TR-me-3TR |
| | ‘I did not go.’ | | ‘He didn’t see me.’ |
-
- | | |
|----|----------------------------|
| c. | <i>ʔəwə kʷs kʷəcnaṁxʷs</i> |
| | ʔəwə [kʷ s-kʷec-naṁxʷ-s] |
| | not ART NMLZR-look-TR-3POS |
| | ‘He doesn’t see him.’ |

While a negator may structurally belong to a main clause in a complex sentence involving a subcategorised clause, its scope is interpreted as disjunct. For instance, in (52a), the clitic *=nt* structurally belongs to the main clause, but can be logically interpreted as belonging to the dependent clause by virtue of having the same semantics as (52b) where *=nt* occurs in the dependent clause. Pragmatically, of course, the uses of the construction types are not identical.

- (52) a. I don’t believe that education cuts are necessary.
 b. I believe that education cuts aren’t necessary.

This is referred to as SUPERORDINATE NEGATION by Haspelmath (1997:32) because the negation in the superordinate clause (i.e. matrix clause), logically belongs to the subordinate clause (i.e. the subcategorised verb). The phenomenon is more commonly referred to as NEG-RAISING (Horn 1978, 2001), but is also known as NEGATIVE TRANSPORT and ATTRACTION OF THE NEGATIVE (Jespersen 1917, Moscati 2006) on the basis that the negative of the subordinate clause, is ‘attracted’ or ‘transported’, i.e. ‘raised’ to a position in the matrix clause. All of these terms essentially refer to a situation in which negation in the main clause may have scope over the main or dependent clause. This data further demonstrates that a cohesive set of variables accounting for negation across clause linkages must include the possibility of disjunct scope.

The types of verbs that permit superordinate negation can be broadly construed using the following labels, listed together with selected examples of verbs permitting this alternation in English (Horn 2001: 323):

- (53) OPINION: *think, believe, suppose, imagine, expect, reckon, feel*
 PERCEPTION: *seem, appear, look like, sound like, feel like*
 PROBABILITY: *be probable, be likely, figure to*
 INTENTION/VOLITION: *want, intend, choose, plan*
 JUDGEMENT/(WEAK) OBLIGATION: *ought, should, be desirable, advise, suggest*

While languages differ in terms of which verbs in the matrix clause permit superordinate negation, it does not appear to be predictable which verbs (if any) belonging to the classes identified in (53) will permit superordinate negation (Horn 1978, 2001: 308-330). For instance, in Zazaki (Iranian, Indo-European; Turkey) both subordinate and superordinate negation are possible with in light verb construction consisting of the light verb *k^hon* ‘do’ preceded by its lexical component *guman* ‘think’ and *inam* ‘belief’. However, superordinate negation is not possible with the verbs *vaz* ‘say’ or the modal verb *gerεk^hε* ‘be necessary’, while with the verb ‘want’, superordinate negation is preferred over (awkward sounding but grammatical) subordinate negation (Sandonato 1994: 134, 137). In (54a), the negative prefix *ne-* is found on the light verb *k^hon* ‘do’ and the subordinate verb *biero* is in the subjunctive form of the verb *jena* ‘come’. In (54b), the subordinate verb *nino* is in the negative (indicative) form of the verb *jena* ‘come’ (Sandonato 1994: 131).

- (54) Zazaki (Sandonato 1994: 136)

- a. εZ inam ne-k^hon k^hε o biero
 1SG.DIR belief NEG-do that 3SG.DIR come.SBJV
 ‘I do not believe he is coming.’
- b. εZ inam k^hon k^hε o nino
 1SG.DIR belief do that 3SG.DIR NEG.come
 ‘I believe he is not coming.’

The variation encountered across languages in terms of which types of matrix predicates behave in this way demonstrates that generalisations cannot only be made at a syntactic level, but must make reference to a semantic one.

5. CONCLUSION

In this paper I have exemplified some of the variation that exists in the realisation of negation in clause linkages in order to highlight ways in which negation of complex structures may differ from the mono-clausal structures typically discussed in the typological literature on negation. Following Bickel’s (2010) multivariate analysis of clause linkages, I proposed that that best way to understand variation in negative structures in a corpus of data is to consider which variables are important for capturing all of the relevant differences between the negative construction types evident in the corpus. Using data from a wider variety of languages, I demonstrated that the parameters of variation must be considered individually for each construction type encountered.

The first major difference between the typology of negation in independent main clauses and clause linkages concerns the locus of negation marking. In independent main clauses, negation is necessarily formally indicated somewhere in the clause itself. When more than

one clause is present in a linkage, a wider range of possibilities occur. The locus of negation may be the main clause, a dependent clause, every clause in the linkage, or it may be marked externally to the linked clauses, by means of the clause linkage mechanism. When two main clauses (or linkages comprising a complex structure) are coordinated, it is necessary to distinguish between the locus marking in the first main clause or linkage (COORDINAND1) and any subsequent linkages (COORDINAND2 ... COORDINANDⁿ) because the marking strategy employed may differ between clauses in terms of their linear order.

A second important characteristic of clause linkages that is not relevant to mono-clausal structures is whether the scope of the negation is restricted to the clause in which it is marked. In mono-clausal structures, scope is always local to the clause in which it is marked. In clause linkages, scope can be variously described as local, subjunct, disjunct, conjunct or extensible. Crucially, the scope and locus of negation do not always correspond, indicating that these variables must be described independently.

The data in this paper also demonstrate how the forms used to mark negation in main and dependent clauses may differ from each other, such that there may be negative forms which are restricted to dependent clauses. There are also clause linkage mechanisms that are restricted to negative contexts, and certain negative forms that are restricted to particular structural positions in clause linkages.

In addition to those variables proposed by Bickel (2010) for carrying out a multivariate analysis of clause linkages, I propose that the following questions should also be answered for each negative clause linkage under consideration, in order to provide an appropriate analysis of data in a corpus. Although much of the data used as examples here constructed or elicited to clearly demonstrate particular contrasts, the variables that are identified through this process are applicable to corpus data. The following questions assume that a distinction can be made between clauses with are dependent and independent, although no further distinction needs to be made in terms of whether a clause is subcategorised for or not.

Questions for a multivariate analysis of negation in clause linkage structures

- (55) Where is negation formally manifested in the clauses of the linkage?
 - (i) MAIN (negation is formally marked in the main clause only)
 - (ii) DEPENDENT (negation is formally marked in a dependent clause only)
 - (iii) ALL (negation is formally marked in all linked clauses)
 - (iv) NONE (negation is not marked or is marked externally to the clause)

- (56) Where negation is marked in the clause, how is negation manifested?

- (57) How can the scope properties of negation in each linkage be described?
 - (i) LOCAL (scope is limited to main clauses)
 - (ii) SUBJUNCT (scope is limited to dependent clauses)
 - (iii) DISJUNCT (scope extends to the main or the dependent clause but never to both)
 - (iv) CONJUNCT (scope extends to the main clause and the dependent clause)
 - (v) EXTENSIBLE (scope extends to either the main clause alone, or to both the main clause and the dependent clause, but never to the dependent clause alone)
 - (vi) ABSENT (the linkage is affirmative)

- (58) Are the negators used in dependent clauses the same as those used in main clauses?
- (i) RESTRICTED (negation marking in dependent clauses is expressed by forms restricted to dependent clauses)
 - (ii) BANNED (negation marking is not allowed in the dependent clause)
 - (iii) CONSTRAINT-FREE (negation marking is not regulated by dependency)
- (59) What type of linkage mechanism is employed?
- (i) SYNDETTIC
 - (ii) BISYNDETTIC/POLYSYNDETTIC
 - (iii) ASYNDETTIC
- (60) Is each linkage form employed in a linkage structure dedicated to clause linkages involving negation?
- (i) GENERAL (linker can be used in both affirmative and negative contexts)
 - (ii) NEGATIVE (linker is restricted to negative contexts)
 - (iii) AFFIRMATIVE (linker is restricted to affirmative contexts)
- (61) What form and position do the linkers take in the clauses linkages involving negation?
- (62) Can constituents smaller/larger than the clause be linked using the strategy used to link clauses?
- (63) Are there semantic constraints on the use of a particular strategy?

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