

Clause Linking and Clause Hierarchy

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Volume 121

Clause Linking and Clause Hierarchy. Syntax and pragmatics
Edited by Isabelle Bril

Clause Linking and Clause Hierarchy

Syntax and pragmatics

Edited by

Isabelle Bril

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Table of contents

List of contributors	VII
Editor's introduction. The syntax and pragmatics of clause linkage and clause hierarchy: Some new perspectives <i>Isabelle Bril</i>	1
PART I. Syntactic terminology and typological methods	
Clause linkage and Nexus in Papuan languages <i>William A. Foley</i>	27
Capturing particulars and universals in clause linkage: A multivariate analysis <i>Balthasar Bickel</i>	51
PART II. Clause-chaining, converbs, masdars, absolute constructions, etc.	
Specialized converbs and adverbial subordination in Axaxdərə Akhvakh <i>Denis Creissels</i>	105
Finite and non-finite: Prosodic distinctions on Budugh verb stems <i>Gilles Authier</i>	143
Converbs and adverbial clauses in Badaga, a South-Dravidian language <i>Christiane Pilot-Raichoor</i>	165
Coordination, converbs and clause chaining in Coptic Egyptian Typology and structural analysis <i>Chris H. Reintges</i>	203
PART III. Subordination, informational hierarchy and referential hierarchy	
Informational and referential hierarchy: Clause-linking strategies in Austronesian-Oceanic languages <i>Isabelle Bril</i>	269
Comment clause: Crossing the boundaries between simple and complex sentences <i>Zygmunt Frajzyngier</i>	313

Deixis, information structure and clause linkage in Yafi' Arabic (Yemen) <i>Martine Vanhove</i>	333
The role of the Berber deictic and TAM markers in dependent clauses in Zenaga <i>Catherine Taine-Cheikh</i>	355
Deixis and temporal subordinators in Pomak (Slavic, Greece) <i>Evangelia Adamou</i>	399
Correlative markers as phoric "Grammaticalised Category Markers" of subordination in German <i>Colette Cortès</i>	421
PART IV. Informational hierarchy and TAM markers' functions in clause-linkage	
Focus, mood and clause linkage in Umpithamu (Cape York Peninsula, Australia) <i>Jean-Christophe Verstraete</i>	451
Clause chaining and conjugations in Wolof: A typology of parataxis and its semantics <i>Stéphane Robert</i>	469
Pragmatic demotion and clause dependency: On two atypical subordinating strategies in Lo-Toga and Hiw (Torres, Vanuatu) <i>Alexandre François</i>	499
Tense-mood concordance and clause chaining in Mankon (a Grassfields Bantu language) <i>Jacqueline Leroy</i>	549
Clause dependency relations in East Greenlandic Inuit <i>Nicole Tersis</i>	581
Coordination and subordination: <i>Áma</i> in Bulgarian dialectal Greek <i>Eleni Valma</i>	603
Author index	619
Language index	623
Topic index	625

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Editor's introduction

The syntax and pragmatics of clause linkage and clause hierarchy: Some new perspectives

Isabelle Brill

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1. Presentation

This volume is the outcome of a research programme (2003–2007) conducted by linguists specializing in a wide array of language families, from varied theoretical backgrounds. We thankfully acknowledge the financial support of the *Fédération de Typologie et Universaux Linguistiques* of the CNRS (Centre National de la Recherche Scientifique).¹ The research project was coordinated by the editor of the present volume.

This collection of articles explores clause-linkage strategies in a cross-linguistic perspective. It concentrates on issues generally relating to coordination and subordination, with a greater emphasis on subordination, marked by a variety of constructions such as clause-chaining, converbs, masdars, correlative constructions, specific types of conjugations or verbal inflectional morphology, T.A.M. markers, as well as informational hierarchy and referential hierarchy strategies.

The choice of topics addressed was guided by their being comparatively less studied in the existing literature. This volume provides further documentation on such morphosyntactic phenomena from slightly different angles and perspectives; in particular, it explores the interaction between syntax, pragmatics and semantics in the architecture of complex sentences. These new data are analysed in the light of current debates relating to the typology of coordination and subordination.

2. Previous studies

Only over the last two decades, clause-linkage or clause-dependency and its related syntactic categories, coordination, subordination, and co-subordination (Olson 1981;

1. The editor is grateful to Jean-Michel Roynard for his help in editing the volume, and to Margaret Dunham who translated various articles and corrected the final version of the volume. Their invaluable help is much appreciated.

Foley & Van Valin 1984) have given rise to a wealth of studies from various theoretical perspectives (*inter alia*, Dik 1997; Culicover & Jackendoff 1997; Van Valin & LaPolla 1997; Cristofaro 2003; Bril & Rebuschi 2006; Rebuschi 2003 etc.). Some recent publications have focused on specific construction types cross-linguistically, such as clause chaining (Longacre 1985), converbial constructions (König & Haspelmath (eds) 1995), adverbial constructions (van der Auwera (ed.) 1998), coordination (Sag et al. 1985; Munn 1993; Johannessen 1998; Progovac 1998; Haspelmath 2004; Godard & Abeillé 2005). Typological studies have also focused on clause-linking in its various aspects (*inter alia*, Lehman 1988; Haiman 1988; Comrie 1989 and various contributors in Shopen (ed.) (1985, 2007); Keenan on relative clauses (1985), Noonan on complementation (1985, 2007), Haspelmath on coordination (2007), Thompson, Longacre & Hwang on adverbial clauses (2007), etc.

3. Aims

This collection of studies aims to bring new insights to a domain which has a long research tradition. Each of the eighteen chapters presents an in-depth study of clause-linkage and clause-relationships, in often lesser known and lesser documented languages.

The case-studies are based on first-hand data collected by the authors. A sample of 23 languages (and a survey of 17 others), from 12 different language families, are analysed (see Appendix 1). Though far from exhaustive, this sample enlarges the scope of previously available research.

Among the questions addressed are the following:

- What types of clause-linking structures, and what levels and degrees of hierarchy are distinguished in a given language?
- What is the range of morphosyntactic devices used for clause-linking and more specifically for subordination? For instance \pm finite verb forms, masdars, converbs, T.A.M markers, specific conjugations, case-marking systems, demonstratives and referential devices, informational hierarchy devices, etc.
- What categorical and functional domains do these morphosyntactic devices originate from?

Some more general theoretical and methodological questions are also addressed:

- Are coordination, subordination and co-subordination universal syntactic categories?
- Are there any clause-linking hierarchy universals?
- How should these notions be defined so as to have some cross-linguistic validity?
- What set of criteria could help define them?

- Are there mismatches between form, function and meaning of clause-linking devices?
- Are there areal clause-linking phenomena?
- Which functional and semantic types of clause-linking tend to be grouped or distinguished? Are they comparable?

The notion of language universals has been the centre of recent debates; some doubts have been expressed as to the possibility or even the relevance of presupposing universal constructions and categories, or any universal conceptual structures or formal categories (Dryer 1998; Croft 2001, 2003; Haspelmath 2007; Frajzyngier & Shay 2003; Evans & Levinson 2009). Despite such scepticism (see Newmeyer 2007 for a less sceptical approach and some counter-arguments), cross-linguistic typological studies and in-depth case-studies of (lesser known) languages contribute to (i) comparing and refining the understanding of syntactic constructions or categories, (ii) assessing their variability, and (iii) distinguishing language-specific and areal features or constructions from more invariant ones. This in turn leads to revising definitions and to proposing more refined sets of criteria. This approach is the main guideline of the volume's contributions.

4. Some properties of coordination and subordination and some distinctive tests

Coordination is generally distinguished from subordination by a number of tests and properties with variable cross-linguistic validity. Among the subordination tests, to which coordination reacts negatively, are the following (summarised in Yuasa & Sadock 2002; and Haspelmath 2004 for instance):

- i. Permutability of the clauses without any logico-semantic change (i.e. only additive coordination allows it, other coordination types do not);
- ii. embeddedness;
- iii. possible pronominal cataphora (coreferential with a NP in the following clause);
- iv. possible extraction (Ross 1985 [1967]).

Among common features distinguishing main clauses from subordinate clauses are:

- i. Imperviousness to the illocutionary force of the matrix clause and disjunct illocutionary scope (see Foley & Bickel this volume); this is in contrast with 'conjunct illocutionary scope' found in some clause-chaining or converbial constructions, in which the dependent clause falls under the scope of the illocutionary operators in the main clause;

- ii. T.A.M dependency of the dependent clause on the main clause (found for instance in the medial verb forms in clause-chaining), while unconstrained tense marking can be found both in coordinate or subordinate constructions;
- iii. unequal assertive clauses status (with possible non-assertive status for some subordinate clauses, through various morphosyntactic and pragmatic devices);
- iv. deranked, unasserted clauses, possibly displaying non-finite verb forms (*vs.* co-ranking coordinate clauses), nominalised clauses, participial forms, case-markers and adpositions;
- v. possible restrictive focalisation of subordinate clauses (with one restriction: a term may not be focused within the dependent clause);
- vi. Use of topic markers as indicators of subordinate clauses (Papuan, Oceanic languages);
- vii. Use of case-markers functioning as topic markers and projecting a case functional head above the subordinate clause (Foley, this volume).

– *Subordinate clauses as islands*

Subordinate clauses are impervious to the illocutionary force of their main clauses. They are islands, their features cannot percolate up to the level of the main clause, nor can the main clause's Inflectional features (tense, mood or polarity) move down into them (see Foley, this volume). Besides, they usually are presupposed statements, which accounts for some other features investigated in this volume, which are related to the pragmatic structuring and informational structure of complex clauses, and also involve constructions based on the contrast between presupposition *vs.* assertion.

– *Distinctive features among subordinate clauses: nexus and juncture layer*

Other distinctive features among subordinate clauses involve the layer at which the subordinate clause operates (as developed in Foley & Van Valin 1984; Van Valin 2005, Bickel this volume). They may operate (i) at the predicate-verb layer (as ad-V clauses), (ii) at the clause layer (ad-Clause), (iii) at the whole sentence layer (ad-Sentence) as detached, topic subordinate sentences for instance, or (iv) they may operate beyond the sentence, at utterance level. The layer at which they operate then determines their specific syntactic functions (argument function in complement clauses, modification, adjunction), or specific discourse functions when subordinate clauses operate beyond the sentence (see the contributions by Tersis, Robert this volume).

– *Properties and structure of coordination*

In contrast with subordination, coordination is usually considered to be a logically structurally symmetric relation, in that if $\langle x$ is coordinated with $y \rangle$, then $\langle y$ is coordinated with $x \rangle$. Although coordination may contain some logical and formal symmetry, at least in some of its instances or at some abstract level, this does not mean that it is

syntactically or semantically unconstrained (Progovac 1998): for instance, some coordinate constructions are subject to causal relations and readings, and are thus sensitive to order (as in *I was angry and he left the house* vs. *he left the house and I was angry*). Conjuncts have also been considered as having co-ranking status, but a co-ranking analysis of coordination has been challenged by numerous cases of morphosyntactic asymmetries between conjuncts (Johannessen 1998), not to mention the many cases of form-function-semantic mismatches (Yuasa & Sadock 2002). In Johannessen's analysis of coordination, the conjuncts are in a hierarchic specifier-complement configuration; the first conjunct (in VO languages) stands structurally apart, while the conjunction heading the other conjunct(s) (i.e. the 'complement') forms a structural unit (Johannessen 1998; Progovac 1998). The conjunctive head may be transparent in allowing symmetric marking of the non-initial conjuncts, or it may assign different morphosyntactic features to the complement conjuncts; these may be different \pm finite properties on VPs; or they may be different case-marking on NPs, either default cases or cases selected by the conjunctive head (as with comitative coordinators) (Sag 2005; Bril & Rebuschi 2007: 10–12). Asymmetric features resulting from the properties of the coordinator itself provide evidence of some hierarchical structure in the coordinate phrase. Cross-linguistic studies thus show that conjuncts with symmetric properties are just one possible option of coordinate constructions.

5. Outlook of content

The volume is subdivided into four parts devoted to more specific topics relating to clause-linkage; however, the various contributions within each part interact more than the subdivisions suggest.

- Part I presents some theoretical reassessment of terminologies from syntactic and typological perspectives (Foley), as well as the quest for typological methods based on statistical methods and on sets of variables allowing comparability (Bickel). These are illustrated by case-studies in various languages, mostly Papuan and Tibeto-Burman.
- Part II deals with issues and morphosyntactic strategies relating to the syntax and semantics of clause-chaining, conjunctive conjugations, converbial constructions, masdars.
- Part III centers on issues relating to the interaction between syntax, pragmatics and the semantics of clause-linking strategies and subordination, mostly in relation to (i) informational hierarchy and the contrast between presupposed vs. asserted propositional contents (Bril, Vanhove) (ii) to referential hierarchy (based on deictics or anaphorics) (Bril, Vanhove, Taine-Cheikh, Adamou), and (iii) to correlative constructions (Cortès).

- Part IV presents insights in the clause-linking and subordinating functions of some T.A.M. markers and conjugation systems, which occur via informational hierarchy (Verstraete), via “situational dependency” effects between clauses (Robert), or via the backgrounding effects and lack of illocutionary force of specific aspect and mood forms (François). Complex verbal inflectional categories and conjugations are also shown to be at work in the syntax (Leroy) and discourse functions (Tersis) of clause-linkage.

The origin and evolution of clause-linking morphemes or strategies is a topic of investigation in many contributions (see Akhvakh, Greek, Coptic Egyptian, Oceanic languages, Yafi⁶ Arabic, Zenaga, Pomak). (Poly)grammaticalisation of adpositions, demonstratives, verbs, etc. is a frequent process which gives rise, among other things, to clause-hierarchy and subordinating morphemes.

Part I. A reassessment of terminology and typological methods

A. A reassessment of the theory of nexus

W. Foley (Chapter 2) presents a revision of the theory of nexus (first developed in Foley & Van Valin 1984), which distinguished three categories of nexus, subordination, coordination and cosubordination, and which is now reduced to only subordination and coordination.

– Clause-chaining and cosubordination

Clauses in a cosubordinate nexus were defined as being in a dependency relationship for a specific inflectional category or operator such as tense, mood or illocutionary force, a dependency which did not occur in coordinate nexus. But some analyses of clause chaining (in Papuan languages) and converbial constructions (of central and south Asian languages, Haspelmath & König 1995), which were formerly identified as prototypical cases of cosubordinate nexus, show that illocutionary force, the highest peripheral operator or I feature, need not be shared across the clauses; hence they cannot exemplify cosubordinate nexus. Foley thus proposes a revised theory of nexus based on functional categories like I (inflectional features) and their projection IP (Inflection Phrase) and restricted to two nexus, subordination and coordination. The cosubordinate nexus is re-analysed as a type of coordinate nexus that differs from normal clausal coordination in the type of constituents coordinated. Clause chaining is thus distinguished from standard coordinated clauses by the nature of the coordinated constituents, S versus IP. In clause chains, S constituents are coordinated under a single IP node; the verbs in the coordinated S constituents are non-finite, they have no intrinsic I feature specifications, tense is only indicated on the final clause's verb and it has scope over the preceding medial or dependent clauses. In Foley's view, the inflectional I categories of the final clause's verb belong to the structure as a whole, rather than to the final clause only.

– *Assessment of I-features: Polarity, illocutionary force, mood, tense*

Foley also points out cross-linguistic differences in the treatment of polarity as either belonging or not to I features. Thus, in some Papuan languages like Usan, negation in the final clause is an I feature with scope over all coordinated S constituents under it, while in Tauya, the scope of negation only spreads to clauses sharing the same subject. On the other hand, illocutionary force is an I feature in Tauya with scope over the whole series of coordinated constituents. The conclusion is that polarity is a lower level I category, while illocutionary force remains a feature of the highest IP projection.

Other Papuan languages show variation in other I features like mood and tense. In clause chaining constructions, many Papuan languages inflect the verbs in medial clauses for realis vs. irrealis mood, while the verb of the final clause bears the full inflectional possibilities of tense and illocutionary force. Foley thus points out that it cannot be assumed “that clause chaining always corresponds to the same types of structures across languages; minimal S constituents may be coordinated using this structure, but so can fully specified, essentially independent IP constituents”. As these features do not have the same status cross-linguistically, ranking them on a gradient proves a useful undertaking.

B. Statistical methods for typological comparability: A multi-variate approach

Some of the syntactic criteria (listed in paragraph 4 above) stand more as statistical rather than as absolute features. This is the main thrust of Bickel's contribution, also pointed out in various contributions where form-function mismatches occur, and where clearly assigning a given construction to either the coordinate or the subordinate type often proves uneasy: in Papuan clause-chaining (Foley), some converbal constructions in Akhvakh (Creissels), Budugh (Authier), Badaga (Pilot-Raichoor) and Coptic (Reintges).

B. Bickel (Chapter 3) thus raises the question of cross-linguistic comparability of structures which are at best similar, but never identical. Mismatches are due to the fact that language-specific structures are analysed with terminologies whose definition is based on other languages, or are theory-dependent. Thus, due to the amount of structural variation in feature functions, and to the difficulty in establishing robust comparative notions and criteria proving impervious to language specific variation, some other method is needed.

Bickel advocates the use of statistical methods standard in other disciplines for the analysis of diversity, and the recourse to a multi-variate approach based on sets of variables (or parameters) in order to capture variation and probabilistic assessment of clusters and to establish typological prototypes. Taking the pattern of adjoined (non-embedded) clause linkage across languages as a sample case, he decomposes features of various structures of adjoined clause linkage into sets of variables (parameters) that allow precise measurement of cross-linguistic similarities and differences, as well as the discovery of typological patterns based on statistical techniques.

This study, based on two dozen languages, isolates a set of twelve analytical variables (ranging from the scope of illocutionary force operators to extraction constraints) that are applied to a representative selection of clause-linkage structures. The analysis supports Foley's view that 'cosubordination' is not a distinct prototype, while there is a cross-linguistic prototype of subordination characterised by disjunct illocutionary scope, local tense scope, flexible positions, and with less probability a ban on question formation or focusing inside the dependent clause. Furthermore, there is a cross-linguistic cline between more vs. less tightly constrained types of clause adjoining, specifically between three types of coordination-like structures varying according to the extent to which tense marking and tense scope is constrained. Finally, while a tentative prototype of subordination seems to emerge from this pilot database, no coordination prototype does.

Part II. Converbs, masdars, clause-chaining, conjunctive conjugations

Converbs, masdars, clause-chaining constructions and conjunctive conjugations are the focus of Part II.

A. Converbs

Three papers are concerned more or less centrally with converbial strategies in Daghestanian (Creissels, Authier), Dravidian languages (Pilot-Raichoor) and Coptic (Reintges). They generally follow Nedjalkov's (1995) distinction between specialised and general-polyfunctional converbs.

D. Creissels (Chapter 4) discusses the rich converbial morphology of Northern Akhvakh, which he deems to be an ancient feature among Nakh-Daghestanian languages. The term 'converb' is used after Nedjalkov's definition (1995), to refer to non-autonomous verb forms, different from infinitives, masdars/verbal nouns or participles, in that they do not occur in complement clauses or in relative clauses. If specialised converbs may be defined as essentially marking adverbial subordination, the multipurpose 'general converb' occurs in constructions analyzable as clause coordination, but it has two other main functions in clause-linkage: (i) it may specify the manner of an event encoded by an independent verb form, (ii) it may encode an event viewed as the first stage of a complex event whose second stage is encoded by an independent verb form. Some of its syntactic properties are thus interpretable as coordination, while others are interpretable as cases of subordination. Thus, in many constructions using the general converb, the type of coreference found between full NPs and pronouns is commonly considered incompatible with coordination; other facts such as linear order, embedding, relativization, and negation are also incompatible with coordination. Another particularly strong argument in favour of subordination is that, in some complex constructions, the general converb in Akhvakh may show external suffixal

agreement, i.e. controlled by an NP outside the clause headed by the dependent verb form and controlled by the main verb's S/P agreement.

Converbal clauses usually precede the main verb, but the reverse order is also possible though not equally usual for all converbs. The order main verb–converb is more common for the Purposive converb than for the Conditional converb (the decisive factor seems to be discursive); it is excluded for the Immediate converb. An interesting use of the Conditional converb, apart from its use in condition clauses or in clauses with concessive meaning, is its occurrence in 'insubordinate' constructions (Evans 2007) with optative meaning.

B. Converbs, masdars and prosody

G. Authier (Chapter 5) studies the specific case of bare verb-stems in Budugh (Daghestanian). Bare verb-stems are uninflected for tense or mood, and can be used (i) either as subordinate forms, as 'participles', as 'verbal nouns/masdars', as adverbial sequential converbs, or (ii) as independent, finite non-indicative verb forms with modal value (especially injunctive). Their uses are distinguished by stress: (i) they carry falling stress on the first syllable when independent and finite, (ii) they carry rising stress on the last syllable (like nouns) when dependent-subordinate. Falling intonation is thus a marker of syntactic finiteness and pragmatic completeness. Budugh also displays a clause-chaining device using 'sequential' converbs characterised by an initial *rising* stress and which falls in between these two main types, as well as Masdars which occur both in independent (sentence-final) and embedded (subordinate) syntactic positions. Masdars can acquire the *initial falling* stress typical of finite verbs; they are also used as "insubordinate forms" in independent but non-finite clauses with non-assertive or non-indicative modality, or in deliberative clauses (often extraposed and afterthought like). When the extraposed non-finite form is 'stranded' and acquires syntactic autonomy, this triggers a stress shift. A new, 'insubordinate' form, segmentally homonymous to the Masdar, is then used as a finite 'debitive' mood.

C. Converbs and other subordinating strategies

C. Pilot-Raichoor (Chapter 6) analyses various subordinating strategies in Badaga (Dravidian): converbs, nominalised verb forms and a quotative strategy. The main findings are that (i) none of the clause dependency strategies are specific to a single semantic function, (ii) subordinate clauses are fully autonomous in terms of their argumental and tense-aspect settings (with the exception of some clauses headed by a Contextual converb), and are 'impervious' to the inflectional features of the matrix clause (see Foley this vol.).

Again, converbs subdivide into a polyfunctional converb, used in constructions ranging from clause-chaining to modifying functions, and other semantically specialised converbs expressing adverbial meanings. Both relativization and nominalization are

based on an adjectival participle form, used with a nominal or an adverbial head in one case, and derived into a nominalised form of the verb in the other case. Case markers and postpositions specify the semantic relation of the subordinate clauses. Word order, prosodic and pragmatic factors also contribute to the interpretation of the subordinate clauses.

Apart from clause-chaining, the polyfunctional Contextual converb (Pc) may have contextual modifying functions with 'implied' adverbial meaning (cause, purpose, manner, concession, etc.); clauses headed by the Pc converb form are non-finite and syntactically anchored to the next verb/predicate. This is a frequent cross-linguistic pattern for sequential constructions (see Wolof this volume). On the other hand, Specialised converbs are semantically constrained; they head adverbial clauses and express circumstances (relative time), polarity or modality. While the Pc form contains no overt marker and no explicit semantic information on clause relations, Specialised converbs do. This is reminiscent of the central distinction made by Verstraete (this volume) between inferential and compositional coding devices.

D. Clause chaining and conjunctive conjugations

C. Reintges (Chapter 7) analyses conjunctive conjugations in Coptic Egyptian. While the most frequent pattern for clause coordination is symmetric with *awɔ*: 'and', there are also asymmetric clausal conjunctive patterns, using the Conjunctive and the Inferential verb conjugations (interacting with tense, aspect and mood), and the Converbial Relative tenses which occur in main and in embedded clauses.

The Conjunctive conjugation is primarily an asymmetric clause chaining device, ambiguous between coordination and subordination: the initial clause contains the controlling verb with tense/aspect specifications and illocutionary force, while the less specified conjunctive verb form occurs in the successive chain-medial and final clauses (see Foley, Bickel, Robert, this volume for similar facts). But the functions of the Conjunctive conjugation may extend to various types of subordinate clauses with a wide range of semantic relations. The Inferential conjugation, has modal(-evidential) semantics and expresses purpose, consequence, and evidentiality.

Clause chains with Conjunctive verbs display the syntactic behaviour and semantics of standard coordination. In other cases, a coordinative interpretation is excluded by selectional restrictions and/or by the tense/aspect specification of the controlling verb. Some Conjunctive clauses thus display properties typical of subordinate clauses, such as embedded complements of some verb types (manipulative, knowledge, volition, intent), as oblique clausal modifiers, or in the apodosis of condition clauses. Connectives and subordinating conjunctions may occur to disambiguate the semantics of Conjunctive clauses. In some restricted contexts, Conjunctive verbs may also occur in chain-initial position, as insubordinate forms, possibly resulting from the deletion of a volition or intent verb. Though the more common complementation strategy makes

use of finite subordinate clauses and infinitives, the Conjunctive conjugation may be a marked alternative for complementation, restricted to some verb types and excluding perception and discovery verbs which almost exclusively select the converbal relative tenses (see Dixon 2006 for the role of clause chaining in complementation).

The syntactic pattern of different-subject vs. same-subject conjunctive clauses also plays a role, compositionally (see Verstraete this volume on this notion); different-subject conjunctive clauses have an illocutionary force different from that of the initial conjunct, the different subject is contrastively focused and the spreading of the illocutionary force from the chain-initial clause to the conjunctive clause is blocked; thus the construction is no longer interpreted as coordinate, but as subordinate with adverbial purpose or reason meaning.

The Converbial Relative tenses are absolute finite verb forms which contain a tense/aspect particle, with person agreement manifested in the coreferential pronoun. They are primarily subordinate forms, although they also occur in asymmetrical clause coordination and complex predicates. They occur (i) in restrictive relative clauses, (ii) in predicative adjuncts (modifying the main verb), (iii) in temporal adverbial clauses (expressing simultaneity, precedence and subsequence, relative to speech time); (iv) in information packaging constructions (constituent questions, declarative focus sentences).

The last type, the Inferential conjugation (or 'inferred evidential') is yet another asymmetrically coordinating verb conjugation, expressing consequence, goal, and encoding inference based on (non-)observable facts (see Verstraete this volume for the notion of encoded inference). These conjugations, especially the Converbial Relative tenses, also play a role in information structure and focus marking, which sets them apart from pragmatically neutral declarative clauses.

Part III. The syntax, pragmatic, semantic interface

The role of informational hierarchy (topic or focus) strategies and markers in the construction of clause-hierarchy, has received somewhat less attention cross-linguistically (since Haiman's 1978 seminal article, see also Lakoff 1984). As have the origins of informational hierarchy markers: coordinators (Bril), demonstratives (Frajzyngier, Bril, Vanhove, Taine-Cheikh), verbs (Vanhove), or other morphosyntactic domains recruited to express informational hierarchy, such as absolute constructions, case-markers (Foley, Bickel, Bril), specific conjugation paradigms (Reintges, Robert, Leroy), tense-aspect morphemes (aorist, perfect or imperfective aspect, see Robert, Taine-Cheikh, François, Valma), or mood morphemes (Bril, Verstraete, François, Leroy, Tersis).

The contributions in Part III investigate the interaction of pragmatics, semantics and discourse with the syntax of clause-linkage: one main aspect is the role of informational hierarchy and referential hierarchy strategies. It is the central topic of contributions by Bril, Frajzyngier, Vanhove, and is also studied in some contributions

in Part IV (Verstraete, Robert, François). Clause-linking and subordinating strategies based on demonstratives, referential hierarchy and correlative constructions are the main focus of Adamou's and Cortès's contributions.

A. Informational hierarchy, referential hierarchy and clause-linkage

I. Bril (Chapter 8) focuses on the functions of informational and referential hierarchy strategies in the architecture of complex clauses in mainly Austronesian languages. Informational hierarchy and its markers (topic and focus morphemes), structure clauses as subordinate via the central contrast between presupposition vs. assertion. Topics are presupposed frames for some other assertion, while foci are asserted restrictors (Krifka 2007), restricting some presupposed propositional content to a specific asserted variable. On the other hand, referential hierarchy and its markers (endophoric demonstratives, deictic and definite markers) are another strategy for marking clauses as subordinate, via the contrast between already backgrounded/referential clause vs. asserted clauses. Different deictic grades play distinct functions in clause-linking, as in *Takia* where the medial deictic (Dx2) is used for clause sequencing, while the proximal deictic (Dx1) appears in consecutive and deductive clause sequences. The languages surveyed tend to use these two distinct strategies (referential and informational hierarchy) as full-fledged subordination strategies, and to recategorise topic or focus markers into subordinators. Such recategorisation generally combines with clause order changes (as in *Manam* or *Korafe*), variations in scope and syntactic domain, as well as prosodic changes.

Paths of evolution leading from coordinators to topic markers and subordinating devices, or from endophoric demonstratives to topic or focus markers and conjunctions are more specifically discussed.

Among other subordinating strategies are the backgrounding effects of reduplicated verbs, the use of mood or aspect markers (as in *Takia*), or the use of "absolute constructions" creating adsentential subordination and fulfilling similar clause topic functions. In *Roviana*, for instance, adverbial subordinate clauses display neutral case marking and occur in sentence-initial position as adsentential foci/topic clauses; similar strategies using "ergative absolute" case-marking for adsentential adverbial topic clauses also occur in Papuan languages (Foley, this volume) and Kiranti languages (Bickel 1999)). It is thus argued that informational hierarchy and referential hierarchy strategies and their markers are inherent to the syntactic architecture of the complex clause between main and subordinate clauses, rather than being a peripheral level added to the syntactic level.

Z. Frajzyngier (Chapter 9) investigates the grammaticalisation of the 'comment clause' in *Wandala* (Central Chadic, Afro-Asiatic). Comment clauses are marked by *wá* and always follow the element on which they are a comment (a noun phrase, an adverbial

phrase or a clause); but the form *wá* itself belongs to the preceding clause or phrase. Comment clauses include for instance comments on topicalised noun phrases, clausal complements of a noun phrase, complement clauses of verbs of saying in epistemic and deontic modality, as well as temporal and conditional apodoses, comments on a reason clause, and even afterthought clauses. In other languages lacking a dedicated grammaticalised morpheme to serve this function, distinct tense and aspectual systems may be used as comment clause markers. Thus, the comment clause confirms the assumption that speakers operate with different motivations, on the coding of various functional domains.

M. Vanhove (Chapter 10) focuses on the functions of two polyfunctional particles in Yafi' Arabic (Yemen), *raʕ*, and *ta*, whose origins are respectively a verb 'see, look', and a demonstrative. Both are used as deictics, topic markers, focusing particles, and clause coordinating and subordinating devices. Even though other subordinating constructions and markers are also available, topicalisation and focusing strategies have become the preferred clause-linking strategies, especially in causal, relative and complement clauses.

Depending on its syntactic scope, *raʕ* developed (i) a deictic function as a presentative, (ii) an assertive function as a copula, (iii) an aspectual function as a perfect-resultative verb clitic, and has also become (iv) an informational hierarchy marker as a contrastive NP focus particle, and a contrastive topic marker. When this focus particle has scope over a clause, it carries explicative meaning which led to its reanalysis as (v) a causal/explanatory clause subordinator. The particle *ta* is also used as (i) a presentative, (ii) a copula, (iii) a contrastive NP focus particle, (iv) a subordinator in relative, complement clauses, and (v) causal clauses. Both markers thus illustrate the reanalysis of deictic items (though of a different kind) as discourse and clause-linking particles, but *ta* has a larger range of subordinate functions. As a focus marker, *raʕ* marks the hierarchy between a presupposition and an assertion. When used in clause-linkage, the clause focused by *raʕ* is interpreted as the cause or explanation for the other event. Following Verstraete (this volume), Vanhove points out that the function of *raʕ* as a sentence-focus particle is based on a mechanism of "encoded inference"; since the presupposed element is not retrievable in the discourse context, it "forces the inference of an explanatory relation with the preceding clause".

C. Taine-Cheikh (Chapter 11) studies the functions of *ad* in Zenaga (Berber, Mauritania), whose deictic origin explains most of its uses (as presentative, copula, 'relative' pronoun, injunctive particle) (see Vanhove for similar facts), and whose functions are found in most Berber languages. However, *ad* in Zenaga shows some features which diverge from Berber when used as a conditional and a quotative particle. These divergent evolutions of *ad* are analysed in their interaction with T.A.M. markers (the Aorist in particular), with the structure of simple and complex clauses, and with discourse constraints in topic position. *Ad* thus has referential, pragmatic (as a focus marker) and syntactic

functions in clause-linkage. Demonstratives may have deictic, endophoric reference, as well as reference to imaginary worlds, which accounts for the polygrammaticalisation of *ad* as a complementiser, quotative marker, consecutive or goal subordinator, condition marker, optative or injunctive marker.

The other central discussion bears on the different functions of the Aorist combined with *ad* vs. its functions without *ad*. As in Berber, Wolof and some Oceanic languages (see Robert & François, this volume.), the Aorist is the neutral form in the T.A.M system; it is not anchored in speech time and expresses habitual or potential events. In complex clauses, it depends on another clause or verb with tense-aspect specifications to provide its situational anchor. Thus, alongside sequential clause chains, or sequences of events running counter to the expected state of affairs (equivalent to 'but'), the Aorist also occurs in subordinate clauses expressing the purpose or consequence of the first event. It is also used in main clauses following generic temporal subordinate clauses, conditional protases, or relative clauses with generic, usual, or potential meanings. Unless preceded by *ad* which confers some situational reference to the Aorist, a verb in the Aorist is barred from fronted or sentence initial position. Thus *ad* has an 'anchoring' function, which confers referential autonomy upon the Aorist and enables it to stand in initial position in prohibitions and orders, or in conditional clauses or in the fronted protasis of conditional clauses where the fronted *ad* + *p* clause is the frame for the *q* clause. Governing verbs expressing orders, requests or wishes are also regularly marked by *ad* + Aorist.

B. Deictics as conjunctive and correlative markers

Demonstratives are a well-known source of conjunctive markers and strategies (Diessel 1999), as is illustrated in various contributions (Bril, Vanhove, Taine-Cheikh). Some further aspects are investigated in Pomak (Adamou), as well as in German, in relation to correlative constructions (Cortès).

E. Adamou (Chapter 12) focuses on three deictic suffixes in Pomak (Greece) used to form temporal subordinate conjunctions. The deictic suffixes locate the event in relation to the speech time and situation (proximal, medial and distal), and their choice depends on the event type encoded in the clause and its reference (present, past, future and habitual). They stand in contrast with the free temporal subordinator lacking any deictic suffix which indicates that the event is not anchored in the discourse situation. The medial and distal deictic suffixes also have temporal reference relative to some past event different from the time and discourse situation.

C. Cortès (Chapter 13) addresses the status and the "-phoric" properties of correlative markers in modern German subordinate clauses. These correlative markers originate from demonstratives and determiners, and retain some of their etymological determinative and "-phoric" properties in their demarcative or conjunctive functions. Their semantic and

pragmatic functions vary with the type of subordinate clause and complex sentence in which they occur; their meaning and function result from the complex interaction and interdependent relations of the binding determinative markers and the assertive markers which integrate the sentence into a pragmatic and textual whole. The complex sentence is thus not a mere concatenation, nor an addition of two simple sentences; it results from intricate constructions which must be considered from a holistic viewpoint.

Part IV. T.A.M. strategies and informational hierarchy

The fourth part of this volume focuses on clause-linkage marked by T.A.M markers, inflectional verbal categories and specific conjugations. T.A.M morphemes interact with clause-linkage and subordination via illocutionary force and assertion. Some moods and tense-aspects (such as the aorist) are devoid of any assertive or illocutionary force, which results either in generic or gnomic propositional content, or in unanchored propositions which then stand in need of some other clause, sentence or text to be anchored by some “situational locator” (Robert), some IP in the structure of complex clauses (Foley), and “from which it receives its specifications in terms of illocutionary force”, assertive force, spatio-temporal anchoring, and thus its interpretative features in relation to the syntactic structure, the informational hierarchy structure, the argumentative pattern and the semantics of clause relations.

The types of clause structure considered in part IV are basically related to systems of instructional procedure, as the choice of a given form then sets off an interpretative procedure as to the syntactic and semantic clause relation. Verstraete develops a three-way mechanism of instructional procedure (compositional, inferential and encoded inferential) that accounts for the various types of clause-linkage.

A. Mood, informational hierarchy and clause-linkage

J.-C. Verstraete (Chapter 14) examines the system of mood and focus in clause-linkage in Umpithamu (Paman language, Australia). Umpithamu is relatively poor in markers specifically encoding clause linkage, but uses markers from the domains of mood and information structure. Such markers contribute to clause linkage in three distinct ways.

The first is through a mechanism of ‘compositional encoding’, as with the purposive relation which is encoded by the combination of a verb marked for potential mood with a general syntactic schema of argument sharing (same subjects) without any cross-referencing pronoun (thus dependent on the main clause). In ‘compositional encoding’ strategies, the mood marker provides semantic specification in a more general syntactic schema of clause linkage, and encodes the interclausal relation jointly and compositionally with this syntactic schema.

The second mechanism is ‘inference’: the marker merely provides a basic semantic prerequisite for the encoding of interclausal relations, which must be enriched by

inferential strategies based on world and discourse knowledge, as well as prosody. This occurs with conditional clauses where the verbs in both clauses are marked for potential mood with their own cross-referencing pronouns, and the causal relation between clauses is left to inference.

The third mechanism is ‘encoded inference’, as in explanatory relations where the use of a focus marker invokes a presupposition which, when not found in the sentence, forces the search for some link in the discourse context and forces the inference of an explanatory relation with the preceding clause.

The central distinction is thus between clause-linking structures with encoded vs. inferred interclausal relation. This correlates with the use of specialised markers of interclausal relations vs. non-specialised markers like potential mood and information structure markers, which, though belonging to other distributional domains, may contribute to interclausal relations (purposive or conditional for instance).

Prominence being by definition a relational concept, its potential relevance for clause linkage is obvious. Thus, the focus marker (an ergative marker on transitive subject NPs) has some “procedural” and instructional function. Marking an argument as prominent in a particular clause invokes a link with something beyond this clause, like a presupposition for focal prominence. It thus instigates the search for some link between the presupposition (in relation to which the ergative NP fills out a variable) and the preceding clause(s), and leads to inferring some explanatory relation between them. The marker itself does not encode any explanatory relation, instead it “encodes some inferential procedure”, and is thus encoded inference. It illustrates a third way in which non-specialised markers can contribute to clause linkage and how a focus marker may function as a mechanism for clause linkage rather than discourse linkage, also relying on inference.

B. Conjugations, informational hierarchy and clause-linkage

S. Robert (Chapter 15) discusses the complex inflectional verbal system (conjugations) involving tense or aspect forms in Wolof (Niger-Congo, Senegal), in relation to clause-linkage, subordination and informational hierarchy. The various conjugations, with restrictions on their combination, express predictable semantic effects: succession, contrast, causality, consecution, explanation or strengthened assertion. The system generally dispenses with coordinating or subordinating morphemes.

One of these conjugations is the Aorist (or Null Tense), which occurs in narrative clause chains depending on some previous sentence or context for its temporal specification (thus creating “situational anaphora”); it also occurs in generic statements, in *wh*-questions, injunctions and hypothetic clauses. Clauses with an Aorist are not anchored in speech-time and lack temporal and modal specification. The Aorist is fundamentally a dependent mode and a marker of subordination (for complement

clauses, consecutive or purpose clauses), without any other subordinating morpheme. As a dependent mode, it is in need of some locator (another clause or a main clause) whose nature is the variable determining the various degrees of dependence displayed by the Aorist clauses, ranging from discourse coherence to embedding. Its semantic interpretation also depends on the temporal and epistemic status of the locator clause: if perfective, the Aorist clause has consecutive meaning; if the locator is irrealis, the Aorist clause is purposive. If the locator is the verb of a previous clause, the Aorist clause functions as a complement clause.

Narrative clause chains with the same conjugation may occur for all conjugations, though they are much less frequent than the succession of Aorist clauses. Chains of Aorists express successive events in narratives, while clause chaining with two Perfects expresses successive and resulting events anchored in speech-time and discourse. Clause chains express (1) temporal succession (for Perfect and Aorist only) or (2) cumulative or contrasting assertion (all other cases), depending on whether the argumentation of the clauses is convergent or divergent.

The Presentative conjugation expresses simultaneity or immediate sequence between the event and the speech act; it refers to some unexpected process with detrimental and modal meaning (surprise, warning). When used in a protasis, combined with an Aorist in the apodosis P2, it refers to some unexpected event and expresses discordance ("and yet"). An Aorist with the Imperfective suffix in an apodosis tends to indicate temporal concomitance with the protasis.

The Verb Focus conjugation is another type of clause chaining whose semantics depends on position: a Verb Focus in the protasis (P1) and an Aorist in (P2) expresses causal relation, with (P1) as the cause; while a Verb Focus in the apodosis (P2) is the explanation of P1. It may also have contrastive or corrective meaning. In clause chaining, the Verb Focus marks dependence based on the usual contrast between a presupposition and some additional and asserted information. As in Umpithamu (Verstraete) and in some Oceanic languages (Bril, François), informational hierarchy is thus part of clause linking strategies.

C. Pragmatics, T.A.M dependency and subordination

A. François (Chapter 16) studies the semantic and syntactic effects of certain T.A.M. markers on the syntax of clause dependency, and in relation with information hierarchy, in Hiw and Lo-Toga (Oceanic, Vanuatu). In spite of their wealth of subordinators, these two languages show a great propensity to dispense with them and instead use two T.A.M markers for clause dependency, the Subjunctive and the Background Perfect. The Subjunctive lacks illocutionary force, the Background Perfect lacks informational focus. Such features account for their strong affinities with subordination, backgrounding function and informational hierarchy. Each one marks the clause in which it appears as subordinate to another main clause, without any conjunction.

The Subjunctive clause refers to some virtual state of affairs and lacks illocutionary force. It requires an anchor point, another clause or predicative operator with some T.A.M. specification and illocutionary force, to constitute a complete utterance. It may also appear on its own in “spontaneous” subordination when marking the protasis of a conditional sentence without any conjunctive marker (similar to ‘*should I hear this, I’d be very angry*’).

Similarly, clauses in the Background Perfect encode presupposition and require some other clausal anchor with asserted informational focus to form a valid utterance. While grounded in discourse pragmatics, these two TAM-based strategies are a routinised device for clause subordination (occurring for instance in relative clauses with a backgrounded event). While they are both compatible with subordinators, they tend to function as a subordinating strategy on their own.

The Aorist also occurs in sequential clause chains depending on some other clausal anchor, and in clauses with generic, prospective, optative, imperative and conditional semantics, or in complement clause of optative verbs. Even though the Aorist and the Subjunctive show some functional overlap, the Subjunctive is preferred when the subordinate clause is explicitly irrealis or generic (as in Zenaga and Wolof).

D. T.A.M dependency and clause-chaining

J. Leroy (Chapter 17) explores strategies of clause-chaining and tense-mood concordance in Mankon (Grassfields Bantu, Cameroon). Four verbal constructions, the successive, exhortative, non-future consecutive and future consecutive conjugations, their combination and clause linking functions are analysed. Although these four conjugations are central to the syntax of complex sentences, optional coordinating or subordinating morphemes may appear in some types of complex sentences. The main focus is on the “perfective positive” conjugation, which is the most complex and common in texts.

Various strategies are used for complex sentences, some use conjunctions combined with specific conjugations, such as [tə̀ɲ] ‘in order to’ (+ future consecutive and exhortative), others lack conjunctions and use conjugations which occur in the non-initial clauses of complex sentences; the third type involves chronologically ordered clause chains which differ from the preceding types in that the clause chains obey strict tense-mood concordance rules involving three specific conjugations (non)-future consecutive, exhortative or successive. Semantic relations and hierarchy are further refined by ‘auxiliaries’ expressing sequence (‘then’), simultaneity (‘also’), or a time span between events.

N. Tersis (Chapter 18) discusses the verb inflection system which marks subordination in Tunumiisut (Eskaleut, Eastern Greenland). Clause subordination is characterised by the use of verbal inflectional morphology and by a general lack of subordinating conjunctions. Clause-chaining in narratives is also marked by verbal morphology.

The markers most commonly found in subordinate clauses are the attributive, the concomitant, the causative/effectuated, and the conditional. The attributive *-ti-* is a

dependent conjugation, used in relative and complement clauses (of thought, perception, and declarative verbs), and also used at paragraph level as indicating some situational dependency on a preceding sentence. (ii) The concomitant *-ttu-* expresses concomitant events in temporal, purpose or causal adjunct clauses (and in some complement clauses). (iii) The causative (or effected) marker refers to a past action relative to the time of speech, or preceding another action, it may also express causal-explicative relation. (iv) The conditional (or non-effected) occurs in conditional or hypothetical clauses and also refers to an action occurring after another one, with cause-effect relations. The causative and the conditional verb forms display structural and formal similarity to possessive noun phrases.

In the unmarked order, adverbial clauses (marked by the concomitant, causative and conditional verbal markers) occur before the main clause; the reverse order [main/subordinate clause] is found with complement clauses (of perception, thought, declarative verbs) or with dependent clauses expressing a cause-effect relation or a purpose.

Tunumiisut also has clause chains in narratives with only subordinate verbal markers, not depending on any main clause with the indicative marker, but pragmatically linked to and dependent on some preceding utterance. In a given story, only 31% of clauses are independent, 69% are dependent clause chains anchored in some initial clause. Dependence thus reaches beyond the clause into the textual and discourse level.

Some complex sentences may thus display two 'effected/causative' verb forms and one concomitant verb form, all of them depending on a clause locator in the indicative, found much earlier in the paragraph. The causative verb form encodes explicative or "background" information up until the main clause containing the major information.

E. T.A.M markers and subordinators

E. Valma (Chapter 19) analyses the functions of *áma* as a contrastive coordinator 'but' and as a subordinator meaning 'when, if' in dialectal Greek from Bulgaria, as well as the origins of these now homonymic markers. Synchronically, when *áma* functions as a temporal and hypothetical subordinator, it reacts positively to the various syntactic tests of subordination (clause permutation, extraction, focalisation, pronominal cataphora); while it reacts negatively to these tests when used as a contrastive coordinator. The role of tense-aspect markers (referring to a state, a process or an event) in both clauses further disambiguate its meanings when used as a subordinator. The aspectual system makes use of two themes: the present (or imperfective), and the aorist (or perfective). The use of the aorist in the subordinate and the main clause triggers the temporal interpretation of the subordinate clause: *áma* then marks one event as anterior to another one. When *áma* is followed by an aspectual form, it is open to hypothetical interpretation and functions as a vericonditional junctor. The use of *áma* as a contrastive coordinator seems to result from contact with Turkish.

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Index: Languages studied

AXAXDƏRƏ AKHVAKH (Daghestanian)
BADAGA (South-Dravidian)
BELHARE (Sino-Tibetan)
BUDUGH (Daghestanian)
BULGARIAN (Slavic, Indo-European)
CHANTYAL (Sino-Tibetan)
COPTIC EGYPTIAN (Afroasiatic)
GERMAN (Germanic, Indo-European)
GREEK (Attic, Indo-European)
HIW (Austronesian, Oceanic, Vanuatu)
LO-TOGA (Austronesian, Oceanic, Vanuatu)
MANKON (Bantu)
NÊLÊMWA (Austronesian, Eastern Oceanic, New Caledonia)
NEPALI (Indo-European)
NEWAR (Dolakha, Sino-Tibetan)
POMAK (Slavic, Indo-European)
TUNUMIISUT (Eskimo-Aleut, Eastern Greenland Inuit)
UMPITHAMU (Paman, Australian)
WANDALA (Central Chadic, Afro-Asiatic)
WAMBULE (Sino-Tibetan)
WATAM (Papuan)
YAFI' ARABIC (Yemen, Semitic, Afro-Asiatic)
YIMAS (Papuan)
ZENAGA (Berber from Mauritania, Afro-asiatic)

Other languages surveyed in this volume

AJIE (Eastern Oceanic, New Caledonia)
AMELE (Papuan, Madang-Adelbert Range, N. Coast New Guinea)
BARGAM (Papuan)
BERBER (Afro-Asiatic)
BURUSHASKI (Indic)
CÈMUHÎ (Eastern Oceanic, New Caledonia)
FIJIAN (Eastern Oceanic)
FORE (Papuan, Kainantu-Gorokan, interior New Guinea)
GODIÉ (Kru)
HUA (Kainantu-Gorokan, interior New Guinea)
IAAI (Eastern Oceanic, New Caledonia)
JAWE (Eastern Oceanic, New Caledonia)

KABYLE (Berber from Algeria, Afro-asiatic)
KADAZAN (Austronesian, Borneo)
KÂTE (Papuan, Huon, N. Coast New Guinea)
KAULONG (Western Oceanic, New Britain)
KEWA (Papuan)
KIRANTI (Tibeto-Burman)
KORAFE (Papuan, Binanderean, S. New Guinea)
MANAM (Western Oceanic, PNG)
MIANMIN (Papuan)
NEMI (Eastern Oceanic, New Caledonia)
NEWARI (Tibeto-Burman)
NYELÂYU (Eastern Oceanic, New Caledonia)
ROVIANA (Oceanic, Solomon Islands)
RUSSIAN (Indo-European)
SOBEI (Western Oceanic, Irian Jaya)
SHILHA (Berber from Morocco, Afro-asiatic)
SUENA (Papuan)
SWAHILI (Benue-Congo)
TAKIA (Western Oceanic, PNG)
TAMAZIGHT des Aït Seghrouchen (Berber from Morocco, Afro-asiatic)
TAUYA (Papuan, Trans-New-Guinea)
TAWALA (Western Oceanic, PNG)
TIMUGON MURUT (Austronesian, Borneo)
TOMBUNUO (Austronesian, Borneo)
TONKAWA (Amerindian isolate)
TURKISH (Turkic)
USAN (Papuan, Madang-Adelbert Range, N. Coast New Guinea)
YUPIK (Eskimo-Aleut)

PART I

**Syntactic terminology
and typological methods**

Clause linkage and Nexus in Papuan languages

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Interclausal relations in Papuan languages and in particular their prototypical clause chaining structures have long presented serious descriptive problems. These have been analyzed variously as instances of subordination, coordination, and even a third unique type of relationship, cosubordination. This paper argues that clause chaining structures are actually a type of coordination, but distinguished from familiar types of coordination by the type of constituent coordinated, S versus IP. The parametric variation found in clause chaining constructions across Papuan languages is in turn accounted for in terms of the types of functional heads of verbal inflections, negation, mood, tense, illocutionary force, which head the individual IPs conjoined in clause chains.

This paper presents a revision of the theory of clause linkage, in particular the theory of nexus, first developed in Foley & Van Valin (1984) and restated in Van Valin & La Polla (1997) and Van Valin (2005). The original theory proposed three categories of nexus, the traditional ones of subordination and coordination and a new type, cosubordination. Subordination and coordination were distinguished along the traditional lines of embedded versus non-embedded. For our purposes here, we will define an embedded clause as one which functions as a constituent, either core or oblique (Andrews 2007; Foley 2007), of another clause, the main or matrix clause. Conventionally, grammarians have called embedded subordinate clauses which function as core arguments complements, and those which function as oblique constituents, adverbial clauses, but in our view this is not the most perspicacious terminology because it obscures their overall similarity, a similarity clearly brought out in the structure of many Papuan languages. For that reason, in this paper we will refer to both types simply as subordinate clauses and note the level of embedding, core versus oblique. Clauses linked in a coordinate nexus are not in an asymmetrical relationship of embedded versus matrix clause, but rather are joined at the same level, strung along rather like beads on a string. Designating a clause by the exocentric category

S (Bresnan 2001), we can represent the contrast between subordinate and coordinate nexus as Figure 1:

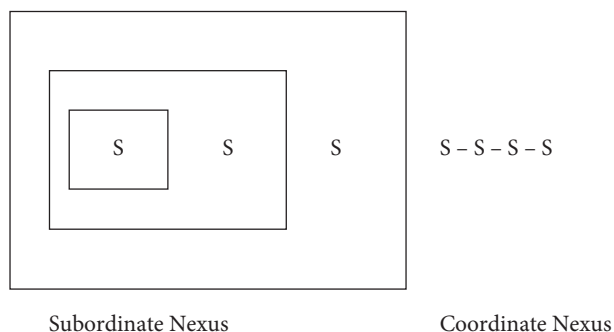


Figure 1. Traditional Nexus Types

Olson (1981) and Foley & Van Valin (1984) introduced a third type of nexus to the traditional two, a type they called cosubordination. This was distinguished from coordination in that clauses in a cosubordinate nexus linkage were in a dependency relationship for a particular inflectional category or operator like tense or mood, a dependency which did not hold for coordinate nexus. This inflectional dependency somewhat parallels the dependency that a subordinate clause has on its matrix clause, although the nature of the dependency is semantic for cosubordinate clauses, but structural for subordinate clauses. But keeping this difference in mind, both types could be characterized as [+dependent]. On the other hand, clauses linked in either coordinate nexus or cosubordinate nexus are not embedded, but co-ranked, so they can both be classified as [-embedded] in contrast to subordinate clauses; the sole contrast between coordinate and cosubordinate nexus is in the behavior with respect to inflectional verbal categories like tense, mood or illocutionary force. For coordinate nexus each clause is separately specified for these, but in cosubordinate nexus there is a single specification for these, either in the initial or final clause and every other clause in the linkage takes its specification for such features from them, as in these examples from the Amerindian isolate language Tonkawa (Hoijer 1949):

- (1) a. *tekekeʔe:k šʔa:pa-w ʔe:-ta ke-yaše-w,*
 in.that.bush hide-IMP and-SR 1SG.O-watch-IMP
 ‘Hide in that bush and watch me!’
- b. *tekekeʔe:k šʔa:pa-ta ke-yaše-w*
 in.that.bush hide-SR 1SG.O-watch-IMP
 ‘Hide in that bush and watch me!’

Note that in the (a) example with coordinate nexus, both clauses are specified as commands with the imperative suffix *-w* on the verbs in each clause; further, the

clauses are linked by an explicit conjunction *ʔe*:- “and” to which the suffix *-ta* is added, indicating that the subjects of the two clauses are coreferential. In the (b) example illustrating cosubordinate nexus, the indication of the sentence as a command is marked only once, by the suffix *-w* on the verb of the second clause; the verb of the first clause is simply affixed with the suffix indicating coreferential subjects between the two clauses. Yet the initial clause is also a command: the scope of the imperative suffix spreads backward across the nexus linking the two clauses to apply to the initial clause as well as the clause in which the verb is overtly marked with *-w* IMP. In addition no coordinating conjunction is used; this is typical of cosubordinate nexus. In coordinate nexus each clause is individually specified for verbal inflections like tense, mood and illocutionary force (following current conventions in generative grammar, I will call these I features, short for inflection), while in cosubordinate nexus, all clauses are under the scope of the I features of the fully inflected verb in the initial or final clause (hence in a loose sense, all clauses are cosubordinated to the I features, although not truly embedded in the precise way we defined the notion above). The contrast between coordination and cosubordination may be represented as Figure 2:

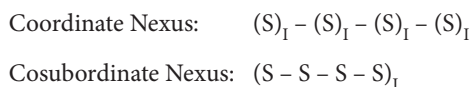


Figure 2. Coordinate versus Cosubordinate Nexus

Over the past two decades or so, it has become increasingly obvious that there are some serious difficulties with the theory of nexus and particularly problematic is the notion of cosubordination. Foley & Van Valin (1984) proposed a set of what they termed peripheral operators, here renamed the verbal I features, to which clauses in cosubordinate nexus were subject: tense, mood, illocutionary force. But evidence has been mounting that the scope relationships of these need not be the same. Examples will be presented below, but the basic point is that clauses might be separately specified for tense inflection, but be under a single illocutionary force marker. In terms of Figure 2, this would entail that the clauses are in a coordinate nexus with respect to tense, but a cosubordinate nexus with respect to illocutionary force, hardly a happy conclusion if nexus is to be taken, as it should be, as a structural relationship, for normally clauses should not be able to bear contrasting structural relationships to each other. Constructions which have often been identified as prototypical examples of cosubordinate nexus like clause chaining constructions in Papuan languages and the converb constructions of central and south Asian languages (Haspelmath & König 1995) continue to provide examples in which illocutionary force, the highest peripheral

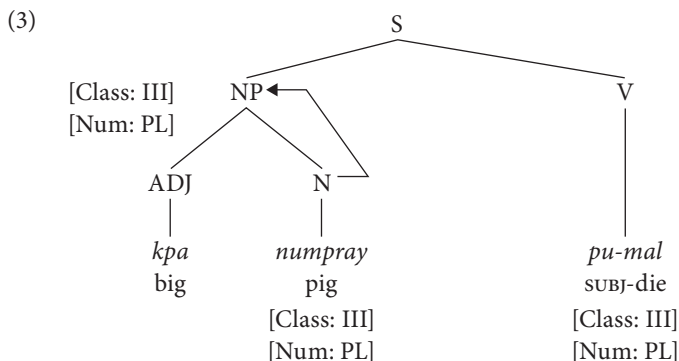
operator or I feature, need not be shared across the clauses and hence by definition they cannot exemplify cosubordinate nexus:

- (2) a. Tauya (Trans New Guinea; MacDonald 1990)
tepau-fe-pa yate fitau-a-nae?
 break-TR-SR go throw-2-Q
 'Did you break it and go away?' or
 'You broke it and did you go away?' or
 'Did you break it before going away?'
- b. Newari (Tibeto-Burman; Genetti 2005)
āmun biskut ŋar-i doŋ-an chē yer-a rā
 3SG.ERG biscuit buy-INF finish-CVB house come-3SG.PST Q
 'When he finished buying the biscuits, did he come?'

Note that in the clause chaining example from the Papuan language Tauya (2a), the illocutionary force question suffix *-nae* can have scope over both clauses, as in the first translation, what would be expected from cosubordinate nexus. But crucially it does not need to: it may have scope over the final clause, whose verb is affixed with *-nae*, leaving the first clause as a statement, as in the second gloss; and even more surprisingly in the final gloss, only over first clause, whose verb is unaffixed for interrogative illocutionary force, leaving the final clause as a statement, in spite of the fact that its verb actually hosts the interrogative suffix! The second two translations are not compatible with an analysis of cosubordinate nexus, but instead suggest coordination. A similar effect obtains in English in sentences like *do you work two jobs because you need the money?* in which the interrogative illocutionary force has scope over the second clause even though it is realized formally in the first by subject-finite verb inversion. In the Newari example of (2b), the question particle only has scope over the final clause; the initial clause is again an assertion. Yet the construction involved is a converb one, which elsewhere robustly shows all the features of cosubordinate nexus, typically shared I features of the verb in the final clause across the preceding clauses. Cosubordinate nexus has all the features of a mirage: sometimes it appears clearly; other times it vanishes into the familiar territory of the traditional notion of coordination. This raises serious questions about its viability as a theoretical construct.

The notion of cosubordination was developed in the early 1980s, well before the rise of a rich theory of functional categories like I and their projections. These innovations, particularly the notion of I and its projection IP, actually are quite central to the revised theory of nexus we will present here. In Lexical Functional Grammar (Bresnan 2001) there is a distinction between lexical categories, noun, verb, adposition, etc. and the phrase types they project, NP, VP, PP, respectively, and functional categories like I which do not typically correspond to independent lexemes, but are

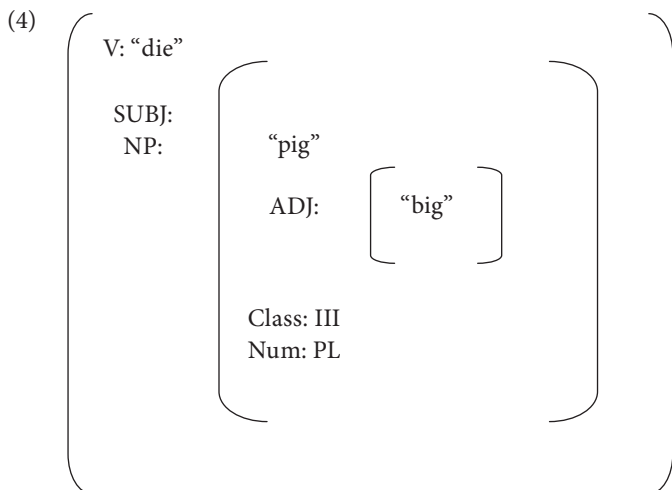
more commonly inflections, like the verbal inflections of tense, aspect or mood or the nominal inflections of definiteness or case. Still these functional categories like I or D (for Determiner) or K (for Case) can project phrases like IP, DP or KP. In other words, functional categories like I can be the heads of phrases (e.g. IP) as much as lexical categories such as N can function as the heads of NPs. In this system of endocentric phrase structure, i.e. a head of type X projects a phrase of type XP, so that N projects NP and I projects IP, there is feature percolation of inflectional specifications of the head to the phrasal category projected by it. Consider the following clause structure from the Papuan language Yimas:



‘The big pigs died.’

Grammatical relations are indicated in Yimas by affixes to the verb; specifically for an intransitive verb like *mal-* “die”, its subject is indicated by a prefix, which for third person subjects in addition must specify their gender class assignment and number. The subject of *mal-* “die” is an NP *kpa numpray* “big pigs”, headed by a noun which belongs to noun gender class III and is plural. This noun projects an NP in (3) and its features of class and number percolate from the head noun to the phrasal level (indicated by the bent arrow); the whole NP is now a syntactic constituent belonging to class III and bearing plural number (feature matrix associated with the NP node). The features of this NP and the subject agreement prefix on the intransitive verb are the same, so this sentence is grammatical. If they clashed, the sentence would be ungrammatical.

The syntactic category S is the odd man out in this framework. It is not endocentric like the other phrasal categories, but exocentric; in other words it lacks a projecting head. Consequently in (3) both daughter constituents of S, the NP and the V, contribute equally to the semantics of the S node. The sentence is grammatical because the features carried by the NP [Class: III; Num: PL] and the verb’s subject prefix are the same so that they unify together with no conflict to produce a structure like (4).



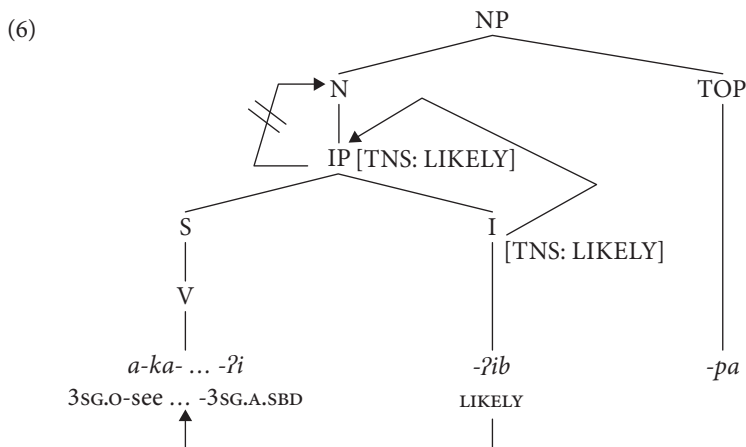
Note that both constituents, NP and V of (3) contribute equally to produce (4). The verb provides the grammatical relation being predicated and its schematic features of class and number, although these permit essentially an infinite number of possible NPs which could fulfill this function. The NP provides the specific details of the participant which does function as subject.

This theory of phrase structure, endocentric and exocentric, and associated notions of projections are central to our revised theory of nexus. In essence we will return to a traditional claim of two types of nexus, subordination and coordination, distinguished by the type of phrasal configuration that they are in. The former notion of cosubordinate nexus will be re-analyzed as a type of coordinate nexus that differs from normal clausal coordination in the type of constituents coordinated. But firstly, let us look at subordinate nexus in more detail. As discussed earlier, clauses in subordinate nexus are in an embedding relationship, with the subordinate clause functioning as a constituent of the main or matrix clause. They may function as one of three types of constituents, arguments (core), adjuncts (oblique) or modifiers of these two, corresponding to the traditional categories of complement, adverbial subordinate clause or relative clause. The close interrelationships of these three types of embedded clauses is strongly brought out in many Papuan languages, in that all three have the same structures, as in Fore (Scott 1978):

- (5) a. *na-ʔkib-éʔ-ka-na* *i-i-e*
 eat-LIKELY-3PL.A.SBD-REF-3SG.A talk-3SG.A-DECL
 'He talks about how they will eat.'
- b. *a-ka-ʔkib-iʔ-pa* *máe-ʔki-i-e*
 3SG.O-see-LIKELY-3SG.A.SBD-TOP get-LIKELY-3SG.A-DECL
 'If he sees it, he will get (it).'

- c. *a-egu-ʔt-óʔ-ti* *w-a:n-ó*
 3SG.O-hit-NP-1SG.A.SBD-ALL go-2SG-SQ
 'Are you going to where I hit him?'
- d. *mi-nt-i* *ʔkuma:ʔ-ta-sa* *kana-i-e*
 be.at-RP-3SG.S.SBD village-LOC-ABL come-3SG.S-DECL
 'He came from the village in which he stayed.'

(5a) corresponds to a complement clause construction in traditional grammar terms, the “what is talked about” of *i-* “talk”, while (5b) is an adverbial clause, specifically a conditional clause, and (5c,d) are relative clauses, headless and headed respectively. The overall unity of these examples is demonstrated by their structural realization: all have subject markers drawn from a single set, which is used only in subordinate clauses, and further all take typical markers of NPs, either case suffixes like *-ka* REF, e.g. “concerning”, *-ti* ALLative and *-sa* ABLative or the topic marking suffix *-pa*. This last fact is particularly salient for the syntactic properties of subordinate nexus: subordinate clauses in Fore and other Papuan languages are always embedded as complements within a particular phrase type such as NP, PP or DP. Consider the structure of the subordinate clause of (5b) in (6):



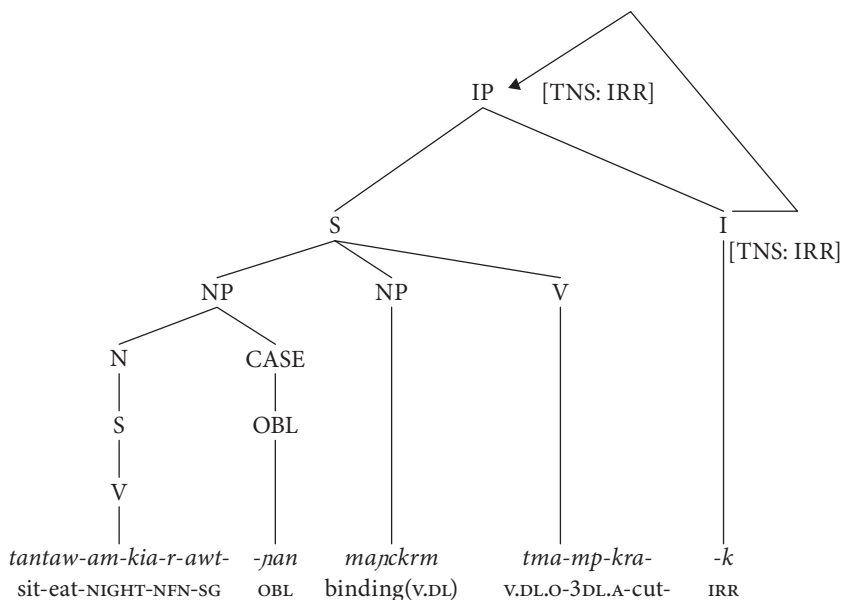
(In a more fully articulated version of Lexical Functional Grammar, the N node in (6) would be omitted due to the Principle of Economy of Expression (Bresnan 2001), but we retain it here for ease of exposition. If Economy of Expression did apply to (6), the NP node would become that which is unable to host I features). Because this is a finite clause inflected with the tense/mood specification of LIKELY, an I head is present and this in turn projects an IP. Because the marker of tense/mood is a bound affix, it must be realized as a suffix to the verb, between the verb root and the

subject agreement affix, but nonetheless it projects the dominating phrasal category IP. Because IP is an endocentric phrase type, the features of the I head percolate to the IP node, but from here they can go no farther, as the next dominating node is N, a category not compatible with the verbal inflectional features of the I node. Essentially, this makes the subordinate clause an island: neither can its features percolate up to the level of the matrix clause nor can the I features of the matrix clause move down into it through the mismatching NP node. This accounts for the oft noted fact that subordinate clauses are typically impervious to the illocutionary force of their matrix clauses; they are usually presupposed statements.

Having said this, some putative subordinate clauses in English and presumably other languages seem to contradict this claim. Consider the example quoted above, *do you work two jobs because you need the money?*; this sentence is ambiguous between three readings, and in two of these the clause beginning with *because*, traditionally analyzed as an adverbial subordinate clause, is within the scope of the interrogative illocutionary force: “is it true you work two jobs and is that because you need the money?” and “I take it you work two jobs, but do you do that because you need the money?”. As this paper specifically concerns Papuan languages, a full consideration of this issue is beyond its scope, but it seems that a fruitful approach would be to query whether these types of adverbial clauses with conjunctions like *because*, *if*, *when*, *although*, etc. are embedded at all and hence instances of subordination in the restricted terms defined here. Note that many of them function only elliptically, if at all, as the heads of phrases: *???if/when/although the party*. This renders them ineligible to project a phrase within which an IP could be embedded under its complement’s node. Unquestionably this is related to another systematic difference between these adverbial clauses in English and subordinate clauses in Papuan languages. In the latter, constituent NPs within subordinate clauses cannot be relativized (MacDonald 1990), presumably due to a constraint against stacked embedded clauses, but this is perfectly possible in English: *do you work two jobs because you want to make up the money that your wife lost on the horses?*

Many Papuan languages have a contrast between finite and nonfinite subordinate clauses, and in both cases the dominating syntactic node is that of an NP. Finite subordinate clauses are embedded under an IP projected by the I head bearing the I verbal inflectional features, while nonfinite subordinate clauses lack these I features and hence simply correspond to a S constituent undominated by an IP. Yimas is typical:

- (7) a. nonfinite
tantaw-am-kia-r-awt-ɲan mapckrm tma-mp-kra-k
 sit-eat-NIGHT-NFN-SG-OBL binding(V.DL) V.DL.O-3DL.A-cut-IRR
 ‘While (he) was sitting and eating, they both cut the two bindings.’



b. finite

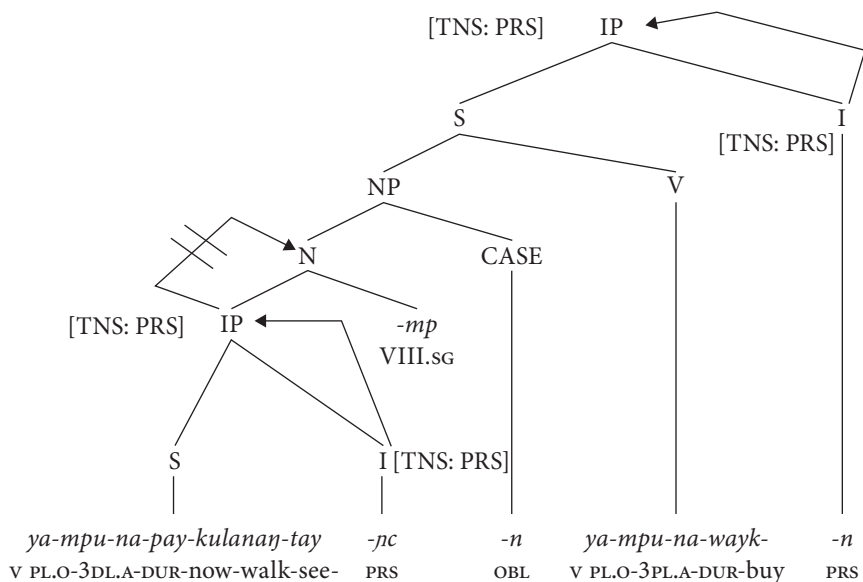
ya-mpu-na-pay-kulanaŋ-tay-ŋc-mp-n

V.PL.O-3PL.A-DUR-now-walk-see-PRS-VIII.SG-OBL

ya-mpu-na-wayk-n

V.PL.O-3PL.A-DUR-buy-PRS

'While they are walking around looking at (the goods), they are buying them.'

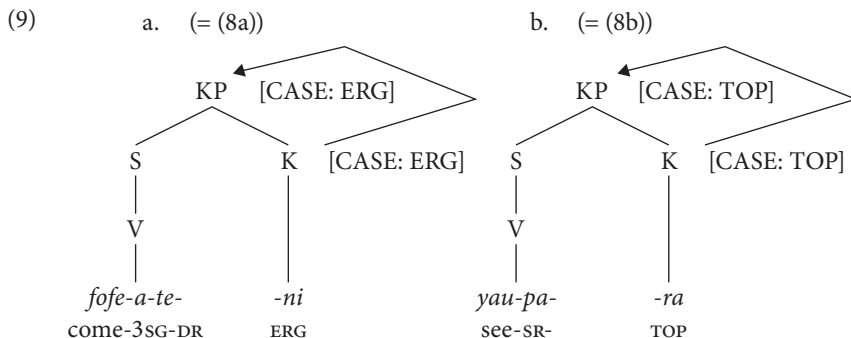


These are subordinate clauses which express events essentially simultaneous with the events expressed in the matrix clause. In Yimas there is a choice between a finite and a nonfinite subordinate clause to express this meaning. Both constructions are expressed as nominalizations, e.g. NPs suffixed with the oblique case suffix *-n* ~ *-nan*. The nonfinite structure has no head noun; the verbal complex is suffixed with the nonfinite suffix *-r(u)* and a suffix marking the number of the subject of the clause. This last is drawn from a set of subject markers used solely in nonfinite constructions of all sorts. No other pronominal agreement affixes for core arguments are possible in nonfinite constructions, in contrast to finite constructions which have full agreement possibilities for all core arguments. The structure of finite complements is more complex and like the Fore example in (5c) is essentially a relative clause. The suffix *-mp* is a number and gender class nominal suffix for VIII.SG and denotes an obligatorily missing noun of this class, *pucm* ‘part, time’. This suffix functions as the head of the relative clause, as is typical of relative clauses in the language (see Foley (1991: 413–433) for further discussion), so the embedded clause can be more accurately be paraphrased as ‘at the time that they are walking around looking at (the goods)’. Furthermore, as the verb of the subordinate clause is a fully inflected one, with the required I feature of tense for a finite verb, it takes the normal pronominal agreement prefixes for core arguments in contrast to the truncated agreement pattern of the nonfinite verbs (compare the subject marker *-awt* of the nonfinite verb in (7a) which simply marks its number with the much richer agreement array of the finite verb in (7b).

The use of a topic marker illustrated by the Fore example (5b) is a very common mode of indicating subordinate clauses in many Papuan languages, particularly those which like Fore belong to the Trans New Guinea family, a fact that was first noted by Haiman (1978). The actual syntactic status of this topic marker varies somewhat, although it always diagnoses a maximal XP projection impervious to the percolation of I features from the embedded subordinate clause. In some languages like Tauya (MacDonald 1990), it patterns very much like a case marker:

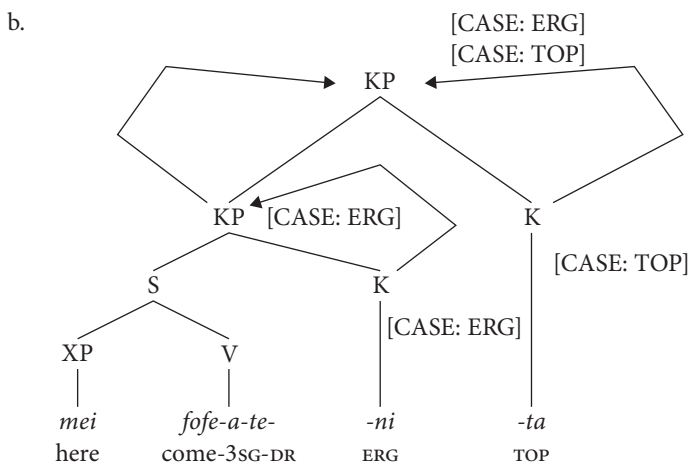
- (8) a. *fofe-a-te-ni* *yate* *fitau-e-ʔa*
 come-3SG-DR-ERG go throw-1/2SG-DECL
 ‘Because he came, I went away.’
 b. *yau-pa-ra* *tu-ane-e*
 see-SR-TOP give-2PL.FUT-IMP
 ‘If you (PL) see (him), give (it) to him!’

In such languages the node dominating the embedded clause is either an NP as in (6), or, if we take the topic marker as a case functional head K, then it would project a KP above the subordinate clause:



In Tauya, the topic marker can co-occur with an overt case marker, indicating the possibility of case stacking, as in Australian languages (Nordlinger 1998):

- (10) a. *mei fofe-a-te-ni-ra yate fitau-e-ʔa*
 here come-3SG-DR-ERG-TOP go throw-1/2SG-DECL
 ‘Because he came here, I went away.’



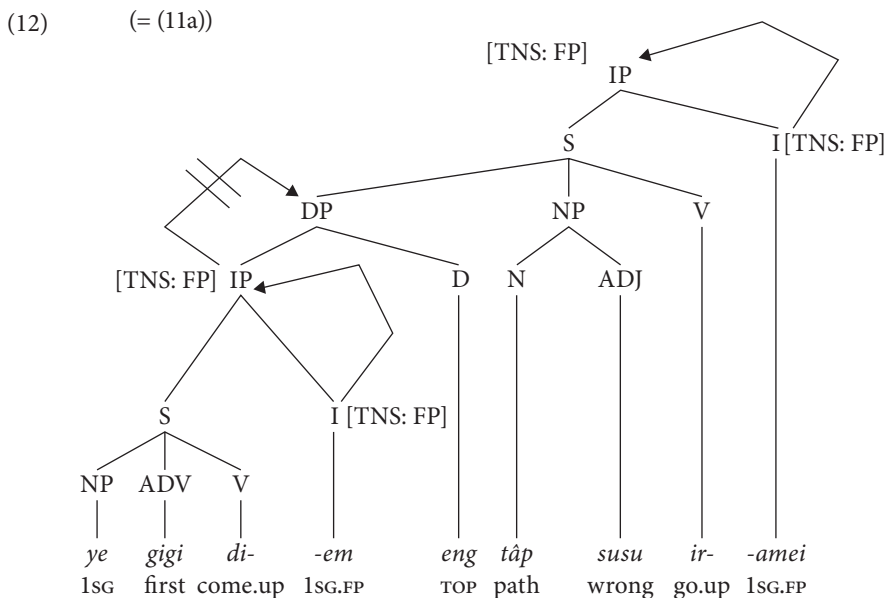
The percolation of [CASE: ERG] from a lower KP node to the upper KP node is permissible: they are nodes of the same category and hence able to host the same type of features, e.g. CASE, as long as their specifications are not contradictory. Unlike other case specifications, say accusative, topic is compatible with ergative.

But in still other languages like Usan (Reesink 1987), the topic marker seems to belong to the category of Determiner. The topic marker *eng* in Usan is quite clearly the same as the proximal deictic *eng* ‘this one’, composed of the stem *e-* ‘here’ plus a

specifying suffix *-ng*. In Usan *eng* is used to mark subordinate clauses, those functioning as adjuncts (i.e. adverbial clauses) or NP modifiers (relative clauses):

- (11) a. *ye gigi di-em eng*
 1SG first come.up-1SG.FP TOP
tâp susu ir-amei
 path wrong go.up-1SG.FP
 'When I came up first, I took the wrong path.'
- b. *munon emi bau-ori eng ye me ge-au*
 man bow take-3SG.FP TOP 1SG NEG see-NEG
 'I didn't see the man who took the bow.'

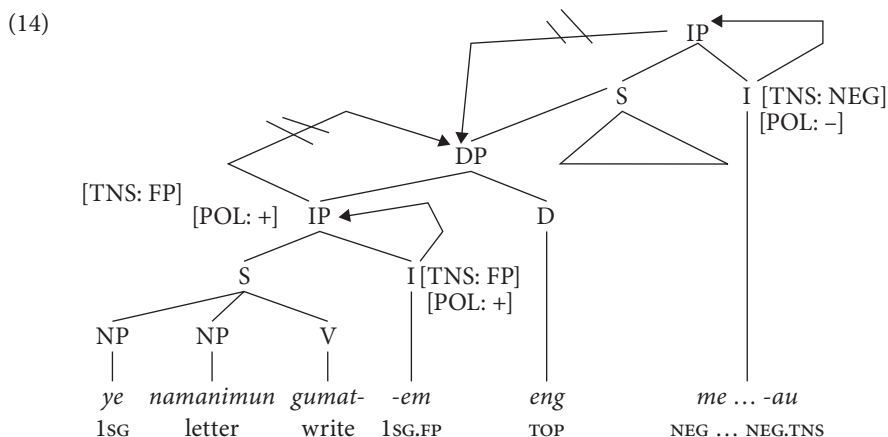
The topic marker *eng* in languages like Usan is a functional head D that projects a DP. DPs are a common areal feature of languages of the Madang region, possibly due to diffusion from Austronesian languages; elsewhere among Papuan languages they are rather rare. DP is another phrasal category that cannot host I verbal inflectional features, so the subordinate clauses are again islands with respect to the I features of the matrix clause:



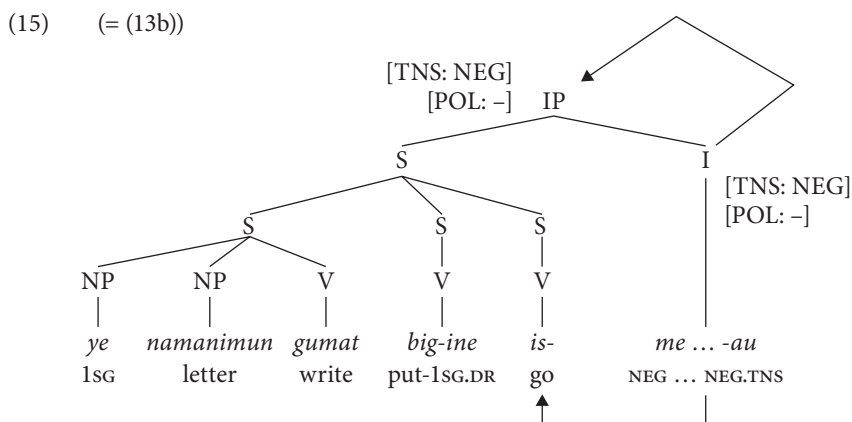
Now consider the following contrasting sentences in Usan:

- (13) a. *ye namanimun gumat-em eng big-ine me is-au*
 1SG letter write-1SG.FP TOP put-1SG.DR NEG go.down-NEG.TNS
 'I didn't mail the letter that I wrote.'
- b. *ye namanimun gumat big-ine me is-au*
 1SG letter write put-1SG.DR NEG go.down-NEG.TNS
 'I didn't write and mail a letter.' = 'I didn't send a letter.'

Note the differential behavior of the negative *me* in these two sentences. In the first example the negation fails to spread into the subordinate clause, i.e. the subordinate clause remains a positive statement (the facts of NEG-transportation in languages like English in sentences like *I don't think that John is the thief*, in which the clause following that is actually under the scope of negation again might suggest that *that* complement clauses of verbs of saying or thinking are actually not embedded. For an analysis suggesting this is in fact true at least with direct quote complements of verbs of saying in some languages see Munro (1982)). In the analysis of subordination presented here the failure of negation to spread into Usan subordinate clauses is to be expected because the dominating phrasal node DP provides a barrier to the spread of any I features like tense, mood or polarity from one clause to the other:



The fact that the negative polarity does spread in (13b) strongly indicates that this is a different type of nexus relationship; indeed (13b) illustrates coordinate nexus, but at the S level, not the IP level, i.e. it is a single IP projected by a single I head dominating a string of coordinated S constituents:

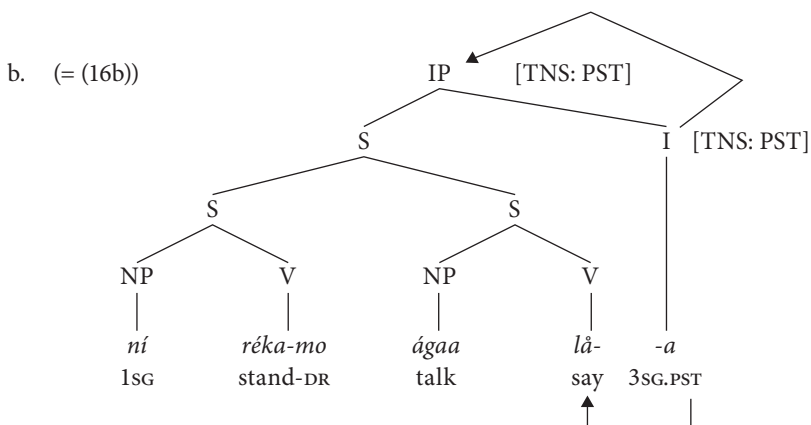
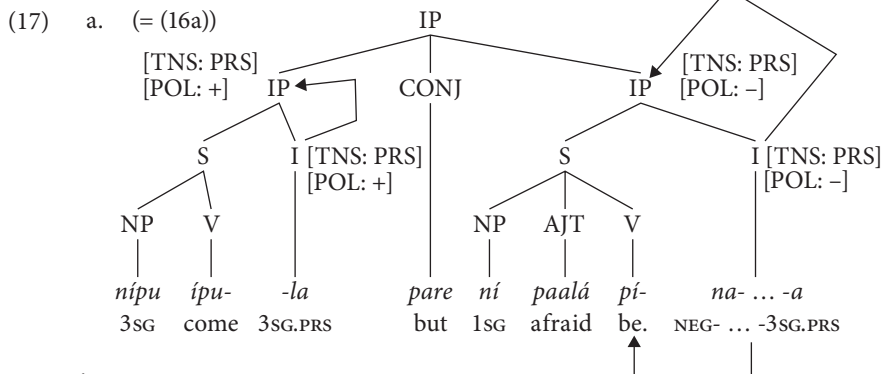


(15) illustrates the classic structure of clause chaining so well attested in languages of the New Guinea region. As is well known, in such structures the verbal inflectional I features of the verb of the last clause typically have scope over the preceding medial or dependent clauses. Verbs in medial clauses are commonly stripped down inflectionally in comparison to final verbs, as a reflection of this scope dependency. But, in fact, the inflectional I categories of the verb of the final clause do not belong to it, but rather to the structure as a whole, as in (15); they merely appear on the final verb in the sentence because it is the closest verb capable of hosting them. The verb of the final clause is actually at the same level as all those medial verbs preceding it; more precisely, it is just one more dependent verb which takes its I feature specifications from the dominant IP node projected by the I head of the whole sentence. The verbs in the coordinated S constituents are strictly speaking nonfinite, as they themselves have no intrinsic I feature specifications.

Example (13b) is an instance of what was analyzed in Foley & Van Valin (1984) and Van Valin & La Polla (1997) as cosubordinate nexus. We are now re-analyzing the former cosubordinate nexus as simply coordinate nexus. This was foreshadowed in Foley (1986) where cosubordinate nexus was defined as coordinate but dependent, but the notion of dependence remained undertheorized. Here dependence is simply taken as being the complement of a single I head. What really distinguishes clause chaining structures or the former cosubordinate nexus from standard coordinated clause structures is simply the nature of the constituents being coordinated, S versus IP. Compare these Kewa examples (Franklin 1971):

- (16) a. *nipú ipu-la pare ní paalá na-pía*
 3SG come-3SG.PRS but 1SG afraid NEG-BE.3SG.PRS
 'He is coming but I'm not afraid.'
- b. *ní réka-mo áгаа lá-a*
 1SG stand-DR talk say-3SG.PST
 'I stood up and he talked.'

(16a) is a coordination of two IPs, linked by a coordinating conjunction *pare* "but"; note that the verbs are both fully inflected for the I feature tense and that the scope of the negation is confined to the second clause. (16b) is a coordination of S constituents under a single IP node, a clause chaining structure; tense is only indicated on the verb of the final clause. The verb of the first clause has no tense marking, but is taken as past tense; it is a stripped down medial verb form simply registering the switch of the referents of the subjects between the two clauses ($I \rightarrow he$). The difference can be represented as follows:



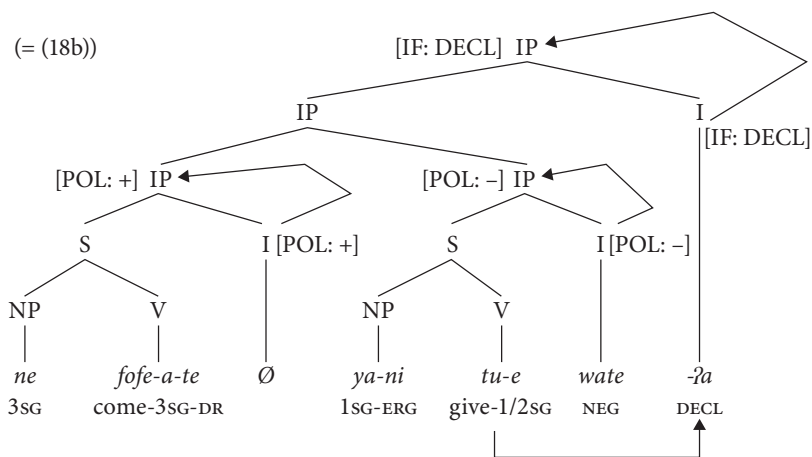
This re-analysis of the former cosubordinate nexus as just coordinate nexus, but with coordination of S constituents rather than IP begins to provide an explanation for the differential behavior of I features across Papuan languages. The examples of (17) suggest a binary contrast between the coordination of multiple S constituents under a single IP projection from a single I head, the sole place for the specification of the I features and the coordination of multiple IP constituents, each with their own I head and independent specification of I features. These may indeed be the prototypical extreme cases and were the basis of the original typology of Foley & Van Valin (1984), but there are in between types that languages often exploit. For instance, Usan treats negation as an I feature which must have scope all coordinated S constituents under it (example (15)). In Tauya (MacDonald 1990), on the other hand, this spread of negative scope is only possible when all clauses share the same subject (although the scope of the negative need

not spread). When the subjects between the clauses are different, negation in the final clause can never have scope over the preceding medial clauses:

- (18) a. *ne fofe-pa wate pofei-a-ʔa*
 3SG come-SR NEG talk-3SG-DECL
 'He didn't come and talk.' or 'he came and didn't talk.'
- b. *ne fofe-a-te ya-ni wate tu-e-ʔa*
 3SG come-3SG-DR 1SG-ERG NEG give-1/2SG-DECL
 'He came and I didn't give it to him.'
 *'He didn't come and I didn't give it to him.'

This differential behavior of negation in Tauya is in sharp contrast to illocutionary force, which although marked on the final verb is an I feature which always has a reading in which it has scope over the whole series of coordinated constituents (although other readings are also possible: see example (2a) and discussion thereafter). This indicates that polarity is a lower level I category which may be independently specified for coordinated constituents with same subjects and must be so for those with different subjects, while illocutionary force remains a feature of the highest I head and hence highest IP projection:

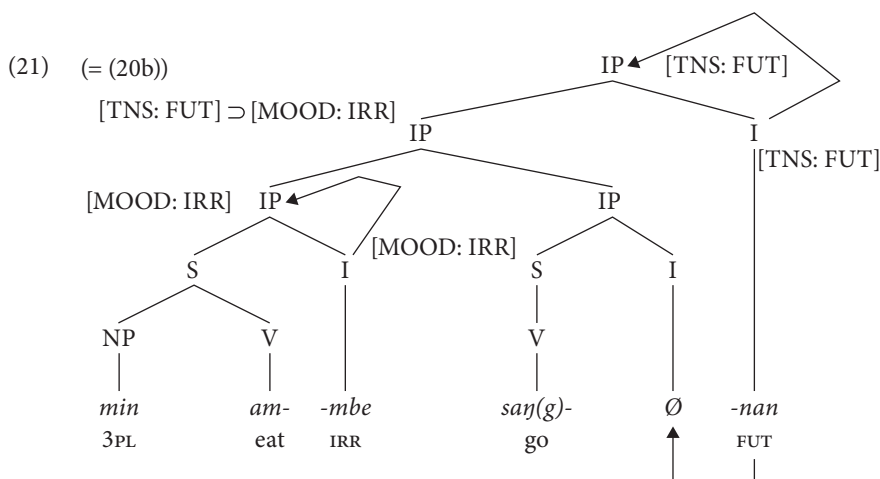
(19) (= (18b))



Other Papuan languages show variation in other I features like mood and tense, particularly the former. Many Papuan languages inflect the verbs in medial clauses in clause chaining constructions for mood, typically a realis versus irrealis contrast, while the verb of the final clause bears the full inflectional possibilities of tense and illocutionary force, the features of the final I head. Watam is typical of this pattern; verbs in medial clauses are marked for realis versus irrealis:

- (20) a. *min amba-r-a sang-ri*
 3PL eat-R-EV go-PAST
 'They ate and then went.'
- b. *min am-(m)be saŋ(g)-nan*
 3PL eat-IRR go-FUT
 'They will eat and then go.'

The verbs of the medial clauses are marked *-r* realis when the tense of the whole sentence, i.e. the main I head is past or present, and they are marked with *-mbe* irrealis when the tense is future or the illocutionary force is imperative. Amele (Roberts 1990) and Bargam (Hepner 1995) are other Papuan languages which behave similarly. Languages like Watam, Amele and Bargam all require I heads in medial clauses for which mood is indicated, but this cannot be *independently* specified from the I features of the main I head and the top dominating IP node. The mood inflection possible in the lower I heads is strictly determined by the tense and illocutionary force of the dominating IP node, which in turn are projected from the main final I head:



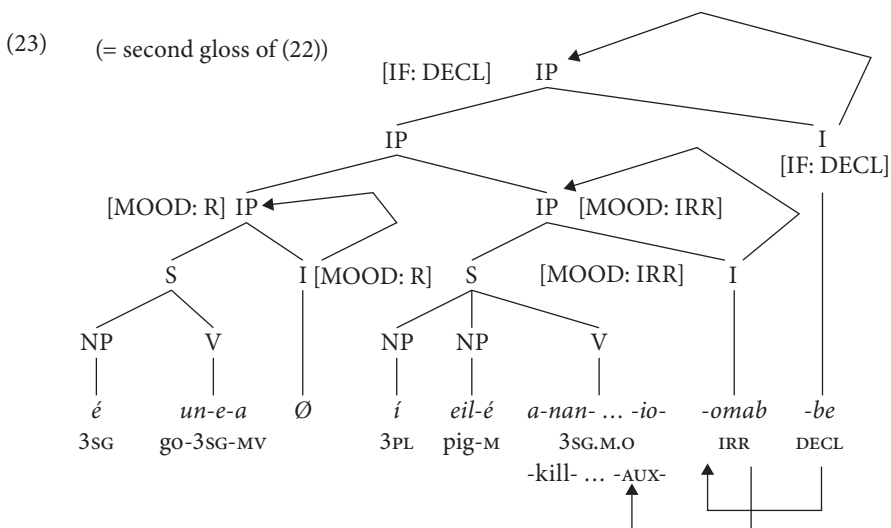
The final coordinated verb here has and can have no overt marking for mood as the tense suffix for the sentence as a whole usurps its position; there is only one suffix slot for tense-mood-illocutionary in the language.

A few languages do seem to allow mood inflection to differ between the clauses in a clause chaining structure. Mianmin (Fedden 2007) is one such language, although the data are still inconclusive as to whether the inflectional category involved is tense or mood; in our view it is the latter and that is how we will analyze it here. A

disjoint reading of mood is possible in clause chaining structures if the clauses have different subjects:

- (22) *é un-e-a í eil-é a-nan-omab-io-be*
 3SG go.PRF-3SG.M-MV 3PL pig-M 3SG.M.O-kill.PRF-AUX.PRF-IRR-2/3PL.A-DECL
 'He will go and they will kill a pig.' or 'He has gone and they will kill a pig.'

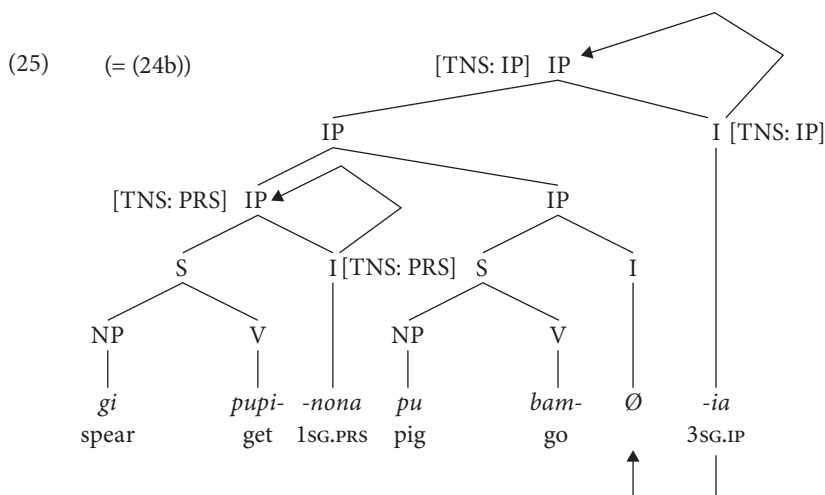
In the first gloss of (22) the mood-tense suffix *-omab* irrealis/future has scope over both clauses in the coordination, but in the second it only has scope over the second. Whether we analyze *-omab* as irrealis mood or future tense, the fact remains that on the second reading the first clause is not either of these, but realis or past tense. Note that there is no overt mood-tense inflection in the first clause to indicate realis/past, yet that is an available reading. This means that the first clause must have the possibility of its own I head with mood-tense specification, even though it is covert:



The category of tense can be complicated because tense morphology can be used to mark both absolute and relative tense. Absolute tense, the deictic anchoring of the time of the event reported in the sentence with respect to now, the time of the speech event, is always a feature of the highest I head and hence percolates to the top dominating IP node. On the other hand, verbal forms inflected for tense can be used to signal relative tense, i.e. a sequential or simultaneous relationship between the events expressed in the coordinated clauses in the clause chaining construction. In these cases the tense inflected forms function rather like aspectual markers or temporal suffixes in other Papuan languages. Korafe and Suena (Farr 1999) are examples of such languages; past tense verbs indicate a sequential relationship between the events denoted by the clauses, while present tense forms express simultaneous events. Consider these examples from Suena:

- (24) a. *pot-ena bam-ia*
 give-1SG.PST go-3SG.IP
 'I gave it to him and then he went.'
- b. *gi pupi-nona pu bam-ia*
 spear get-1SG.PRS pig go-3SG.IP
 'While I was getting a spear, the pig went away.'

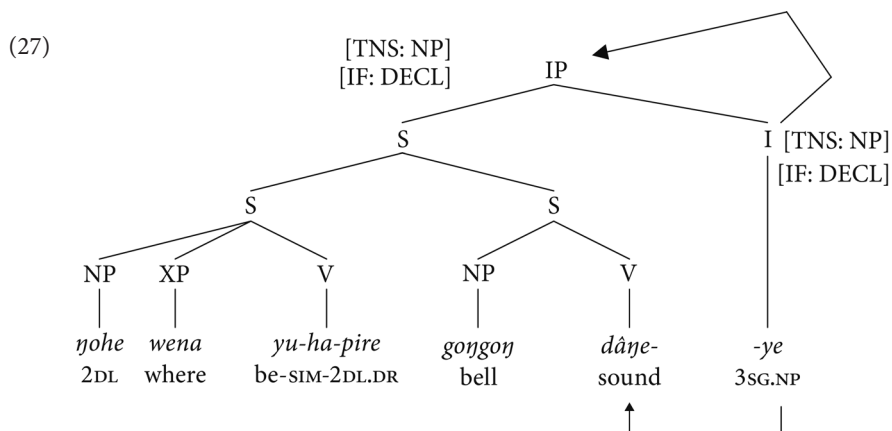
In both these examples the overall tense of the sentence is immediate past (today), as indicated by the inflection for tense on the final verb, which, of course, is simply the formal realization of the tense feature for the highest I head. The verbs of the medial clauses are also inflected for tense, past versus present respectively, but these tense specifications are interpreted with respect to the absolute tense of the final verb, determined by percolation from the main I head to the top dominating IP node, the absolute tense of the whole sentence. The past tense on the medial verb means events that are past with respect to the immediate past of the whole sentence, hence earlier in time or a sequential relationship between the time of the event of the medial clause and that of the final clause. Present tense of the medial verb indicates events at the same time as the immediate past of the whole sentence, or a simultaneous temporal relationship between the events of the two clauses. In essence these relative tense inflections function like aspect in other languages, such as past perfect versus past progressive in English, although Korafe and Suena do have other ways to express aspect such as serial verb constructions. We can treat tense inflection on the verbs of medial clauses in languages like Korafe or Suena as specifications of tense in lower I head positions, but clearly those must be interpreted in line with the overall scope of the absolute tense of the top dominating IP node (which in turn comes from the tense feature of the main I head of the sentence); hence they will almost by definition correspond to relative tense:



Illocutionary force has been regarded as the most peripheral operator, the feature least available to lower I heads. This generally seems to be true. Many researchers in Papuan languages have remarked that the scope of illocutionary force is generally over the whole sentence. There are two exceptions, however. One concerns content questions involving *wh*-words, as in this Kâte example (Schneuker 1962):

- (26) *ŋohe wena yu-ha-pire gongon dâŋe-ye*
 2DL where be-SIM-2DL.DR bell sound-3SG.NP
 ‘Where were you two while the bell rang?’

Note that the first clause in this clause chaining structure is a content question, “where were you two” but the second is a statement, “the bell rang”; the illocutionary force of the two clauses is clearly different. But crucially the interrogative force does not follow from an I feature, a verbal inflectional question marker, but from a phrasal argument constituent within one of the S constituents. In terms of the analysis presented here, such a phrasal argument within an S constituent, regardless of its status as a question word, cannot project an I feature specification to conflict with whatever is illocutionary force of the verb of the final clause, because the content question semantics is an inherent *lexical* feature of the question word, not a functional I head, an inflectional category. So it is not possible for the lexical semantics of this question word argument to percolate up to the maximal IP head node. The actual sentence minus the content question argument is overall presupposed, i.e. has a neutral, perhaps declarative illocutionary force, albeit not an assertive one (a fact that sharply distinguishes content questions from polar ones, hence their systematic crosslinguistic differences): “given that you two were somewhere and then the bell rang; so where was that”; and this is the realization of the illocutionary force of the main I head and hence the top dominating IP and the sentence as a whole:



The other exceptional case concerns sporadic uses of interrogative and imperative or hortative illocutionary force for the main I and hence the top dominating IP, but the medial clauses are neutral or declarative statements of presupposed information. The opposite pattern in which the presupposed information is in the final clause is also found. The examples in (2) are illustrative, as is (28) below from Kâte (Suter 1992):

- (28) *su? kpeue-me natsa-ndzepien*
 banana ripen-3SG.SEQ.DR 1PL O.tell-2PL.HORT.FUT
 'Let us know when the bananas are ripe!'
 literally 'The bananas will ripen and you let us know!'

The exact analysis of cases like (28) is not entirely clear, and the ideas presented here are preliminary and speculative, requiring more extensive future research, but it does seem possible that a illocutionary force feature of the highest I head and hence the top dominating IP of the sentence need not apply to medial clauses, which remain presupposed statements. In this way, illocutionary force in such cases behaves like negation in Tauya. But even more striking is the possibility exemplified by the last gloss of the Tauya example in (2a): in that example the interrogative illocutionary force only has scope over the preceding medial clause "did you break it before going away?", i.e. the final clause "you go away" is a presupposed statement, what is being queried is whether you broke it first. The data lead to a conclusion that any clause can be presupposed in a coordinate nexus, regardless of the dominant illocutionary force feature, even the clause which bears the interrogative or imperative illocutionary force marker! This last fact makes any analysis with lower I heads bearing distinct illocutionary force features implausible because it would require the verbs of final verbs in examples like (2a) to bear two conflicting illocutionary force specifications, one overt, e.g. interrogative or imperative and the other covert, declarative. Note further that no clear examples of conflicting overt illocutionary force operators are forthcoming; no examples, for instance, of clause chaining structures with interrogative in the medial clause and imperative in the final one, or vice versa. Nor are the so-called declarative clauses ever really *assertions*, but they are typically presupposed, taken for granted, background information, such as the sentence minus the content question word in (27) above. Sentences like the following one from Fore (Scott 1973) might be seen to contradict this claim:

- (29) *na-me-gánt-ó na-ku-w-e*
 1SG.O-give.2SG.A.FUT.DR-1SG.SEQ-IMP eat-FUT-1SG.A-DECL
 'Give me something and then I will eat it.'

Here the final clause is quite arguably an assertion and the first clause an imperative, clearly two distinct illocutionary force features in a clause chaining structure. But this exception is more apparent than real. While (29) is indeed a clause chaining structure,

it is a coordination of two independent IPs, each with completely specified I heads. Example (29) has the structure of the Kewa example in (16a) and (17a). Fore differs from Kewa in lacking coordinating conjunctions and the familiar coordination pattern of independent sentences. It only has two ways of joining clauses together, subordination, exemplified in (5), and clause chaining. One cannot assume that clause chaining always corresponds to the same types of structures across languages; minimal S constituents may be coordinated using this structure, but so can fully specified essentially independent IP constituents.

All this evidence suggests that presupposed statements in clause chaining structures have no real independent specification for illocutionary force at all, i.e. they are not asserted, questioned, commanded, exhorted, etc., and hence whatever their formal status appears to be cannot conflict with whatever the illocutionary force of the sentence is as a whole. Their apparent inflection as declarative or interrogative or whatever is quite likely a superficial morphosyntactic constraint requiring inflections to be realized in particular formal ways, e.g. final suffixes in Trans New Guinea languages, initial subject-finite verb inversion in English, but the presupposed clauses actually have no true illocutionary force at all. The illocutionary force of a sentence is always determined by the illocutionary force specification of the main I head, which in turn percolates to the top dominating IP, and the place of that head is determined by the formal properties of the language, suffixation on the final verb in Trans New Guinea languages versus position of the finite verb in English; its position by itself does not determine which clauses are presupposed or within its scope. Finally, as we have seen, both subordinate clauses and coordinate clauses in clause chaining structures in Papuan languages can be presupposed. What the division of labor is between these two types of nexus in these languages with respect to presuppositions and the scope of illocutionary force is another major research question awaiting exploration.

Abbreviations

1	first person	CAUS	causative
2	second person	CVB	converb
3	third person	DECL	declarative
III, V, VIII	Yimas gender classes	DEP	dependent verb
A	subject of a transitive verb	DL	dual number
ABL	ablative case	DR	different referent of
ADJ	adjective		subjects
AJT	adjunct	DUR	durative
ALL	allative case	ERG	ergative case
AUX	auxiliary	EV	echo vowel
BEN	benefactive	FP	far past tense

FUT	future tense	PRF	perfective
HORT	hortative	PL	plural number
IF	illocutionary force	POL	polarity
IMP	imperative	PRS	present tense
INF	infinitive	Q	question marker
INST	instrumental	R	realis
IP	immediate past tense	REF	referential case
IRR	irrealis	RP	remote past tense
KP	case phrase	S	subject of an intransitive verb
LOC	locative	SBD	subordinate
M	masculine gender	SEQ	sequential
MV	medial verb	SG	singular number
NEG	negative	SIM	simultaneous
NFN	nonfinite	SR	same referent of subjects
NP	near past tense	SUBJ	subject
O	object of a transitive verb	TNS	tense
OBL	oblique case	TOP	topic
PST	past tense	TR	transitive

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Capturing particulars and universals in clause linkage

A multivariate analysis*

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Cross-linguistic variation in adjoined clause linkage is higher than what is allowed by universal concepts like ‘coordination’ or ‘subordination’ which entail sets of strictly correlated properties. This chapter uses statistical techniques to uncover probabilistic correlations and clusters in a pilot database. For this, a set of variables is developed that ranges in coverage from the scope of illocutionary force operators to extraction constraints and that allows both detailed qualitative analysis of language-specific clause linkage structures and large-scale quantified measurement of the similarities of such structures within and between languages. The study tentatively suggests that there is a prototype of subordination which is closer to ‘and’-like than to ‘chaining’ constructions, and that there is a continuum between more vs. less tightly constrained types of converb and chaining constructions, but no general prototype of ‘cosubordination’.

1. Introduction

The analysis of individual, language-specific structures normally starts with a set of terms that are defined, or assumed to be defined, in a cross-linguistic way, and are taken as such from field manuals, handbooks, formal theories, or reference grammars

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of other languages. A case in point is the term ‘clausal cosubordination’, which was introduced by Olson (1981) and Foley & Van Valin (1984) and is defined by conjunct illocutionary scope: a clause that is cosubordinate to a main clause obligatorily falls under the scope of illocutionary operators in the main clause. An example of this is the ‘medial form’ or ‘converb’ construction, as it is found for example in the Papuan language Amele or the African language Swahili:¹

- (1) Amele (Trans-New Guinea: Madang; Papua New Guinea; Roberts 1988)

ho busale-ʔe-b dana age gbo-ig-a fo? (‘CHAIN’)
 pig run.out-DS-3s man 3p hit-3P-T.PST Q
 ‘Did the pig run out and did the men kill it?’

- (2) Swahili (Niger-Congo: Bantu; Bickel 1991)

je, u-li-baki nyumba-ni u-ka-tayarisha ch-akula ch-etu? (‘CHAIN’)
 Q 2s-PST-stay home-LOC 2s-SEQ-prepare VII-food VII-our
 ‘Did you stay home and prepare our food?’

In both cases, the interrogative marker in the main clause (final *fo* in Amele, initial *je* in Swahili) has scope over both clauses so that the only possible reading is one in which the speaker inquires about the truth value of both propositions.

The definition sets cosubordination apart from coordination, where the scope of such markers does not necessarily extend over both clauses, and also from subordination, where it is impossible to have conjunct scope (cf Foley & Van Valin 1984; Tikkanen 1995; Van Valin 2005; among others). When one takes the term ‘cosubordination’ further to the field, however, one quickly runs into structures that look very similar to the data in Amele or Swahili, but do not entirely fit the definition. Such structures are found for example in South Asian languages, such as Belhare:²

1. Where constructions figure in the pilot study described in Section 4, I include in brackets the (relatively arbitrary) identification label used in the Appendix. Glossing follows the Leipzig Glossing Rules (<http://www.eva.mpg.de/lingua/resources/glossing-rules.php>), with the addition of ADD additive (focus), ASS assertive, B B gender (in Chechen), CESS cessative, CONC concessive, COND conditional, DECL declarative, DEP dependent, DS different subject, F.PST far past, HORT hortative, ILL illocutionary, J J gender (in Chechen), PRED predicate marker, PURP purposive, PTCL particle, SEQ sequential, SS same subject, TEMP temporary (aspect), T.PST today’s past, V V gender (in Chechen), W.PST witnessed past, and Y.PST yesterday’s past. Roman numerals indicate noun classes.

2. Data without a source specification are from my own fieldnotes.

(3) Belhare (Sino-Tibetan: Kiranti; Nepal)

- a. *khar-e ki jutta ny-in-ghutt-he-ga i?* ('CHAIN')
 [3sS]go-PST SEQ shoes[NOM] 3sA-buy-bring.for-PST-2sP Q
 'Did she go [there] and buy you shoes?'
 or 'Did she buy you shoes when she went [there]?'
 (presupposing either 'she went' or 'she bought')
- b. *ne-e yuη-sa mundhupt-he i?* ('CVB')
 here-LOC sit-CVB [3sS]chat-PST Q
 'Did he sit here and chat (with you)?'
 or 'Did he chat with you when sitting here?' (presupposing either
 'he chatted' or 'he sat')

In these structures, the scope of the interrogative marker in the main clause (*i*), is indeterminate: depending on the context of utterance, the sentences may be interpreted as having conjunct or disjunct scope. This indeterminacy can be found both with finite (3a) and nonfinite (3b) forms (cf Section 3.3 on finiteness). The same pattern can also be observed in the Indo-European (Indo-Aryan) language Nepali:

(4) Nepali

- yahā ā-era khānā khā-yo?* ('CHAIN')
 here come-CVB food[NOM] eat-3sM.PST
 'Did he come here and eat?'
 or 'Did he eat after coming here?' (presupposing either 'he came here' or 'he ate')

Data similar to these can be found in many other languages of South Asia (e.g. in Kathmandu Newar: Hale & Shrestha 2006; Dolakha Newar: Genetti 2005; Burúshaski: Tikkanen 1995; Sanskrit: Tikkanen 1987; or Pali: Bickel 1991), and also in Papuan languages – even in languages of the same family as Amele, e.g. in Tauya:

(5) Tauya (Trans-New Guinea: Madang, Papua New Guinea; MacDonald 1990: 226)

- tepau-fe-pa yate fitau-a=nae?* ('CHAIN')
 break-PRF-SS go throw-2=POLAR.Q
 'Did you break it and go away?'
 or 'Did you go away after breaking it?' (presupposing either 'you went away' or
 'you broke it')

Other examples from Papuan languages include Hua (Haiman 1980: 400), Usan (Reesink 1987: 297f), Kâte (Suter 1992: 25ff), and Korafe (Farr 1999).

The question that arises is how to analyze structures like (3)–(5). There is a number of possibilities. First, one could posit a second analytical term ("cosubordination 2"), defined without a scope constraint. But this would miss the fact that the structures are so similar to each other that one reading of "cosubordination 2" (namely the one with conjunct scope) is the sole reading of "cosubordination 1". Second, one could

try and argue that in Belhare and similar languages, one reading ‘really’ reflects cosubordination while the other reflects something else – presumably subordination, with disjunct scope (Bickel 1998). While this may be a viable solution in some cases, at least in Belhare and Nepali, I am not aware of any independent evidence for assuming structural ambiguity: the possible readings can only be resolved pragmatically, and it seems unjustified to posit differentiated syntactic representations for this (at least under a parsimonious approach to syntax that does not try to resolve in the syntax what can just as well be left to pragmatics). Third, one could revise the definition of cosubordination, for example by defining the term without any syntactic constraint on illocutionary scope (as is done by Bickel 1991 or Croft 2001). However, this may not solve the problem once and forever because ultimately, we can base the definition on any property we want (e.g. non-assertion, finiteness, tense scope, extraction possibilities, etc.) and always run into the same problem when analyzing other languages: if we define ‘cosubordination’ without a scope constraint, the term would no longer capture the distinctive properties of ‘cosubordination’ in Amele and Swahili, and we would miss again the overall similarity between these structures and those in the other languages. Similarly, if we define a notion like ‘subordination’ via ‘non-assertion’ (Cristofaro 2003), we will run into structures that look very similar to ‘subordinate’ structures, yet are asserted (e.g. with imperatives in an *although*-clause such *This is true, although don’t expect examples!*, cf. Green 1976; Lakoff 1984; Takahashi 2008, among many others). Any property that is picked as definitional will favor one type and make it the model for others. The fundamental problem is that there is no non-arbitrary choice (cf. Croft 2001): should Amele provide the model, or Tauya, or English? Any answer seems wrong. Finally, one could follow Lazard’s (2006) or Haspelmath’s (2007) suggestions and keep issues of language-specific analysis free of comparative notions: we could set up entities like ‘Amele *?e*-construction’ or ‘Nepali *era*-construction’, describe their properties and leave it to typological research to compare these entities on the basis of some comparative concept like ‘cosubordination^{comp}’, defined without regard to the language-specific details and independently of their analysis. While this may seem to solve the problem of how to classify language-specific constructions, it does not address (and is not intended to address) the comparative problem of just what the ‘right’ definition of the comparative concept might be. Yet comparative notions are often of critical help in language-specific analyses and when positing constructional entities, and it is one of the great steps of progress that typological and theoretical knowledge increasingly informs such descriptive work: for example, without the publication of Foley & Van Valin (1984), the issue of scope properties would have had little chance of being addressed in descriptive grammars. In fact, as many early descriptions in the American structuralist tradition testify, any attempt at describing languages purely ‘in their own terms’ risks missing important analytical questions. Moreover, unless the analysis is coupled with an explicit metalanguage of description,

the range of properties that are taken to be relevant for a given construction remains arbitrary (or even opportunistic, as Croft (2001) puts it). To most empirically-minded linguists, however, such a descriptive metalanguage is the more appealing the more it is informed by knowledge of typological variation and not just by meta-principles such as elegance in theory design. But then, we are back to the problem of defining the 'right' comparative concepts for analyzing language-specific structures.

Underlying all these solutions and their problems is a general attempt to try and reduce the observed diversity – here between languages like Amele and Swahili on the one hand, and languages like Belhare, Nepali or Tauya on the other hand – to one or two universal structures or comparative concepts. In this paper, I propose an alternative, based on standard methods used in other disciplines when confronted with diversity: this alternative consists in measuring instead of reducing diversity. I describe the general ideas behind this in Section 2. In Section 3 I review some of the key structural properties that lead to the diversity in clause linkage noted above and in general. Section 4 presents ways in which the diversity can be measured and discusses cross-linguistic and possibly universal patterns emerging from this, based on a pilot database of 69 constructions from 24 languages.

2. Multivariate analysis

When confronted with diversity, most other disciplines try to measure it. The key to making this possible is that structural similarity needs to be understood as what it is: structures S_1 and S_2 are similar iff they are identical in some variables (also known as 'properties', 'parameters', or 'features') $A...M$, but different in other variables $N...Z$. Therefore, we need to decompose terms like 'cosubordination' (or 'subject', 'word', 'sentence', 'antipassive' etc.) into sets of variables that capture all dimensions $A...Z$ in which any given pair of structures may be identical or different – whether between languages or within languages. I call such decompositions 'multivariate analysis', extending the use of the term from its statistical meaning of simultaneously analyzing entire sets of variables to the development of these sets itself.³

The set of variables must be large enough so as to capture all known variation, and in principle could extend to the minutest phonetic differences. Obviously, practical choices in research interests and time budgeting dictate upper limits, as always. The choice of variables is determined by similar questions of research planning, but if one subscribes to standard principles of economy in theory design, variables need

3. For an earlier proposal moving in a similar direction, but assuming pre-defined 'ideal' types, see Lehmann (1988). For more general discussion of the multivariate approach, see Bickel (2007).

to be logically independent of each other and, if one subscribes to empiricist principles of theory design, variables should also be developed inductively (e.g. using the AUTOTYP method of Bickel & Nichols 2002) rather than exclusively on the basis of *a priori* assumptions about the nature of grammar. Ideally, the set of variables is large enough to capture the full range of known diversity, so the logically possible combinations of all levels in this set allow a precise description of each known structure. Full development of such a system of variables is clearly a long-term goal and must proceed in tandem with progress in the detailed analysis of many different languages.

Two kinds of variables are relevant in multivariate typology: structural and denotational variables. Structural variables are defined in syntactic or semantic terms and their levels capture specific syntactic or semantic properties, e.g. properties like ‘conjunct scope of illocutionary operators’ or ‘conditional’. Denotational variables are defined in terms of extra-linguistic stimuli or contexts, to which language-specific structures may respond in the same or in different ways: e.g. a narrative context may elicit one kind of structure in one language and another structure in another language. In the following, I will limit myself to structural variables. Within these, I will furthermore mostly concentrate on aspects of syntax and issues of semantic scope. I have nothing to say in this paper on the semantic relations between propositions or usage patterns, although there is no doubt that the relevant variables are important for understanding the distribution of clause linkage structures in the languages of the world.

3. Some variables in clause linkage, with particular attention to adjoined structures

In this section, I review some of the better-known ways in which clause linkage structures differ from each other within and across languages. To keep the scope of the discussion manageable, I focus on adjoined clauses and disregard clauses that are subcategorized by main clauses (i.e. that are embedded in the sense of complement clauses). The results of the discussion are summarized in Section 4, where the variables are applied to a pilot database.

3.1 Illocutionary scope

As noted in the introductory discussion, a key variable is the scope of illocutionary operators⁴ like question or imperative markers that occur in the main clause.

4. Throughout this chapter, I use the term ‘operator’ for any grammatical category that takes scope over some other linguistic object. Thus, illocutionary force markers are operators, while for example person markers are not.