1 Coordination

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0 Introduction

The term *coordination* refers to syntactic constructions in which two or more units of the same type are combined into a larger unit and still have the same semantic relations with other surrounding elements. The units may be words (e.g. verbs (1a)), phrases (e.g. noun phrases (1b)), subordinate clauses (e.g. (1c)) or full sentences (e.g. (1d)).

(1) a. My husband supports **and** adores Juventus Turin
b. My uncle **or** your in-laws **or** the neighbours will come to visit us
c. I realize that you were right **and** that I was mistaken
d. The Pope dissolved the Jesuit order, **and** all the Indian missions were abandoned

All languages appear to possess coordination constructions (or *coordinate constructions*) of some kind, but there is a lot of cross-linguistic variation. Individual languages may possess a wealth of different coordinate constructions that relate to each other in complex ways. It is the purpose of this chapter to introduce and discuss a wide range of conceptual distinctions that are useful for describing the cross-linguistic and language-internal variation. This entails the use of a large number of technical terms (printed in boldface on first occurrence), each of which is explained and illustrated as it is introduced. Terminological issues are discussed further in an appendix.

The particle or affix that serves to link the units of a coordinate construction is called the **coordinator**. In (1) and in the other numbered examples in this chapter, the coordinator is printed in boldface. By far the most frequently occurring coordinator is 'and' (i.e. English *and* and its equivalents in other languages), but coordinate constructions can also involve various other semantic types of linkers, such as 'or', 'but' and 'for'. 'And'-coordination is also called **conjunctive coordination** (or **conjunction**), 'or'-coordination is also called **disjunctive**

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coordination (or **disjunction**), 'but'-coordination is called **adversative coordination**, and 'for'-coordination is called **causal coordination**. Examples of each of these four types are given in (2).

(2) a. (conjunction) Snow White ate **and** drank
b. (disjunction) She was a countess **or** a princess
c. (adversative coordination) The dwarfs were ugly **but** kind
d. (causal coordination) She died, **for** the apple was poisoned

The units combined in a conjunctive coordination are called **conjuncts**, and, more generally, the units of any coordination will be called **coordinands** here. Adversative coordination is always **binary**, i.e. it must consist of two coordinands. Ternary or other multiple coordinations are impossible here. This is illustrated in (3).

(3) a. *The queen tried to kill Snow White **but** Snow White escaped **but** she went through much hardship
b. *The mountain climbers were tired **but** happy **but** bankrupt

By contrast, conjunctions and disjunctions can consist of an indefinite number of coordinands. The examples in (4) show six coordinands each.

(4) a. You can vote for Baranov **or** Wagner **or** Lefèvre **or** McGarrigle **or** Ramírez **or** Abdurrasul
b. Cameroon, Nigeria, Niger, Libya, Sudan **and** the Central African Republic have a common border with Chad

Languages differ with respect to the number and the position of the coordinators used in coordinate constructions. For instance, while English generally shows the pattern **A co-B** (where **co** stands for *coordinator*), Kannada (a Dravidian language of southern India) shows the pattern **A-co B-co**:

(5) Narahariy-**u**: So:maše:kharan-**u**: pe:ṭe-ge ho:-d-aru
Narahari-and Somashekhara-and market-DAT go-PAST-3PL
'Narahari and Somashekhara went to the market'
(Sridhar 1990:106)

The patterns of coordinator placement and the types of linkers are discussed further in Section 1.

Many languages have several alternative patterns for a given semantic type of coordination, as illustrated in the English examples (6a,b). Coordination with the two-part coordinator *both . . . and* describes the coordinands as contrasting in some way: (6a) is appropriate, for instance, if the hearer expects only one of them to make the trip. This construction will be called **emphatic coordination** in this chapter.

(6) a. **Both** Franz **and** Sisi will travel to Trieste
b. Franz **and** Sisi will travel to Trieste

Moreover, many languages have special coordinators for negative contexts, as in the English example (7a). This sentence is roughly equivalent semantically with (7b), but again it has a more emphatic flavour. The construction in (7a) will be called **emphatic negative coordination**.

(7) a. **Neither** Brahms **nor** Bruckner reached Beethoven's fame
b. Brahms **and** Bruckner did **not** reach Beethoven's fame

Emphatic and negative coordinate constructions are discussed further in Section 2.

We saw in (1) above that a coordinate construction can consist of different types of coordinands: words, phrases, clauses or sentences. But as the definition of coordination says, each coordinand must be of the same type within a coordinate construction. Thus, (8b) and (9b) are ungrammatical, because the coordinands are syntactically different (NP vs PP in 8b) or at least semantically different (manner vs comitative in 9b).

(8) a. Guglielmo wrote to his bishop **and** to the Pope
b. *Guglielmo wrote a letter of protest **and** to the Pope

(9) a. Guglielmo spoke with the abbot **and** with the cardinal
b. *Guglielmo spoke with eloquence **and** with the cardinal

Different languages may require different coordinators depending on the syntactic type of the coordinands. For example, Yapese (an Austronesian language of Micronesia) has *ngea* 'and' for NP conjunction (10a), but *ma* 'and' for sentential conjunction (10b) (Jensen (1977:311–12)):

(10) a. Tamag **ngea** Tinag ea nga raanow
Tamag and Tinag CONN INCEP go.DU
'Tamag and Tinag will go'

b. Gu raa yaen nga Donguch, **ma** Tamag ea raa yaen nga Nimgil
I FUT go to Donguch and Tamag CONN FUT go to Nimgil
'I will go to Donguch, and Tamag will go to Nimgil'

Types of coordinands and their relevance for the structure of coordination are discussed further in Section 3.

In addition to the major semantic distinctions that we saw in (2), numerous more fine-grained distinctions can be made. For example, many languages distinguish between two types of disjunction: interrogative disjunction and

standard disjunction. Mandarin Chinese uses two different coordinators for these two cases, *háishi* and *huòzhe* (both translate as 'or') (Li and Thompson (1981:654)):

(11) a. Nǐ yào wǒ bāng nǐ **háishi** yào zìjǐ zuò
you want I help you or want self do
'Do you want me to help you, or do you want to do it yourself?'

b. Wǒmen zài zhèli chī **huòzhe** chī fàndiàn dōu xíng
we at here eat or eat restaurant all OK
'We can either eat here or eat out'

More fine-grained semantic distinctions such as these are discussed further in Section 4.

Next, I discuss some special types of conjunction. Since conjunction is the most frequent kind of coordination, it exhibits the greatest formal diversity, and some of these patterns are examined in Section 5. The most prominent 'special type' of conjunction involves the use of a **comitative** marker (i.e. a marker expressing accompaniment), as in Hausa, where *da* means both 'with' (12a) and 'and' (12b) (Schwartz (1989:32, 36)):

(12) a. Na je kasuwa **da** Audu
I.PFV go market with Audu
'I went to the market with Audu'

b. Dauda **da** Audu sun je kasuwa
Dauda and Audu they.PFV go market
'Dauda and Audu went to the market'

In addition to coordinations in which each coordinand is a regular syntactic constituent (e.g. an NP, a VP, or a clause), many languages allow **non-constituent coordination**, as illustrated in (13). For the sake of clarity, the coordinands are enclosed in square brackets in these examples.

(13) a. [Robert cooked the first course] and [Maria the dessert]
b. Ahmed [sent a letter to Zaynab] or [a postcard to Fatima]
c. [Martin adores], but [Tom hates Hollywood movies]

In (13a) and (13b), the first coordinand is an ordinary constituent (a sentence and a VP, respectively), but the second coordinand is not. In (13c), only the second coordinand is an ordinary constituent. In order to assimilate non-constituent coordinations to patterns found elsewhere in the grammar, linguists have often described them in terms of **ellipsis** (or **coordination reduction**). That is, abstract underlying structures such as those in (14a–c) are posited,

which show ordinary constituent coordination. In a second step, a rule of ellipsis of identical elements deletes the words underlined in (14), resulting in the surface patterns in (13).

(14) a. Robert cooked the first course and Maria cooked the dessert
b. Ahmed sent a letter to Zaynab or sent a postcard to Fatima
c. Martin adores Hollywood movies, but Tom hates Hollywood movies

Non-constituent coordination and ellipsis are discussed further in Section 6.

Finally, in Section 7 I discuss ways of distinguishing coordination from less grammaticalized constructions and, perhaps most importantly, from **subordination** and **dependency**. The latter two notions will be discussed briefly here. The primary contrast is that between coordination and dependency. In a coordination structure of the type *A(-link-)B*, *A* and *B* are structurally symmetrical in some sense, whereas in a dependency structure of the type *X(-link-)Y*, *X* and *Y* are not symmetrical, but either *X* or *Y* is the head and the other element is a dependent. When the dependent element is a clause, it is called **subordinate clause**.

Although the distinction between coordination and dependency is, of course, fundamental, it is sometimes not evident whether a construction exhibits a coordination relation or a dependency relation. The best-known distinctive property of coordinate structures is that they obey the **coordinate structure constraint** (J. R. Ross (1986)), which prohibits the application of certain rules, such as extraction of interrogative words from coordinate structures. This is illustrated in (15–16), where the (i) sentences show the basic structure, and the (ii) sentences show fronting of *who*. As the examples make clear, only the dependency structures allow extraction (15a(ii) and 16a(ii)).[1]

(15) a. dependency (subordination)
(i) (basic sentence) You talked to someone before Joan arrived
(ii) (*who* extraction) Who did you talk to _ before Joan arrived?
b. coordination
(i) (basic sentence) You talked to someone **and** then Joan arrived
(ii) (*who* extraction) *Who did you talk to _ **and** then Joan arrived?

[1] Not all dependency/subordination structures allow extraction. For instance, extraction from relative clauses is blocked in many languages (see (a)), while extraction from complement clauses is typically possible (see (b)).
(a) You think Joan saw someone./ Who do you think Joan saw _?
(b) You know a woman who admires someone. /*Whom do you know a woman who admires _?
Thus, the possibility of extraction is only a sufficient, not a necessary, condition for a dependency relation.

(16) a. dependency
(i) (basic sentence) You saw Marvin with someone
(ii) (*who* extraction) Who did you see Marvin with _?

b. coordination
(i) (basic sentence) You saw Marvin **and** someone
(ii) (*who* extraction) *Who did you see Marvin **and** _?

Obeying the coordinate structure constraint is a formal property of constructions that is sometimes taken as the decisive criterion for coordinate status. In this chapter, by contrast, I will work with a primarily semantic definition of coordination, as given at the beginning of this section. The reason for this is that only semantically based notions can be applied cross-linguistically – formal criteria are generally too language-particular (for instance, not all languages have extraction constructions that would show the effect of the coordinate structure constraint).

1 Types and positions of coordinators

Coordinate constructions may lack an overt coordinator (**asyndetic coordination**) or have some overt linking device (**syndetic coordination**). So far in this chapter, all examples have shown syndetic coordination. If we restrict ourselves for the moment to binary coordinations, syndetic coordinations may have either a single coordinator (**monosyndetic**) or two coordinators (**bisyndetic**). Monosyndetic coordination is illustrated by *Franz and Sisi* (cf. (6b)), and bisyndetic coordination is illustrated by *both Franz and Sisi* (cf. (6a)). Coordinators may be **prepositive** (preceding the coordinand) or **postpositive** (following the coordinand). In English, all coordinators are prepositive, but we saw an example of the postpositive coordinator *-u*: in Kannada earlier (example (5)).

The logical possibilities for binary coordination are shown schematically in (17) (the two coordinands are represented as **A** and **B**, and the coordinator is represented as **co**).

(17) a. (asyndetic)	**A B**		
b. (monosyndetic)	**A co-B**	(prepositive, on second coordinand)
	A-co B	(postpositive, on first coordinand)
	A B-co	(postpositive, on second coordinand)
	co-A B	(prepositive, on first coordinand)
c. (bisyndetic)	**co-A co-B**	(prepositive)
	A-co B-co	(postpositive)
	A-co co-B	(mixed)
	co-A B-co	(mixed)

As we will see below, with one exception (**co-A B**), all these possibilities occur in languages. However, not all of them are equally common.

1.1 Asyndetic coordination

Coordination without an overt linker occurs widely in the world's languages, and, although in European languages monosyndesis of the type **A co-B** is the norm, asyndesis (also called **juxtaposition**) also occurs commonly, especially with the meaning of conjunction:

(18) a. (English) Slowly, stealthily, she crept towards her victim
b. (German) ein elegantes, geräumiges Foyer
'an elegant, spacious entrance hall'
c. (French) Dans quel philtre, dans quel vin, dans quelle tisane
noierons-nous ce vieil ennemi?
(Baudelaire in Grevisse (1986:§253))
'In which love potion, in which wine, in which herbal tea
shall we drown this old enemy?'

In European languages, asyndesis occurs mostly with modifying phrases such as adverbials and adjectives, or with clauses. Asyndetic coordination of NPs is more restricted and quite impossible in many cases (cf. *??I met Niko, Sandra* 'I met Niko and Sandra'). Many non-European languages have no such restrictions, and asyndetic coordination is very wide-spread in the world's languages. The following examples are from Sarcee (an Athapaskan language of Alberta, Canada), Maricopa (a Yuman language of Arizona), and Kayardild (a Tangkic language of northern Australia).

(19) a. ìstlí gútsìs dóóní ìcīctcùd, gīní
horse scalp gun I.capture they.say
' "I captured horses, scalps, and guns", they say'
(Cook (1984:87))

b. John Bill ñi-ʔ-yuu-k
John(ACC) Bill(ACC) PL.OBJ-1-see.SG-REALIS
'I saw John and Bill' (Gil (1991:99))

c. wumburu-nurru wangal-nurru bi-l-d
spear-having boomerang-having they-PL-NOM
'They have spears and boomerangs with them'
(Evans (1995:250))

In asyndesis, intonation is the only means by which the coordinated structure can be indicated, and it is probably not an accident that languages with a long written tradition tend to have a strong preference for syndesis: intonation is not visible in writing (see Mithun (1988)). Languages that lack writing (or lacked

it until recently) often lack indigenous coordinators and now use coordinators borrowed from prestige languages such as Spanish, English, Arabic, and Russian. Asyndesis is often preferred in natural conjunction, i.e. when the two conjuncts habitually go together and form some kind of conceptual unit (see Section 4.1 below).

1.2 Monosyndetic coordination

There are three occurring patterns of monosyndetic coordination: **A co-B**, **A-co B**, and **A B-co**, which are illustrated in (20–22). The logically possible type **co-A B** is unattested (this fact will be explained below).

(20) **A co-B** (Lango, a Nilotic language of Uganda; Noonan (1992:163))
Òkélò òmàtò cây **kèdè** càk
Okelo 3SG.drink.PFV tea and milk
'Okelo drank tea and milk'

(21) **A-co B** (Classical Tibetan; Beyer (1992:240))
Blama-s bgegs-**daŋ** Ndre btul
lama-ERG demon-and spirit tamed
'The lama tamed demons and spirits'

(22) **A B-co** (Latin)
senatus populus-**que**
'the senate and the people'

The two types **A co-B** (medial prepositive) and **A-co B** (medial postpositive) can be distinguished on the basis of evidence for different constituency divisions: [A] [co B] vs [A co] [B]. Relevant constituency tests include:

(i) Intonation: in certain cases, English *and* forms an intonation group with the following phrase, not with the preceding phrase (*Joan, and Marvin, and their baby*, not **Joan and, Marvin and, their baby*; here commas represent intonation breaks). Of course, this test does not apply in the simplest cases: a construction such as *Joan and Marvin* forms a single intonation group.

(ii) Pauses: in English, it is much more natural to pause before *and* (*Joan . . . and Marvin*) than after *and* (*??Joan and . . . Marvin*).

(iii) Discontinuous order: in special circumstances, the coordinands may be separated by other material, as when a coordinand is added as an afterthought. In English, the coordinator must be next to the second coordinand (e.g. *My uncle will come tomorrow, or my aunt*, not **My uncle or will come tomorrow, my aunt*).

(iv) (Morpho)phonological alternations: when the coordinator or one of the coordinands undergoes (morpho)phonological alternations in the

construction, this is evidence that they form a constituent together. For instance, in Biblical Hebrew the coordinator *wə* 'and' has the alternant *ū* when the first syllable of the following phrase has a schwa vowel (e.g. *wə-ðæræx* 'and (a) way', *ū-ðərǻx-īm* 'and ways'). In Latin, the element *-que* and the preceding conjunct form a single domain for stress assignment (e.g. *pópulus* 'the people', *populús-que* 'and the people').

In principle, one could imagine cases in which none of these criteria yields a clear asymmetry, so that one would have a symmetrical pattern **A-co-B** in addition to prepositive **A co-B** and postpositive **A-co B**. But no case of a language that requires such an analysis has come to my attention. Monosyndetic coordination seems to be universally asymmetric.

When the coordinator is linked by phonological processes to its coordinand (see (iv) above), it is generally regarded as a clitic or affix rather than an independent word. (Criteria for clitic or affix status are largely language-particular and cannot be discussed further here.)[2] Due to the universal preference for suffixation over prefixation, postpositive coordinators are typically suffixed and thus written as one word with the coordinand to which they are attached. Prepositive coordinators, by contrast, are rarely prefixed and written together with the coordinand. Thus, when a language has a coordinate construction of the form **A co B**, where **co** is not an affix on **A** or **B**, it is likely that constituency tests will show **co** to be a prepositive coordinator, like English *and*.

Postpositive coordinators may follow the complete phrase, or they may enclitically follow the first word of the coordinand. The latter is illustrated by Turkish postpositive *de* in (23).

(23) Hasan ıstakoz-u pisir-di, Ali **de** balığ-ı
Hasan lobster-ACC cook-PAST(3SG) Ali and fish-ACC
'Hasan cooked the lobster, and Ali (cooked) the fish'
(Kornfilt (1997:120))

As is noted in Stassen (2000), the order of the coordinator correlates with other word order patterns of the language, in particular verb–argument order: languages with a postpositive coordinator (such as Latin and Classical Tibetan) tend to have verb-final word order, whereas verb-initial languages tend to have a prepositive coordinator. However, Stassen's generalizations are based exclusively on conjunctive coordinators. Disjunctive coordinators may conform to different ordering patterns. For instance, Kanuri (a verb-final Nilo-Saharan language of northern Nigeria) has (bisyndetic) postpositive conjunctive coordinators (*-a . . . -a*, see (24a)), but a (monosyndetic) prepositive disjunctive

[2] But note that coordinators apparently never show suppletion, i.e. totally different shapes depending on the lexical class or the phonological shape of their host. In this sense, they are universally closer to clitics than to affixes. (Such suppletion is not uncommon with affixes.)

coordinator *râ* ((see 24b)). A similar asymmetry is found, for instance, in Lezgian (a verb-final Daghestanian language; Haspelmath (1993:327, 331)).

(24) a. kâm ádə-**a** kámú túdú-**a**
man this-and woman that-and
'this man and that woman' (Cyffer (1991:70))

b. kitáwu ádə **râ** túdu raâm
book this or that you.like
'Do you like this book or that one?'

As I noted above, the pattern **co-A B** is unattested and seems to be nonexistent, at least for conjunction (see Stassen (2000), who examined a sample of 260 languages). This generalization can be explained diachronically if the two main diachronic sources of conjunction constructions are (i) a comitative modifying construction of the type 'A with B' (see Section 5.1), and (ii) a construction with an additive focus particle of the type 'A, also B'. An example of a comitative-derived construction is Lango *cây kèdè càk* 'tea and milk' (cf. (20)), which comes from a dependency construction in which *kèdè càk* is a modifier meaning 'with milk' (in fact, the phrase can still have this meaning; Noonan (1992:163)). Since languages with modifier–noun order tend to have postpositions and languages with noun–modifier order tend to have prepositions (cf. Greenberg (1963); Dryer (1992)), the patterns **A-co B** and **A co-B** are the most expected ones from the comitative source. The focus-particle source of conjunction always has the marker on the second conjunct: 'A, also B', or 'A, B too'. When the focus particle is postpositive (like *too*), this yields **A B-co**, and when the focus particle is prepositive (like *also*), this yields **A co-B**. There is thus apparently no common diachronic source for the pattern **co-A B**, whose non-existence or extreme rarity is thereby explained.

1.3 Bisyndetic coordination

When there are two coordinators in the binary coordination, there are again four logically possible patterns, but in this case, all four patterns are attested (see (25–28)). However, the mixed patterns (27–28) seem to be extremely rare. In the non-mixed patterns (**co-A co-B**, **A-co B-co**), both coordinators generally have the same shape, whereas this is not the case in the mixed patterns.

(25) **co-A co-B** (Yoruba, a Kwa language of Nigeria; Rowlands (1969:201ff.))
àti èmi **àti** Kẹ́hìndé
and I and Kehinde
'both I and Kehinde'

(26) **A-co B-co** (Martuthunira, a Pama-Nyungan language of W. Australia)
puliyanyja-ngara-**thurti** jantira-ngara-**thurti**
old.man-PL-and old.woman-PL-and
'old men and old women'
(cf. also examples (5) and (24a)) (Dench 1995:98)

(27) **A-co co-B** (Homeric Greek, cf. Dik (1968:44))
Atreídēs **te** **kaì** Akhilleús
Atreus's.son and and Achilles
'Atreus's son and Achilles'

(28) **co-A B-co** (Latin, cf. Dik (1968:44))
et singulis universis-**que**
'both for individuals and for all together'

Stassen (2000) finds that, for conjunctive coordination, postpositive bisyndesis (**A-co B-co**) is fairly widely attested, especially in the Caucasus, northeastern Africa, Australia, New Guinea and southern India. By contrast, prepositive bisyndesis (**co-A co-B**) is only found as an emphatic variant of prepositive monosyndesis. Thus, besides (25), Yoruba also has the non-emphatic monosyndetic pattern *èmi àti Kẹ́hìndé* 'I and Kehinde', and several European languages have similar patterns (e.g. French *(et) Jean et Marie* '(both) Jean and Marie', Russian *(i) Nina i Miša* 'Nina and Misha') (see further Section 2.1).

1.4 Multiple coordinands

So far we have only examined binary coordinations, but for conjunction and disjunction, all languages seem to allow an indefinite number of coordinands, i.e. multiple or n-ary coordination. This will be symbolized by a sequence of letters **A, B, C, . . . M, N**, where A, B, C stand for the initial coordinands, and M, N for the final coordinands.

The question now arises how the basic pattern that is used in binary coordination is applied to multiple coordination. In the bisyndetic types, this is straightforward: the type **A-co B-co** becomes **A-co B-co C-co . . .** , and the type **co-A co-B** becomes **co-A co-B co-C . . .** , i.e. each coordinand is associated with a single coordinator:

(29) **A-co B-co C-co . . .** (Nivkh, an isolate of Sakhalin; Panfilov (1962:169))
Ñi jozo-**ɣo** meuţu-**ɣo** pos-**ko** ɣe-ɖ.
I lock-and rifle-and cloth-and buy-FINITE
'I bought a lock, a rifle and cloth'

(30) **co-A co-B co-C . . .** (French)
Le congrès sera tenu **ou** à Paris **ou** à Rome **ou** à Varsovie
'The congress will be held either in Paris or in Rome or in Warsaw'

When the monosyndetic type occurs with multiple coordinands, there are two possibilities: a full pattern and a pattern with coordinator omission. In the full pattern, only one coordinand lacks its own coordinator, the same that lacks the coordinator in the binary construction. Thus, **A co-B** becomes **A co-B co-C . . .** (the first coordinand lacks a coordinator), **A-co B** becomes **A-co B-co . . . N** (the last coordinand lacks a coordinator), and **A B-co** becomes **A B-co C-co . . .** (again the first coordinand lacks a coordinator).

(31) **A co-B co-C . . .** (Polish)
Tomek **i** Jurek **i** Maciek przyjechali do Londynu
'Tomek and Jurek and Maciek went to London'

(32) **A-co B-co . . . N** (Lezgian; Haspelmath (1993:327))
K'üd warz-**ni**, k'üd juğ-**ni**, k'üd deq'iq'a alat-na.
nine month-and nine day-and nine minute pass-PAST
'Nine months, nine days and nine minutes passed'

(33) **A B-co C-co . . .** (West Greenlandic; Fortescue (1984:124))
ini igavvil=**lu** qalia-ni=**lu** sinittarvi-it marluk
room kitchen-and loft-LOC-and bedroom-PL two
'a living room and a kitchen and two bedrooms in the loft'

But in many languages, coordinations with multiple coordinands allow (or even require) **coordinator omission**, by which, most commonly, all but the last coordinator are eliminated. Thus, English can reduce *A and B and C* to *A, B and C*, and French can reduce *A ou B ou C* to *A, B ou C*. In fact, coordinator omission is strongly favoured in English and other European languages. Keeping the coordinators on all coordinands has an emphatic value and is appropriate only under special circumstances.

Coordinator omission is found quite similarly in languages with postpositive coordinators:

(34) West Greenlandic (basic pattern: *A B-co*): **A B . . . N-co**
tulu-it qallunaa-t kalaall-il=**lu**
Englishman-PL Dane-PL Greenlander-PL-and
'Englishmen, Danes and Greenlanders' (Fortescue (1984:127))

(35) Amharic (basic pattern: *A-co B*): **A B . . . M-co N**
č̣äw bärbärre-**nna** qəbe amäṭṭa^{w}h
salt pepper-and butter I.brought
'I brought salt, pepper and butter' (Leslau (1995:725))

Table 1.1 *Correspondences among coordination patterns*

	multiple coordination	
basic/binary	full pattern	with coordinator omission
A co-B	A co-B co-C . . .	A B . . . co N
A-co B	A-co B-co . . . N	A B . . . M-co N
A-co B-co	A-co B-co C-co . . .	A B . . . N-co
co-A co-B	co-A co-B co-C . . .	A B . . . co-N
A B-co	A B-co C-co . . .	A B . . . N-co

The correspondences among the major patterns of binary coordination, multiple coordination and coordinator omission (with omission of all but the last coordinator) are shown in Table 1.1.

However, these are not the only possibilities of coordinator omission. For instance, in Classical Tibetan and Amharic (both of which have a basic **A-co B** pattern), coordinator omission eliminates all but the *first* coordinator (**A-co B C . . .**):

(36) a. Classical Tibetan (Beyer (1992:241))
sa-**daŋ** tšhu me rluŋ
earth-and fire water air
'earth, fire, water and air'

b. Amharic (Leslau (1995:725))
č̣äw**-ənna** bärbärre qəbe amäṭṭa^{w}h
salt-and pepper butter I.brought
'I brought salt, pepper and butter'

Some languages can be even more radical in applying coordinator omission to multiple coordination: they can completely omit coordinators from multiple coordinands, even though a coordinator would be required or preferred for binary coordinations. This is reported, for instance, for Classical Tibetan (Beyer (1992:241)), Cantonese (Matthews and Yip (1994:289)) and Nkore-Kiga (a Bantu language of Uganda; Taylor (1985:57)).

However, not all languages allow coordinator omission. For example, in Ponapean (an Austronesian language of Micronesia; Rehg (1981:333)) the coordination in (37) cannot be reduced by deleting all but the last coordinator.

(37)
Soulik **oh** Ewalt **oh** Casiano **oh** Damian pahn doadoahk lakapw
Soulik and Ewalt and Casiano and Damian FUT work tomorrow
'Soulik, Ewalt, Casiano and Damian will work tomorrow'

For Yoruba, Rowlands (1969:36) cites examples with coordinator deletion such as *epo, ẹran, ata* ***àti*** *àlùbọ́sà* 'palm-oil, meat, pepper and onions' (coordinator *àti*, as in (25) above), but he notes that this is possibly a case of imitation of English usage.

1.5 The scope of coordinators

In English, the coordinators can be either within the scope of prepositions (e.g. (38a)), or outside their scope (e.g. (38b)). There is perhaps a slight semantic difference here: in (38a), it seems more likely that we are dealing with a joint present for a couple, whereas (38b) is preferred if two different presents for unrelated people are referred to:

(38) a. I bought a present for [Joan **and** Marvin]
b. I bought a present [for Joan] **and** [for Marvin]

The more strongly an adposition is grammaticalized, the more likely it is to be repeated in coordination (i.e. the more likely it is that the coordinator has scope over the adposition). For example, in French the preposition *à* can take the coordinator *et* 'and' in its scope if it has a spatial (allative) meaning (e.g. (39a)), but it must be inside the scope of the coordinator if it has the more grammaticalized 'dative' meaning ((39b), cf. Melis (1996:67)):

(39) a. Je vais à [Turin **et** Venise]
'I'm going to Turin and Venice'
b. J'ai emprunté ce livre [à Jean] **et** [à Marie] (* . . . à Jean et Marie)
'I borrowed this book from Jean and Marie'

Case affixes, which are even more grammaticalized, have a strong tendency to occur inside the scope of coordinators; and this can be the case with either monosyndetic or bisyndetic coordination.

(40) a. Lezgian (a Daghestanian language of the eastern Caucasus)
[Ali-din]-**ni** [Weli-din] buba
Ali-GEN-and Weli-GEN father
'Ali's and Weli's father' (Haspelmath (1993:326))
b. Kunuz Nubian (a Nilo-Saharan language of Egypt)
[it-todon]-**go:n** [e:n-godon]-**go:n**
man-COM-and woman-COM-and
'with the man and with the woman' (Abdel-Hafiz (1988:277))

However, in some languages, even case affixes can be outside the scope of the coordinator. In Classical Tibetan (e.g. (41a)) and in Turkish (e.g. (41b)), the wider scope of the case suffix can be seen in the absence of the case suffix on

the first coordinand (cf. Johannessen (1998:9–24) for further examples).

(41) a. [ri-**daŋ** luŋpa]-la
mountain-and valley-ALL
'to mountain and valley' (Beyer (1992:240))

b. [ev-**le** sokağ]-a
house-and street-DAT
'to the house and the street' (Underhill (1976:83))

In these languages, the coordinator (*-daŋ*, *-le*) comes from a former case-marker, so it is perhaps not so surprising that it should not co-occur with a case-marker in the same word. However, there are even some languages in which a case suffix follows the suffixed coordinator in the same word:

(42)

a. Djabugay (a Pama-Nyungan language of Australia; Patz (1991:292))
yaba-nggu nyumbu-**djada**-nggu
brother-ERG father-and-ERG
'my brother and father'

b. Tauya (Trans-New Guinea; MacDonald (1990:138))
awa ya-pi-**sou** afe ya-pi-**sou**-ni me watamu ya-tu-i-ʔa
father I-GEN-and mother I-GEN-and-ERG this thing me-give-3PL-IND
'My father and my mother gave me this thing'

2 Emphatic coordination

2.1 Conjunction and disjunction

Many languages distinguish between normal coordination such as *A and B*, *X or Y*, and what might be called **emphatic coordination**: *both A and B*, *either X or Y*. The semantic difference is that in emphatic coordination it is emphasized that each coordinand belongs to the coordination, and each of them is considered separately. Thus, (43) is felicitous only if there was some doubt over one of the conjuncts, and (44) is impossible with emphatic coordination, because two things cannot be separately similar.

(43) Both Guatemala and Belize are in Central America

(44) (*Both) Spanish and Portuguese are similar

Likewise, *either X or Y* emphasizes the contrast between both coordinands and requires that they be considered separately.

In European languages, this distinction is well known, but it is far less often described for non-European languages. As a rule, European languages have monosyndetic **A co-B** for normal coordination and bisyndetic **co-A co-B** for

emphatic coordination. The two coordinators (*both . . . and*, *either . . . or*) are often called **correlative coordinators** in such emphatic constructions, because at least one of them does not occur without the other. (Note, however, that there are also languages where bisyndetic coordination is the normal, non-emphatic construction; in these languages, the coordinators are apparently always post-positive, and they always have the same shape – see Section 1.3.)

In emphatic coordination, it is not uncommon for both coordinators to have the same shape and to be identical to the single coordinator (45a; for the moment we again restrict ourselves to binary coordination). In other cases, only the second coordinator is identical to the single coordinator (e.g. (45b)), and, more rarely, the two coordinators are identical to each other, but not identical to the single coordinator (e.g. (45c)):

		correlative coordinators	**single coordinator**
(45)	a. conjunction:		
	Russian	*i . . . i*	*i*
	Italian	*e . . . e*	*e*
	Modern Greek	*ke . . . ke*	*ke*
	Albanian	*edhe . . . edhe*	*edhe*
	disjunction:		
	Polish	*albo . . . albo*	*albo*
	Dutch	*of . . . of*	*of*
	Basque	*ala . . . ala*	*ala*
	Somali	*ama . . . ama*	*ama*
	b. conjunction:		
	English	*both . . . and*	*and*
	Irish	*idir . . . agus*	*agus*
	disjunction:		
	English	*either . . . or*	*or*
	German	*entweder . . . oder*	*oder*
	Finnish	*joko . . . tai*	*tai*
	c. conjunction:		
	Hungarian	*mind . . . mind*	*és*
	Korean	*-to . . . -to*	*-hako*
	disjunction:		
	Lezgian	*ja . . . ja*	*waja*
	d. conjunction:		
	German	*sowohl . . . als auch*	*und*
	Polish	*jak . . . tak (i)*	*i*
	Finnish	*sekä . . . että*	*ja*
	Indonesian	*baik . . . maupun*	*dan*

A final possibility, at least for conjunction, is that both correlative coordinators are different from the single coordinator and are not identical in shape either (e.g. (45d)). This latter case typically derives from a circumlocution of the semantic type 'A as well as B'. For instance, Polish *jak A tak (i) B* literally means 'as A, so (also) B'.

2.2 Emphatic negative coordination

Many languages also have special correlative coordinators that are restricted to the position in the scope of negation, such as English *neither . . . nor*. Again, such negative coordinators have mostly been described for European languages (cf. Bernini and Ramat (1996:100–6)), and it is unclear whether they are indeed a peculiarity of Europe or are simply insufficiently described for other languages.

Negative coordination of the type *We met neither Marvin nor Joan* could be described either as conjunction (because a possible paraphrase is 'We didn't meet Marvin, and we didn't meet Joan either'), or as disjunction (because another possible paraphrase is 'We didn't meet either Marvin or Joan').[3] This is related to the well-known logical equivalence of disjunction with wide-scope negation and conjunction with narrow-scope negation (in the notation of symbolic logic: $\neg (p \vee q) \equiv \neg p \,\&\, \neg q$).[4] Accordingly, some languages have emphatic negative coordinators that are related to disjunctive coordinators (e.g. (46a)), whereas other languages have emphatic negative coordinators that are related to conjunctive coordinators (e.g. (46b)). A third group of languages have negative correlatives that are not formally related at all to semantically related expressions (e.g. (46c)). In (46), the emphatic negative coordinators are shown in the left-hand column, and related elements are shown in the right-hand column.

(46)

a. English	*neither . . . nor*	*either . . . or*
German	*weder . . . noch*	*entweder . . . oder* 'either . . . or'
Swedish	*varken . . . eller*	*antingen . . . eller* 'either . . . or'
b. Latin	*ne-que . . . ne-que*	*-que* 'and'
c. Italian	*né . . . né*	*e* 'and', *o* 'or', *non* 'not'
Dutch	*noch . . . noch*	*en* 'and', *of* 'or', *niet* 'not'
Maltese	*la . . . u lanqas*	*u* 'and', *jew* 'or', *ma* 'not'

In quite a few languages (47), the emphatic negative coordinators are also used as scalar focus particles of the type 'not even' or 'neither', as in Polish (e.g. (48a,b))

[3] J. R. Payne (1985) uses the term *rejection*, implying that negative coordination is neither a type of conjunction nor a type of disjunction.

[4] In this notation, $\neg$ means 'not', $\vee$ means 'or', & means 'and', and $\equiv$ means 'is equivalent to'.

(47) Polish *ani . . . ani*, Russian *ni . . . ni*, Hungarian *sem . . . sem*, Modern Greek *úte . . . úte*, Albanian *as . . . as*, Romanian *nici . . . nici*

(48) a. **Ani** mnie, **ani** jemu się nie udało
neither I.DAT nor he.DAT REFL not succeeded
'Neither I, nor he succeeded'

b. Karliczek **ani** słówka mi nie powiedział
Karliczek not.even word me.DAT not said
'Karliczek didn't even say a word to me'

Languages without special negative coordinators can use their emphatic conjunctive coordinators (49a) or their emphatic disjunctive coordinators (49b) to express the same content.

(49)

a. Indonesian (Sneddon (1996:348); *baik A maupun B* 'both A and B')
Baik kepandaian **maupun** kecantikan tidak berguna
both ability and beauty not useful
untuk mencapai kebahagiaan
for achieve happiness
'Neither ability nor beauty is useful for achieving happiness'

b. Lezgian (Haspelmath (1993:334); *ja A ja B* 'either A or B')
I k'walaxda-l **ja** aburu-n ruš, **ja** gada razi tuš-ir
this job-OBL either they-GEN girl or boy satisfied be.NEG-PAST
'Neither their girl nor the boy was satisfied with this job'

Less wide-spread than correlative negative coordinators are special coordinators which do not occur in correlative pairs, but are restricted to positions in the scope of negation. This is the type *(not) A nor B*, which can be paraphrased by 'not A or B' or by 'not A and not B'.

(50) a. His father wouldn't give the money **nor** would he lend it
b. (Italian) Giovanni non parla **né** si muove
'Giovanni does not talk nor move'
(Bernini and Ramat (1996:100))

In English, (50a) also has an emphatic counterpart with correlative coordinators (*His father would neither give nor lend the money*), but Italian (50b) has no such counterpart. When clauses are coordinated, Italian cannot use *né . . . né*, its negative correlative pair for NPs (cf. (46c)). Irish completely lacks emphatic negative coordinators and only has the single word *ná* 'nor'. The closest Irish equivalent to 'He has neither a son nor a daughter' is (51), where the first negative word is the ordinary sentence negation.

(51) Níl mac **ná** iníon aige
NEG.is son nor daughter at.him
'He doesn't have a son nor a daughter'

3 Types of coordinands

The definition of coordination at the beginning of this chapter contains the phrase 'two or more units of the same type'. This can be seen as an automatic consequence of the required identity of semantic roles of the coordinands: if two expressions have different semantic roles (e.g. patient and location), it will not be possible to coordinate them (e.g. **We want to eat pizza or in a Thai restaurant*). It is sometimes said that the coordinands must belong to the same phrasal category; for instance, **[pizza]$_{NP}$ or [in a Thai restaurant]$_{PP}$* is said to be ungrammatical because it consists of an NP and a PP. However, coordination of different phrasal categories is often possible when both have the same semantic role:

(52) a. Mr Hasegawa is [a legal wizard]$_{NP}$ **but** [expensive to hire]$_{AP}$
b. She felt [quite happy]$_{AP}$ **and** [at ease]$_{PP}$ in her new office
c. There will be typology conferences [in August]$_{PP}$ **and** [next April]$_{NP}$
d. [His kindness]$_{NP}$ **and** [that he was willing to write letters to me]$_{S}$ amazed me

(53) a. Maltese (Borg and Azzopardi-Alexander (1997:81))
Ħarbu [malajr]$_{ADV}$, [bil-moħbi]$_{PP}$ **u** [malli setgħu]$_{S}$
escape.PF.3PL quickly with-stealth and when can.PF.3PL
'They escaped quickly, stealthily and as soon as they could'
b. Italian (Scorretti (1988:246))
La situazione [meteorologica]$_{AP}$ **e** [del traffico]$_{PP}$ è buona
the situation meteorological and of.the traffic is good
'The weather and traffic condition is good'

Conversely, if two expressions belong to the same phrasal category but have a different semantic role, coordination is generally not felicitous (see also (9b)). (Ill-formed structures such as (54) are often called *zeugma*.)

(54) a. *Ms Poejosoedarmo bought a book [in Penang]$_{PP}$ **and** [in the spring]$_{PP}$
b. *I still smoked [last year]$_{NP}$ **and** [cigarettes]$_{NP}$
c. *[Go home!]$_{S}$ **and** [are you hungry?]$_{S}$

The examples in (52–54) seem to suggest that semantic factors alone determine whether two expressions can be coordinated. But there are also cases in

which two syntactically dissimilar phrases have the same semantic role but do not coordinate felicitously:

(55) *[Waterskiing]$_{NP}$ **and** [to climb mountains]$_{VP}$ can be fun
(Grover 1994:764)

There is also some cross-linguistic variation. For instance, Italian allows coordinations like (56), whose direct counterparts are impossible in English.

(56) Evitate gli accordi [poco chiari]$_{AP}$, **o** [che potrebbero danneggiarci gravemente]$_{S}$ (Scorretti (1988:246))
'*Avoid insufficiently clear agreements, or which could hurt us seriously'

In many languages, the semantic–syntactic type of the coordinands is relevant for the choice of the coordinators. The most widespread contrast for conjunction is that between NP conjunction and event conjunction (i.e. VP or clause conjunction). For instance, Korean has the suffix *-(k)wa* for NP conjunction (57a), but event coordination is expressed by a suffix *-ko* on the verb (57b). The Turkish contrast between *-la* and *-ıp* (58a,b) is completely analogous.

(57) a. yenphil-**kwa** congi
pencil-and paper
'pencil and paper' (Martin and Lee (1986:51))

b. Achim mek-**ko** hakkyo ka-ss-eyyo
breakfast eat-and school go-PAST-IND
'I ate breakfast and went to school'

(58) a. Hasan-**la** Amine
Hasan-and Amine
'Hasan and Amine'

b. Çocuk bir kaşık çorba al-**ıp** iç-er
child one spoon soup take-and eat
'The child takes a spoon of soup and eats'

In such cases, there is often some doubt over whether the event coordination really constitutes coordination, or perhaps rather some kind of subordination (or 'cosubordination', cf. Van Valin and LaPolla (1997:454)). Verb forms suffixed with such quasi-coordinating markers as Korean *-ko* and Turkish *-ıp* are commonly called **converbs** (see Haspelmath and König (1995)), and the closest syntactic analogue of (57b) is perhaps the English participial construction *Having eaten breakfast, I went to school*. The issue of the coordinate or subordinate status of these constructions is discussed further in Section 7.1.

While the binary contrast between NP coordination and event coordination is certainly the most wide-spread in languages, we also find languages in which there are more contrasts. For example, Yoruba has *àti* for NPs (59a), *tí* for relative clauses (59b) and *sì* for main clauses (59c) (Rowlands (1969:201–3)):

(59) a. èmi **àti** Kẹ́hìndé
I and Kehinde
'Kehinde and I'

b. epo ni mo ń-rà **tí** mo tún ń-tà
palm.-oil FOC I PROG-buy and I repeat PROG-sell
'It is palm-oil that I buy and in turn sell'

c. ó mú mi l' ára dá, èmi kì yió **sì** gbàgbé
he cause me in body well I NEG FUT and forget
'He caused me to get better, and I shall not forget'

Somali has *iyo* 'and' for NPs (60a), *oo* 'and' for VPs (60b) and the suffix *-na* 'and' for clauses (60c) (Berchem (1991:324–7)):

(60) a. rooti **iyo** khudrat
bread and fruit
'bread and fruit' (p. 324)

b. Suuqa tag **oo** soo iibi rooti
market go and ANDAT buy bread
'Go to the market and buy bread!' (p. 325)

c. Carrur-tu waxay joogaan dugsi-ga waxay-**na**
children-ART 3PL.FOC be school-ART 3PL.FOC-and
bartaan Af-Soomaali
learn language-Somali
'The children are in school, and they learn Somali' (p. 327)

The use of different formal means for expressing NP conjunction and event conjunction is probably the majority pattern in the world's languages. Welmers (1973:305) says that he is not aware of any African language that expresses NP conjunction and sentence conjunction in the same way. This is in striking contrast to European languages, where the 'and' word is always used for both purposes. But the twofold use of 'and', both for NP conjunction and for event conjunction, is also found often outside of Europe, e.g. in Chukchi (Chukotka, eastern Siberia), Chalcatongo Mixtec (Mexico) and Samoan.

While conjunctive coordinators are thus often selective with respect to the syntactic–semantic type of the coordinands, this is much less true of disjunctive coordinators. Quite a few languages have different coordinators for NP and event conjunction, but one and the same coordinator for NP and event disjunction, e.g. the languages in (61):

(61)

		NP conjunction	event conjunction	NP & event disjunction
Maori	(Polynesian)	*me*	*aa*	*raanei*
Chamorro	(Austronesian)	*yan*	*ya*	*pat*
Yapese	(Micronesian)	*ngea*	*ma*	*faa*
Supyire	(Gur, Mali)	*ná*	*kà/mà*	*làa*

J. R. Payne (1985:5) proposes an implicational sequence that constrains the possible ranges of coordinators: S – VP – AP – PP – NP.[5] The prediction that this makes is that individual coordinators are restricted to cover contiguous categories, e.g. S and VP, or AP, PP and NP. There can be no coordinators, according to this hypothesis, that only link sentences and APs, but not VPs, or VPs and NPs, but not APs and PPs, and so on.

Sometimes languages are also selective with respect to which coordinand types they even allow to be coordinated. For instance, Koromfe (a Gur language of Burkina Faso) only allows event disjunction, and no NP disjunction, so that a sentence like 'Do you want coffee or tea?' must be rephrased as 'Do you want coffee, or do you want tea?' (Rennison (1997:93)). Somali does not allow the conjunction of predicative adjectives, so that a sentence like 'That house was new and big' must be rephrased as 'That house was new and it was big' (Berchem 1991:327)). Arabic does not permit conjunction of two verbs, so that 'Ahmed ate and drank' must be rephrased as 'Ahmed ate and he drank' (Harries-Delisle (1978:527)). Finally, Tinrin (an Austronesian language of New Caledonia) allows sentence coordination and NP coordination with *mê* 'and', but not VP coordination (Osumi (1995:258–9)) (note that this seems to contradict Payne's implicational sequence). These are just a few random examples. Clear cross-linguistic patterns have yet to be discovered.

4 Semantic subtypes of coordination

The three main semantic types of coordination are conjunction, disjunction and adversative coordination. But languages can make more fine-grained semantic distinctions. We already saw the important difference between non-emphatic and emphatic coordination in Section 3. Some further semantic subtypes are discussed in this section (see also Section 5 below for other special kinds of conjunction).

[5] Payne refers to this as an *implicational hierarchy*, but it is not a hierarchy in the usual sense (in which, for instance, the noun phrase accessibility hierarchy is a hierarchy). Rather, it is a special (one-dimensional) case of an *implicational map*. See Haspelmath (2003) for general discussion of implicational (or semantic) maps and the difference between maps and hierarchies.

4.1 Semantic subtypes of conjunction

The most important distinction in conjunction is the difference between **natural conjunction** and **accidental conjunction** (Wälchli (2003)). In natural conjunction, the conjuncts 'habitually go together and can be said to form some conventionalized whole or "conceptual unit" ' (Mithun (1988:332)). Typical examples of natural conjunction are 'mother and father', 'husband and wife', 'boys and girls', 'bow and arrows', 'needle and thread', 'house and garden'. Natural conjunction generally consists of only two conjuncts (hence the term **binomial**; cf. Malkiel (1959); Lambrecht (1984)). When a language makes a formal distinction between natural and accidental conjunction, this often involves the lack of an overt coordinator or of an intonation break in natural conjunction (Mithun (1988); Stassen (2000)). Examples from Erzya Mordvin (a Finno-Ugrian language of Russia; Wälchli (2003)) and Burushaski (an isolate of northern Pakistan; Lorimer (1935:105, 381)) are given in (62–63):

(62) a. t'et'at-avat
father.PL-mother.PL
'father and mother' = 'parents'

b. t'ikšeń **di** sivel'eń
grass and meat
'grass and meat'

(63) a. mu: mu:mi
father mother
'father and mother'

b. jɛ **kɛ** u:ŋ
I and you
'I and you'

The conjuncts in natural conjunction may be so tightly linked that the construction can be regarded as a single compound word, i.e. a **coordinative compound** (cf. Wälchli (2003)). The spelling with a hyphen in (62a) points in this direction. The explanation for the contrast between zero-marking and overt marking must be sought in economy: since the conjuncts in natural conjunction occur together very frequently, the relation between them is quite predictable and overt marking is redundant.

The distinction between natural and accidental conjunction also plays a role in the scope of elements that apply equally to both conjuncts, such as articles. In English, one definite article for two conjuncts is sufficient for natural conjunction (*the house and garden*), but not in accidental conjunction (**the house and stamp collection*). In Bulgarian, the subjunctive particle *da* is not repeated in natural conjunction of verbs: see (64b), contrasting with (64a) (from Wälchli (2003)):

(64)
a. Ivan veče mož-eše da čet-e **i** da pluva
Ivan already can-PAST.3SG SJNCT read-3SG and SJNCT swim(3SG)
'Ivan could already read and swim' (accidental conjunction)

b. Ivan veče mož-eše da čet-e **i** piš-e
Ivan already can-PAST.3SG SJNCT read-3SG and write-3SG
'Ivan could already read and write' (natural conjunction)

In German (and to some extent also in English), the definite article may be omitted from both conjuncts, e.g. *Messer und Gabel* 'knife and fork', *Bleistift und Papier* 'pencil and paper' (Lambrecht (1984)). Mparntwe Arrernte (Pama-Nyungan, Australia) has a special 'binary-and' construction (*A uthene B uthene*) that is used when the two conjuncts 'are commonly thought of as occurring naturally together' (Wilkins (1989:369)), e.g. *alkere uthene angkwelye uthene* 'sky and clouds', but not *??pwerte uthene angkwelye uthene* 'rocks and clouds'. Yoruba has the special pattern *t-A-t-B* for natural conjunction, e.g. *t-ọkọ-t-aya* 'husband and wife', *t-ọ̀san-t-òru* 'night and day' (Rowlands (1969:202)). There are probably quite a few further types of formal differences between natural and accidental conjunction in languages, but grammars rarely describe them in detail, perhaps because this conceptual and terminological distinction is not widely known among linguists. Often just a few examples of conjunction are given, and these are, of course, often examples of natural conjunction, because natural conjunction is so frequent.

A special type of conjunction can be called **representative conjunction**. In this construction, the conjuncts are taken as representative examples of a potentially larger class. In Koasati (a Muskogean language of Louisiana), the suffix *-o:t* is used to connect a number of categorically similar nouns (Kimball (1991:413)):

(65) akkámmi-t ow-i:sá-hci hahci-f-**ó:t** oktaspi-f-**ó:t** kámmi-fa
be.so-CONN LOC-dwell.PL-PROG river-in-REP swamp-in-REP be.so-in
'So they live in rivers and in swamps and in suchlike places'

This suffix is not only a linker, because it can also be used on a single noun which is intended as a representative of a larger set of nouns (Kimball (1991:414)):[6]

(66) asá:l-**o:t** talibo:li-t sco:pa-t
basket-REP make-CONN sell-CONN
'She made and sold things like baskets'

Japanese also has representative coordinators. According to Kuno (1973:114, 121), the linker *ya* or *yara* is used for giving examples:[7]

[6] In this use, the suffix *-o:t* comes close to a plural marker of the type that is often called *associative plural* (e.g. Corbett and Mithun (1996); Corbett (2000)).

[7] Kuno adds that '*yara* seems to be suitable only when the speaker is annoyed (or affected) by actions or states enumerated by the constructions' (1973:121). This highly specific semantic feature of the construction shows how difficult it is to put constraints on possible coordinator meanings in languages.

(67) John **yara** Mary (**yara**) ga yattekita
John REP Mary REP NOM came
'John and Mary (among others) came'

Another special type of conjunction involves the combination of several identical elements to express intensity of an action or a high degree of a property, as *in She ran and ran, The city grew bigger and bigger*, or in (68) from Syrian Arabic:

(68) L-əmnaaqaše stamarret saaʕ-aat **u**-saaʕ-aat
the-argument continued hour-PL and-hour-PL
'The argument went on for hours and hours' (Cowell (1964:394))

This type of conjunction can be called **augmentative conjunction**. Although it is semantically very distinctive, I am not aware of a language that uses a special kind of coding for augmentative conjunction.

4.2 Semantic subtypes of disjunction

The most important distinction in disjunction is the difference between interrogative disjunction and standard disjunction that has already been illustrated in (11) above. Another example comes from Finnish (coordinators *tai* and *vai*):

(69) a. Anna-n sinu-lle kirja-n **tai** albumi-n
give-1SG you-ALL book-ACC or album-ACC
'I'll give you a book or an album'

b. Mene-t-kö teatteri-in **vai** lepo-puisto-on
go-2SG-Q theatre-ILL or rest-garden-ILL
'Are you going to a theatre or to a park?'

The distinction between standard and interrogative disjunction cannot be reduced to the occurrence in declarative vs interrogative clauses, because standard disjunction may occur in questions as well. This is illustrated by (70a,b) from Basque (Saltarelli (1988:84)).

(70) a. Te-a **ala** kafe-a nahi duzu
tea-ART or coffee-ART want you.it
'Do you want tea, or coffee?' (= 'Do you want tea or do you want coffee?')

b. Te-a **edo** kafe-a nahi duzu?
tea-ART or coffee-ART want you.it
'Do you want tea or coffee?' (= 'Do you want either tea or coffee?')

Interrogative disjunction occurs in an **alternative** (or **disjunctive**) **question**, i.e. a question by which the addressee is asked to specify one of the alternatives in her answer. This is the case in (70a), where the answer must be either 'tea' or 'coffee'. Example (70b), by contrast, shows standard disjunction which happens to occur in a question. This is not an alternative question, however, but a polar question that requires 'yes' or 'no' as its answer.[8] The distinction between interrogative disjunction and standard disjunction is made in many of the world's languages. Even English can be said to make the distinction in some way: the emphatic disjunctive markers *either . . or* only express standard disjunction (*Do you want either tea or coffee?* cannot be an alternative question). According to Moravcsik (1971:28), this is a more general property of emphatic disjunctive coordinators.

A semantic distinction that is well known (especially from the work of logicians) is that between **exclusive** and **inclusive disjunction**. These notions are defined in terms of truth values: an exclusive disjunction is true if only one but not both of the disjoined propositions are true, while an inclusive disjunction is true if either one or both disjoined propositions are true. Examples might be (71a–b):

(71) a. exclusive disjunction
Marvin died on Tuesday or Wednesday

b. inclusive disjunction
Mike is a psychologist or a linguist

It is often said that languages may distinguish between these two semantic types by using different disjunctive coordinators. Typically Latin *aut* 'or (excl.)' and *vel* 'or (incl.)' are cited as illustrating this distinction. However, this view seems to be erroneous (Dik (1968:274–6)). First, the logical distinction between exclusive and inclusive disjunction cannot be applied well to natural languages because many sentences with disjunction have no truth value (e.g. questions and commands). But, more importantly, the Latin distinction between *aut* and *vel* is evidently of a different nature,[9] and no other good case of a language making precisely the exclusive/inclusive distinction is known. Modern technical and bureaucratic writing sometimes uses the artificial compound coordinator

[8] An interesting formal description of the semantic difference between (70a) and (70b) is given in Dik (1997:206).

[9] According to Kühner and Stegmann (1914:108), the difference between the two is that with *vel* the speaker does not decide between the two coordinands and leaves the choice between them open. Similarly, Dik (1968:275) proposes that with *vel*, the choice between the two coordinands 'is left to the interpreter, or is immaterial to the argument'. However, it is not clear whether one would want to say that in an *aut* disjunction, the speaker makes a choice between the two coordinands. Perhaps the difference is not so much a semantic one as a stylistic one: Kühner and Stegmann (1914:107) observe that *vel* is very rare in the classical language, and becomes much more common in late Latin.

and/or which can be said to express inclusive disjunction, but such coordinators are not found in ordinary speech. Ordinary disjunction always presents an alternative between A and B, and whether or not 'A and B' is compatible with the situation as well depends on the context. In (71a), the pragmatic context virtually excludes the inclusive reading, but if we change the verb (*Marvin left on Tuesday or Wednesday*) the two coordinands are no longer necessarily mutually exclusive. Marvin may of course have left on both days, and in this case the proposition would not be false. (See McCawley (1993:315–17) for arguments that no exclusive 'or' need be assumed, and that the exclusive sense arises from the pragmatic context.)

Another type of disjunction can be called **metalinguistic disjunction**, because here the alternative is merely between two names for the same thing. For instance, earlier in this subsection I used the expression *alternative (or disjunctive) question*. In many languages, the ordinary 'or' word can be used in this way. Italian has a special coordinator (*ovvero*) that is restricted to metalinguistic disjunction, and while the ordinary 'or' word (*o*) can also be used in this way, there is a stronger form of this (*oppure*) that cannot be used metalinguistically (Scorretti (1988:254)):

(72)

a. l' Irlanda **o/ovvero/*oppure** l' isola verde
   the Ireland or the island green
   'Ireland, or the green island'

b. Voglio comprare un dizionario **o/oppure/*ovvero** una grammatica
   I.want buy a dictionary or a grammar
   'I want to buy a dictionary or a grammar'

Finally, a type of disjunction-like coordination that is widely attested is **temporal alternation**. In this construction, several events are said to occur alternately at different times. In the example in (73), special correlative coordinators are used to express this relation (cf. also literary English *now . . . now*).

(73) a. Zaza (an Iranian language of Turkey; Selcan (1998:667))
   Na ɬozu **gê** hewro, **gê** pakao
   these days now cloudy now clear
   'These days it is sometimes cloudy, sometimes the skies are clear'

b. Russian
   Xolodnyj doždik **to** usilivalsja, **to** oslabeval
   cold rain now strengthened now weakened
   'The cold rain became now stronger, now weaker'

4.3 Semantic subtypes of adversative coordination

Adversative coordination is signalled by English *but* and its counterparts in other languages. While it is fairly common for languages to have a 'but' coordinator, other languages express the same idea exclusively by means of a concessive subordinate clause. In English, too, concessive clauses with *although* are often roughly equivalent to 'but' coordinations:

(74) a. It is raining, **but** we are going for a walk
b. Although it is raining, we are going for a walk

Here, *but* expresses the denial of an expectation: the fact that it is raining would lead one to expect that we would stay inside, and *but* cancels this expectation.

English *but* can also express a contrast between a negative and a positive expression, where the positive expression substitutes for the negative one. This could be called **substitutive adversative coordination**. In some languages, there is a special substitutive coordinator, e.g. German *sondern* (which contrasts with ordinary adversative *aber* 'but'), shown in (75b):

(75) a. I did not go to Mindanao, **but (rather)** to Cebu
b. Ich bin nicht nach Mindanao gereist,
sondern nach Cebu/*__aber__ nach Cebu

Some languages have a special **oppositive** coordinator that is used when there is a contrast between the two coordinands, but no conflicting expectations. In many cases, English would translate such a coordinator as 'and'. For instance, Ponapean (an Austronesian language of Micronesia; Rehg (1981:331–2)) has a contrast between ordinary conjunctive *oh* 'and' (76a) and oppositive *ah* 'and, but' (76b).

(76) a. Soulik pahn mwenge **oh** e pahn meir
Soulik FUT eat and he FUT sleep
'Soulik will eat and he will sleep'
b. I laid, **ah** e meir
I fish but he sleep
'I fished, and/but he slept'

A similar contrast between a concessive and an oppositive type of 'but' is well known from Polish (*ale/a*) and Russian (*no/a*).

5 Some special strategies of conjunction

As the most frequent type of coordination, conjunction exhibits the greatest diversity of formal patterns and has also been studied the most thoroughly. In this section, we look more closely at conjunction patterns in which the marker is

identical to the comitative marker (Section 5.1), as well as two other strategies which deviate to some extent from the standard pattern (Section 5.2–5.3).

5.1 Comitative conjunction

In many of the world's languages, the conjunctive coordinator for NPs is identical in shape with the marker for accompaniment, i.e. the comitative adposition or case-marker. Here I will call such cases **comitative conjunction**, exemplified in (77–8). The (a) example illustrates the comitative use of the marker, and the (b) example shows the use in conjunction.

(77) Samoan (a Polynesian language; Mosel and Hovdhaugen (1992:148))
a. Ia, alu atu Sina **ma** le ili-tea
well go.SG DIR Sina with ART fan-white
'Well, Sina went there with the white fan'
b. 'Ua ō atu Sina **ma** Tigilau
PERF go.PL DIR Sina and Tigilau
'Sina and Tigilau left'

(78) Retuarã (a Tucanoan language of Colombia; Strom (1992:64–5))
a. Jũã-re turi-koʔo paki-**ka**
Juan-CORE travel-PAST father-COM
'Juan travelled with his father'
b. Anita-**ka** Gloria-re wiʔi-ẽrã baa-yu
Anita-and Gloria-CORE wet-PURP do-PRES
'Anita and Gloria are going to get wet'

The extension of a comitative marker to express a conjunctive relationship is of course very natural: the meaning of (77b) is not very different from the comitative 'Sina left with Tigilau.' In fact, one might be tempted to argue that comitative conjunction does not constitute coordination at all: languages with supposed comitative 'conjunction' might simply lack a formal means of conjunction, and speakers might substitute the ordinary comitative construction when asked to translate a coordinate phrase such as 'Sina and Tigilau'. This may indeed be true in some cases, but for the majority of languages with (what I call here) comitative conjunction, there is evidence of various kinds that the construction is really a type of conjunction, a construction separate from the comitative construction.

One kind of evidence is semantic. While conjunction and accompaniment are often similar and difficult to distinguish, there are also cases where they clearly have different entailments. For instance, the sentence *Joan and Marvin ate* entails for both Joan and Marvin that they ate, while in *Joan ate with Marvin* it is possible (though perhaps unlikely) that Marvin did not eat. In many languages

with comitative conjunction, the meaning clearly shows that we are dealing with a conjunction construction, not just a comitative construction that happens to be the closest translation equivalent of English *and*. (With verbs of motion, as in (77–8), this test does not work well, because it is hardly possible to accompany a moving person without moving oneself.)

The morphosyntactic evidence for a special construction of comitative conjunction is often less subtle. Most strikingly, comitative-conjoined NPs often trigger plural agreement on the verb, as in (77b) and in (79) from Russian:

(79) Maša **s** Kostej priš-l-i pozdno
Masha with/and Kostya come-PAST-PL late
'Masha and Kostya came late'

Comitative-conjoined NPs may also obey the coordinate structure constraint. Thus, in Russian, a comitative conjunct with *s* 'with' cannot be questioned (80c), just like an ordinary conjunct with *i* 'and' (80b), contrasting with non-conjunctive comitative phrases (80a) (Yakov Testelec (p.c.)):

(80)
a. (comitative) Maša prišla **s** Kostej / Kto prišel **s** Kostej?
'Masha came with Kostya / Who came with Kostya?'
b. (*i*-conjunction) Maša **i** Kostja prišli / *Kto **i** Kostja prišli?
'Masha and Kostya came' / (lit.) 'Who and Kostya came?'
c. (*s*-conjunction) Maša **s** Kostej prišli / *Kto **s** Kostej prišli?
(lit.) 'Masha with Kostya came' / 'Who with Kostya came?'

That comitative-coinjoined NPs are truly coordinate can also be seen when a modifier has scope over both conjuncts, as in (81) from Amele (a language of Papua New Guinea; Roberts (1987:109)):

(81) ija na sigin sapol **ca**
I of knife axe and/with
'my knife and axe' (i.e. 'my knife and my axe')

If (81) still meant 'knife with axe', one would not expect the possessive modifier *ija na* 'my' to have scope over both elements.

Another indication comes from word order. Thus, in Retuarã, comitative phrases typically follow the verb as in (78a), so that the comitative-marked NP *Anita-ka* in initial position, adjacent to *Gloria-re* (78b), must be the first conjunct of a coordinate construction. Similarly, Russian has a different word order in (80a) and (80c). But interestingly, the agreement criterion and the word order criterion need not coincide: languages may show plural agreement on the verb even if the two comitative conjuncts are not adjacent, as in (82).

(82) Krongo (a Kadugli language of Sudan; Reh (1985:278))
nk-áa bárákóorà ósúní ʊ́ʊdà kúblé **yá**-ìttóŋ
PL-be jackal INF.share meat down COM-rabbit
'The jackal and the rabbit share the meat'
(lit. 'The jackal share(PL) the meat and ('with') the rabbit')

Such patterns are synchronically unexpected, but they can be understood diachronically as erstwhile comitative constructions in which only the agreement pattern, but not the word order pattern, has been adapted to the new conjunctive sense.

Comitative-marked conjunctions may also involve more than two phrases, like other conjunctions, but unlike ordinary accompaniment constructions (cf. the strangeness of *Joan with Marvin with Esther*):

(83) Krongo (Reh (1985:278))
m-áa ádʊ̀kwà tìmyáaré **yá**-tʊ̀nkúlʊ́báŋ **yá**-sàrí
F-be INF.take log with-knife with-basket
'And she takes the log, the knife and the basket'

Given the comitative origin of the construction, we would not necessarily expect that coordinator omission could occur in constructions with multiple conjuncts. Thus, Loniu (an Austronesian language of New Guinea) does not allow this in its comitative-derived conjunction pattern: *A ma B ma C* cannot be reduced to *A, B ma C* ('A, B and C – *ma* 'with, and'), although the synonymous coordinator *ɛ* 'and' normally shows the pattern *A, B ɛ C* ('A, B and C') (Hamel (1994:102)). Here, *ma* still seems to behave in accordance with its original comitative function. However, there are also languages which do exhibit (optional) coordinator omission in multiple comitative conjunction, e.g. Ndyuka (an English-based creole language of Surinam) (Huttar and Huttar (1994:237)):

(84)
baana, bakuba, angooki, kumukomu **anga** ala den soutu sani de
plantain banana gherkin cucumber and all these sort thing there
'plantains, bananas, gherkins, cucumbers, and all these kinds of things'

Clearly, such behaviour is only expected if the comitative marker has already become a coordinator.

Equally strikingly, there are many languages in which the original comitative marker occurs not just with one of the coordinands, but bisyndetically with each of them. For instance, in Tauya the comitative suffix *-sou* follows both conjuncts when it means 'and', so that we get the contrast in (85) (MacDonald (1990:137)):

(85) a. Ya-ra Towe-**sou** yate-e-ʔa
I-TOP Towe-COM go-1(SG)-IND
'I went with Towe'

b. Ya-**sou** Towe-**sou** yate-ene-ʔa
I-and Towe-and go-1PL-IND
'Towe and I went'

Similarly, alongside the pattern *A da B* (cf. 12b), Hausa also allows the prepositive bisyndetic pattern *da A da B*.

That the 'ex-comitative' coordinator no longer behaves like a true comitative is also clear when it takes a case-marked NP in its scope, as in (86), where *-wan* (otherwise a comitative case suffix) occurs outside the genitive case suffix *-pa*.

(86) Huallaga Quechua (Weber (1989:350))
Kampu-pa alwasir-nin-pa-**wan** ka-n mas huk-pis
marshal-GEN alguacil-3SG-GEN-and be-3 more other-even
kustumri-n rura-na-n-paq.
custom-3 do-SUB-3PL-PURP
'The marshal and his alguacil have another custom to do'

However, even when a comitative construction shows clear signs of marking conjunction, it may retain clear traces of its comitative origin. Thus, the Russian comitative conjunction (79) is restricted to animate conjuncts, and the two conjuncts are typically thought of as participating in the situation together (see McNally (1993) and Dalrymple, Hayrapetian, and King (1998) for detailed discussion of the meaning of this construction).

In all cases where we have some diachronic evidence, we see that comitative–conjunctive polysemy of particles and affixes goes back to a diachronic extension of the original comitative marker, which acquires the additional sense of coordinator and with it different syntactic properties. Theoretically, one could imagine the reverse diachronic process, from coordinator to comitative, also giving rise to the same synchronic polysemy, but this apparently never happens. The change from comitative to conjunctive coordinator is a commonly found path of grammaticalization (Stassen (2000)), and, like other grammaticalization processes, it is unidirectional (C. Lehmann (1995)). Stassen (2000), who looked at NP conjunction in a large sample of 260 languages worldwide, finds that languages with comitative conjunction ('WITH-languages') are particularly found in sub-Saharan Africa, East Asia, Southeast Asia and the Pacific Islands, as well as in northern North America and lowland South America. By contrast, languages lacking the comitative strategy ('AND-languages') are

concentrated in northern and western Eurasia (including all of Europe), India, northern Africa, New Guinea, Australia and Meso-America.

5.2 Inclusory conjunction

A semantically peculiar type of conjunction is what I call here **inclusory conjunction**. In the usual case, a conjunction of two set-denoting NPs refers to the *union* of the two sets. Schematically, we can say that '{A, B} and {C, D}' yields the set {A, B, C, D}. However, there also exist conjunction constructions in which the result of the conjunction is not the union, but the *unification* of the sets. That is, if some members of the second conjunct set are already included in the first conjunct set, they are not added to the resulting set. Schematically, we can say that '{A, B, C} and {B}' yields the set {A, B, C}. Some examples of inclusory conjunction are given in (87):

(87)

a. Russian
   my **s** toboj
   we with you.SG 'you and I'

b. Chamorro (an Austronesian language of Guam; Topping (1973))
   ham **yan** si Pedro
   we with ART Pedro 'I and Pedro'

c. Yapese (an Austronesian language of Micronesia; Jensen (1977:185))
   gimeew Wag
   you.PL Wag 'you(sg) and Wag'

d. Tzotzil (a Mayan language of Mexico; Aissen (1989:524))
   vo?oxuk **xchi?uk** i jtzebe
   you.PL with DEF my.daughter 'you(sg) and my daughter'

e. Maori (a Polynesian language of New Zealand; Bauer (1993:374))
   maaua **ko** te rata
   we.two.EXCL SPEC the doctor 'the doctor and I'

f. Tagalog (Philippines; P. Schachter and Otanes (1972:116))
   sila **ni** Juan
   they GEN.ART Juan 'he/they and Juan'

g. Mparntwe Arrernte (central Australia; Wilkins (1989:409))
   Margaret anwerne-ke
   Margaret we.PL-DAT 'to Margaret and us'

As the examples show, the inclusory conjunct (i.e., the one that denotes the total set) is generally a non-singular personal pronoun. The included conjunct

is often linked by means of a comitative marker (Russian, Chamorro, Tzotzil), but the marker may also be of a different kind (Maori, Tagalog), or the two conjuncts may simply be juxtaposed (Yapese, Mparntwe Arrernte). Inclusory conjunction is found widely throughout the Austronesian language family, but is also attested elsewhere in the world, e.g. in many dialects of northwestern France (*nous deux Jean* 'Jean and I'; Tesnière (1951)). In most cases, the inclusory pronoun precedes the included conjunct, but (87g) shows that it may also follow it.

When the inclusory pronoun is plural, as in the Russian example, this construction can be translated into English in two ways: *my s toboj* can be 'you and I' (in this case the unification sets are {you, I} and {you}), or 'we and you' (in this case the unification sets are {you, I, X, . . .} and {you}). When the inclusory pronoun is dual, as in (87e) from Maori, there is only one translation into English: 'the doctor and I'. When the language has both dual and plural pronouns, like Mparntwe Arrernte, again only one translation is possible. Example (87g) can only mean 'to Margaret and us' ('to Margaret and me' would require the dual pronoun).

Inclusory conjunction as in (87) is impossible when the non-inclusive conjunct outranks the inclusive conjunct on the person hierarchy (1 < 2 < 3), so **you(PL) with me* ('you(sg) and I') and **they with me* ('he and I') are excluded (Schwartz (1988b)). This follows straightforwardly from the fact that second person pronouns cannot include the speaker, and third person pronouns cannot include the speaker or hearer. For reasons that are not clear, there seems to be a general preference for first and second person pronouns over third person pronouns in inclusory conjunction. And so far I have found only a single language in which the inclusory word is not a non-singular pronoun, but a non-singular full noun: in Margi, a Chadic language of Nigeria, the construction in (88) is attested (Hoffmann (1963:57)).

(88) Kàmbə̀ràwázhá-'yàr **àgá** màlà gə́ndà
Kamburawazha-ASS.PL with wife of.him
'Kamburawazha and his wife'

The inclusory noun in (88) is in the associative plural form (cf. *Bàshir-'yàr* 'Bashir and his family' – see note 6). The construction in (88) differs in no way from Margi's more typical inclusory construction with an inclusory pronoun (e.g. *nà'y* ***ágá*** *Mádṵ̀* (we with Madu) 'Madu and I'; Hoffmann (1963: 238)).

In addition to the construction in (87–88), where the inclusory conjunct and the included conjunct occur contiguously and form a **phrasal inclusory conjunction**, many languages also have a construction in which the inclusory pronominal element is a clitic pronoun or a coreference marker on the verb

(89a–d) or on the possessed noun (89e). This is called **split inclusory construction** because the inclusory conjunct and the included conjunct do not form a phrase (Lichtenberk (2000)).

(89) a. Nkore-Kiga (a Bantu language of Uganda; Taylor (1985:99))
tw-a-gyenda **na** Mugasho/
1PL-PAST-go with Mugasho
'I went with Mugasho / Mugasho and I went'

b. Yapese (Jensen (1977:187))
Ku gu waarow Tamag
PERF 1EXCL go.DU Tamag
'Tamag and I went'

c. Turkish (Kornfilt (1997:298))
Ahmet-**le** dün sinema-ya git-ti-k
Ahmet-COM yesterday movies-DAT go-PAST-1PL
'Yesterday Ahmet and I went to the movies'

d. Hausa (Schwartz (1989:30))
Audu yaa gan mù jiya **da** Binta
Audu 3SG.M.PERF see us yesterday with Binta
'Audu saw Binta and me yesterday'

e. Toqabaqita (an Oceanic language of Vanuatu; Lichtenberk (2000:22))
nuu-maroqa tha Uluta
picture-2DU.POSS ART Uluta
'the picture of you and Uluta'

Some languages (apparently especially in Polynesia) use pronominal inclusory conjunction also for conjoining two NPs. The first conjunct precedes the inclusory pronoun, which is then followed by the other included conjunct(s) in the usual way.

(90) a. Samoan (Mosel and Hovdhaugen (1992:680))
Peni **laua ma** Ruta
Peni they.DU with Ruta
'Peni and Ruta'

b. Maori (Bauer (1993:128))
Tuu **raatou ko** Hine, **ko** Pau
Tuu they.PL SPEC Hine SPEC Pau
'Tuu, Hine and Pau'

Inclusory conjunction is discussed from a theoretical point of view in Schwartz (1988a, 1988b), Aissen (1989) and Lichtenberk (2000).

5.3 Summary conjunction

Summary conjunction is the term adopted here for a construction in which conjunction is signalled not by an element that links the conjuncts together in some way, but by a final numeral or quantifier that sums up the set of conjuncts and thereby indicates that they belong together and that the list is complete. Examples with numerals come from Mongolian (91a), Classical Tibetan (91b) and Huallaga Quechua (91c) (Weber (1989:351) calls this construction *list-and-count conjunction*).

(91) a. bagš, Gombo **xojor**
teacher Gombo two
'the teacher and Gombo' (Vietze (1988:41))

b. lus ŋag yid **gsum**
body speech mind three
'body, speech and mind' (Beyer (1992:241))

c. Pusha-ra-n Pedru-ta Jacobo-ta Hwan-ta **kimsa-n-ta**
lead-PAST-3 Peter-ACC James-ACC John-ACC three-3-ACC
'He led off Peter, James and John' (Weber (1989:351))

The final quantifier may also be the word 'all', as in the following example from Cantonese (Matthews and Yip (1994:289)):

(92) Yanfa seui, leuhtsī fai, gīnggéi yúng **dōu** yiu béi ge
stamp duty lawyer fee agent commission all need pay PRT
'You have to pay stamp duty, legal fees and commission'

More intriguingly, summary conjunction of two conjuncts may also be expressed by a dual affix on the second conjunct, which refers to the number of the whole construction (**dual conjunction**). Example (93a) comes from Wardaman (a Yangmanic language of northern Australia; Merlan (1994:90)) and (93b) from Khanty (a Finno-Ugrian language of western Siberia; Nikolaeva (1999:45)):

(93) a. yibiyan yingawuyu-**wuya** yawud-janga-n
man(ABS) wife-DU(ABS) 3NONSG-come-PRES
'The man and his wife are coming'

b. a:śi jik-**ŋən**
father son-DU
'father and son'

Khanty also allows the dual on both conjuncts (94a), and a similar kind of conjunction construction is attested in Vedic Sanskrit (94b). This construction

may be called **double-dual conjunction** (see Corbett (2000:228–31) for some discussion).[10]

(94) a. a:śe:-**ŋən** jik-**ŋən**
father-DU son-DU
'father and son'

b. Mitr-**ā** Varuṇ-**ā**
Mitra-DU Varuna-DU
'Mitra and Varuna'

Mparntwe Arrernte (Australia) uses its numeral 'two' (*therre*) in this construction: *Sandy therre Wendy therre* 'Sandy and Wendy' (Wilkins (1989:371)). Dual conjunction seems to be restricted to natural conjunction wherever it occurs.

6 Ellipsis in coordination

In many languages there are some ellipsis phenomena that are specific to coordination constructions. This can be illustrated by the contrast between (95) and (96). The two ellipsis processes in (95) are possible both in coordinate (i) and in subordinate (ii) constructions, while the two ellipsis processes in (96) are possible only in coordinate (i) constructions, and ungrammatical in subordinate (ii) constructions. In the examples here and below, an ellipsis site is indicated by '[ ]'.

(95) a. VP ellipsis (<write a novel>)
(i) Joan wrote a novel, **and** Marvin did [ ], too
(ii) Joan wrote a novel after Marvin did [ ]

b. N ellipsis (<poems>)
(i) Zhangsan admires Lisi's poems, **but** Lisi despises Zhangsan's [ ]
(ii) Zhangsan admires Lisi's poems, though Lisi despises Zhangsan's [ ]

(96) a. V ellipsis (<cooked>)
(i) Robert cooked the first course, **and** Marie [ ] the dessert
(ii) *Robert cooked the first course, while Marie [ ] the dessert

[10] A related construction is the *representative dual* (or *associative dual*, or *elliptic dual*), where just one of the conjuncts is used and the other one is inferred, e.g. Khanty *a:śe:-ŋən* (father-DU) 'father and son', Vedic *Mitr-ā* (Mitra-DU) 'Mitra and Varuna', Classical Arabic *al-qamar-aani* (the-moon-DU) 'sun and moon', Mparntwe Arrernte *Romeo therre* (Romeo two) 'Romeo and Juliet'. It is unclear what the exact relation between the representative dual and double-dual conjunction is: perhaps the former has been expanded into the latter (Delbrück (1893:138)), or perhaps the former is a reduction of the latter. The representative dual is reminiscent of representative plural (or *associative plural*) markers as exemplified in (66) above.

b. NP ellipsis (<Hollywood movies>)
   (i) Martin adores [ ], **but** Tom hates, Hollywood movies
   (ii) *Martin adores [ ], because Tom hates, Hollywood movies

The functional motivation of the ellipsis is the same in both cases: identical material need not be repeated, for reasons of economy. A much more difficult question is why certain ellipsis processes are restricted to coordination, and an answer to this question is far beyond the scope of this overview article. Here I will limit myself to describing and illustrating the types of ellipsis that are particularly associated with coordination.

There is no agreement among linguists concerning the extent to which ellipsis should be assumed in coordinate constructions. An extreme view (which perhaps no contemporary linguist holds) is that all phrasal (i.e. non-sentential) coordination involves ellipsis, and that the corresponding non-elliptical ('underlying') structures all involve sentential coordination. Thus, (97a,b) are said to be derived from (97a′b′) by an ellipsis process (often called **coordination reduction**) that eliminates identical elements and turns the underlying biclausal structure into the monoclausal surface structure.

(97) a. Joan **and** Marvin got a pay raise
   a.′ Joan got a pay raise **and** Marvin got a pay raise
   b. I'll ring you today **or** tomorrow
   b.′ I'll ring you today **or** I'll ring you tomorrow

The main motivation for this derivation is the desire to see coordination as uniformly sentential at the underlying level, following a long tradition of philosophical logic in which only conjunction and disjunction of propositions is assumed, but no conjunction or disjunction of terms.

However, not all cases of phrasal coordination can be derived from sentential coordination in this way. Consider the examples in (98), in which the predicate denotes a joint action or some other situation describing a reciprocal relationship between the coordinands:

(98)

a. Joan **and** Max met	(*Joan met **and** Max met)
b. Bob **and** Marie are similar	(*Bob is similar **and** Marie is similar)
c. Mix the soy sauce **and** the vinegar	(*Mix the soy sauce **and** mix the vinegar)

These sentences cannot be derived from the corresponding clausal structures because these are syntactically incomplete. Another class of sentences with coordinate structures does have well-formed biclausal counterparts, but these do not have the same meaning:

(99)
a. Poland's national flag is white **and** red
   (≠ Poland's national flag is white **and** Poland's national flag is red)
b. Many people believe in God **and** do not go to church
   (≠ Many people believe in God **and** many people do not go to church)
c. Did you play football **or** go for a walk? (yes / no or alternative question)
   (≠ Did you play football **or** did you go for a walk? (only alternative question))

Again, semantic considerations rule out a straightforward derivation from biclausal underlying structures. Sentences like (98) and (99) seem to require that languages (perhaps in contrast to logic) also have phrasal coordination, not only sentential coordination. Now, if this is the case, then the motivation for assuming coordination reduction in sentences like (97) disappears.[11] While coordination reduction was widely assumed by transformationalists a few decades ago, most linguists today would describe the sentences in (97–99) as phrasal coordination.

But ellipsis rules cannot easily be eliminated entirely from the domain of coordination, because some coordinate structures involve coordinands that are not constituents (**non-constituent coordination**). For instance, in (96a(i)) (*Robert cooked the first course, and Marie the dessert*), the second conjunct *Marie the dessert* cannot be described as an ordinary constituent, and it differs from the first conjunct (*Robert cooked the first course*) in that it lacks a verb. This situation is most conveniently described by a rule of ellipsis (or, in other words, deletion).

Ellipsis in coordination can be either **forward ellipsis** (or **analipsis**) (i.e. the ellipsis site is in the second coordinand), or **backward ellipsis** (or **catalipsis**) (i.e. the ellipsis site is in the first coordinand). The two types are exemplified in (100–101). Again, an ellipsis site is indicated by '[ ]', and the identical material in the other coordinand (the **antecedent** of the ellipsis) is enclosed in brackets.

(100) Analipsis (= forward ellipsis)
   a. Hanif [loves] Khadija **and** Khadija [ ] Hanif
   b. Mr Sing [wrote] his father a letter **and** [ ] his grandmother a postcard
   c. Bergamo [is beautiful], **and** Lucca [ ], too
   d. Bill's [story] about Sue **and** Kathy's [ ] about Max

[11] Another argument against coordination reduction is that many languages have different coordinators in sentential and phrasal coordination (cf. section 3). In these languages, one would have to assume a rule that changes the form of the coordinator in addition to reducing the coordinands.

(101) Catalipsis (= backward ellipsis)
a. Birds eat [ ], **and** flies avoid, [long-legged spiders]
b. I think that Joan [ ], **and** you think that Marvin, [will finish first]
c. Joan sells [ ], **and** Fred knows a man who repairs, [washing machines]

Analipsis and catalipsis have not been studied in great detail for many languages (but see Sanders (1977), Harries-Delisle (1978), Mallinson and Blake (1981) for cross-linguistic surveys). In English and similar European languages, the most common type of analipsis consists in the ellipsis of the verb, as in (100a). Since it generally leaves a gap between the remaining preverbal and postverbal constituents (*and Khadija [ ] Hanif*), it is called **gapping** (J. R. Ross (1979); Neijt (1979)). By contrast, the most common type of catalipsis consists in the ellipsis of elements at the right periphery of the first coordinand (e.g. the direct object in (101a)), and is called **right periphery ellipsis** (Höhle (1991)), or (in obsolete transformational terms) **right node raising** (Postal (1974)).

Gapping is illustrated in (100) by cases in which a single verb is elipted, but in fact more elements can be omitted together with the verb, such as adverbs (102a), objects and subjects (102b,c), and additional higher verbs (102d).

(102) a. Simon [quietly dropped] the gold **and** Jack [ ] the diamonds
b. Fred [sent the president] a nasty letter, **and** Bernice [ ] a bomb
c. In China [they drive] on the right **and** in Japan [ ] on the left
d. John's father [managed to get him to read] the Bible **and** his mother [ ] the Communist manifesto

In English, gapping requires that exactly two remnant constituents are left after ellipsis, so that (103a) is impossible. In German, however, there is no such restriction (cf. 103b).

(103) a. *Mr. Singh [sent] his father a postcard **and** Ms. Bannerjee [ ] her grandmother a fax
b. Herr Singh [schickte] seinem Vater eine Postkarte, **und** Frau Bannerjee [ ] ihrer Großmutter ein Fax

There also exist gapping-like types of analipsis in which the two remnant constituents are both postverbal (100b), or in which the ellipted element is a noun (100d).

Gapping and right periphery ellipsis differ not only in that the former affects a medial constituent, and the latter a final element (Hudson (1976)). Some further differences are: first, in gapping only major phrasal categories (such as NP, PP, AdvP) are left as remnants, but in right periphery ellipsis (RPE) other elements may stay behind as remnants. Thus, in (104a), the remnant *the white* is not a major phrasal category, but it is allowed in (104b).

(104)
a (gapping) ?The black [horse] won **and** the white [ ] lost
b. (RPE) Dirk chose the white [ ] **and** Bernd wanted the red [Volvo]

Second, in gapping the ellipted element need not be strictly identical inflectionally. The non-elliptical version of (105a) would have the verb form *like* rather than *likes in the second conjunct*. Such agreement differences cannot be ignored in right periphery ellipsis (cf. 105b). In the non-elliptical version, the first conjunct would have the object NP *herself*, so, because the two elements are not strictly identical, (105b) is ungrammatical.

(105) a. (gapping) Julia [likes] Mendelssohn, **and** her parents [ ] the Rolling Stones
b. (RPE) *Joan greatly admires [ ], **and** Marvin constantly criticizes, [himself]

Third, gapping primarily affects coordinate clauses, but right periphery ellipsis is quite productive at the noun phrase and PP level as well:

(106) right periphery ellipsis
a. **both** in front of the blue [ ] **and** behind the white [house]
b. I read Dik's book [ ] **and** Ross's article [about coordination]

Finally, in English, many cases of right periphery ellipsis exhibit an intonation break (represented by a comma in writing) in front of the antecedent in the second coordinand (e.g. 96b(i), 101, 105b). Thus, gapping and right periphery ellipsis are specific rules with their unique characteristics and cannot be reduced to medial analipsis and final catalipsis, respectively. Interestingly, gapping and right periphery ellipsis can occur together in the same coordination. In (107), antecedents and ellipsis sites are matched by subscripts.

(107) Joan [visited]$_i$ her youngest [ ]$_j$ **and** Marvin [ ]$_i$ his oldest [brother]$_j$

Equivalents of both gapping and right periphery ellipsis are attested in many European languages (see Wesche (1995), Wilder (1997) for extensive discussion of German compared to English). A few examples are:

(108) a. French (gapping; Grevisse (1986:§260))
Philippe [revient] des champs, **et** son fils [ ]
Philippe returns from.the fields and his son
du chemin de fer
from.the way of iron
'Philippe comes back from the fields, and his son from the railway'

b. Latvian (right periphery ellipsis; Mallinson and Blake (1981:223))
Puika redzēja [ ], **un** meitene dzirdēja [suni]
boy saw and girl heard dog
'The boy saw and the girl heard the dog'

c. Welsh (right periphery ellipsis; Mallinson and Blake (1981:256))
Gwelodd Gwen [ ], **a** rhybuddiodd Ifor, [y dyn].
saw Gwen and warned Ifor the man
'Gwen saw, and Ifor warned, the man'

However, by no means all languages with SVO basic order admit gapping of the verb. Gapping is impossible in Thai and Mandarin Chinese (Mallinson and Blake (1981:218)), and even in the southern European language Maltese (closely related to Arabic), the same verb occurring with a different subject and object is normally repeated.

(109) Maltese (Borg and Azzopardi-Alexander (1997:82))
Jien ħadt kafè **u** hu ħa luminata
I took.1SG coffee and he took.3SG.M lemonade
'I had coffee, and he (had) lemonade'

In languages with verb-final word order, catalipsis usually affects the verb, and we get examples like those in (110).

(110) a. Basque (McCawley (1998:286))
Linda-k ardau [ ] **eta** Ander-ek esnea [edaten dabez]
Linda-ERG wine(ABS) and Ander-ERG milk(ABS) drink they.it
'Linda will drink wine and Ander milk'

b. Lezgian (northeastern Caucasus; Haspelmath (1993:339))
Čaqal-di sa werč [ ], žanawur-di sa lapag [ğa-na]
jackal-ERG one chicken wolf-ERG one sheep bring-PAST
'The jackal brought a chicken, and the wolf a sheep'

c. Marathi (Indo-Aryan; Pandharipande (1997:176))
Sudha Mumbaī-lā [ ] **āṇi** mī Triwendram-lā [dzāīn]
Sudha Mumbai-ALL and I Trivendram-ALL went
'Sudha went to Mumbai, and I to Trivendram'

If we want to apply the terminology that has become usual for English to these languages, we could either say that (110) shows right periphery ellipsis of the verb, or that it shows backward gapping. Thus, it is not clear how the terms *right periphery ellipsis* and *gapping* should be applied to languages with a basic word order other than SVO. Here I will use the more neutral terms *analipsis* and *catalipsis* instead.

Besides the final catalipsis pattern of (110) (SO[ ] + SO[V]), some SOV languages such as Basque (111) and German (112) also allow final analipsis (SO[V] + SO[ ]) (cf. also example (23) above from Turkish):

(111) Basque (McCawley (1998:286); cf. 110a)
Linda-k ardau [edaten du], **eta** Ander-ek esnea [ ]
Linda-ERG wine(ABS) drink he.will and Ander-ERG milk(ABS)
'Linda will drink wine and Ander milk'

(112) German
a. . . . dass Georg Wein [ ] **und** Barbara Bier [trinkt]
b. . . . dass Georg Wein [trinkt] **und** Barbara Bier [ ]
' . . . that Georg drinks wine and Barbara beer'

But verb-final SOV languages often also allow medial analipsis (S[O]V + S[ ]V):

(113) a. Turkish (Kornfilt (1997:120))
Hasan [istakoz-u] pişir-di, Ali de [ ] ye-di
Hasan lobster-ACC cook-PAST(3SG) Ali and eat-PAST(3SG)
'Hasan cooked the lobster, and Ali ate it'

b. Korean (Mallinson and Blake (1981:224))
Sonyen-i [swuley-lul] kul-**ko** sonye-ka [ ] mile-ss-ta
boy-NOM cart-ACC pull-and girl-NOM push-PAST-DECL
'The boy pulled, and the girl pushed the cart'

So far we have considered only medial and final ellipsis. Initial ellipsis cannot be illustrated well from SVO languages like English, because a sentence like *Joan arrived and began immediately* would not be analysed as involving ellipsis (*[Joan] arrived and [ ] began immediately*), but rather as showing simple VP coordination (*Joan [[arrived] and [began immediately]]$_{VP}$*). But German has OVS patterns which allow initial analipsis ([O]VS + [ ]VS) (Zifonun, Hoffmann, and Strecker (1997:574)):

(114) [Das Buch] kaufte mein Vater **und** [ ] las meine Mutter
the book bought my father and read my mother
'The book was bought by my father and read by my mother'

In a verb-final language with relatively free order of subject and object, we may get the pattern [O]SV + [ ]SV, as in Malayalam (a Dravidian language; Asher and Kumari (1997:151)):

(115) [Pustakam] Raamu vaaŋŋi **pakṣe** [ ] Kṛṣṇan vaayiccu
book Ramu bought but Krishnan read
'Ramu bought but Krishnan read the book'

Table 1.2 *The coordination ellipsis site in relation to clausal word order patterns*

		SVO	SOV	VSO	OSV/OVS
analipsis (= forward ellipsis)	medial:	s[v]o + s[ ]o (= gapping, 100a)	s[o]v + s[ ]v (113b)		
	final:		so[v] + so[ ] (111, 112b)		
	initial:			[v]so + [ ]so (116)	[o]vs + [ ] vs / [o]sv + [ ] sv (114, 115)
catalipsis (= backward ellipsis)	final:	sv[ ] + sv[o] (= right periphery ellipsis, 101a)	so[ ] + so[v] (110a–c)	vs[ ] + vs[o] (108c)	

In German VSO sentences, initial analipsis is possible, too ([V]SO + []SO):

(116) [Liebt] Julia Romeo **und** [ ] Kleopatra Cäsar?
loves Juliet Romeo and Cleopatra Caesar
'Does Juliet love Romeo, and Cleopatra Caesar?'

The patterns that are more widely attested are summarized in table 1.2.

So far we have only looked at ellipsis patterns as they concern the major clause constituents subject, verb and object. Sanders (1977) presents an ambitious typology of ellipsis constructions, and he argues that what counts is not the grammatical function of the constituent in the ellipsis site, but only its position. Starting out from an abstract pattern 'ABC & DEF', there are thus six logically possible types of ellipsis (Sanders (1977:255)):

(117)
[ ]BC & DEF	A-ellipsis	initial catalipsis
A[ ]C & DEF	B-ellipsis	medial catalipsis
AB[ ] & DEF	C-ellipsis	final catalipsis
ABC & [ ]EF	D-ellipsis	initial analipsis
ABC & D[ ]F	E-ellipsis	medial analipsis
ABC & DE[ ]	F-ellipsis	final analipsis

Table 1.2 already suggests that analipsis is generally more common than catalipsis, and that, of the three catalipsis types, final catalipsis is the most common one. Now Sanders examines the available evidence for a wide variety of languages and asks which ellipsis types are possible in each language.

For instance, English allows C-ellipsis (= final catalipsis, or right periphery ellipsis), D-ellipsis (e.g. *[Yesterday] Joan left and [ ] Marvin arrived*), and E-ellipsis (= gapping, or medial analipsis), but not the other three types.

It turns out that no ellipsis type is universally impossible, but there are strong restrictions on which combinations of ellipsis types a language can have. Out of sixty-four logically possible combinations, only six are in fact attested, according to Sanders (1977:255–6). In (118), the permitted ellipsis sites are underlined.

(118)

Chinese	A B **C** **D** E F
English, Japanese	A B **C** **D E** F
Quechua	A B C **D E F**
Russian	A B **C** **D E F**
Hindi, Zapotec	A **B C** **D E F**
Tojalabal	**A B C** **D E F**

This pattern is clearly not random and can be reformulated in the implicational hierarchy in (119):

(119) Accessibility hierarchy for ellipsis types

$$A > B > \left\{ \begin{matrix} C \\ F > E \end{matrix} \right\} > D$$

This hierarchy should be read as follows: if a language allows any ellipsis type (i.e. if a position is accessible to ellipsis), then all types to the right on the hierarchy are also possible. Sanders argues that this state of affairs has a straightforward functional explanation: the less accessible ellipsis types are more difficult to decode. Decoding difficulty of an ellipsis construction depends on two factors. First, a purely temporal factor: catalipsis is more difficult than analipsis because the antecedent of the ellipsis has not been processed at the time when the ellipsis site is encountered. Second, Sanders argues that decoding difficulty depends on the 'memory prominence' of the antecedent. Memory prominence is known to be determined by the 'serial position effect': beginnings and ends are learned faster and recollected more accurately than middles. Thus, A and F should be the best antecedents, and C and D should be the worst antecedents of ellipsis. This means that D and C should be the most favoured ellipsis sites, and A and F should be the least favoured ellipsis sites. The combination of the temporal factor and the prominence factor yields exactly the pattern in (118–119).

7 Delimiting coordination

In this final section, I will discuss ways in which coordinate constructions can be delimited against related constructions, in particular, dependency/

subordination constructions and less grammaticalized constructions. Finally, I ask whether coordination constructions are universal.

7.1 Coordination versus dependency/subordination

The formal symmetry of the terms **coordination** and **subordination** does not correspond to a similar conceptual symmetry. First of all, while *coordination* is applied to the combination of both phrases and clauses, *subordination* is generally restricted to clauses. For instance, in the sentence *If you see Pat, tell me immediately*, we would say that the clause *if you see Pat* is subordinate (to the main clause), but not that the direct objects *Pat* and *me* or the adverb *immediately* are subordinate (to the verb). Instead, the term **dependency** is used as a general term for both phrases and clauses.[12]

As I noted in Section 0, an important difference between coordination and dependency is that two coordinate elements A–B are symmetrical, whereas two elements X–Y in a dependency relation are asymmetrical, with X being the **head** and Y being the **dependent** (or vice versa). This is often thought of as a difference in the syntactic/structural relations of the elements: in head–dependent relations, we find asymmetrical formal phenomena such as person–number agreement of the head with the dependent (e.g. verbs agreeing with their arguments), or case–number agreement of the dependent with the head (e.g. adjectives agreeing with the nouns they modify), or government of the dependent properties by the head (e.g. verbs governing the case of their arguments). Such asymmetries are often absent from coordinate structures, and the coordinands are often structurally more on a par, thus mirroring their identical semantic roles.

But coordinate constructions may also show a fair amount of structural asymmetry, especially when they have their origin in comitative structures (which are, of course, dependency structures – see Section 5.1). Structural asymmetries are attested in non-comitative coordination as well, e.g. Norwegian *han og meg* (he.NOM and I.ACC) 'he and I' (Johannessen 1998:1). And, conversely, head–dependent relations are not always reflected in formal asymmetries, e.g. in languages that lack agreement and case-marking. Thus, it seems best to define both coordination and dependency in semantic terms,[13] and to take as criterial the identity vs non-identity of the semantic roles that the connected elements play. Formal tests for subordination vs dependency, such as the coordinate structure constraint (Section 0), will largely yield the same results as the semantic

[12] Thus, a *subordinate clause* is more or less the same as a *dependent clause* (though Haspelmath (1995:26) makes a subtle distinction between them), and *subordination* is now more or less equivalent to *clausal dependency*.

[13] See also Croft (1996, 2001) for a semantic definition of heads and dependents.

criterion, but, as we saw in Section 5.1, mismatches between the semantic criteria and the formal criteria, as well as among different formal criteria, are not uncommon.

When the coordination or dependency status of a sequence of two clauses is in question, i.e. when we are unsure whether we are dealing with coordination or subordination, the semantic criterion is often difficult to apply (see Cristofaro (2003) for some discussion). For instance, with converb constructions of the type illustrated above in Section 3, it is often unclear whether we should describe them as subordinate or coordinate. Example (57b) from Korean is repeated here for convenience:

(57) b. Achim mek-**ko** hakkyo ka-ss-eyyo
breakfast eat-and school go-PAST-IND
'I ate breakfast and went to school /
After eating breakfast, I went to school'

Both of the English translations given seem appropriate here, so one wonders whether there are formal criteria that would be of help in deciding the issue.

In Haspelmath (1995), I noted that, across languages, subordination structures generally have the following properties:

(i) only subordinate clauses can be in internal position (i.e. with the subordinate clause inside the main clause): *At eight o'clock, after eating breakfast, I went to school*.

(ii) only subordination constructions allow extraction of *wh*-pronouns (because of the coordinate structure constraint, Section 0): *Where did you go after eating breakfast?*

(iii) only subordinate clauses can be focussed: *It was after eating breakfast that I went to school*.

(iv) only subordinate clauses allow backwards anaphora: *After meeting her$_i$ again, I admired Joan$_i$ even more*.

But again, as in the case of comitative conjunction, mismatches occur. When we try to apply the criteria to the case of the Korean *-ko* converb used in (57b), the evidence is mixed (see Rudnitskaya (1998) for detailed discussion). When the verb shows tense (e.g. the past-tense suffix *-ass*), the converb clause cannot be in internal position, but must precede the finite clause (120a). When the verb lacks tense, it can be inside the finite clause (120b).

(120) a. Swunmi-nun caki aphathu-lul phal(-ass)-**ko**
Sunmi-TOP self's apartment-ACC sell(-PAST)-CONV
cohun cip-ul sa-ss-ta
good house-ACC buy-PAST-DECL
'Sunmi sold her apartment and bought a good house'

b. Swunmi-nun cohun cip-ul [caki aphathu-lul phal-ko]
Sunmi-TOP good house-ACC self's apartment-ACC sell-CONV
sa-ss-ta.
buy-PAST-DECL
'Sunmi bought a good house, having sold her apartment'

As Rudnitskaya (1998) shows, there are a number of diverse factors that determine whether subordination tests are positive or negative. Thus, it is often not straightforward whether a verbal (converb) marker signals subordination or coordination.

Similarly, Culicover and Jackendoff (1997) show that there is a class of English clause-combining constructions that show mixed subordinate–coordinate behaviour, as illustrated in (121).

(121) You drink another can of beer **and** I'm leaving
(= If you drink another can of beer, I'm leaving)

This construction is semantically subordinate, but the syntactic evidence is mixed. Most strikingly, the linker *and* does not look like a clause-final subordinator, but much more like a medial coordinator. But Culicover and Jackendoff (1997:206) show that this construction does not obey the coordinate structure constraint, and behaves as subordinate also with respect to backwards anaphora.

Thus, structural tests show no more than a tendency to correlate with semantic criteria, not a strict one-to-one correspondence. But the investigation of the attested types of mismatches and constraints on mismatches is a rich area for future discoveries.

7.2 Degrees of grammaticalization

The patterns and coordinators discussed in this chapter are primarily those that show the highest degree of structural integration or **grammaticalization**. I have not said much about further semantic types of coordination such as causal coordination, consecutive coordination (e.g. French *Je pense donc je suis* 'I think, therefore I am') or explicative coordination (e.g. *The film is open only to adults, i.e. people over 18*). These coordination types are marginal, and the linkers used in them are not always clear cases of coordinators. In conjunction and adversative coordination, too, there are some linkers (e.g. *then*, *moreover*, *yet*, *however*) that are not generally recognized as coordinators, but are typically treated as **linking adverbs** (or **conjunctional adverbs**). The criteria for treating them as adverbs rather than coordinators are typically formal, not semantic. For instance, it is commonly said that coordinators are always in initial position and that they do not co-occur with other coordinators. The first criterion excludes *however*, the second excludes *yet* and *then* (cf. *She was unhappy about it,*

and yet / and then she did as she was told), and both criteria qualify *for* as a coordinator. In German, with its verb-second word order, a formal criterion is that adverbs, but not coordinators, occupy the preverbal slot and force the subject into postverbal position (e.g. contrast *und Lisa kam / *und kam Lisa* 'and Lisa came' with *dann kam Lisa / *dann Lisa kam* 'then Lisa came'). But, as is so often the case, these various formal criteria do not always yield consistent results. For instance, *then* and *yet* behave like coordinators in that they can link not just sentences, but also VPs (e.g. *The car turned suddenly, then screeched to a halt*), but they are unlike coordinators in that they can co-occur with *and*. And German *doch* 'however' allows either word order pattern (*doch Lisa kam spät / doch kam Lisa spät* 'however, Lisa came late'). Thus, the category of coordinators does not have sharp boundaries, and, in a cross-linguistic perspective, it seems best to focus on the most grammaticalized members of the category.

7.3 Is coordination universal?

The degree of grammaticalization is also relevant for another important question: whether coordination is a universal that is found in all languages, or whether some languages lack coordinate patterns. Gil (1991) argues that Maricopa (a Yuman language of Arizona) has no coordinate structures, though he defines coordination formally, starting out from English-like patterns. At the same time, Gil notes that Maricopa speakers have a variety of ways of expressing 'A and B', e.g. simple juxtaposition (cf. (19b) above), or a form of the verb *uðaav* 'accompany' (so that 'John and Bill will come' is literally 'John, accompanying Bill, will come'). If Gil's analysis is right, Maricopa is a language that has no specific grammatical constructions dedicated to expressing coordination, although it can express the same concepts by using its lexical resources, or by leaving them implicit. That may of course be the case, and it would constitute an important finding.

However, another possibility is that Maricopa coordinate structures simply exhibit a fairly low degree of grammaticalization, so that they are easily mistaken as completely non-grammaticalized. We saw in Section 5.1 that many languages with comitative conjunction at first blush appear to show no dedicated conjunction pattern, simply replacing 'A and B' by 'A with B'. But when these comitative-conjoined patterns are examined more closely, it is often found that they are grammatically and semantically distinct from their comitative source constructions, even though they still show the same overt marker. It may well be that the Maricopa patterns are also on their way toward grammaticalization, and that a closer look would reveal evidence for this. But, whatever the right description of Maricopa turns out to be, it is clear that there is a universal tendency for languages to grammaticalize coordination markers from a variety of sources, and eventually the formal features of these coordination patterns seem

to converge. Different languages, or different constructions, exhibit different degrees of grammaticalization and of similarity with the source pattern, but the cross-linguistic similarities are quite striking as well.

8 Appendix: terminological issues

As in other domains of grammar, the terminology for coordination and related phenomena is often disparate and sometimes confusing. The following remarks point out synonyms and homonyms of the terms chosen in the main body of the chapter.

(1) **Coordinator**: This is a non-traditional term for what has more often been called *coordinating conjunction*. The term *conjunction* in this traditional sense comprises both coordinators and markers of subordination (*subordinators*). I have avoided this term in this chapter because I want to reserve *conjunction* to denote a special type of coordination ('and'-coordination, or conjunctive coordination).

(2) **Conjunction and disjunction**: An older term for *conjunctive coordination* (= *conjunction*) that is now rarely used is *copulative coordination*. (However, the term *copulative compound* (= *coordinative compound*) is still fairly common.) Besides *disjunctive coordination* (= *disjunction*), one also *finds alternative coordination*. Since conjunction is by far the most frequent type of coordination, the term *conjunction* is sometimes (erroneously or carelessly) used as a synonym of *coordination*.

(3) **Coordinand**: This term is introduced in the present chapter for the units that are combined in a coordinate construction (cf. Dixon (1988:161), where I have found this term used in the same sense). There is no traditional term for this concept. Dik (1968) uses the term *term (of a coordination)*. Sometimes the term *conjunct* is used as a synonym of *coordinand* (just as *conjunction* is sometimes used as a synonym of *coordination*), but this is confusing and should be avoided.

(4) **Emphatic coordination**: This term is used in the present chapter for coordinations such as *both A and B*, or *either X or Y*. There is no traditional term for such constructions. J. R. Payne (1985) uses the feature '[±separate]', so my *emphatic coordination* corresponds to Payne's '[+separate] coordination'. (Payne uses the feature '[±emphatic]' to distinguish between *A, B and C* and *A and B and C*, so my use of this term is very different from Payne's.)

(5) **Inclusory conjunction**: This term is inspired by Lichtenberk (2000), who introduces the term *inclusory pronominal construction*. There is no traditional term for this concept. For phrasal inclusory conjunction as in (87), Schwartz (1988a, 1988b) and Aissen (1989:523) use the term *plural pronoun construction*, and in Australianist circles the term *inclusive*

construction seems to have been used (Wilkins (1989:407); but see now Singer (2001)). For the split construction as in (89), Schwartz (1988a, 1988b) uses the term *verb-coded coordination*. I prefer Lichtenberk's term *inclusory*, because it allows one to capture the similarities between the two constructions. It is better than *inclusive*, because the neologism *inclusory* makes it very clear that a special kind of construction is referred to.

(6) **Analipsis** (= *forward ellipsis*) and **catalipsis** (= *backward ellipsis*): These are inspired by Zifonun *et al.*'s (1997 1:571) *Analepse/Katalepse*, which have antecedents in the late nineteenth century. The prefixes *ana-* and *cata-* are used in the same sense here as in *anaphoric* and *cataphoric*.

9 Suggestions for further reading

General overview articles on coordination are J. R. Payne (1985) (with emphasis on cross-linguistic diversity), van Oirsouw (1993), and Grover (1994) (with emphasis on ellipsis phenomena in English).

The best general book-length study of coordination is still Dik (1968), although much of the discussion of early transformational grammar is primarily of historical interest now.

Much of the literature on coordination from a formal syntactic point of view has been concerned with ellipsis in coordination in English and similar European languages, for instance the book-length studies by van Oirsouw (1987), Neijt (1979) and Wesche (1995). A formal semantic approach is adopted in Lang (1984).

The typological literature on coordination is rather scarce. For ellipsis, the two most important references are Harries-Delisle (1978) and, especially, Sanders (1977). For coordination in general, three important references are Moravcsik (1971), Mithun (1988), and Stassen (2000). A collection of papers describing coordinating constructions in various languages is Haspelmath (2004).