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The internal structure of adverbial clauses[1]

Kees Hengeveld

1. Introduction

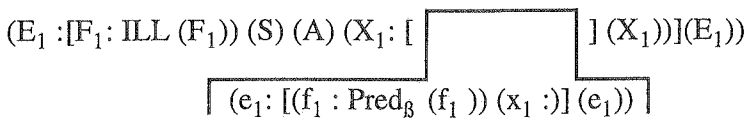
Within the theory of Functional Grammar, more in particular, within the part of this theory which concerns the hierarchical structure of the clause (Dik 1989; Hengeveld 1989, 1990), quite a number of layers are claimed to be relevant for the analysis of natural languages. But when we try to provide evidence for the validity of each of these layers, we face the serious problem that in the analysis of independent clauses the individual layers cannot be isolated, since they are all simultaneously present. One of the most important ways to circumvent this problem is to study the properties of subordinate constructions. Since subordinate constructions may be classified according to the highest layer they contain, and since each of the layers present in the hierarchical clause model may be turned into a subordinate construction, the study of the formal and semantic properties of different types of subordinate construction may be expected to lead to a better understanding of the differences between the various layers.

So far only complement clauses have been studied extensively from this perspective, particularly in Bolkestein (1990) and in Dik—Hengeveld (1991). Building on the results of these studies, I will extend the analysis to adverbial clauses. In this paper I will restrict myself to factual complement and adverbial clauses, that is, clauses describing realized relations or properties, real states of affairs, true propositions, or affirmative speech acts. In Hengeveld (fc.) I demonstrate that the parameters used in this paper for the description of factual clauses are equally relevant for the description of nonfactual clauses.

2. Layering

Before turning to the actual topic of this paper I should make explicit

which layers I consider to be relevant within the hierarchical model of the clause. Figure 1 shows these layers, and is basically the model proposed in Hengeveld (1989) incorporating the predicate variables proposed in Hengeveld (1992) and Keizer (1992).



(E_1)	Clause	(e_1)	Predication
(F_1)	Illocutionary predicate	(f_1)	Predicate
(X_1)	Proposition	(x_1)	Term

Figure 1. The hierarchical structure of the clause

Let's have a brief look at this model, starting at the highest level: this structure represents the speech act (E_1) with illocutionary force (F_1), in which a speaker (S) transmits a propositional content (X_1) to an addressee (A). Within the propositional content reference is made to a state of affairs (e_1) in which one or more individuals (x_1) are engaged in a relation or have a property (f_1). The designations of the different layers are listed in Table 1.

Table 1. Designation of layers

Layer	Designation
(E_1)	Speech Act
(F_1)	Illocution
(X_1)	Propositional Content
(e_1)	State of Affairs
(f_1)	Relation or Property
(x_1)	Individual

3. Subordination in Functional Grammar

A second preliminary issue concerns the classification of subordinate constructions. In Figure 2 I give a classification in which subordinate constructions are contrasted with superordinate ones. Subordinate constructions are further subdivided by the parameters open-closed, governing-governed, and obligatory-optional.

Superordinate				Main clause
Subordinate	Open			Relative clause
	Closed	Governing		Predicate clause
		Governed	Obligatory	Complement clause
			Optional	Adverbial clause

Figure 2. Types of subordinate construction

The different construction types are illustrated in (1)–(5). The only type of subordinate construction not commonly dealt with in the literature is that of the predicate clause. This construction type is illustrated in (3), in which the proposition *John is ill* occupies the predicate slot of the main clause and, being a nonverbal predicate, is accompanied by a copula.

(1) John is ill. (Main clause)
(2) *The boy* that is ill *is John*. (Relative clause)
(3) *It may be that* John is ill. (Predicate clause)
(4) *I don't believe that* John is ill. (Complement clause)
(5) *I don't go because* John is ill. (Adverbial clause)

A property shared by complement clauses and adverbial clauses is that they are both governed, i.e. their underlying structure is entirely determined by elements of the main clause. In the case of complementation the complement taking predicate determines the underlying structure of the complement clause, in the case of adverbial subordination the semantic function of the adverbial clause determines its underlying structure. This common feature of adverbial and complement clauses makes them ideal candidates for the study of properties of layers in isolation. To give one example, both the complement clause of the verb *believe* in (4) and the adverbial clause

with the semantic function Reason in (5) are necessarily propositional in nature, and therefore represent ideal test frames for the study of the propositional layer. Similar pairs of examples can be construed for other layers.

4. Complementation and layering

4.1. Introduction

In order to further investigate the properties of subordinate constructions in relation to layering, and given the fact that quite a lot of work has been done on complementation, I will start with the presentation of a somewhat more elaborate classification of complement clauses. I will then try to apply this to adverbial subordination.

4.2. Entity types

4.2.1. Basic classification

Making use of ideas of Foley—Van Valin (1984) and Lehmann (1988), I suggest in Hengeveld (1989) that subordinate constructions may be classified according to the highest layer they contain. Some examples from the domain of complementation given there are reproduced in (6):

(6)

Say_V	$(x_1)_{Ag}$	$(E_1)_{Go}$	Clause
$Believe_V$	$(x_1)_{Exp}$	$(X_1)_{Go}$	Proposition
See_V	$(x_1)_{Exp}$	$(e_1)_{Go}$	Predication

The verb *say*, when used for direct speech reports, takes an argument designating a speech act (E_1), the verb *believe* an argument designating a propositional content (X_1), and the verb *see* when used to describe immediate perception an argument designating a state of affairs (e_1). Complements can thus be characterized in terms of the entity types they designate. There are more entity types than those designated by the complement types listed in (6), and these will be dealt with in the following sections.

4.2.2. Speech act verbs

In Bolkestein (1990) it is shown that certain indirect speech complements differ in several respects not only from clausal, but also from propositional complements. The availability of a variable for illocutions now makes it possible to distinguish between direct and certain types of indirect speech on the one hand, and indirect speech and propositional complementation on the other. Consider the simplified representation in (7):

(7) Say_V $(x_i$: *John* $(x_i))_{Ag}$
$(F_i$: DECL $(F_i))_{Go}$ (S) (A) $(X_i$: [*he may be late*] $(X_i))$
'John says he may be late.'

Here the verb *say* takes an illocutionary frame as its goal argument. This illocutionary frame brings along its own argument structure, within which a propositional content is inserted. The presence of variables for speaker and addressee within the embedded illocutionary frame correctly predicts that the propositional attitude expressed with respect to the embedded propositional content should be attributed to the original speaker, not to the present speaker. The absence of the speech-act variable (E) accounts for the fact that there is no deictic centre shift.

4.2.3. Aspectual verbs

The presence of a predicate variable at the representational level opens up new possibilities too, as suggested in Hengeveld (1992). It can be used to deal with some types of subordination within which there is a like-subject constraint. Consider the representation in (8):

(8) $Continue_V$ $(f_i$: $swim_V$ $(f_i))$ $(x_i$: *John* $(x_i))_{Ag}$
'John continues to swim.'

Again the embedded predicate frame brings along its own argument structure. This type of complementation closely approaches the domain of predicate formation, so that one may expect that the aspectual and modal concepts expressed by predicates taking a predicate

as their argument will in some languages be expressed by derivational means rather than by means of complementation.

4.2.4. Extended classification

Incorporating the two types of subordinate construction discussed in 4.2.2 and 4.2.3, the classification in (6) may be extended to the one in (9):

(9)

Say_V	$(x_1)_{Ag}$	$(E_1)_{Go}$	Clause (direct speech)
Say_V	$(x_1)_{Ag}$	$(F_1)_{Go}$	Illocution (indirect speech)
$Believe_V$	$(x_1)_{Exp}$	$(X_1)_{Go}$	Proposition
See_V	$(x_1)_{Exp}$	$(e_1)_{Go}$	Predication
$Continue_V$		(f_1)	Predicate

4.3. Operator dependencies

4.3.1. Introduction

Even the fivefold classification in (9) is incomplete. In Bolkestein (1990), Hengeveld (1990) and Dik—Hengeveld (1991) it is argued that further subdistinctions have to be made with respect to restrictions on the choice of operators allowed within complements. Two types of restriction are of particular interest: time dependency (4.3.2) and presupposedness (4.3.3).

4.3.2. Time dependency

Consider the examples in (10) and (11):

(10) a. *I saw him leave.*
b. **I saw him have left.*

(11) a. *I regret that he leaves today.*
b. *I regret that he left yesterday.*

The complements of *see* and *regret* both designate states of affairs. The difference between them resides in the fact that the event described in the complement of *see* is necessarily simultaneaous with the main clause event[2], i.e. has dependent time reference (DTR), whereas the event described in the complement of *regret* is temporally independent of the main clause. This difference may be represented as in (12):

(12)

See_V	$(x_1)_{Exp}$	$(\text{sim } e_1)_{Go}$	Predication (time-dependent)
$Regret_V$	$(x_1)_{Exp}$	$(\pi_2\ e_1)_{Go}$	Predication (time-independent)

4.3.3. Presupposedness[3]

A further distinction may be made, within the class of predications with independent time reference and within the class of propositions, between presupposed and nonpresupposed complements. Thus, both the complements of *certain* and *regret* are temporally independent of the main clause, but the event described in the complement of the factive predicate *regret* is logically entailed by the main clause event, whereas the complement of *certain* is not. This may be illustrated by means of the sentences in (13) and (14), which show the effect of negation on these two predicates.

(13) a. *It is certain that he leaves today.*
b. *It is not certain that he leaves today.*

(14) a. *I regret that Sheila leaves today.*
b. *I do not regret that Sheila leaves today.*

The difference resides in the fact that one cannot regret or not regret an event that one does not assume to take place. Therefore in (14b) the implication is that Sheila's leaving took place, despite the negation in the main clause, whereas this implication does not hold in (13b). This difference may be represented as in (15):

(15)

Regret$_V$	$(x_1)_{Exp}$	$(\pi_2$ Real $e_1)_{Go}$
		Predication (presupposed)
Certain$_A$	$(\pi_2\ e_1)_{\emptyset}$	
		Predication (nonpresupposed)

This representation shows that the π_2-position within the complement of *regret* is partly filled, and partly open to further (temporal) specification.

At the propositional level further subdistinctions can be made in a similar way. Consider the examples in (16)–(17):

(16) a. *John realizes that Sheila is ill.*
b. *John doesn't realize that Sheila is ill.*
c. **I don't realize that Sheila is ill.*

(17) a. *John believes that Sheila is ill.*
b. *John doesn't believe that Sheila is ill.*
c. *I don't believe that Sheila is ill.*

The complements of *realize* and *believe* are both propositions. The complement of the semifactive predicate *realize* is presupposed to be true, as is shown under negation in (17b). Whereas in the case of true factive predicates such as *regret* the event described in the complement is logically entailed by the main clause event, in the case of semifactive predicates such as *realize* it is the speaker who presupposes the complement proposition to be true. This is shown in the ungrammaticality of (16c), as compared with the grammaticality of (14b). *Believe* does not carry the presupposition that the complement proposition is true. The speaker may or may not be convinced of the truth of the complement proposition, hence the grammaticality of (17c), as compared with (16c).

The difference between these two verbs taking a propositional complement may now be represented as in (18):

(18)

Believe$_V$ $(x_1)_{Exp}$	$(\pi_3\ X_1)_{Go}$	
		Proposition (nonpresupposed)
Realize$_V$ $(x_1)_{Exp}$	$(\pi_3$ cert $X_1)_{Go}$	
		Proposition (presupposed)

4.4. Summary

Incorporating all the modifications proposed here in the classification of complement clauses, the resulting taxonomy is as in (19).

(19)

Say$_V$ $(x_1)_{Ag}$	$(E_1)_{Go}$	Clause
Say$_V$ $(x_1)_{Ag}$	$(F_1)_{Go}$	Illocution
Believe$_V$ $(x_1)_{Exp}$	$(\pi_3\ X_1)_{Go}$	Proposition (nonpresupposed)
Realize$_V$ $(x_1)_{Exp}$	$(\pi_3$ cert $X_1)_{Go}$	Proposition (presupposed)
Certain$_A$	$(\pi_2\ e_2)$	Predication (nonpresupposed)
Regret$_V$ $(x_1)_{Exp}$	$(\pi_2$ real $e_1)_{Go}$	Predication (presupposed)
See$_V$ $(x_1)_{Exp}$	$(\text{sim}\ e_1)_{Go}$	Predication (time-dependent)
Continue$_V$	$(f_1)_{Go}$	Predicate

5. Adverbial subordination and layering

5.1. Introduction

The same classificatory principles may now be applied within the domain of adverbial subordination. The result is given in (20).

(20)

$(F_1)_{Explanation}$	Illocution
$(\pi_3\ X_1)_{Reason}$	Proposition (nonpresupposed)
$(\pi_3$ cert $X_1)_{Concession}$	Proposition (presupposed)
$(\pi_2\ e_2)_{Cause}$	Predication (nonpresupposed)
$(\pi_2$ real $e_1)_{Addition}$	Predication (presupposed)
$(\text{sim}\ e_1)_{Simultaneity}$	Predication (time-dependent)
$(f_1)_{Means}$	Predicate

Several of the types mentioned in this classification need some clarification.

5.2. *Explanation, Reason and Cause*

Perhaps the most interesting group to start with is the one comprising the semantic relations of Explanation, Reason and Cause. These types are illustrated in (21)–(23):

(21) *The fuse blew* because we had overloaded the circuit. (Cause)

(22) *John went home* because his sister would visit him. (Reason)

(23) *Jenny isn't here*, for I don't see her. (Explanation)

What makes these three types interesting is that they are all of a causal nature, yet all of a different type. The differences between them can be understood in terms of the layered structure of the clause. The difference between Cause and Reason is in fact one that Lyons (1977) adduces to substantiate the distinction he makes between second and third order entities, that is, between states of affairs and propositional contents. In (21) the subordinate clause describes the event causing the main clause event, without there being any intentional involvement on the part of an agent. In fact, there is no agent in the main clause in (21). In (22) the reason adverbial does not cause the main clause event in any literal sense, but represents the consideration, idea, i.e. the propositional content that led a participant in the main clause event to engage in the main clause event.

There are several differences between Reason and Explanation as well. Several of these are discussed in Bolkestein (1991). Whereas the source of the reason in (22) is the main clause participant *John*, the source of the explanation in (23) is the speaker. Consequently, the adverbial clause cannot be interpreted as the reason for which the main clause event took place. Rather, it presents the considerations that led the speaker to arrive at the conclusion contained in the main clause, and can thus be seen as constituting a separate illocutionary act. The differences between the constructions in (21)–(23) may thus be represented as in (24):

(24)

$(F_1)_{Explanation}$	Illocution
$(\pi_3\ X_1)_{Reason}$	Proposition
$(\pi_2\ e_2)_{Cause}$	Predication

There are a number of linguistic facts that can be explained on the basis of these representations. First, being predicational in nature, Cause clauses may have predication operators, but not proposition operators, expressed in them. For instance, temporal modifications are allowed, but the expression of a propositional attitude is disallowed, as is illustrated in (25) and (26):

(25) *The streets are wet because it has rained/is raining.*

(26) **The fuse blew because we may have overloaded the circuit.*

Secondly, being propositional, Reason clauses may contain proposition operators, but they may not contain illocutionary modifications, as is illustrated in (27)–(28):

(27) *John went home because his sister might visit him.*

(28) **John went home because, frankly, his sister would visit him.*

Thirdly, having an illocutionary component, Explanation clauses may contain illocutionary modifications and they may have their own illocution, as is illustrated in (29) and (30):

(29) *Jenny isn't here, for, honestly, I don't see her.*

(30) *Where is Jenny, for I don't see her.*

5.3. *Concession and Addition*

The next pair of adverbial relations involves Concession and Addition. These are illustrated in (31) and (32).

(31) *He got the job although he had no qualifications.* (Concession)

(32) *Apart from doing the cooking I look after the garden.* (Addition)

A concessive adverbial clause describes a piece of information in view of which the information contained in the main clause would not be expected. An Addition clause describes an event taking place in addition to the main clause event. Both adverbials are of a presupposed nature, the former is semifactive, the latter is truly factive.

The tests used to prove the distinction between presupposed and nonpresupposed clauses in the field of complementation do not work very well in the domain of adverbial subordination. But in this domain the distinction can be proved in other ways. Here I will concentrate on differences with respect to the effects of modalization on presupposed and nonpresupposed adverbial clauses (see Hengeveld—Wanders fc.).

Compare the examples of nonpresupposed adverbial clauses in (33)–(34) with the examples of presupposed adverbial clauses in (35)–(36):

(33) The fuse probably blew *because we had overloaded the circuit.*

(34) Jenny probably went home *because her sister would visit her.*

(35) He probably looked after the garden *apart from doing the cooking.*

(36) He probably got the job *although he had no qualifications.*

In (33)—(34) the adverbial clause may fall within the scope of the modal adverb *probably*. The content of the adverbial clause is part of the modalized information. In (35)–(36), on the other hand, it is merely the content of the main clause that is modalized. This difference follows directly from the fact that the adverbial clauses in (35)–(36) have a predetermined factuality value which does not permit further modalization.

The difference between (second order) Addition and (third order[4]) Concession is reflected in the behaviour of adverbials of these types in questions, as is demonstrated in (37) and (38):

(37) *Does he look after the garden apart from doing the cooking?*

(38) **Did he get the job although he had no qualifications?*

Whereas (37) is a perfectly acceptable question, (38) is acceptable as an echo question only (as one intonational unit), paraphrasable as 'Do you really want to say/imply: "He got the job although he had no qualifications"?'. This is due to the fact that through the semifactive *although* the speaker commits himself to the truth of the adverbial clause, which makes it unsuitable to occur as part of an open question.

The difference between Concession and Addition may thus be represented as in (39):

(39) $(\text{cert } \pi_3 \text{ } X_1)_{\text{Concession}}$ Proposition (presupposed)
$(\text{real } \pi_2 \text{ } e_1)_{\text{Addition}}$ Predication (presupposed)

5.4. Simultaneity and Means

Simultaneity and Means are illustrated in (40) and (41):

(40) *He cut himself while shaving.* (Simultaneity)

(41) *They escaped by sliding down a rope.* (Means)

Both types of adverbial clause are alike in that they do not admit independent temporal specification. The difference between them is that in the case of Means there is obligatory sharing of participants in main and subordinate clause, whereas in the case of Simultaneity there is not, as is illustrated in (42)–(43):

(42) *He cut himself while I was shaving.*

(43) **They escaped by my opening the door.*

This difference is accounted for in the underlying representations given in (44):

(44) $(\text{sim } e_1)_{\text{Simultaneity}}$ Predication (time-dependent)
$(f_1)_{\text{Means}}$ Predicate

5.5. *Summary*

The differences between the various types of adverbial clause may now be summarized as in Figure 3.

Entity type / Presupposedness	Zero order	Second order		Third order	Fourth order
Nonpresupposed	$(\pi_1 f_1)$ Means	ITR	$(\pi_2 e_1)$ Cause	$(\pi_3 X_1)$ Reason	$(\pi_4 F_1)$ Explanation
		DTR	$(\text{sim } e_1)$ Simultaneity		
Presupposed		$(\pi_2 \text{ real } e_1)$ Addition		$(\pi_3 \text{ cert } X_1)$ Concession	

Figure 3. Types of adverbial clause (π_n = any operator of class n; sim, real, cert = fixed operators simultaneous, real and certain, respectively; DTR = dependent time reference, ITR = independent time reference).

Along the horizontal axis, going from left to right through Figure 3, the internal complexity of the adverbial clause increases from a mere predicate to a nearly full clause with its own illocution. Along the vertical axis, the clauses differ as regards the potential values of the various operator positions. The main division here concerns the presupposedness of the adverbial clause. Secondarily, and within the class of nonpresupposed second order entities only, a division is made between clauses with dependent and those with independent time reference.

6. The expression of adverbial clauses

6.1. *Introduction*

In order to demonstrate the validity of the parameters distinguished above, I will now turn to a typological investigation of the expression of adverbial clauses.[5]

6.2. *The sample*

All typological observations made in this paper are based on a sample of 25 European languages, which were selected according to the method described in Rijkhoff et al. (1993). The languages are distributed across the European phyla as indicated in Table 2. For two extinct phyla, ETRUSCAN, and OSCO-UMBRIAN, no data could be obtained. As a result, the actual sample contains 23 languages.[6]

6.3. *Finiteness and nonfiniteness of adverbial clauses*

6.3.1. Introduction

For each of the sample languages, data were collected with respect to the form the subordinate verb takes in the various types of adverbial construction discussed earlier. Paratactic realizations of interclausal relations were excluded. Here I will restrict myself to the finite and nonfinite realization of the subordinate verb. Figure 3 will serve as my point of departure for presenting the typological data. This figure contains three parameters, which represent three typological hierarchies. The parameter represented horizontally, which concerns the type of entity the adverbial clause refers to, is of crucial interest to the question raised in this paper concerning the validity of the various layers recognized within the hierarchical structure of the clause, since the entity types which make up this parameter each correspond with a particular layer. However, since this parameter interacts crucially with the remaining two, it cannot be studied in isolation.

Table 2. Sample languages

SEMITIC-WEST-CENTRAL (1)	*Maltese*
ALTAIC PROPER (3)	
OIRAT-KALMYK (1)	*Kalmyk*
TURKIC (2)	
COMMON TURKIC (1)	*Turkish*
BOLGAR (1)	*Chuvash*
CAUCASIAN (4)	
NORTH (3)	
NORTHEAST (2)	
DAGESTAN (1)	*Lezgian*
NAX (1)	*Chechen*
NORTHWEST (1)	*Abkhaz*
SOUTH (1)	*Georgian*
INDO-EUROPEAN (13)	
GERMANIC (2)	
NORTH (1)	*Danish*
WEST (1)	*Dutch*
ITALIC (3)	
LATINO-FALISCAN (2)	
ROMANCE (1)	*Spanish*
LATIN (1)	*Latin*
OSCO-UMBRIAN (1)	------
BALTO-SLAVIC (2)	
SLAVIC (1)	*Russian*
BALTIC (1)	*Lithuanian*
GREEK (1)	*Greek, Modern*
INDO-IRANIAN (2)	
IRANIAN (1)	*Ossetic*
ROMANI (1)	*Romani*
ARMENIAN (1)	*Armenian, Modern*
ALBANIAN (1)	*Albanian*
CELTIC (1)	*Irish, Modern*
BASQUE (1)	*Basque*
ETRUSCAN (1)	------
URALIC (2)	
SAMOYED (1)	*Nenets*
FINNO-UGRIC (1)	*Finnish*

6.3.2. The Entity Type Hierarchy

The first hierarchy describing the distribution of finite and nonfinite forms in adverbial clauses is given in (45), and states that the higher the order of the entity type designated by an adverbial clause, the more likely it is to be expressed by means of a finite subordinate clause.

(45) *Entity Type Hierarchy*

Zero order > Second order > Third Order > Fourth order

Nonfinite > Finite

This hierarchy predicts that if a language permits the use of a nonfinite form for the expression of, for instance, a third order subordinate clause, it will also permit the use of nonfinite forms for the expression of zero and second order subordinate clauses. Inversely, if a language permits the use of a finite form for the expression of, for instance, zero order subordinate clauses, it will also permit the use of finite forms for the expression of second, third and fourth order subordinate clauses.

Given the interaction between this hierarchy and the Presupposedness Hierarchy which will be presented below, the Entity Type Hierarchy has to be applied separately within the nonpresupposed and the presupposed domain. The data for nonpresupposed adverbial clauses are given in Table 3. In this and the following tables a "+" represents a finite verbform, a "–" a nonfinite verbform, a "P" indicates that the adverbial relation under investigation can be expressed in a paratactic construction only, and a blank indicates that no data could be obtained for the adverbial relation under consideration.

Table 3. Entity Type Hierarchy: Nonpresupposed

Language	Means	Cause	Reason	Explanation
Abkhaz		+	+	+
Albanian	–	+	+	+
Armenian	–	+	+	+
Basque	–	–/+	–/+	–/+
Chechen	–	–	–	–
Chuvash	–	–	–	P
Danish	–/+	+	+	+
Dutch	–	–/+	–/+	–/+
Finnish	–	+	+	+
Georgian	–	–/+	+	+
Greek	–	+	+	+
Irish	–	–/+	–/+	–/+
Kalmyk	–	–	–	P
Latin	–/+	–/+	–/+	–/+
Lezgian	–	–	–	P
Lithuanian	–	+	+	+
Maltese	+	+	+	+
Nenets	–	–	–	P
Ossetic	–	–/+	+	+
Romani	+	+	+	+
Russian	–	+	+	+
Spanish	–	–/+	–/+	+
Turkish	–	–	–/+	+

Table 4. Some instantiations of the Entity Type Hierarchy: Nonpresupposed

Language	Means	Cause	Reason	Explanation
Maltese	+	+	+	+
Danish	–/+	+	+	+
Ossetic	–	–/+	+	+
Turkish	–	–	–/+	+
Kalmyk	–	–	–	P

The data for all languages listed in table 3 confirm the Entity Type Hierarchy. Table 4, which contains an illustrative subset of the data in Table 3, shows this more clearly.

In the domain of presupposed adverbial clauses, the Entity Type Hierarchy can only be checked partially, since the parameter of presupposedness is relevant for adverbial clauses designating second and third order entities only. Table 5 shows the data for these types of adverbial. Again, the data confirm the Entity Type Hierarchy, as the illustrative subset in Table 6 shows more clearly.

Table 5. Entity Type Hierarchy: Presupposed

Language	Addition	Concession
Abkhaz		+
Albanian	+	+
Armenian	–/+	+
Basque		–/+
Chechen	–	–
Chuvash	–	–
Danish	–/+	–/+
Dutch	–/+	–/+
Finnish	+	+
Georgian	–/+	+
Greek	+	+
Irish	–/+	–/+
Kalmyk	–	–
Latin		–/+
Lezgian	–	–
Lithuanian	+	+
Maltese	+	+
Nenets	–	–
Ossetic		+
Romani	+	
Russian	+	+
Spanish	–/+	–/+
Turkish	–	–/+

Table 6. Some instantiations of the Entity Type Hierarchy: Presupposed

Language	Addition	Concession
Albanian	+	+
Armenian	–/+	+
Turkish	–	–/+
Chechen	–	–

6.3.3. The Presupposedness Hierarchy

The data in the preceding section show that the Entity Type Hierarchy is valid when applied to presupposed and nonpresupposed adverbial clauses separately. If these two classes had been taken together, the Entity Type Hierarchy would not have been fully confirmed. From these facts it follows that presupposedness represents an independent parameter as regards the expression of adverbial clauses. This observation is captured in the Presupposedness Hierarchy given in (46):

(46) *Presupposedness Hierarchy*

Presupposed > Nonpresupposed

Nonfinite > Finite

This hierarchy states that an adverbial clause is more likely to be expressed by nonfinite means if it is of the presupposed type. Just as the Entity Type Hierarchy has to be applied to presupposed and nonpresupposed adverbials separately, so the Presupposedness Hierarchy has to be applied separately to adverbials designating entities of different types. In other words, when investigating the variation along one parameter the other one has to remain constant. As shown in Figure 3, only adverbials designating second and third order entities can be both presupposed and nonpresupposed. Tables 7 and 8 contain the data concerning adverbials designating second order entities, tables 9–10 contain the data concerning adverbials designating third order entities.

Table 7. Presupposedness Hierarchy: Second order

Language	Addition	Cause
Abkhaz		+
Albanian	+	+
Armenian	–/+	+
Basque		–/+
Chechen	–	–
Chuvash	–	–
Danish	–/+	+
Dutch	–/+	–/+
Finnish	+	+
Georgian	–/+	–/+
Greek	+	+
Irish	–/+	–/+
Kalmyk	–	–
Latin		–/+
Lezgian	–	–
Lithuanian	+	+
Maltese	+	+
Nenets	–	–
Ossetic		–/+
Romani	+	+
Russian	+	+
Spanish	–/+	–/+
Turkish	–	–

Table 8. Some instantiations of the Presupposedness Hierarchy: Second order

Language	Addition	Cause
Greek	+	+
Danish	–/+	+
Lezgian	–	–

Table 9. Presupposedness Hierarchy: Third order

Language	Concession	Reason
Abkhaz	+	+
Albanian	+	+
Armenian	+	+
Basque	–/+	–/+
Chechen	–	–
Chuvash	–	–
Danish	–/+	+
Dutch	–/+	–/+
Finnish	+	+
Georgian	+	+
Greek	+	+
Irish	–/+	–/+
Kalmyk	–	–
Latin	–/+	–/+
Lezgian	–	–
Lithuanian	+	+
Maltese	+	+
Nenets	–	–
Ossetic	+	+
Romani		+
Russian	+	+
Spanish	–/+	–/+
Turkish	–/+	–/+

Table 10. Some instantiations of the Presupposedness Hierarchy: Third order

Language	Concession	Reason
Abkhaz	+	+
Danish	–/+	+
Nenets	–	–

These tables show that the data for all the sample languages confirm the Presupposedness Hierarchy. At the same time they confirm the independent relevance of this hierarchy.

6.3.4. The Time Dependency Hierarchy

So far only adverbials with independent time reference have been taken into consideration within the class of second order entities. As shown in 4.3.2, however, there are adverbials designating second order entities with dependent time reference as well, and these behave differently as regards their expression. Thus, time dependency constitutes a relevant parameter within the context of the present investigation. The Time Dependency Hierarchy given in (47) captures this observation. Note that again this hierarchy has independent relevance, that is, the absolute confirmation of the previous two hierarchies would not have been possible without the recognition of this third hierarchy.

(47) *Time Dependency Hierarchy*

Dependent Time Reference (DTR)	>	Independent Time Reference (ITR)
Nonfinite	>	Finite

The relevant data are given in Tables 11–12. These data fully confirm the Time Dependency Hierarchy.

Table 11. Time Dependency Hierarchy

Language	Simultaneity	Cause
Abkhaz	–/+	+
Albanian	–/+	+
Armenian	–/+	+
Basque	–/+	–/+
Chechen	–	–
Chuvash	–	–
Danish	–/+	+
Dutch	–/+	–/+
Finnish	–/+	+
Georgian	–/+	–/+
Greek	–/+	+
Irish	–	–/+
Kalmyk	–	–
Latin	–/+	–/+
Lezgian	–	–
Lithuanian	–/+	+
Maltese	+	+
Nenets	–	–
Ossetic	–/+	–/+
Romani	+	+
Russian	–/+	+
Spanish	–/+	–/+
Turkish	–	–

Table 12. Some instantiations of the Time Dependency Hierarchy

Language	Simultaneity	Cause
Romani	+	+
Finnish	–/+	+
Irish	–	–/+
Turkish	–	–

7. Conclusion

I think it may be concluded that this typological investigation of adverbial clauses shows that the various layers recognized within the FG clause model have linguistic reality. This conclusion could only be arrived at by making a distinction between presupposed and nonpresupposed adverbial clauses on the one hand, and between adverbial clauses with dependent and independent time reference on the other. These further distinctions have been argued to be related to the presence versus absence of fixed operator positions within the underlying structure of adverbial clauses.

Notes

1. I am indebted to Louis Goossens, Johan van der Auwera and Gerry Wanders for comments on an earlier version of this paper.
2. In sentences like *I saw that he had left* the verb of perception should be interpreted as describing acquisition of knowledge, rather than immediate perception. The complement clause in this sentence is therefore propositional in nature. See Dik—Hengeveld (1991) for further details.
3. This section mainly builds on the insights presented in Kiparsky—Kiparsky (1970) and Karttunen (1971). See also Bolkestein (1981).
4. A complicating factor here is that within the class of concessive constructions a distinction should be made between a predicational subclass and a propositional subclass. For English it might be argued that *although* is a concessive conjunction introducing the propositional subtype, and *despite the fact that* is one that introduces the predicational subtype. The presence of the subordinating phrase *the fact that* seems to be restricted to predicational conjunctions, not only in the domain of adverbial clauses but also in the domain of complement clauses, compare *I regret the fact that* with **I know the fact that.*
5. For a more elaborate treatment of the topics dealt with here see Hengeveld (fc.).
6. This project has been carried out within the context of the EUROTYP project. The data were collected by the members of the theme group on Adverbial relations, operators, and connectives, coordinated by Johan van der Auwera. The data were collected with the help of informants using a questionnaire. The native speakers and/or mediating linguists which contributed data for the languages of the sample on which this paper is based are M.E. Alexeyev (Chechen), Maria Barmich (Nenets), Walter Bisang (Abkhaz, Georgian), Oda Buchholz (Albanian, Greek), Y.D. Desheriyev (Chechen), Marie Dominique Even (Kalmyk), Emma Geniushene (Lithuanian), Sandra Gojal (Maltese), Hartmut Haberland (Danish), Martin Haspelmath (Lezgian), Evangelos Karagiannis (Greek), Amalia Khatchatzian (Armenian), Bernd Kortmann (Latin), A.G. Magomedov (Chechen), Yaron Matras (Romani), Juan Carlos Moreno Cabrera (Basque, Spanish), Thomas Müller Bardey (Finnish), Igor Nedyalkov (Chechen, Chuvash, Lithuanian, Nenets, Ossetic, Russian), Dónall P. Ó Baoill (Irish), Jon Ortiz de Urbina (Basque), N.P. Petrov (Chuvash), Willem Soeteman (Dutch), Hannu Tommola (Finnish), Martine Vanhove (Maltese), Johan van der Auwera (Kalmyk), and Z. Xubecova (Ossetic).

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