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CONCEPTUAL OVERLAP
IN COMPLEX SENTENCE CONSTRUCTIONS:
A COGNITIVE GRAMMAR ACCOUNT

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Complex sentences have traditionally been classified into coordination and subordination, the latter being further divided into relative clauses, complement clauses, and adverbial clauses. This paper reconsiders the traditional classification of complex sentence types and argues that the cognitive grammar concepts of (i) A/D asymmetry, (ii) "conceptual overlap" (i.e. correspondences) resulting therefrom, and (iii) profiling are pivotal to a proper understanding of the semantic structures and "conceptual overlap" (i.e. functional overlap) of complex sentence constructions.

Keywords*: cognitive grammar, complex sentence, subordinate clause, internally-headed relative clause, conceptual overlap*

1. The Coordination-Subordination Continuum

Complex sentences have traditionally been classified into coordination and subordination, the latter being further divided into relative clauses, complement clauses, and adverbial clauses:

(1) traditional taxonomy of complex sentences

- coordination
- subordination
  - relative clauses
  - complement clauses
  - adverbial clauses

There has been a growing recognition that the actual crosslinguistic data of complex sentences do not necessarily fit in with this traditional taxonomy, as remarked by Langacker (1991: 417): "Though useful so far as it goes, this taxonomy proves simplistic when measured

against the actual complexities of multiclausal constructions, which do not in fact divide themselves naturally into a small number of discrete classes with uniquely characteristic properties."

One way to reconcile the traditional taxonomy with the actual data is to revise the taxonomy itself. Among the recent typological studies of complex sentences, the one worthy of special note in this connection is that of Foley and Van Valin (1984), who propose a tripartite (instead of the traditional binary) distinction of coordination-cosubordination-subordination. Another approach is to carefully analyze the semantic structures of the traditional complex sentence types and consider the conceptual basis of the traditional taxonomy in such a way that the four traditional complex sentence types should be regarded as focal points in the continuum of the conceptual space of complex sentences. This latter approach is represented by Croft (2001), who discusses a conceptual basis of the traditional classification of complex sentences and shows how the traditional four types and other minor types of complex sentences are related to each other.

The aim of this paper is to consider "conceptual overlap" in complex sentence constructions. By "conceptual overlap" are meant two things: (i) "conceptual overlap" in the sense of "functional overlap" exhibited by different complex sentence constructions, and (ii) "conceptual overlap" in the sense of "correspondences" observed in the semantic structure of a given complex sentence construction. By examining the classification and semantic structures of complex sentence constructions, I will argue that A/D asymmetry, "conceptual overlap" (i.e. correspondences) resulting therefrom, and profiling are pivotal to a proper understanding of the semantic structures and "conceptual overlap" (i.e. functional overlap) of complex sentence constructions.

The organization of the paper is as follows: Section 2 and Section 3 summarize basic tenets of Croft's (2001) "Radical Construction Grammar" and his analysis of complex sentence types within this framework. In Section 4, I will critically review Croft's analysis of "conceptual overlap" (i.e. functional overlap) among complex sentence types, and argue that his analysis fails to properly characterize the semantic structures of complex sentences, where conceptual dependence and "conceptual overlap" (i.e. correspondences) should play a critical role. In Section 5, I will propose a cognitive grammar account of complex sentence

constructions and argue how the proposed account handles the semantic structures of complex sentence types and gradations among them in a more illuminating way. Section 6 concludes the paper.

2. Basic Tenets of Radical Construction Grammar

"Radical Construction Grammar" advanced by Croft (2001) takes "constructions" as "the basic units of syntactic representation" and claims that "virtually all aspects of the formal representation of grammatical structure are language-particular" (ibid.: 4). The theory, however, does not deny the universals of language: "Constructions are language-specific in their morphosyntactic properties, but their function in structuring and communicating information is not" (ibid.: 60). The universals of language are found in "conceptual space," i.e. "a structured representation of functional structures and their relationships to each other" (ibid.: 93). The quote below captures the essence of his view:

(2) All speakers possess (or acquire) the universal structure of conceptual space, including its topography (prototypical vs. nonprototypical regions, for example). The acquisition (and use) of language involves identifying the distribution pattern of each construction acquired. This process is the discovery of the semantic map for that construction. [...] The result is a semantic map representing the distribution patterns of the constructions of the language. (ibid.: 106)

In sum, we all have the universal structure of "conceptual space", namely the meaning and function in need of linguistic encoding.[1] Language acquisition amounts to the task of discovering how constructions of a given language divide up the relevant conceptual space and of identifying the distribution pattern of each construction in that conceptual space.[2]

3. Croft's (2001) Analysis of Complex Sentences

With this brief sketch of Radical Construction Grammar, we are now ready to summarize Croft's (2001: Ch. 9) analysis of complex sentences. Croft argues for a conceptual basis of complex sentence constructions, claiming that the conceptual space of

complex sentence constructions is defined by two dimensions: "the complexity and the continua found in the typology of complex sentences can be organized into a conceptual space defined by a Gestalt distinction between complex figure and figure-ground constructions, and by the property of e-site elaboration" (ibid.: 361). The conceptual space thus defined is shown below:

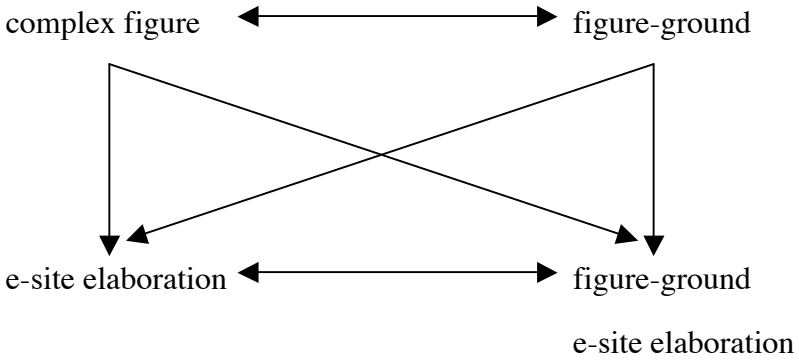


Figure 1 The conceptual space of complex sentence types (Croft (2001: 327))

The two dimensions defining the above conceptual space draw from previous studies of complex sentences, the horizontal dimension being inspired by Gestalt analyses of adverbial subordination by Talmy (1978, 2000: Ch.5) and of coordination by Wierzbicka (1980: Ch.7), and the vertical dimension by Langacker's (1991: Ch.10) cognitive grammar analysis of complex sentences.

Let us consider the horizontal dimension first. Talmy (2000: 315-316) defines "Figure" and "Ground" in linguistic usage as "Has unknown spatial (or temporal) properties to be determined" and "Acts as a reference entity, having known properties that can characterize the Figure's unknowns" respectively, and then contrasts their associated characteristics in such a way that "Figure" is "more movable; smaller; geometrically simpler (often pointlike) in its treatment; more recently on the scene/in awareness; of greater concern/relevance; less immediately perceivable; more salient, once perceived; more dependent," whereas "Ground" is "more permanently located; larger; geometrically more complex in its treatment; more familiar/expected; of lesser concern/relevance; more immediately perceivable; more backgrounded, once Figure is perceived; more independent." Talmy (1978, 2000: Ch.5)

generalizes the notion of Figure/Ground, originally conceived for the relative location of objects in space, to the relative location of events in time, and suggests that a main clause and a subordinate clause in adverbial clause constructions can respectively be characterized as Figure and Ground.[3]

Independently of Talmy, Wierzbicka (1980: Ch.7) provides a Gestalt analysis of coordination. She argues that conjoined elements in coordination are conceptualized as designating "one unit composed of two parts," namely a complex figure, based on "a certain common denominator" shared by them (ibid.: 229-233). Thus, (3a) is acceptable because the two events being described can be conceptualized as a single, unified whole due to a common denominator, while (3b) is not (ibid.: 254, 227):

(3) a. The sun was shining and the birds were singing.

b. ??John kissed Mary on the nose and kangaroos are mammals.

Let us next turn to the notion of "e-site elaboration," which defines the vertical dimension of the conceptual space of complex sentence types in Figure 1. The concept "elaboration site" (e-site, for short) is defined as "Those facets of one component structure in a valence relation that another component structure serves to elaborate" (Langacker (1987: 489)). For instance, in *I believe she left*, the landmark of the verb *believe* serves as e-site, which is elaborated (i.e. fleshed out) by the complement clause *she left*.

The two dimensions introduced above define the conceptual space of complex sentence types. Figure 2 below represents a semantic map of complex sentence constructions onto the conceptual space in Figure 1:

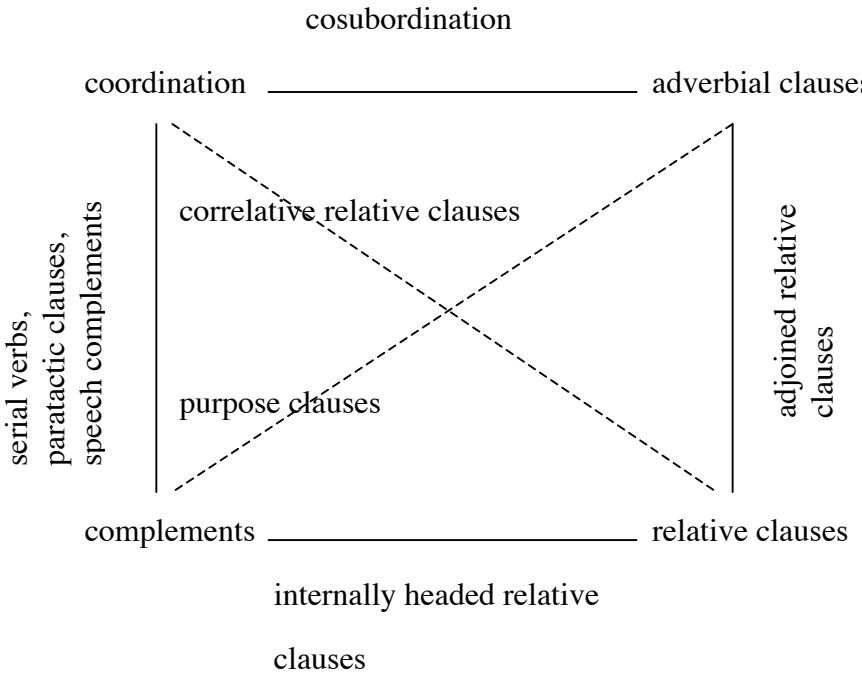


Figure 2 The continuum of complex sentence types (Croft (2001: 322))

Based on the claim that "there are syntactic constructions in languages that encode any pair of the four traditional types of complex sentence constructions" (Croft (2001: 322)), Figure 2 consists of the four traditional types of complex sentence constructions occupying the four corners of the conceptual space, with various minor complex sentence constructions situated between a pair of the four traditional types.[4] What distinguishes Croft's analysis from the previous studies is that he recognizes continuity not only at the higher level of coordination vs. subordination, but also at the lower level, i.e. between coordination and each of the three subordinate clause types, as well as among the three subordinate clause types.

4. Problems

Comprehensive and beautiful as Croft's analysis may be, it is not without its problematic aspects. We will take a look at three potential problems in this section.

4.1. Adequacy of the Two Dimensions of the Conceptual Space

The first problem concerns the two dimensions Croft sets up for defining the conceptual space of complex sentence constructions in Figure 1: the Gestalt distinction of

complex figure and figure-ground as the horizontal dimension, and the property of e-site elaboration as the vertical dimension.

We must first consider whether these two dimensions are adequate to situate the four traditional complex sentence types within the conceptual space. Especially problematic in this regard is the assignment of complements and adverbial clauses. Complements are situated on the lower left in Figure 2, which should mean that a main clause and a complement clause form a complex figure (though Croft somehow leaves the Gestalt specification unfilled in the lower left in Figure 1). This is in conflict with the received view that a main clause is the head of a complement clause construction.[5] Furthermore, adverbial clauses are situated on the upper right in Figure 2, which is supposed to mean that they do not involve e-site elaboration. This, however, is not the case as we will see later in Section 5.

Second, given that intermediate constructions (i.e. cosubordination, paratactic clauses, internally headed relative clauses, adjoined relative clauses, etc.) are posited along each dimension in Figure 2, the two dimensions must vary continuously. As we will see later in Section 5, the vertical dimension is continuous because the property of e-site elaboration, which results from conceptual dependence, is a matter of degree. The horizontal dimension, on the other hand, appears to pose a problem. By definition, the figure/ground distinction is dichotomous and there is nothing in between.[6] If the horizontal dimension shows every gradation from a figure-ground configuration to a complex figure configuration, it should be prominence difference between figure and ground that changes in a continuous manner.[7]

Third, Croft's analysis fails to capture what it means to say that a clause is subordinate: Figure 1 does not say anything about what adverbial, complement and relative clauses have in common. In other words, the traditional binary classification of coordination and subordination have no reflections in Figure 1.

The above discussion casts doubt upon Croft's overall scheme of characterizing complex sentences in terms of the two dimensions he assumes.

4.2. Treatment of Non-Traditional Complex Sentence Constructions: A Case Study

The next problem concerns Croft's general strategy to characterize every minor, non-traditional complex sentence construction as intermediate between a pair of the four

traditional types. To consider whether this approach is viable, let us take "internally-headed relative clauses" (IHRC) for illustration. IHRCs are characterized by Croft (2001: 325) as "span[ning] the region between relative clauses and complements" and so represented at the bottom of Figure 2. This characterization appears to be based on the oft-made observation that IHRCs have the form of complement clauses and the meaning of externally-headed relative clauses (EHRC), as the examples below demonstrate (the semantic head of a relative clause is represented in bold):[8]

(4) a. IHRC

[**ringo**-ga sara-no ue-ni aru] no-o
apple-Nom plate-Gen top-Loc exist Nml-Acc
totte tabeta.
take ate
'There was an apple on the plate, which (I) took and ate.'

b. EHRC

[sara-no ue-ni aru] **ringo**-o totte tabeta.
plate-Gen top-Loc exist apple-Acc take ate
'(I) took and ate an apple, which was on the plate.'

c. complement

[ringo-ga sara-no ue-ni aru] no-o kitaisita.
apple-Nom plate-Gen top-Loc exist Nml-Acc expected
'(I) expected that there would be an apple on the plate.'

Now, do IHRCs have nothing to do with coordination or adverbial clauses, as Figure 2 indicates? This is a question that requires an empirical analysis, and in what follows I will argue that IHRCs do share syntactic and semantic properties with coordination and adverbial clauses.

First, let us consider the relationship between IHRCs and coordination. Coordination, as we saw earlier, has the conceptual basis of complex figure, namely conceptualization of conjoined elements as a single, unified whole. The IHRC construction, on the other hand,

observes the so-called "relevancy condition," which states that "the content of the constituent sentence and that of the matrix clause are pragmatically so connected that they may be considered as *constituting one (super) event*" (Kuroda (1976-77: 158); italics mine). This condition is responsible for the acceptability difference between the following pair:

(5) a. Taroo-wa [**ringo**-ga sara-no ue-ni aru] no-o
Taro-Top apple-Nom plate-Gen top-Loc exist Nml-Acc
totte tabeta.
take ate
'There was an apple on the plate, which Taro took and ate.'

b. * Taroo-wa [Hanako-ga kinoo **ringo**-o suketti sita]
T-Top H-Nom yesterday apple-ACC sketched
no-o totte tabeta.
Nml-Acc take ate
'Hanako had sketched an apple yesterday, which Taro took and ate.' (Kuroda (1976-77: 157-8))

The raison d'être of the relevancy condition is to serve to unify two events into "one super event," namely, a single Gestalt, which is suggestive of a similarity between IHRCs and coordinate clauses.

Croft (2001: 337-338) lists the following three means of unifying two events into a single Gestalt:

(6) (i) tense-iconicity
(ii) causal relation between the two events
(iii) shared tense, aspect and/or mood; shared participant

It follows that if IHRCs are related to coordination in one way or another, they should exhibit properties listed in (6). We will examine each in turn below.

First, let us consider (6i). The two clauses in the IHRC construction generally observe tense-iconicity. In (4a), for instance, the perception of an apple on the plate temporally precedes the event of my grabbing it. If the two clauses violate tense-iconicity, the sentence becomes unacceptable, as exemplified in:[9]

(7) * [Tanaka Kakuei-ga noti ni syusyoo ni natta] no-o
T.K-Nom later prime.minister became Nml-Acc
kanozyo-wa syoogakkoo-de osieteita.
she-Top elementary.school-Loc taught
Intended: 'Kakuei Tanaka later became Prime Minister, and she had taught (him) in elementary school.' (Ohara (1996: 13))

Incidentally, IHRCs have been attested only in SOV languages, and this skewed distribution may be explained by the fact that SOV languages, where the matrix verb always comes last, preserve tense-iconicity between the subordinate-clause event and the main-clause event (cf. Nomura (2000: 178)).

Second, condition (6ii) is what the relevancy condition is all about. The IHRC construction becomes unacceptable when the two clauses do not express some kind of causal relation, as we saw in (5b) above.

Third, among the shared elements listed in (6iii), "shared participant" is nothing but the "semantic head" of an IHRC.[10] The example below exhibits what is called "split-pivot phenomenon," where the two NPs in the subordinate clause serve as head:

(8) [**zyunsa**-ga **doroboo**-o kawa-no hoo-e oitumete itta]
policeman-Nom thief-Acc river-Gen toward track.down went
no-ga ikioi amatte hutaritomo kawa-no naka-e
Nml-Nom power exceed both.two river-Gen in
tobikonda.
jumped
'A policeman was tracking down a thief toward the river, who both, losing control,

jumped into the river.' (Kuroda (1975-76: 93))

This phenomenon is nothing strange once we note the similarity between IHRCs and coordination; notice that the paratactic version of (8) allows a comparable interpretation:

(9) zyunsa-ga doroboo-o kawa-no hoo-e oitumete itta. ikioi amatte hutaritomo kawa-no naka-e tobikonda.

As a complex figure, two clauses in coordination are both asserted. The pair below demonstrates that IHRCs are asserted, rather than presupposed, just like coordinate clauses (Nomura 2000: 172):

(10) a. IHRC

[denwa-ga	natta]	no-o	totta.
telephone-Nom	rang	Nml-Acc	picked.up

'The phone rang, which I picked up.'

b. EHRC

?? [natta] denwa-o totta.
rang phone-Acc picked.up

The ringing of a telephone is most likely to be asserted rather than presupposed (cf. Sasse (1987)). The fact that IHRCs, but not EHRCs, can report this situation suggests that IHRCs are asserted. Similarly, in (11), Speaker B cannot use an IHRC in reply to Speaker A, because the existence of the apple in question is already established in the preceding utterance by Speaker A and hence cannot be asserted by Speaker B:

(11) A:

tasika	ringo-ga	sara-no	ue-ni	atta
probably	apple-Nom	plate-Gen	top-Loc	existed
hazuda.				
should				

'There should be an apple left on the plate.'

B:	Taroo-ga	[sara-no	ue-ni	atta]	ringo-o
	T-Nom	plate-Gen	top-Loc	existed	apple-Acc
	totte	tabete	simatta	yo.	
	pick.up	eat	completed	Prt	

'Taro has eaten the apple which was on the plate.'

B:	# Taroo-ga	[ringo-ga	sara-no	ue-ni	atta]	
	T-Nom	apple-Nom	plate-Gen	top-Loc	existed	
	no-o	totte	tabete	simatta	yo.	
	Nml-Acc	pick.up	eat	completed	Prt	

'There was an apple on the plate, which Taro has eaten.'

This suggests that the IHRC construction shares some properties characteristic of coordination and forms a complex figure, rather than being something intermediate between complex figure and figure-ground configurations.

Next, let us consider the relationship between IHRCs and adverbial clauses. The first thing to notice is that there are previous syntactic studies that analyze IHRCs as adverbial, which I will not summarize here for lack of space (see Mihara (1994) and Murasugi (1992, 1994, 1995) for details). More importantly, we should note that some IHRCs grammaticalize into concessive adverbial clauses, as in:

(12)	[reinen	da	to	asa-yuu		sukooru-ga	aru]	**no-ga**,
	every.year	Cop	Conj	morning-evening		squall-Nom	exist	Nml-Nom
	kotosi-wa	hotondo		ame-ga	huranai.			
	this.year-Top	scarcely		rain-Nom	fall.Neg			

'Whereas every year we have a squall in the morning and in the evening, this year it has scarcely rained.' (Ohara (1996: 88-9))

(13)	aruiwa	[kesseki sita	hoo-ga ii]	**no-o**,	muri-o site,
	or	absent	had.better	Nml-Acc	push.oneself.too.hard
	syusseki site ita no	kamo sirenai.			

attended may

'Or, whereas he should have stayed home, he may have pushed himself to attend it.' (Lê (1988: 86))

Notice, however, that unlike a fully grammaticalized and conventionalized adverbial clause headed by *node* (Nml+Loc/Instr, etymologically) in (14), subordinate clauses in (12) and (13) retain some vestige of tense-iconicity characteristic of coordination, in that the subordinate clause and the main clause are not allowed to switch positions. Compare (14a)/(14b) and (12)/(15):

(14) a. kyaku-ga kuru **node**, heya-o soozi sita.
guest-Nom come because, room-Acc cleaning did
'Since we have a guest coming, we have cleaned our room.'

b. heya-o soozi sita, kyaku-ga kuru **node**.

(15) ?kotosi-wa hotondo ame-ga huranai, reinen da to asa-yuu sukooru-ga aru **no-ga.**

The foregoing discussion shows that, contrary to Croft's characterization of IHRCs as something intermediate between relative clauses and complements, IHRCs are motivated by coordination and adverbial clauses as well. This suggests the possibility that other minor complex sentence constructions Croft situates between a pair of the four traditional types may require closer scrutiny.

4.3. Directionality of Historical Development

The arrows in Figure 1 are claimed to show the directionality of historical development. Croft does not seem to provide full evidence motivating all the arrows indicated, and it is necessary to find empirical evidence as well as conceptual bases for the directionality of historical development of complex sentences. This task has bearing on the hypothesis of unidirectionality of grammaticalization, because Figure 1 involves some double-headed arrows, which will prove problematic for the hypothesis. Note that Hopper

and Traugott (1993: 170) posits the cline of clause combining "parataxis > hypotaxis > subordination," which proceeds unidirectionally from left to right.

5. Cognitive Grammar Analysis of Complex Sentences

We pointed out in the previous section several potential problems of Croft's two-dimensional approach to the semantic structures of complex sentences. In this section, I will propose a cognitive grammar account of complex sentence constructions, building on the analysis outlined by Langacker (1991: Ch.10), and see how the proposed account eschews the problems found in Croft's analysis. Crucial here is the theoretical concept of A/D asymmetry, which, I will argue, plays a pivotal role in distinguishing the traditional four types of complex sentences as well as elucidating the gradations among the traditional categories.

To give an overall picture in advance, the traditional four types of complex sentences can be distinguished in three steps, as summarized below:

(16) A/D asymmetry

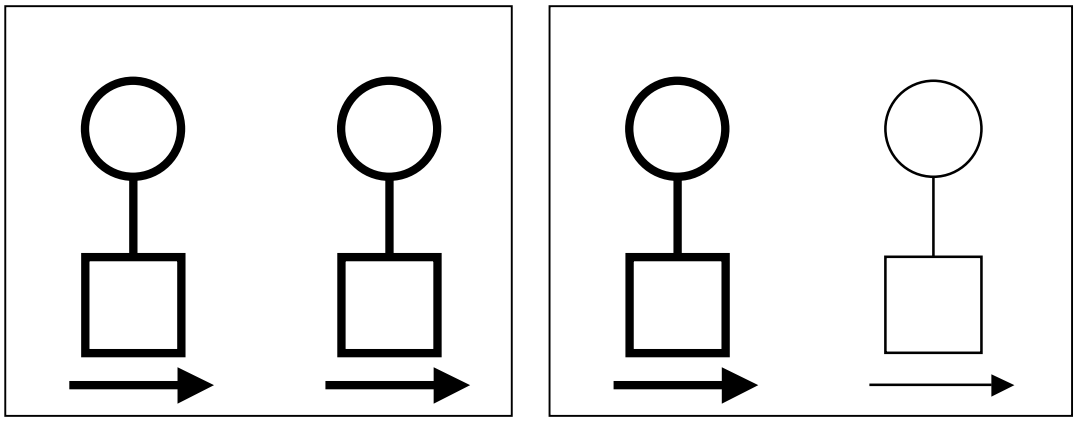
- No → coordination
- Yes → subordination
  - D=profile determinant → A=complement clauses
  - A=profile determinant
    - &relation → D=adverbial clauses
    - &thing → D=relative clauses

Coordination and subordination are distinguished in the first step, complements and modifiers are distinguished in the second step, and finally adverbial clauses and relative clauses are distinguished in the third step, thereby completing the traditional quadruple distinctions. I will discuss each step in more detail below.

5.1. Coordination vs. Subordination

The first step concerns distinction between coordination and subordination. In his discussion of the schematic definition of a subordinate clause, Langacker (1991: 436) remarks

that "Specifically, a main clause is the *head* at a particular level of organization, i.e. the clause that lends its profile to the composite structure of a multiclausal expression. A subordinate clause is then describable as one whose profile is overridden by that of a main clause." In essence, he distinguishes between coordination and subordination by saying that in the former, both conjuncts are profiled, while in the latter, a main clause is profiled, but a subordinate clause is not. This difference is diagrammed as below (Langacker (1992)):



coordination subordination

Figure 3 coordination vs. subordination

Granted that profiling distinguishes between a main clause and a subordinate clause and correspondingly between coordination and subordination, where does this profiling difference come from? I suggest that conceptual autonomy/dependence asymmetry (henceforth, A/D asymmetry) plays a crucial role here. Conceptual "autonomy/dependence" is defined in cognitive grammar as:

(17) One structure, *D*, is dependent on the other, *A*, to the extent that *A* constitutes an elaboration of a salient substructure within *D*. (Langacker (1987: 300))

Take the sentence *John runs* for illustration. According to the definition above, the verb *runs* is dependent on the noun *John* to the extent that the autonomous element *John* elaborates the trajector of the verb *runs*. The asymmetry between two component structures in their degree of conceptual dependence is called "A/D asymmetry."

I suggest that coordination involves no such A/D asymmetry, while subordination does involve A/D asymmetry between a main clause and a subordinate clause.[11] Though the autonomy/dependence distinction and the choice of profile determinant are independent parameters (cf. Langacker (1987: 301)), it appears that profiling difference usually accompanies the conceptual distinction of autonomy/dependence. Thus, absence of A/D asymmetry in coordination, I suspect, makes it possible to render both conjuncts profiled, rather than choosing one as the profile determinant.[12]

5.2. Complements vs. Modifiers

In the second step, complements and modifiers are distinguished by whether the dependent element or the autonomous element serves as profile determinant, i.e. head (Langacker (1987: 309, 487, 490)):

(18) In a construction showing notable A/D asymmetry, and
  (i) where the dependent component D is the profile determinant, the autonomous component A is the complement of D.
  (ii) where the autonomous component A is the profile determinant, the dependent component D is a modifier of A.

Based on the definition of conceptual autonomy/dependence given in (17), the definitions in (18) may be paraphrased as below (Langacker (1991: 6)):

(19) (i) complement = a component structure which elaborates a salient substructure of the head
  (ii) modifier = a component structure a salient substructure of which is elaborated by the head

Let us consider the following sentences and see how the definitions in (18) and (19) work:

(20) a. I believe [she left]. (complement clause)

b. She left [before I arrived]. (adverbial clause)

c. I like the dress [she bought]. (relative clause)

(20a) profiles the relationship of "believing," hence the verb *believe* is the head, and the subordinate clause *she left* is a complement in that it elaborates the landmark of the head. In (20b), *she left* is the head and *before I left* is a modifier to the extent that the trajector of *before* is elaborated by the head. This analysis makes a decided contrast with Croft (2001), where he analyzes adverbial clauses as lacking e-site elaboration (see Section 4.1). In (20c), *the dress* is the head and *she bought* is a modifier in that the landmark of *bought* is elaborated by the head.

The semantic structures of these sentences can be diagrammed as below, where connecting arrows and dotted lines represent e-site elaboration and conceptual overlap (i.e. correspondences) respectively (Langacker (1992)):

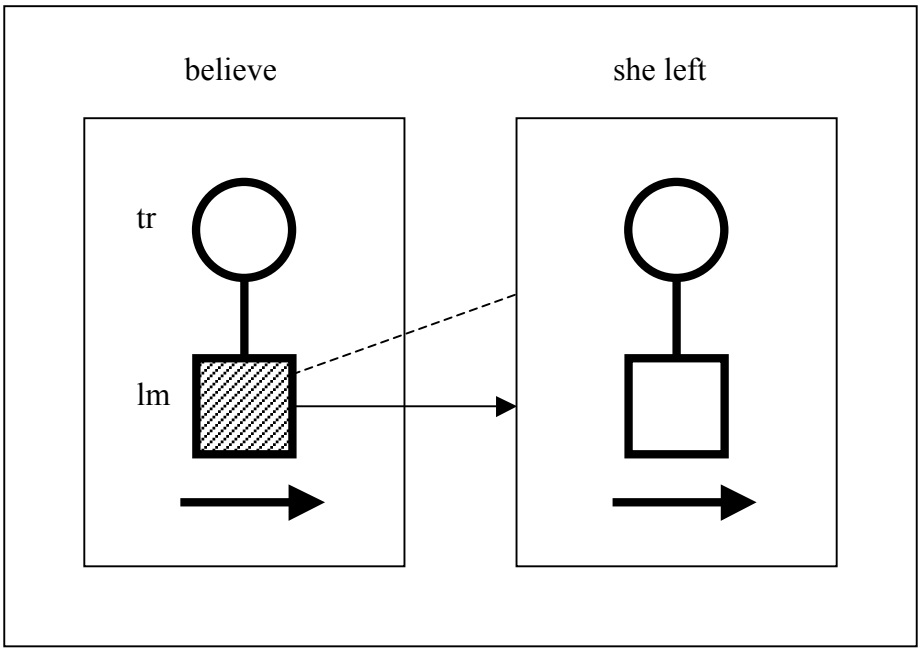


Figure 4 The semantic structure of a complement clause

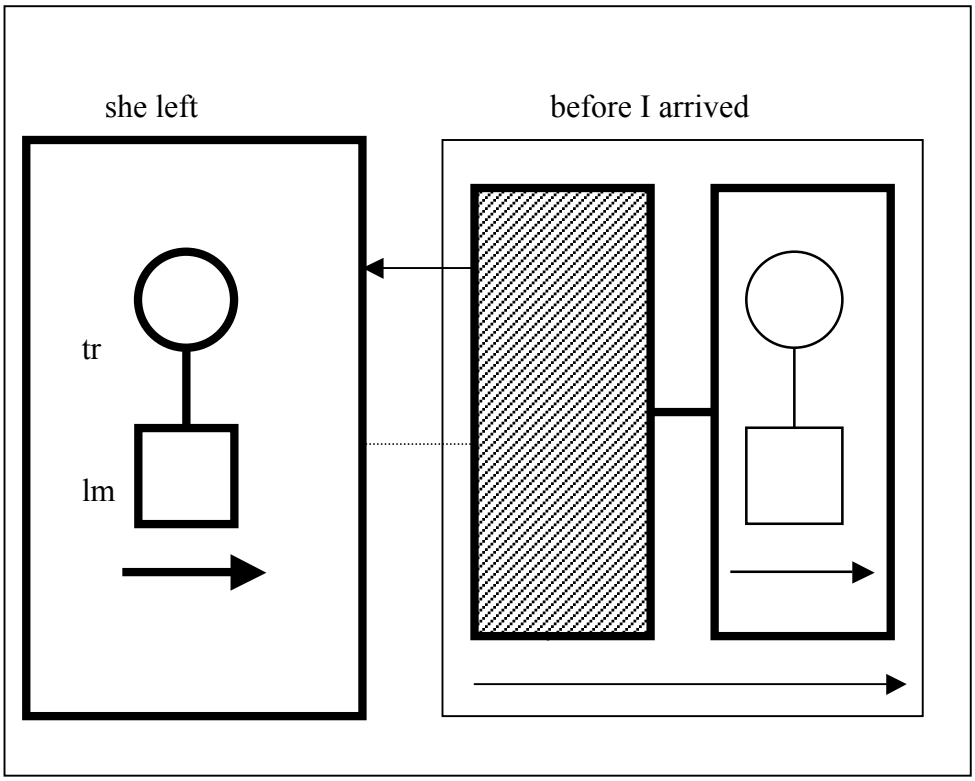


Figure 5 The semantic structure of an adverbial clause

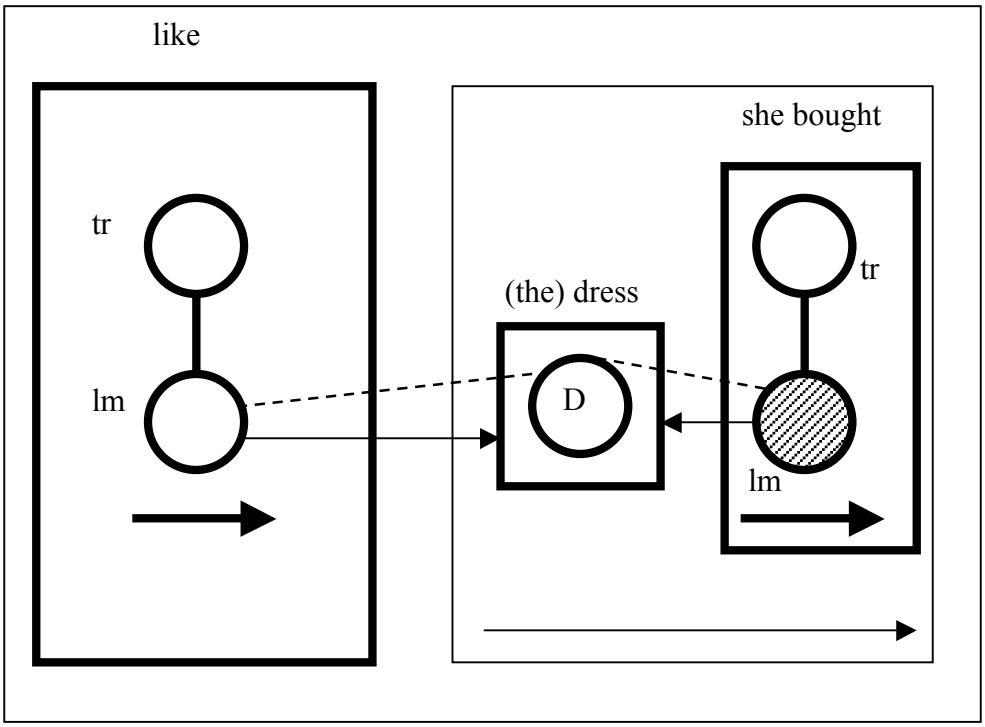


Figure 6 The semantic structure of a relative clause

5.3. Adverbial Clauses vs. Relative Clauses

In the final third step, modifiers are distinguished by whether it is a relation or a thing that the autonomous element designates: an adverbial clause is dependent on an autonomous relation, while a relative clause is dependent on an autonomous thing.[13]

To summarize, Table 1 represents the types of A/D asymmetry observed in different types of subordination.

	A	D
complement clauses	subordinate clause	matrix verb
adverbial clauses	main clause	subordinate clause
relative clauses	main-clause element	subordinate clause

Table 1 A/D asymmetry in subordinate clauses

5.4. Discussion: Where Does Conceptual Overlap Come from?

We have seen above three binary steps for distinguishing among the four traditional complex sentences. Since the process involves three steps, representation of the conceptual space of complex sentences requires three dimensions, unlike Croft's (2001) two dimensions in Figure 2. The three coordinate axes, namely, x=whether A/D asymmetry is observed or not, y=whether A or D serves as profile determinant, z=whether the autonomous profile determinant is a relation or a thing, define a three-dimensional conceptual space, and the traditional four complex sentence types occupy the four corners of the cube, as diagrammed below:

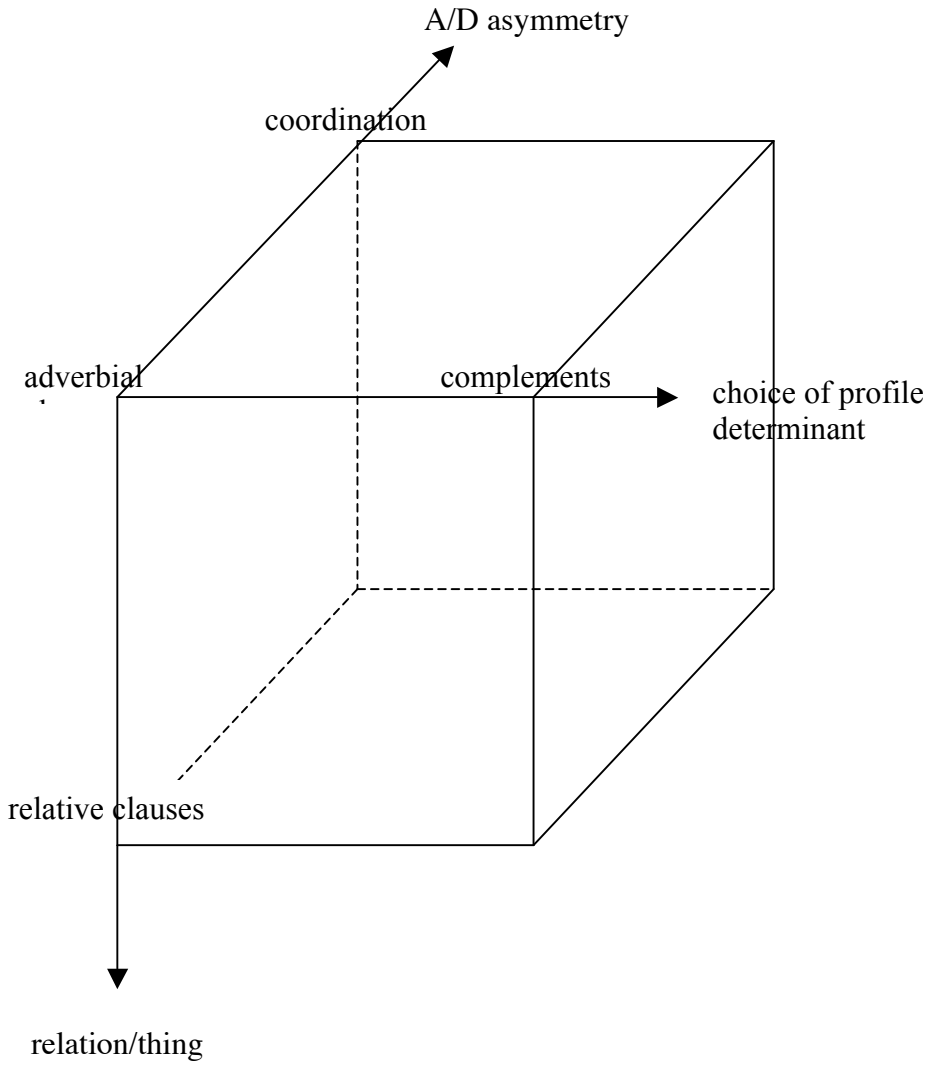


Figure 7 Three-dimensional conceptual space of complex sentence types

The plane consisting of adverbial clauses, complements and relative clauses defines a natural class of subordinate clauses (the one remaining corner should be occupied by noun complements (e.g. the fact *that the earth is round*). The plane consisting of coordination, adverbial clauses and complements defines a natural class of relation-oriented complex sentences (as opposed to thing-oriented complex sentences, consisting of relative clauses and noun complements).

Now, we are finally in a position to discuss "conceptual overlap" in complex sentence constructions. At the outset, we have distinguished two senses of "conceptual overlap": (i) "conceptual overlap" in the sense of "functional overlap" exhibited by different complex

sentence constructions, and (ii) "conceptual overlap" in the sense of "correspondences" observed in the semantic structure of a given complex sentence construction. Conceptual overlap in the second sense (i.e. correspondences) is achieved by the following entailment relation:

(21) A/D asymmetry → e-site elaboration → correspondences[14]

A/D asymmetry, by definition (17), entails e-site elaboration, which in turn gives rise to correspondences, i.e. conceptual overlap. Conceptual overlap effected this way plays an essential role in the semantic structures of complex sentence constructions, as shown in Figures 4-6.

Conceptual overlap in the first sense (i.e. functional overlap) is achieved by the fact that the notions of conceptual autonomy/dependence and profiling are a matter of degree, as noted in the following quotes:

(22) Moreover, since the definition of conceptual dependence makes it inherently a matter of degree, the difficulty scholars have encountered in finding any clear line of demarcation between complementation and modification is both expected in this analysis and unproblematic from the descriptive standpoint. (Langacker (1987: 310))

(23) Bear in mind, however, that profiling – as one kind of prominence – is potentially a matter of degree. Strict coordination can therefore be seen as a limiting case, where disparity in the prominence accorded the component clauses dwindles to zero. We can thus envisage expressions with intermediate or indeterminate status. (Langacker (1991: 437))

The continuous nature of conceptual autonomy/dependence and profiling is essential to characterizing the gradation from one complex sentence type to another. Consider the following data by way of illustration (Nomura (1993)):

(24) a. the house that she bought

b. the place that (where) John lived

c. the strange situation that (where) nobody wants to become Prime Minister

d. the idea that the world was flat

That-clauses in (24a) and (24d) are a typical relative clause and a typical noun complement (or what is called "content clause") respectively. *That*-clause in (24b) is traditionally called a relative adverbial clause, whereas *that*-clause in (24c) looks like something intermediate between a relative adverbial clause and a content clause.

From the standpoint of conceptual autonomy/dependence, we may argue that the head nouns in (24) are arranged in order of decreasing degrees of autonomy: the head noun *house* in (24a) is most autonomous in that it designates a participant that elaborates the landmark of the subordinate-clause verb *bought*.[15] The head noun *place* in (24b) is less autonomous than the head noun in (24a): it is autonomous in that it elaborates a setting in which the subordinate-clause event "John lived" unfolds; however, it is at the same time dependent in that the event that unfolds in the setting *place* is elaborated by the subordinate clause. The head noun *situation* in (24c) is even less autonomous since it designates an "abstract" setting, which is less likely to stand alone than a "concrete" setting designated by the noun *place* in (24b). The head noun *idea* in (24d) is least autonomous and most dependent in that the content of the head noun is elaborated by the subordinate clause. Accordingly, we can say that the *that*-clause in (24a) is most modifier-like, while the *that*-clause in (24d) is most complement-like.

From the standpoint of profiling, on the other hand, we may say that the subordinate clauses in (24) are arranged in order of increasing degrees of profiling: the subordinate clause in (24d) is most prominent in that it is in apposition to the head noun *idea*, designating the same entity (cf. Langacker (1991: 432-433)).

To summarize, the following three types of gradation can be observed for the examples in (24):

(25) most autonomous most dependent

<---------->

(24a) head noun (24d)

most modifer-like most complement-like

<---------->

(24a) *that*-clause (24d)

least profiled most profiled

<---------->

(24a) *that*-clause (24d)

6. Conclusion

In this paper, I have critically examined Croft's (2001) radical construction grammar account of complex sentence types and pointed out problems inherent in his analysis. As an alternative, I have proposed a cognitive grammar account of complex sentence constructions as summarized in (16) and represented in Figure 7. I hope to have demonstrated that A/D asymmetry and conceptual overlap (i.e. correspondences) resulting therefrom are pivotal to distinguishing among the four traditional complex sentence types, and that the notions of A/D asymmetry and profiling serve to elucidate the conceptual overlap (i.e. functional overlap) among complex sentence types.

It is an important future task for cognitive grammar to explore in detail the relationship between the four traditional types and other minor types of complex sentences, and to characterize the semantic structures of the latter (as I sketched in Section 4.2); more specifically, it remains to be seen whether the three-dimensional conceptual space in Figure 7 is adequate enough to characterize minor complex sentence types and if so where in the space each minor complex sentence type should be located.

NOTES

[1] This may be comparable to Goldberg's (1995: 39) "Scene Encoding Hypothesis," though her "scenes" are much more concrete than Croft's "conceptual space."

[2] As an illustration of the conceptual space approach, see Croft (2001: 2.4.3) for his analysis of the conceptual space for parts of speech and how this space is carved up by a particular language.

[3] Talmy (2000: 345) distinguishes "cross-event relation," which is represented by adverbial clauses, from "argument-predicate relation," which is represented by complements and relative clauses. It seems that his Figure/Ground account is intended to apply only to the former.

[4] See Keenan (1985), Noonan (1985), Lehman (1986, 1988) and Croft (2001: 9.1.2) for example sentences of these minor complex sentence constructions.

[5] This understanding has recently been challenged by Diessel and Tomasello (2001) and Thompson (2002), who advance the view that "complement" is not a unitary category (note that Thompson's (2002) argument is crucially dependent on her identification of Langacker's "profiled" with "what the speaker of the utterance in question is doing with that utterance" (p. 131)). They still, however, agree with the traditional understanding that some asymmetry is observed between main and complement clauses.

[6] Recall that the crucial feature of figure/ground organization is that the boundary is perceived as belonging to the figure, and that the figure-ground reversal involves switches, instead of continuous changes, between two interpretations. Talmy (2000: 336) points out the possibility of indeterminacy of Figure/Ground assignment, citing the example *I sheathed my sword*. "Indeterminacy" of Figure/Ground assignment, however, is different in nature from "indiscreteness" of Figure/Ground. See also Langacker (1987: 7.3).

[7] In this connection, we need to consider what would serve as "ground" for coordination analyzed as a "complex figure." The same problem applies to Langacker's analysis of coordination (see Figure 3), provided that we replace figure/ground with profile/base.

[8] This characterization sounds intuitively appealing, but the distribution pattern of a construction within the conceptual space should, by definition, be based on its semantic/functional properties instead of its structural properties.

[9] The EHRC construction is not subject to the condition of tense-iconicity (or for that matter, the relevancy condition): The EHRC version of (7), [*noti ni syusyoo ni natta*] *Tanaka Kakuei-o kanozyo-wa syoogakkoo-de osieteita*, is perfectly fine.

[10] See Nomura (2000: Ch.4.4.6) for shared tense and aspect in the IHRC construction.

[11] This characterization is essentially compatible with Foley and Van Valin's (1984: Ch.6) analysis of coordination and subordination as [-embedded, -dependent] and [+embedded, +dependent] respectively. Langacker (1991: 436) considers the possibility of defining subordination as "In the case of two clauses, A could then be defined as *subordinate* to D," but abandons this definition on the ground that adverbial clauses, adjuncts (see note 13) and arguably relative clauses would not be considered subordinate by this definition. My attempt here is to revaluate his initial insight and pursue further along these lines.

Incidentally, one might argue that coordination involves A/D asymmetry in that the conjunction *and* is dependent on conjoined elements, the latter elaborating salient substructures of the former; however, this is different from the A/D asymmetry observed between a main clause and a subordinate clause. See Langacker (1991: 428-429) for his analysis of coordinating conjunctions.

[12] At issue here is the entailment relationship between A/D asymmetry and the existence of a profile determinant. It is rather obvious that the latter does not necessarily entail the former; for example, in *flower girl*, the second component *girl* is the profile determinant, but there is no notable A/D asymmetry between *flower* and *girl*. Less obvious is whether A/D

asymmetry necessarily entails the existence of a profile determinant. I surmise that this is generally the case, with a few exceptions such as *pickpocket*. Admittedly, the inverse (i.e. No A/D asymmetry → No profile determinant) is not always true, hence the absence of A/D asymmetry in coordination does not logically entail that neither conjunct should be the profile determinant.

[13] Langacker (1991: 436) regards adjuncts (e.g. *Alarms ringing, the burglar fled*) as a case where "neither clause elaborates a salient substructure of the other." I am tempted, however, to regard them as adverbial clauses because a participial clause is dependent on an autonomous main clause, and a participial construction, though lacking a subordinating conjunction, profiles — as a constructional meaning — an interclausal relationship the trajector of which is elaborated by a main clause.

[14] Let us consider whether the converse is true or not. Correspondences do not entail e-site elaboration; for example, in compound nouns such as *puppy dog*, *killer bee* and *sailor boy*, the two profiles of each member of the compound correspond, but there is no e-site elaboration between the compound components (cf. Langacker (1987: 285)). More subtle is whether e-site elaboration entails A/D asymmetry; *oak tree* as analyzed by Langacker (1987: 470) might be the case where e-site elaboration between *oak* and *tree* is effected without notable A/D asymmetry between the two (though we might say that *tree* is more dependent and less autonomous than *oak*).

[15] It is not the case that *house* does not have a grain of conceptual dependence: a thing does not exist in a vacuum, and it participates in various relationships, one of which is elaborated by the subordinate clause (cf. Langacker (1987: 358)).

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