

## Chapter 6: The Structure of Complex Sentences

### 6.0 General Considerations

The starting point for the discussion of the syntax-semantics-pragmatics interface in complex sentences is the syntactic structure of complex sentences. The units of the LSC play a central role in the RRG theory of clause linkage, as they are the units which constitute the building blocks of complex sentences, and given RRG's approach to clause-internal relational structure, it is perhaps not surprising that the RRG theory of interclausal relational structure diverges from the standard analyses. Focus structure in complex sentences will also be discussed in this chapter.

### 6.1 Nexus Relations

Traditional, structural and generative grammar have all operated on the assumption that there are two linkage or NEXUS types, coordination and subordination. Switch-reference constructions, particularly those in the languages of Papua-New Guinea as illustrated in (4.22), have long presented a vexing problem for theories of complex sentence structure. Coordination is characterized by the joining of two or more units of equal status, and in the case of whole clauses, all of the clauses have the form of independent main clauses. Subordination, on the other hand, involves the embedding of one unit in another, and the embedded unit does not normally have the form of independent main clauses. The embedded clause functions either as an argument, as in complementation, or as a modifier, as in adverbial subordinate clauses. (Cf. Lyons 1968:178.) Clause chains with switch-reference are problematic for this traditional dichotomy, because they seem to have properties of both coordination and subordination, and in some languages they contrast structurally with clear cases of coordination and subordination. This is illustrated in the Kewa examples (Franklin 1971) in (6.1).

- (6.1) a. *Nipú ipu-la*                      *pare nĩ paalá na-píá.*  
           3sg come-3sgPRES but 1sg afraid NEG-be.1sgPRES  
           ‘He is coming, but I am not afraid.’
- b. (Nĩ) *Épo lá-ri*                      *épa-wa.*  
           1sg whistle say-SIM.SS come-1sgPAST  
           ‘I whistled while I came,’ or ‘I came whistling.’
- c. (Nĩ) *Épo lá-lo-pulu*                      *irikai épa-lia.*  
           1sg whistle say-1sgPRES-CAUSAL dog come-3sgFUT  
           ‘Because I am whistling, the dog will come.’

The first example is a classic case of coordination, with each clause occurring in fully independent form; that is, *nipú ipu-la* ‘He is coming’ and *nĩ paalá na-píá* ‘I am not afraid’ are potentially independent sentences in their own right. The second example (6.1b) is an example of a switch-reference construction, and it differs from (6.1a) in a significant way, namely, the verb in the first clause carries no person and tense marking, unlike the verb in the second clause. This means that while *épa-wa* ‘I came’ could be a complete, independent sentence, *(nĩ) épo lá-ri* could not. The first clause is dependent on the second for expression of its person and tense marking. This dependence would normally be construed as evidence of subordination, but in fact the first clause does not have the form of a subordinate clause in Kewa, which is illustrated in (6.1c). The verb in a

subordinate clause is marked for person and tense, unlike the verb in the first clause in (6.1b), and in addition there is a morpheme indicating the semantic relation of the subordinate clause to the main clause, *-pulu* ‘because.’ A minimal pair of dependent and subordinate constructions can be seen in the following sentences from Chauve (Thurman 1975), another Papuan language.

- (6.2) a. Yai kei su-n-g-a                      fu-m-e.  
           man dog hit-3sg-DEP-NONSIM go-3sg-IND  
           ‘After the man hit the dog, he went away.’  
       b. Yai kei si-re                      fu-m-e.  
           man dog hit-SEQ.SS go-3sg-IND  
           ‘The man hit the dog and went away.’

As in Kewa, the verb in the subordinate clause (the first clause in (6.2a)) carries person marking, while the first clause in the switch-reference construction does not; it also lacks marking for tense and mood (illocutionary force). Both Franklin and Thurman argue that these switch-reference constructions are not examples of subordination, despite the obvious dependence between the first clause and the second.

Roberts (1988) presents a detailed account of the structural relation holding between clauses in a switch-reference construction in Amele, another Papuan language. Like Franklin and Thurman, he argues that they are not instances of subordination, even though there is dependence for categories like tense and mood across the units in the linkage. Simple examples of Amele switch-reference are given in (6.3).

- (6.3) a. Ija hu-m-ig              sab j-ig-a.  
           1sg come-SS-1sg food eat-1sg-TPAST  
           ‘I came and ate the food.’  
       b. Ija ho-co-min            sab ja-g-a.  
           1sg come-DS-1sg food eat-2sg-TPAST  
           ‘I came and you ate the food.’

Possible evidence against analyzing these constructions as coordinate comes from the fact that tense, mood (illocutionary force) and negation can be shared across clauses in this construction, in contrast to regular coordinate structures in which these may each be specified independently. The dependence in switch-reference constructions is illustrated in (6.4)-(6.6).

- (6.4) a. Ho busale-ce-b        dana age qo-ig-a.                      Tense  
           pig run.out-DS-3sg man 3pl hit-3pl-TPAST  
           ‘The pig ran out and the men killed it.’  
       b. Ho busale-ce-b        dana age qo-qag-an.  
           pig run.out-DS-3sg man 3pl hit-3pl-FUT  
           ‘The pig will run out and the men will kill it.’  
       c.\*Ho busale-ce-b-a              dana age qo-qag-an.  
           pig run.out-DS-3sg-TPAST man 3pl hit-3pl-FUT  
           ‘The pig ran out and the men will kill it.’
- (6.5) a. Ho busale-ce-b        dana age qo-ig-a              fo?                      Mood  
           pig run.out-DS-3sg man 3pl hit-3pl-TPAST Q

- ‘Did the pig run out and did the men kill it?’  
 (\*‘The pig ran out and did the men kill it?’)  
 b.\*Ho busale-ce-b fo dana age qo-ig-a.  
 pig run.out-DS-3sg Q man 3pl hit-3pl-TPAST  
 ‘Did the pig run out (?) and the men killed it.’

- (6.6) a. Ho busale-ce-b dana age qee qo-l-oin. Negation  
 pig run.out-DS-3sg man 3pl NEG hit-NEGPAST-3pl  
 ‘The pig ran out and the men did not kill it.’  
 b. Ho qee busale-ce-b dana age qo-l-oin.  
 pig NEG run.out-DS-3sg man 3pl hit-NEGPAST-3pl  
 ‘The pig didn’t run out and the men did not kill it.’  
 c.\*Ho qee busale-ce-b dana age qo-ig-a.  
 pig NEG run.out-DS-3sg man 3pl hit-3pl-TPAST  
 ‘The pig didn’t run out and the men killed it.’

Both clauses in (6.4) must have the same tense, as indicated on the final verb of the sequence; there is no morphological slot for the tense morpheme in the dependent verb. The same is true with respect to mood; the question particle *fo* can appear only at the end of the sequence and must be interpreted as having scope over the entire construction. Negation is slightly more complicated. The negative marker *qee* indicates the scope of negation in the construction, which is to the right of the marker, and it is possible to negate only the final clause in the chain, as (6.6a) shows, or both clauses, as in (6.6b). It is not possible, however, to negate only the first verb in the chain, as (6.6c) indicates.

Coordinate constructions in Amele, on the other hand, do not have these constraints; the individual conjuncts can be specified independently for tense, mood and negation.

- (6.7) a. Fred cum ho-i-an qa Bill uqadec h-ugi-an. Tense  
 yesterday come-3sg-YPAST but tomorrow come-3sg-FUT  
 ‘Fred came yesterday, but Bill will come tomorrow.’  
 b. Ho busale-i-a qa dana age qo-i-ga fo? Mood  
 pig run.away-3sg-TPAST but man 3pl hit-3pl-TPAST Q  
 ‘The pig ran away, but did the men kill it?’  
 c. Ho qee busale-l qa dana age qo-ig-a. Negation  
 pig NEG run.away-3sg-NEGPAST but man 3pl hit-3pl-TPAST  
 ‘The pig didn’t run away, but the men killed it.’  
 d. Ho busale-i-a qa dana age qee qo-l-oin.  
 pig run.away-3sg-TPAST but man 3pl NEG hit-NEGPAST-3pl  
 ‘The pig ran away, but the men didn’t kill it.’

Thus switch-reference constructions behave rather differently from coordinate structures with respect to categories like tense, aspect and negation. Roberts also points out that they differ from subordinate constructions as well, in that independent specification of tense and negation is possible in main and subordinate clauses.

These constructions involve dependence, namely operator dependence, but it is not clear that they count as subordination. Roberts notes that there are three types of genuine subordinate clause in Amele: complement clauses with verbs of cognition and saying, relative clauses, and adverbial clauses. The switch-reference constructions cannot be considered examples of the first two; the

dependent clauses are clearly not relative clauses, and they also do not function as arguments of the matrix verb. Moreover, switch-reference marking is not found in complements and relative clauses. The only other possible kind of subordinate clause they could be is an adverbial clause of some type. Roberts presents a number of arguments against an adverbial clause analysis, two of which will be mentioned here. First, it is possible for subordinate clauses, but not for coordinate clauses, to appear in an extraposed position after the main verb; switch-reference constructions behave like coordinate constructions in this regard.

- (6.8) a. Ija ja hud-ig-a eu nu, uqa sab mane-i-a. Subordination  
 1sg fire open-1sg-TPAST that for 3sg food roast-3sg-TPAST  
 ‘Because I lit the fire, she cooked the food.’  
 b. Uqa sab mane-i-a, ija ja hud-ig-a eu nu.  
 3sg food roast-3sg-TPAST 1sg fire open-1sg-TPAST that for  
 ‘She cooked the food, because I lit the fire.’
- (6.9) a. Ija ja hud-ig-a qa, uqa sab mane-i-a. Coordination  
 1sg fire open-1sg-TPAST but 3sg food roast-3sg-TPAST  
 ‘I lit the fire, but she cooked the food.’  
 b. \*Uqa sab mane-i-a, ija ja hud-ig-a qa.  
 3sg food roast-3sg-TPAST 1sg fire open-1sg-TPAST but
- (6.10) \*Dana age qo-ig-a, ho busale-ce-b. Switch-reference  
 man 3pl hit-3pl-TPAST pig run.away-DS-3sg

Second, a pronoun in an initial subordinate clause can be coreferential with a full NP in the following matrix clause, but this is not possible in coordinate or switch-reference structures.

- (6.11)a. (Uqa<sub>i</sub>) ja hud-i<sub>i</sub>-a eu nu, Mary<sub>i</sub> sab mane-i<sub>i</sub>-a. Subordination  
 (3sg) fire open-3sg-TPAST that for food roast-3sg-TPAST  
 ‘Because she<sub>i</sub> lit the fire, Mary<sub>i</sub> cooked the food.’  
 b. \*(Uqa<sub>i</sub>) ho-i<sub>i</sub>-a qa, Fred<sub>i</sub> sab qee je-l-Ø<sub>i</sub>. Coordination  
 (3sg) come-3sg-TPAST but food NEG eat-NEGPAST-3sg  
 \*‘He<sub>i</sub> came, but Fred<sub>i</sub> didn’t eat the food.’  
 c. \*(Uqa<sub>i</sub>) bil-i-me-i<sub>i</sub> Fred<sub>i</sub> je-i<sub>i</sub>-a. Switch-reference  
 (3sg) sit-PRED-SS-3sg eat-3sg-TPAST  
 \*‘He<sub>i</sub> sat and Fred<sub>i</sub> ate.’

With respect these phenomena, then, switch-reference constructions behave like coordinate structures, not subordinate clauses. Thus, switch-reference constructions in Amele are examples of neither subordination or simple coordination.

The same arguments can be made for Kewa, Chuave and other Papuan languages exhibiting switch-reference constructions. These constructions are therefore a kind of dependent coordination, in which units of equivalent status are joined together in a coordinate-like relation but share some grammatical category, e.g. tense or mood. This linkage or nexus relation was termed COSUBORDINATION in Olson (1981), and it plays a crucial role in the RRG theory of clause linkage. Thus RRG posits three nexus relations between clauses in complex sentences (coordination, cosubordination, and subordination) rather than the two of traditional, structural and

generative grammar. The three relations may be represented schematically as in Figure 6.1.<sup>1</sup>

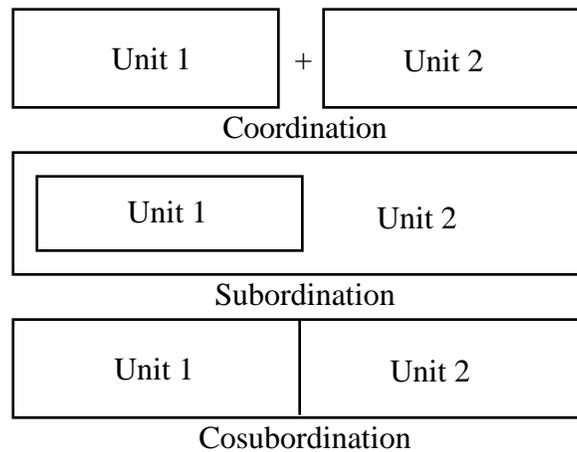


Figure 6.1: Nexus types

## 6.2 The Layered Structure of the Clause and Juncture

Nexus relations, the syntactic relations between the units in a complex construction, are only half of a syntactic theory of clause linkage; the other concerns the nature of the units being linked. In RRG, this is called **JUNCTURE**. In all of the examples presented thus far, the units have been whole clauses, but linkage of sub-clausal units is equally common in complex sentences. The sub-clausal units postulated by RRG are those of the LSC: the nucleus and the core. There are only three types of units involved in complex sentences in universal grammar, and these are the clause, the core and the nucleus. The three juncture types are represented schematically in (6.12).

- |  |                  |
|--|------------------|
| (6.12)a. [CORE ...[NUC ... ]... + ...[NUC ... ] ...]   | Nuclear Juncture |
| b. [CLAUSE ...[CORE ...]... + ...[CORE ...] ...]       | Core Juncture    |
| c. [SENTENCE ...[CLAUSE ...]... + ...[CLAUSE ...] ...] | Clausal Juncture |

All of the sentences in (6.1)-(6.11) are examples of clausal juncture; core junctures are exemplified in (6.13) and nuclear junctures in (6.16).

- |  |                             |
|--|-----------------------------|
| (6.13)a. Chris forced Dana to leave the party.   | English                     |
| b. Je laisserai Jean manger les gâteaux.<br>1sg let.FUT John eat the cakes<br>'I'll let John eat the cakes.' | French                      |
| c. Tā jiāo wǒ xiě zì.<br>3sg teach 1sg write characters<br>'He teaches me to write.'                         | Mandarin Chinese            |
| d. Fu fi fase isoe.<br>3sg sit letter write<br>'He sat (down) and wrote a letter.'                           | Barai<br>[Papua-New Guinea] |

<sup>1</sup>It is crucial to distinguish coordination, which is an abstract linkage relation between units, from conjunction, which is a formal construction which may or may not involve coordination. As will be shown below, coordination can be instantiated by a number of different construction types, and conjunction may serve to express both coordination and cosubordination.

e. Pat's winning the race surprised everyone.

English

In a core juncture there are two nuclei, each with own set of core arguments, constituting two distinct cores. In non-subordinate core junctures they overlap in that the linked units share one core argument, whereas in a subordinate core juncture the linked unit serves as a core argument of the matrix verb. In (6.13a), *Dana* is semantically an argument of both verbs, as is *Jean* in (b), *я* 'I' in (c), and *fu* 'he' in (d). Crucially, the other arguments are coded as arguments of particular nuclei, e.g. in (a) *Chris* is an argument, syntactically and semantically, of *force* only, while *the party* is similarly an argument of *leave* alone. In (6.13e), on the other hand, the gerundive core *Pat's winning the race* functions as the 'subject' of the matrix verb *surprise*; hence it is a core argument and illustrates subordination at the core level. The French example in (6.13b) (which involves coordinate nexus) is represented in Figure 6.2.

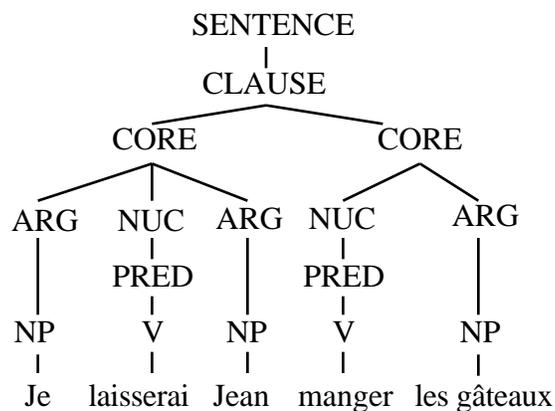


Figure 6.2: Core coordination in French

There is considerable syntactic evidence that the infinitival construction in sentences like *Pat wants to open the door* is not an instance of subordination; that is, these infinitives are not complements akin to *that*-clauses and gerunds, e.g. they do not cleft like *that*-clauses and gerunds, and if they occur with a verb which can passivize, gerunds and *that*-clauses can occur as subject of the passive but the infinitive cannot.

- (6.14)a. Leslie regretted Kim's losing the election.  
 a'. Kim's losing the election was regretted by Leslie.  
 a''. It was Kim's losing the election that Leslie regretted.  
 b. Leslie regretted that Kim lost the election.  
 b'. That Kim lost the election was regretted by Leslie.  
 b''. It was that Kim lost the election that Leslie regretted.

- (6.15)a. \*It was to open the door that Pat wanted.  
 a'. It was a new car that Pat wanted.  
 b. \*To open the door was wanted by Pat.  
 b'. A new car was wanted by Pat.

Since *that*-clauses and gerunds are canonical examples of subordination, these infinitives cannot also be subordinate; hence they are non-subordinate nexus.<sup>2</sup> This is an example of a mismatch

between syntax and semantics: the logical structure of the infinitival core is a semantic argument of the verb in the matrix core at the semantic level, but in the syntax it is not treated as a core argument. The logical structure of *Pat wanted to open the door* would be **want'** (Pat<sub>i</sub>, [[**do'** (x<sub>i</sub>, Ø)] CAUSE [BECOME **open'** (door)]]),<sup>3</sup> in which the logical structure for the transitive version of *open* is a semantic argument of the matrix verb *want*. However, as (6.15) shows, the infinitival core *to open the door* does not behave syntactically like a core argument.

Nuclear junctures are illustrated in (6.16).

- |   |                  |
|---|------------------|
| (6.16)a. Kim painted the table red.   | English          |
| b. Je ferai manger les gâteaux á Jean.<br>1sg make.FUT eat the cakes to John<br>'I will make John eat the cakes.' | French           |
| c. Tā qiāo pò le yī ge fānwǎn.<br>3sg hit break PRFV one CL ricebowl<br>'He broke (by hitting) a ricebowl.'       | Mandarin Chinese |
| d. Fu fase fi isoe.<br>3sg letter sit write<br>'He sat writing a letter.'   | Barai            |
| e. X-in-y-a' mak-a' naj t-aw-et.<br>PAST-1sgABS-3ERG-cause hit-INF 3sg AUG-2sgERG-to<br>'He made you hit me.'     | Jakaltek         |

In a nuclear juncture, two or more nuclei combine to form a single, complex nucleus with a single set of core arguments. This is clearest in the French and Jakaltek (Craig 1977) examples in (6.16), in which the 'subject' and 'direct object' are contributed by different verbs, and the effector of the dependent verb, the causee, is coded as the 'indirect object' of the complex nucleus. Note also the different positioning of the 'direct object' in the French, Barai (Olson 1981), and Mandarin (Hansel 1993) examples; in the core junctures in (6.13), the argument which is semantically the undergoer of the first verb and the actor of the second occurs between them; in the nuclear junctures, however, the verbs occur adjacent to one another, forming a single, complex predicate, and the undergoer appears immediately after (French, Mandarin) or before (Barai) the whole nucleus. The French nuclear juncture in (6.16b) (which involves cosubordinate nexus) is represented in Figure 6.3.

<sup>2</sup>See Van Valin & LaPolla (1997), §8.4 for detailed discussion.

<sup>3</sup>The logical structure of control constructions like this will be discussed in §7.3.1.

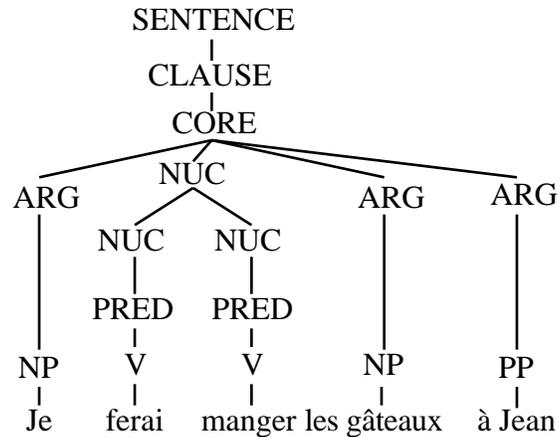


Figure 6.3: French nuclear juncture

There are, then, three possible levels of juncture, clausal, core and nuclear, and there are three possible nexus relations among the units in the juncture, coordination, subordination, and cosubordination. All three types of nexus are possible in all three forms of juncture, and accordingly there are nine possible juncture-nexus types in universal grammar. There is a basic principle governing these constructions: the unmarked linkage involves units at the same level of juncture, i.e. nucleus with nucleus, core with core, and clause with clause. The major exception to this is complementation, the use of clauses as core arguments, e.g. (6.14b'). Not all instances of complementation lead to asymmetrical linkages of this type. While non-'subject' *that*-clauses might appear to be examples of asymmetrical linkage, e.g. (6.14b), they are in fact exceptional, but not in this way. The complement clause does not fill a core argument position, despite being a semantic argument of the matrix verb; rather, it occurs as a direct daughter of the matrix clause node, as in Figure 6.4.

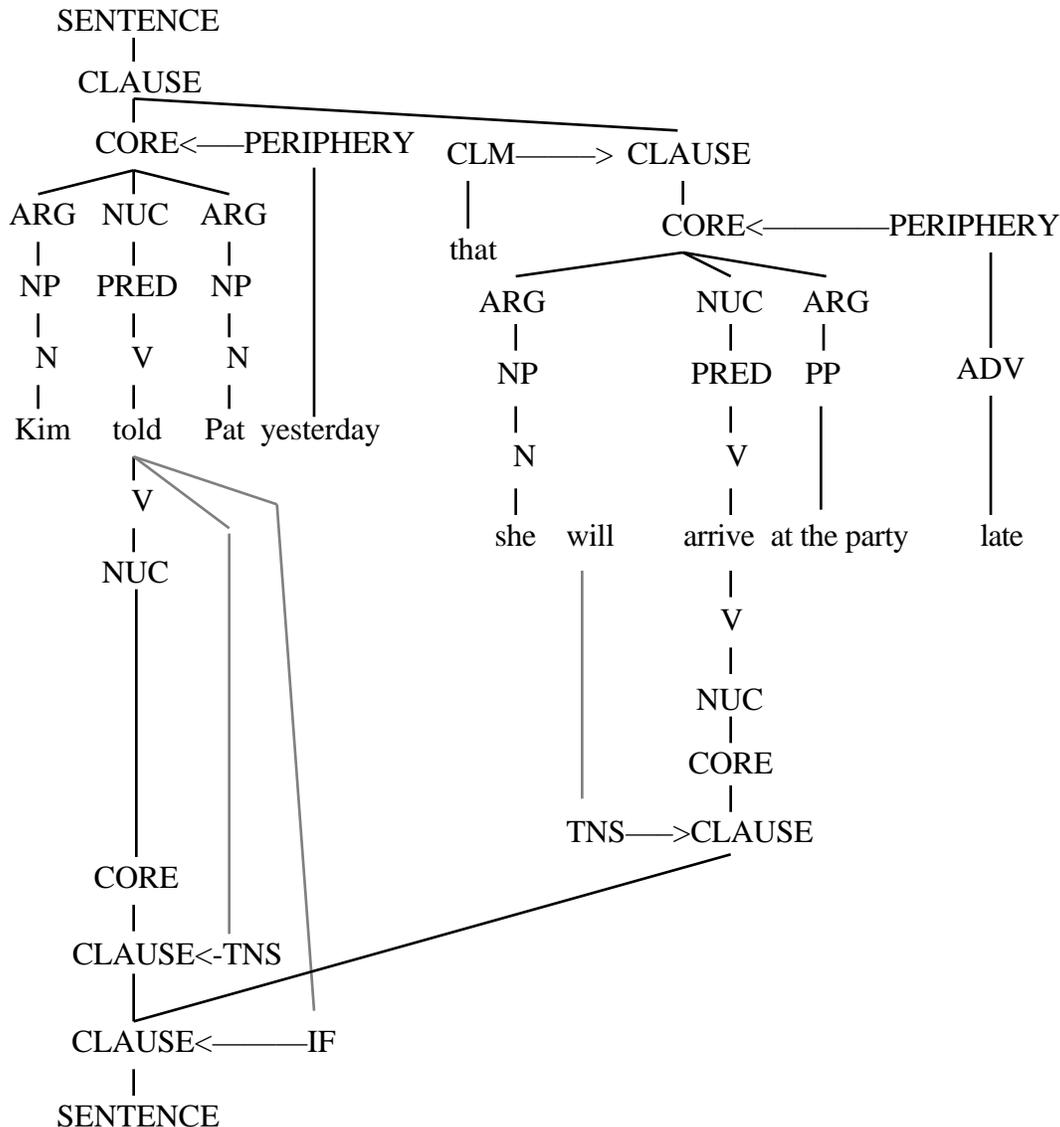


Figure 6.4: English object complement

English does not allow peripheral elements to occur between two core elements, and consequently because the peripheral adverbial *yesterday* occurs between *Pat* and the *that*-clause, the embedded clause must be outside of the core and a daughter of the matrix clause node. Because peripheral adjuncts normally occur between the last element of the core and the embedded clause in constructions of this type, the clause must be outside of the core, as in Figure 6.4. While this violates the basic principle that arguments in the logical structure of the verb are realized as core arguments, it does yield a symmetrical linkage. This is the position that extraposed *that*-clauses appear in, e.g. *It surprised everyone last week that Kim lost the election*. It is another example of a syntax-semantics mismatch: the logical structure of the embedded clause is semantically an argument of the matrix verb, but syntactically it occurs outside of the core.

A language need not have all nine juncture-nexus types, and in fact most do not; for example, English exhibits seven juncture-nexus types, Nootka (Wakashan; North America) has six (Jacobsen 1993), and Korean appears to have all nine (Yang 1994). It is important to keep in mind

that these juncture-nexus types are abstract linkage relations, not grammatical construction types; each juncture-nexus type may be realized by more than one grammatical construction type in a language. Each of these abstract clause-linkage types may subsume more than one formal construction type. For example, all of the following exemplify core subordination in English.

- (6.17)a. That John won the race surprised no one.  
 b. John's winning the race surprised everyone.  
 c. For John to win the race would be the surprise of the year.

In all of these sentences the dependent unit serves as a core argument ('subject') in the main clause, despite the formal diversity among them. Examples of the same formal construction in different juncture-nexus types are given in (6.18).

- |  |                         |
|--|-------------------------|
| (6.18)a. Kim sat reading a book.   | Core cosubordination    |
| b. Dana saw Chris washing the car.   | Core coordination       |
| c. Washing the car today would be a mistake.                                   | Core subordination      |
| d. Leslie strolled down the street, shouting instructions into his cell phone. | Clausal cosubordination |

In all of these constructions the verb is in the same participial form, but the juncture-nexus combination is different in each sentence. Thus, there is normally not a one-to-one mapping between juncture-nexus types and formal construction types.

Examples of the English juncture-nexus types and the constructions that instantiate them are given in (6.19).

- |   |                         |
|---|-------------------------|
| (6.19) English juncture-nexus combinations  |                         |
| a. Max seemed tired.<br>Vince has wiped the table clean.                                      | Nuclear cosubordination |
| b. Ted tried to open the door.<br>Sam sat playing the guitar.                                 | Core cosubordination    |
| c. Louisa told Bob to close the window.<br>Fred saw Harry leave the room.                     | Core coordination       |
| d. To wash the car today would be a mistake.<br>Chris regretted Kim's dating Pat.             | Core subordination      |
| e. Pat ran down the hall laughing loudly.<br>Leslie drove to the store and bought some beer.  | Clausal cosubordination |
| f. Kim persuaded Dana that Casey had lost.<br>Pat went to the party after he talked to Chris. | Clausal subordination   |
| g. Anna read for a few minutes, and then she went out.  | Clausal coordination    |

The examples in (6.1)-(6.19) illustrate the following juncture-nexus types: clausal coordination (6.1a), (6.7), (6.9a), (6.19g); clausal subordination (6.1c), (6.2a), (6.8), (6.11a), (6.19f); clausal cosubordination (6.1b), (6.2b) (6.3)-(6.7), (6.18d), (6.19e); core coordination (6.13a,b,c), (6.18b), (6.19c); core subordination (6.13e), (6.14a,a',a'',b'), (6.17), (6.19d); core cosubordination (6.13d), (6.18a), (6.19b); nuclear cosubordination (6.16), (6.19a). An English sentence containing all three juncture types is given in Figure 6.5.

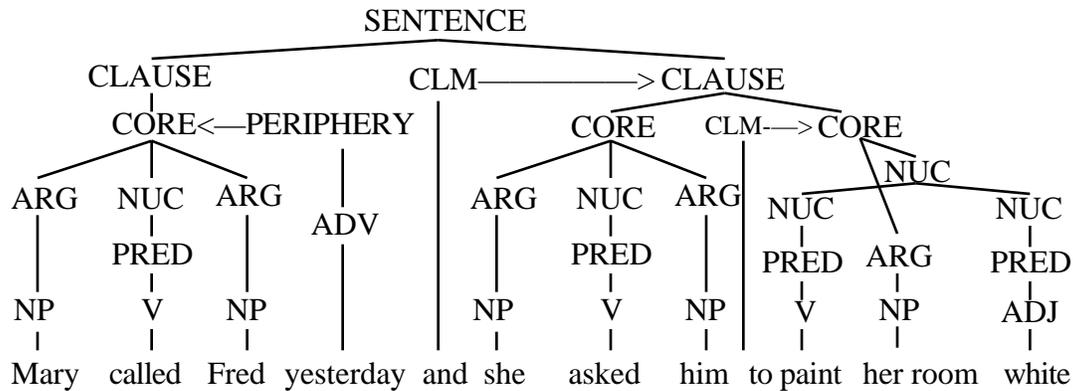


Figure 6.5: English sentence containing clausal, core and nuclear junctures

### 6.3 Interclausal semantic relations and the Interclausal Relations Hierarchy

The nine juncture-nexus types, while purely syntactic, are used to express certain semantic relations between the units in the juncture, e.g. causation, purpose, and temporal sequence. The interclausal semantic relations discussed in Van Valin & LaPolla (1997) are given in (6.20).

#### (6.20) Interclausal Semantic Relations

- a. Causative: the bringing about of one state of affairs directly by another state of affairs, usually an event or action, e.g. *Harold pushed open the door, Velma let the bird go.*
- b. Phase: a separate verb describes a facet of the temporal envelope of a state of affairs, specifically its onset, its termination, or its continuation, e.g. *Chris started crying, Fred kept singing, Hari finished writing the chapter.*
- c. Psych-action: a mental disposition regarding a possible action on the part of a participant in the state of affairs, e.g. *Max decided to leave, Sally forgot to open the window, Tanisha wants to go to the movies.*
- d. Purposive: one action is done with the intent of realizing another state of affairs, e.g. *Juan went to the store to buy milk, Susan brought the book to read.*
- e. Jussive: the expression of a command, request or demand (Lyons 1977), e.g. *Pat asked the student to leave, The king ordered the troops to attack the city.*
- f. Direct perception: an unmediated apprehension of some act, event, or situation through the senses, e.g. *Rex saw the child open the door, Yolanda heard the guests arrive.*
- g. Propositional attitude: the expression of a participant's attitude, judgment or opinion regarding a state of affairs, e.g. *Carl believes that UFOs are a menace to the earth, Paul considers Carl to be a fool, Most fans want very much for their team to win.*
- h. Cognition: an expression of knowledge or mental activity, e.g. *Aaron knows that the earth is round, George is thinking about Madeleine's refusal to go out with him.*
- i. Indirect discourse: an expression of reported speech, e.g. *Frank said that his friends were corrupt* (vs. *Frank said, "My friends are corrupt."*)
- j. Conditional: an expression of what consequence would hold, given the conditions in a particular state of affairs, e.g. *If it rains, we won't be able to have a picnic, Were Fred to leave now, he would look like a fool.*
- k. Simultaneous states of affairs: one state of affairs is temporally coterminous with another, e.g. *Max danced while Susan played the piano, Kim had chicken pox at the same time*

*that Leslie had the measles.*

1. Sequential states of affairs:
  1. Overlapping: one state of affairs partially overlaps temporally with another, e.g. *Before Juan had finished talking, Carlos entered the room.*
  2. Non-overlapping: one state of affairs begins immediately after another one ends, e.g. *As soon as Vidhu sat down, the band began to play.*
  3. Non-overlapping, with an interval: there is a temporal interval between the end of one state of affairs and the beginning of the next, e.g. *Five minutes after Sally settled into her hot bath, the phone rang.*
- m. Temporally unordered states of affairs: the temporal relation between states of affairs is unexpressed, e.g. *Tyrone talked to Tanisha, and Yolanda chatted with Kareem.*

The semantic relations form a continuum expressing the degree of semantic cohesion between the propositional units linked in the complex structure, i.e. the degree to which they express facets of a single action or event or discrete actions or events. This may be represented as in Figure 6.6.

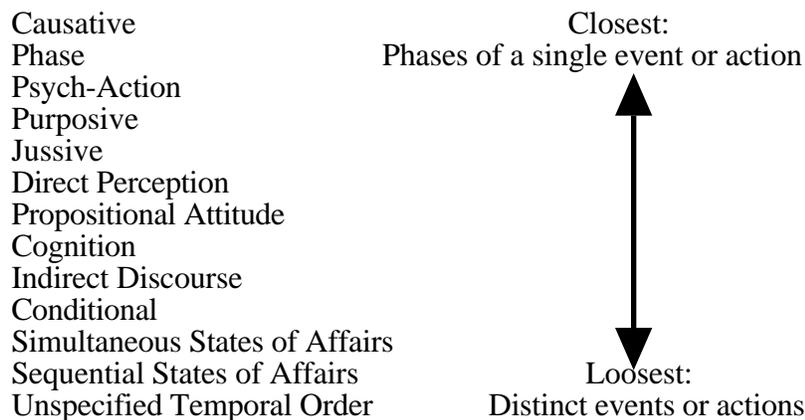


Figure 6.6: Interclausal Semantic Relations Hierarchy

The syntactic linkage relations may be ranked hierarchically in terms of the strength of the syntactic bond between the units, i.e. in terms of how integrated the units are into a single unit or are coded as distinct units. The interaction of the two hierarchies is expressed in the Interclausal Relations Hierarchy in Figure 6.7.

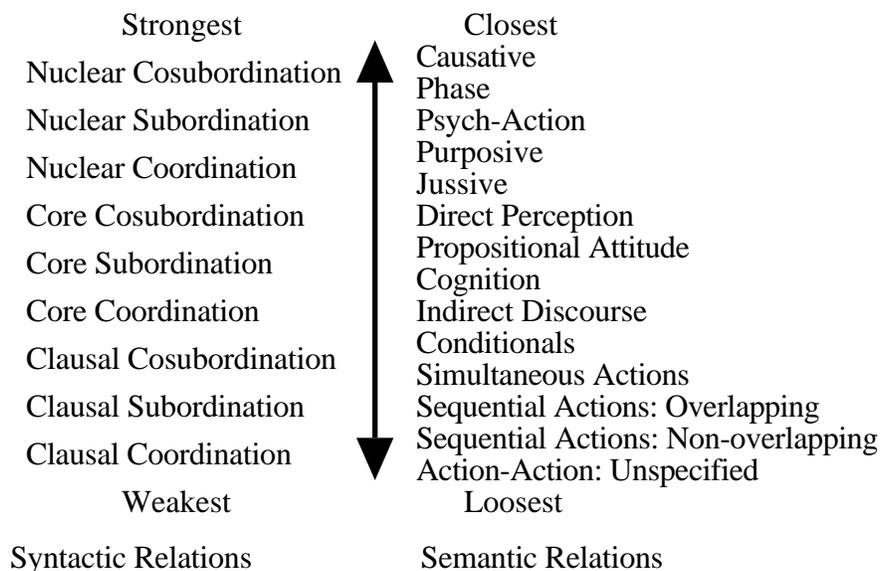


Figure 6.7: Interclausal Relations Hierarchy

The relationship between the syntactic and semantic relations in clause linkage is very complex, i.e. it is not one-to-one, but there are some striking regularities cross-linguistically. The primary principle governing the interaction of the two hierarchies is: the closer the semantic relation between two propositions is, the stronger the syntactic link joining them.<sup>4</sup> In particular, while there is often more than one syntactic realization of a particular semantic relation, e.g. causality, the tightest syntactic linkage realizing it should be tighter than the tightest syntactic linkage realizing looser semantic relations.<sup>5</sup>

The syntactic side of this hierarchy is much better understood than the semantic side; interclausal semantic relations have been much less investigated in contemporary linguistics than intraclausal semantic relations like thematic relations have been. The relations listed in the hierarchy in Figure 6.6 do not constitute an exhaustive list of possible interclausal semantic relations, and moreover, this hierarchy is itself the result of combining a number of more basic semantic hierarchies, including (but not limited to) temporal, spatial, causal, and mental disposition hierarchies. The essential idea is that the semantic cohesion between units expressed in the hierarchy in Figure 6.6 follows from the interaction of a number of factors, each of which is expressed in these hierarchies. Initial approximations of the first three hierarchies are given in (6.21)-(6.23).

<sup>4</sup>See Van Valin & Wilkins (1993) and Van Valin & LaPolla (1997), §8.4.3, for discussion of how the Interclausal Relations Hierarchy can be used to predict the syntactic complement types that cooccur with complement taking predicates.

<sup>5</sup>The basic iconic principle governing the syntax and semantics of clause linkage has been pointed out in Silverstein (1976) and Givón (1980). It should be noted that the semantic relations at the top end of the hierarchy are often lexicalized and not realized by a complex syntactic construction, e.g. causality as in Turkish and Lakhota. In this situation, the tightest syntactic linkage will not instantiate the top semantic relations, but this is not a counterexample to the claims of the Interclausal Relations Hierarchy. Indeed, the fact that it is the strongest semantic relations that are grammaticalized into morphological constructions, replacing the nuclear junctures, follows the basic claim of the Interclausal Relations Hierarchy: the stronger the semantic relation, the tighter the morphosyntactic bond between the units, and the evolution from a tightly bound syntactic construction to an even more tightly bound morphological construction represents a natural extension of the iconic relation between form and meaning expressed in the Interclausal Relations Hierarchy.

- (6.21) Temporal hierarchy: phases of a single event > simultaneous events > sequential events (overlapping) > sequential events (non-overlapping) > unspecified
- (6.23) Spatial hierarchy: contiguous > non-contiguous: close > non-contiguous: distant > unspecified
- (6.23) Causal hierarchy: physical > verbal > unspecified > inferred

In some sense the temporal hierarchy is the most fundamental: actions treated as phases of a single event are by definition going to be closer to each other semantically than actions treated as distinct events, and temporally overlapping events, be they simultaneous or sequential, are potentially closer than non-overlapping events. In the spatial hierarchy, ‘contiguous’ means that the participants in the actions are in some kind of direct physical contact with each other, while ‘non-contiguous’ means that they are not in physical contact and are either in close proximity or some distance away from each other. In the causal hierarchy, ‘physical’ refers to some kind of physical action on the part of the causer on the causee, whereas ‘verbal’ means that the causer acts on the causee by means of speech; the other two involve no specification of the kind of causality, the difference between the two residing in whether the causation is explicit (unspecified) or not (inferred).<sup>6</sup> The interaction of these three hierarchies can be seen in the following examples.<sup>7</sup>

- (6.24)a. Harry shot Tom dead.  
 b. Tom died, because Harry shot him.  
 c. Having been shot by Harry, Tom died.  
 d. After Harry shot him, Tom died.  
 e. Harry shot Tom, and he died.

Only in (6.24a) are the shooting and Tom’s dying treated as a phases of a single event. In some languages this may be expressed by a single verb, e.g. German *erschiessen* ‘shoot to death’, Lakota *wot’a* ‘shoot to death’[literally ‘cause to die by action from a distance’]. In all of the other sentences the two are treated as distinct events, with explicit temporal sequences expressed in (c) and (d). The second example is explicit about the causal relationship and invokes physical causality, but it leaves the spatio-temporal parameters unspecified. In (6.24c-e) causality is nothing more than an inference; for example, all would be true of a situation in which Harry shot Tom, Tom survived the shooting but then developed a secondary infection while in the hospital and subsequently died. A case of unspecified causality would be *Harry caused Tom to open the window*. Here there is no indication whether the causation, which is explicit, is physical or verbal; it is compatible with both. What is often called ‘direct manipulative causation’ involves physical causality, spatial contiguity, and actions which are phases of a single event.

The fourth hierarchy concerning a participant’s mental disposition, given in (6.25) is relevant to an additional important distinction in causality, namely the one illustrated in (6.26).

<sup>6</sup>Causality is a huge topic, and ideas from a variety of approaches need to be integrated in a fully fleshed out causal hierarchy, including Talmy (2000)’s theory of force dynamics.

<sup>7</sup>These alternative expressions of causality illustrate that the higher a semantic relation is on the Interclausal Relations Hierarchy, the more likely it is that there will be multiple ways to realize it syntactically. That is, the higher the tightest linkage relation realizing a particular semantic relation is, the more looser linkage relations will be available for alternative codings of it. In (6.24), (a) is an example of nuclear cosubordination, (c) is clausal cosubordination, (d) is clausal subordination, and (e) is clausal coordination.

(6.25) Participant's mental disposition: intention > perception > judgment > knowledge/belief

(6.26)a. Harry made Tom open the window.

b. Harry had Tom open the window.

An important aspect of the contrast in (6.26) concerns the mental disposition of the causee: is he acting according to his own intention, as in (b) or not, as in (a). This contrast is independent of the physical vs. verbal opposition, as the following examples show.

(6.27)a. Harry ordered Tom to open the window.

b. Harry asked Tom to open the window.

Both of these involve verbal causality, i.e. they are jussives, and they differ, as in (6.26), as to whether the causee is acting of his own accord or not.

The psych-action and purposive relations in (6.20) both refer to a participant's intentions; the former expresses a participant's intention or other mental disposition toward an action involving him/her, while the latter conveys a participant's intention to realize some state of affairs by means of an antecedent action. With psych-action there is a mental state and some kind of action, which may or may not temporally overlap. With purposive there are two actions which are necessarily sequential, and the participant's intention relates to both of them; this is normally expressed constructionally, as there is no verb expressing the participant's intention in the construction. Thus in characterizing these two interclausal semantic relations the mental disposition and temporal hierarchies play a role.

The temporal hierarchy is crucial in distinguishing direct from indirect perception. Direct perception entails that the perceptual event and the event perceived are simultaneous, while indirect perception requires that they not be. Hence in indirect perception the perceptual event necessarily follows the deduced event.

Clausal junctures are the building blocks of texts and discourse, and the relations among clauses at the discourse level include those involving discrete events in the temporal hierarchy, as well as the kind of relations that figure prominently in discourse theories like Rhetorical Structure Theory (e.g. Matthiessen & Thompson 1988), e.g. concession, circumstance, condition, purpose, elaboration, reason and manner.<sup>8</sup>

The hierarchies in (6.21)-(6.23) and (6.25) constitute only an initial, tentative step toward decomposing the Interclausal Semantic Relations Hierarchy and providing an explanation for the upper two-thirds of it.<sup>9</sup> The lower third overlaps with the semantic relations investigated in theories of discourse structure.

#### 6.4 Operators in Complex Sentences

In the contrasting of clausal cosubordinate linkages with coordinate and subordinate linkages, it was pointed out that the dependent verbs in the cosubordinate examples from Kewa in (6.1b) and from Chuave in (6.2b) also lack inflection for the operators tense and mood (illocutionary force).

<sup>8</sup>See Winter-Nielsen (1995) for an analysis of Biblical Hebrew texts which combines the RRG theory of clause linkage with Rhetorical Structure Theory.

<sup>9</sup>Ohori (2001) outlines a schema-based decompositional approach to interclausal semantic relations, in analogy to the decompositional approach to thematic relations presented in chapter 2.

Cosubordination was described initially as a kind of ‘dependent coordination,’ and it is now possible to characterize the nature of the dependence more precisely: *in a cosubordinate linkage at a given level of juncture, the linked units are dependent upon the matrix unit for expression of one or more of the operators for that level.* This is clear in the Kewa example in (6.1b), in the Chuave example in (6.2b), and in the Amele examples in (6.4)-(6.6). It is also found in a more subtle way in the Mparntwe Arrernte examples (Wilkins 1988) in (6.28).

- (6.28)a. Artwe-Ø alye-lhe-me-le petye-me.  
 man-NOM sing-DTR-NPP-SS come-NPP  
 ‘The man is coming singing.’  
 b. Artwe-Ø alye-lhe-(me)-rlenge ayenge petye-ke.  
 man-NOM sing-DTR-(NPP)-DS1sgNOM come-PAST  
 ‘I came while the man was singing.’

Even though both verbs are marked for tense, the absolute tense interpretation for the sentence is a function of the tense marker on the final verb; the tense marker on the verbs bearing switch-reference marking is a relative tense marker, i.e. it is interpreted with reference to the absolute tense of the other verb. Hence even though tense is marked on the first clause in (6.28b), there is nevertheless a tense dependence with the matrix clause. In coordinate nexus, each unit can be (but need not be) independently specified for the relevant operators, as in the Amele examples in (6.6).

This is further illustrated in the following pairs of examples.

- (6.29)a. Roto-mé nipú tá-a pæ ake-me nipú tá-a pæ? Kewa  
 stick-ERG 3sgABS hit-3sgPAST or what-ERG 3sgABS hit-3sgPAST or  
 ‘A stick hit him, or what hit him?’  
 b. Tekekepek špa:pa-ta ke-yaše-w Tonkawa  
 in.that.bush hide-SS 1sgOBJ-watch-IMP  
 ‘Hide in that bush and watch me!’
- (6.30)a. Gid-ip gör-meli-yiz. Turkish  
 go-CLM see-MOD-1pl  
 ‘We ought to go and see.’  
 b. Müzik dinde-yerek uyu-yabil-ir-im.  
 music listen-CLM sleep-MOD-AOR-1sg  
 ‘[While] listening to music, I can sleep.’
- (6.31)a. Fu kai fu-one kume-fie va. Barai  
 3sg friend 3sg-POSS call-listen continue  
 ‘He continued calling and listening for his friend.’  
 b. Fu vazai ufu furi numu akoe.  
 3sg grass cut finish pile throw.away  
 ‘He finished cutting, piled, and threw away the grass.’

(6.29a) is an example of clausal coordination in Kewa, and the two clauses have different illocutionary forces; the first conjunct is an assertion and the second a question. In (6.29b) from Tonkawa (Hoijer 1949), a Native American language, the two clauses are linked by a same subject marker, and there is only one imperative suffix, appearing on the final verb; both clauses are interpreted as being commands, thereby indicating that the illocutionary force operator has scope



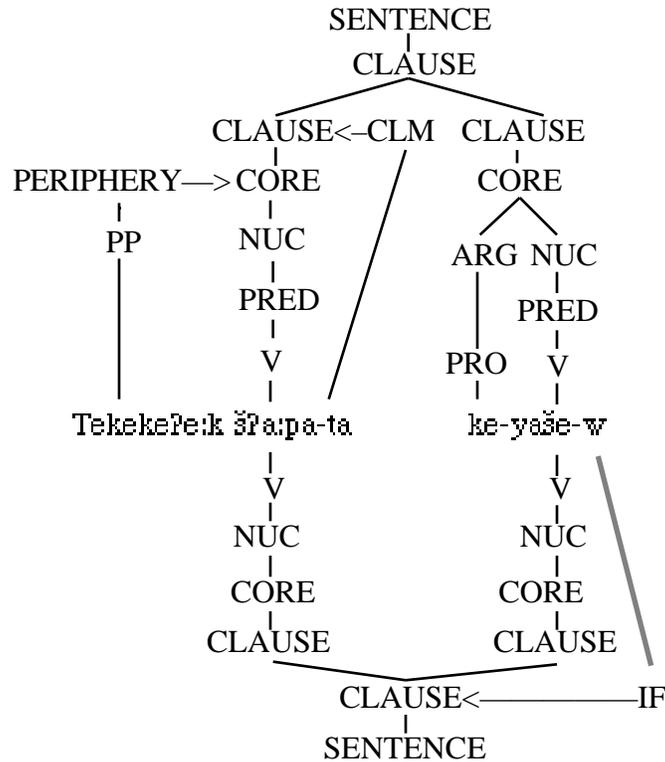


Figure 6.9: Tonkawa clausal cosubordination

Figure 6.10 below is an example of core cosubordination in English. The fact that *Kim* in Figure 6.21 and *Pat* in Figure 6.11 is an argument of more than one core is captured by the theory of control and the linking algorithm to be presented in section 7.1.1. The constituent and operator projections of these two sentences are not the same: the core nodes are dominated by a superordinate core node in cosubordination (Figure 6.10) but not in coordination (Figure 6.11). This reflects the fact that in core cosubordination a core operator such as modality *should* ‘weak obligation’ is shared by all cores, whereas it is not shared in core coordination.



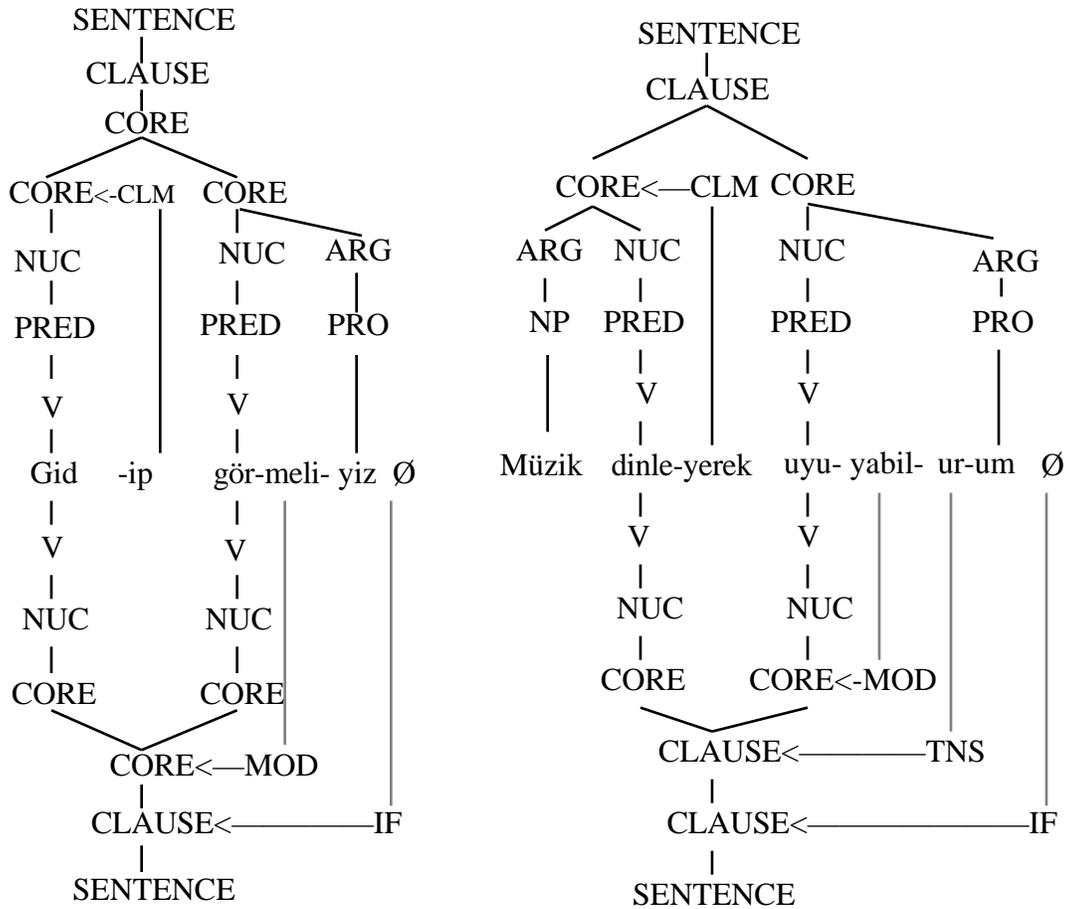


Figure 6.12: Turkish core cosubordination    Figure 6.13: Turkish core coordination

The different scopes of the modal operators are explicit in these two representations. This follows from the point made at the beginning of this section, namely, that the defining feature of cosubordination in contrast to coordination is the shared operators at the level of juncture.

Finally, the Barai constructions in Figure 6.14 (= (6.31a)) and 6.15 (= (6.31.b)) exemplify all three kinds of nuclear juncture.

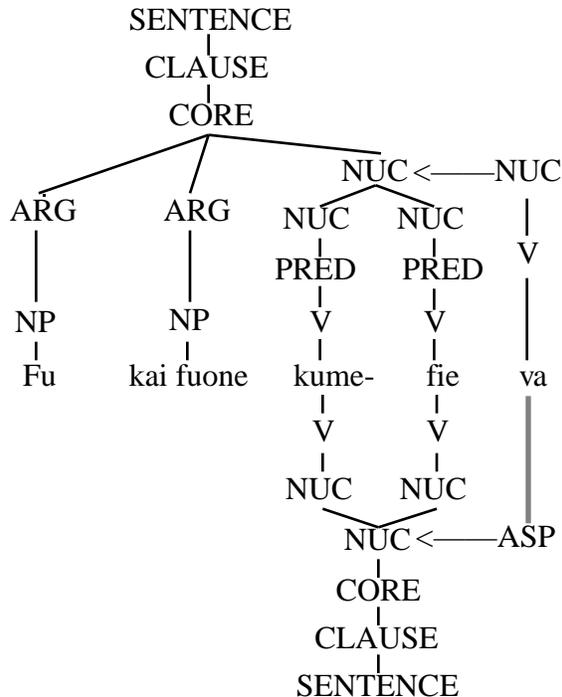


Figure 6.14: Barai nuclear cosubordination

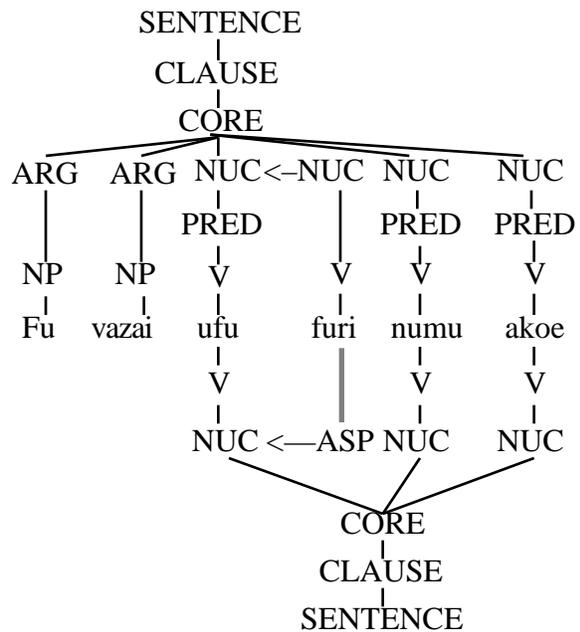


Figure 6.15: Barai nuclear coordination

The essential difference between these two constructions is that the aspectual operator has scope over both nuclei in (6.31a) but over only one of the nuclei in (6.31b), and this is captured in these representations. Note that the subordinate nucleus lacks a PRED node. This is because the verbs are modifiers, not predicates; they do not contribute anything to the semantics of the predication itself, nor do they contribute any arguments to the core.

Operators are not directly relevant to the determination of subordination, since the crucial defining feature of subordination is embedding, and it is distinguished from the other two nexus types by that feature. In the discussion of Amele it was noted that with respect to operator dependence subordinate clauses behave for the most part like coordinate constructions, and therefore we may conclude that they are much more like coordinate than subordinate structures. On the other hand, they share with subordinate structures the important property of being dependent, albeit in a different way; cosubordinate constructions exhibit operator dependence, e.g. shared tense and illocutionary force, whereas subordinate constructions are structurally dependent, i.e. they cannot occur independently, even though they may appear to be fully inflected for the obligatory operators. The contrasts among the nexus types can be represented as in Figure 6.16.

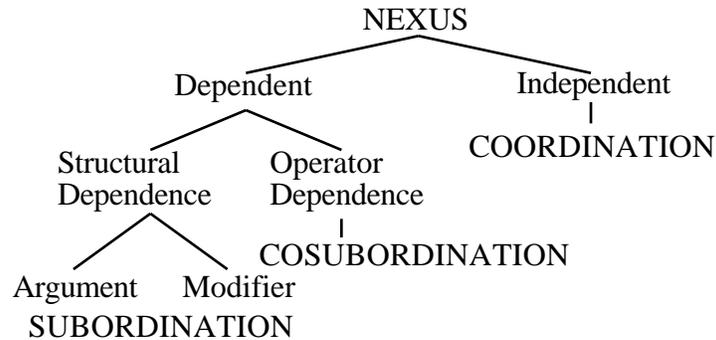


Figure 6.16: Nexus Types

### 6.5 Complementizer position

Complementizers, such as English *that* and Icelandic *að*, are as part of a larger class of grammatical markers called **CLAUSE-LINKAGE MARKERS**, which includes conjunctions and switch-reference markers. They mark the linked unit in a complex construction, and they are treated as functioning on the level of the juncture. Thus in Figures 6.10-6.13 the dependent unit markers, *to* in English and *-ErEk/-Ip* in Turkish, are core-level clause-linkage markers. When the dependent unit is a clause, as in a typical object complement, the marker, e.g. *that* in English, is a clausal complementizer; this is illustrated in Figure 6.4 for English and in Figure 1.9 for Icelandic. Adverbial subordinate clauses are not introduced by complementizers in English but rather by predicative prepositions which have clausal arguments. This is exemplified in (6.32) and Figure 6.17.

(6.32)a. Kim saw Pat after she arrived at the party late.

b. [**be-after'** ([**late'** (BECOME **be-at'** (3sgF, the party))), [**see'** (Kim, Pat)]]

The relationship of the adverbial subordinate clause to the core it modifies is that same as that of a peripheral PP modifying a core; thus in *Kim saw Pat after the meeting*, the relationship of the PP *after the meeting* to the core *Kim saw Pat* is the same as that of the subordinate clause *after he arrived at the party* to the core it modifies. In the Chuave example in (6.2a), on the other hand, the subordinator *-g-* is not a postposition and would be a kind of clause-linkage marker.



- (6.33) A subordinate clause may be within the potential focus domain if and only if it is a direct daughter of (a direct daughter of) the clause node which is modified by the illocutionary force operator.

In principle, there is no limit to the number of direct daughters involved, and therefore the specification in parenthesis should be considered to be recursive. This constraint can be illustrated in the contrast between Figures 6.4 and 6.17. In Figure 6.4, the subordinate clause is a direct daughter of the clause which is directly dominated by the sentence node; this is true in both the constituent and operator projections. Consequently, both clauses are in the potential focus domain in Figure 6.4, and this is represented in Figure 6.18.

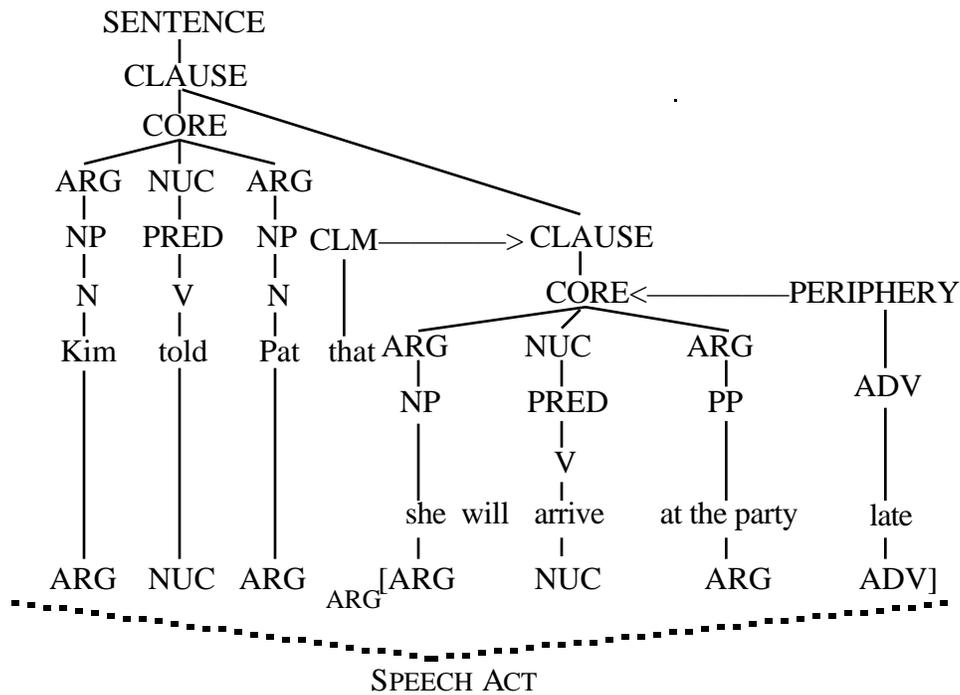


Figure 6.18: Potential focus domain in clausal (complement) subordination

As in the figures in chapter 3, the dotted line represents the potential focus domain, and the 'ARG', 'NUC', etc. indicate the basic information units. An significant property of this construction is that the subordinate clause as a whole may function as a single information unit, since it can be replaced by a WH-word, e.g. *What did John tell Mary?*, or the elements inside of it may also be interpreted as distinct information units, because the subordinate clause is in the potential focus domain. Evidence that it is in fact in the potential focus domain comes from possible answers to yes-no questions. In order to be the focus of a question, an element must be in the potential focus domain. Consider the following question-answer pair.<sup>11</sup>

- (6.34) Q: Did Kim tell Pat that he will arrive at the party LATE?  
A: No, EARLY.

<sup>11</sup>This test involves question-answer pairs in which the answer consists of 'No' plus a single constituent representing a single information unit. This single constituent is the focus in the answer and corresponds to the focus constituent in the question.

It is possible for the focus of the yes-no question to fall on the subordinate clause peripheral adverb *late*, as the felicity of the response denying *late* and asserting *early* shows. Hence the subordinate clause must be in the potential focus domain, because in the question in (6.34) the actual focus domain is in the subordinate clause.

In Figure 6.17, on the other hand, the subordinate clause bears no direct relationship to the matrix clause; it is the core argument of the predicative preposition *after*, and the PP is part of the periphery of the clause; in the operator projection, the clause is represented as an adjunct modifier of the core of the matrix clause. Hence only the matrix clause (including the PP as a whole) is in the potential focus domain, and this is represented in Figure 6.19.

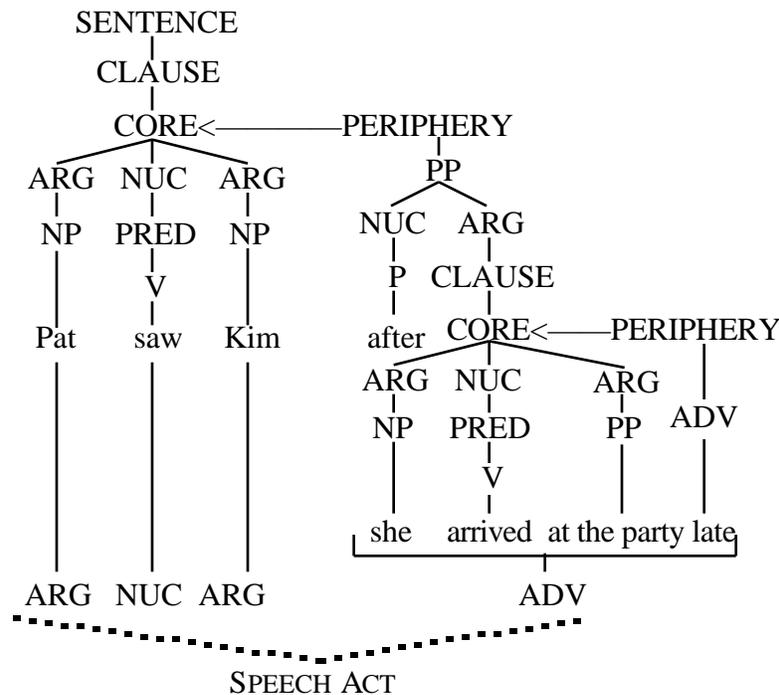


Figure 6.19: Potential focus domain in clausal (adverbial) subordination

The adverbial subordinate clause as a whole functions as a single information unit within the main clause and can be replaced by a WH-word, e.g. *When did Pat see Kim?*; its internal constituents are not, however, within the potential focus domain. This can be seen in the question-answer pairs in (6.35).

(6.35) Q: Did Pat see Kim, after she arrived at the party late?

A:a. No, Sally.

b. No, before.

c. ??No, early.<sup>12</sup>

The infelicity of the (c) response, in sharp contrast to the answer in (6.34), shows that the constituents of the adverbial subordinate clause are outside the potential focus domain. *After* can be the focus of a yes-no question, because it is part of the peripheral PP in the main clause. The

<sup>12</sup>Note that if the adverbial clause were preposed, i.e. *After she arrived at the party late, did Pat see Kim?*, the answer in (6.35c) is even worse, and the one in (6.35b) is quite odd.

principle in (6.33) correctly predicts that the *that*-clause in (6.34) is within the potential focus domain and that the adverbial clause in (6.35) is not.

As with focus structure in simple sentences (see section 3.3), some languages overtly mark whether a clause in a complex sentence is within the potential focus domain or not, e.g. German (see Van Valin 1998).

### 6.7 Complex NPs

Relative clauses and noun complement constructions have not been discussed, because the theory of clause linkage applies to the joining of clauses and subclausal units with each other; these constructions involve the linking of a clause with a nominal head. However, the concepts from the theory of clause linkage can be extended to provide a framework for their analysis. This is summarized in Table 6.1. See Van Valin & LaPolla (1997), §8.6 for detailed discussion.

Level of Juncture	Nexus Type(s)	Example
NP	Coordinate	<i>the tall woman and the happy man</i>
	Cosubordinate	<i>the tall woman and happy man</i>
	Subordinate	<i>the tall woman who left the party early</i>
Core <sub>N</sub>	Cosubordinate	<i>the order from the general to attack the city</i>
	Subordinate	<i>the rumor that Fred saw a UFO</i>
Nuclear <sub>N</sub>	No contrast	<i>duckhunter, woodchopper</i>

Table 6.1: Juncture and nexus in the NP

Noun complement constructions like *the rumor that Fred saw a UFO* involve a clause as a core argument of a nominal nucleus; this may be represented as in Figure 6.20. Hence it would be an example of core<sub>N</sub> subordination. Restrictive relative clauses in a language like English, on the other hand, are non-argument, i.e. peripheral, modifiers of the nominal core and are structurally analogous to adverbial subordinate clauses (see Figure 6.17). Hence it is an example of NP-level subordination. This is represented in Figure 6.21.

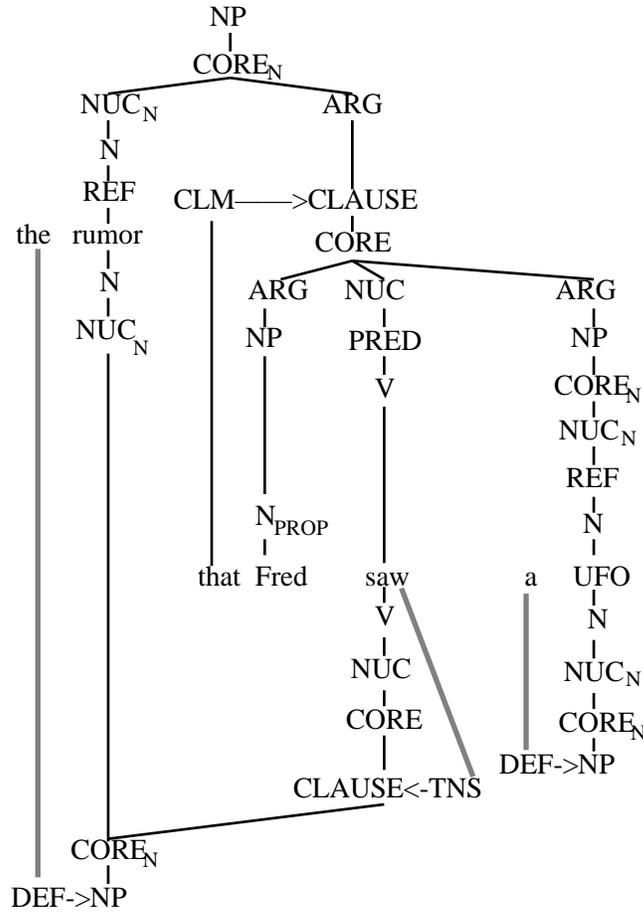


Figure 6.20: Noun complement

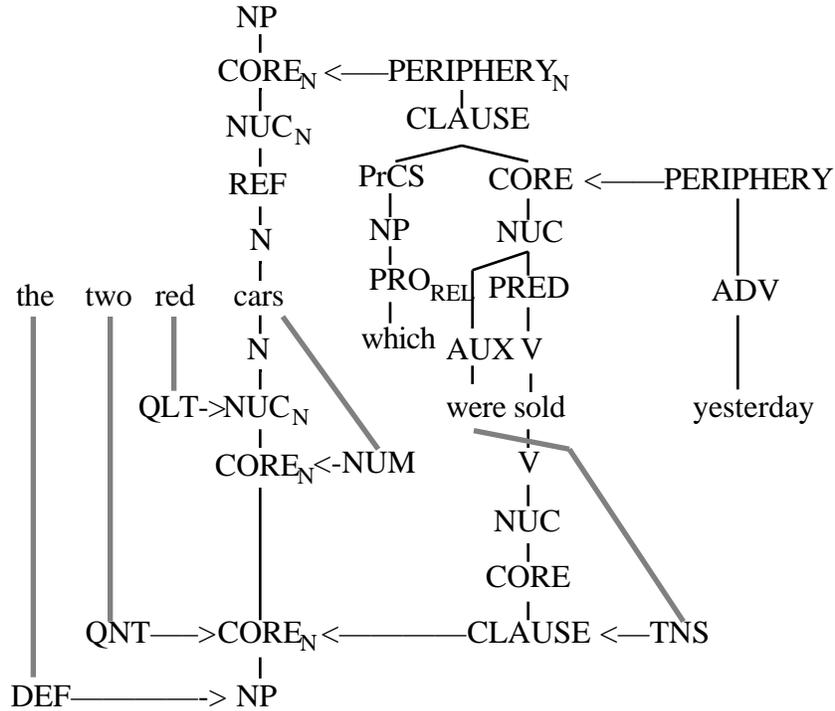


Figure 6.21: English restrictive relative clause

Non-restrictive relative clauses have the same internal structure as restrictive relatives, but their structural relationship to the head noun is different. First, they are set off by a pause in languages like English, whereas restrictive relatives are not. Second, as the name implies, they are not restrictive modifiers; their information content is additional information about the head noun, not information used by the interlocutor to determine the reference of the head noun. Third, since they often occur with proper nouns, which lack a layered structure, they cannot be in the nominal periphery modifying the nominal core, as in Figure 6.21. Hence they must be adjuncts at the NP rather than core<sub>N</sub> level. The structure of *Chris, who loves soccer*, is given in Figure 6.22.

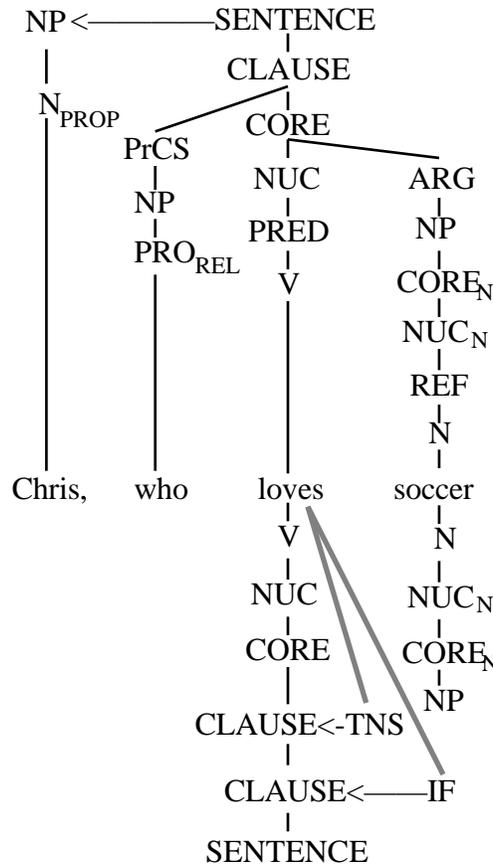


Figure 6.22: Structure of English non-restrictive relative clause

An important difference between restrictive and non-restrictive relative clauses is that non-restrictives are embedded *sentences*, not clauses, because they have a distinct illocutionary force operator from the matrix clause. It is obligatorily declarative, since a non-restrictive relative is an assertion about the head noun. Appositive XPs, e.g. *Chris, a soccer lover*, or *Tom Smith, 81*, are in the same relation to the head noun as non-restrictive relatives. Direct discourse complements, which are also embedded sentences, not clauses, would have a similar relationship to the matrix clause, i.e. CLAUSE <— SENTENCE, but unlike non-restrictive relatives, their illocutionary force is unconstrained, since they are used for reporting all kinds of speech acts.