REVIEW ARTICLE

CATEGORIZATION AND LICENSING OF SUBORDINATING CONJUNCTIONS

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1. Introduction

The question of how subordinating elements are syntactically related to the matrix clause has been and still is a matter of debate. The Syntax of Subordination provides a thoroughly worked out syntactic analysis of the issue. Focusing on the discussion of categoryhood and licensing of subordinate conjunctions and subordinate clauses, this book offers a novel explanation as to how to handle the syntax of subordination under the recent generative linguistic theory.

The Syntax of Subordination is organized into three parts. Part I (Early Generative Grammar, the Rise of Category C and the Categorization of Subordinating Conjunctions) reviews the conception of phrase structure in early generative grammar and past analyses of subordination. In chapter 1 (Subordination in Early Generative Grammar) the distribution of noun clauses and adverbial clauses is discussed. In chapter 2 (Complementizers) two traditional analyses of complementizers (the transformational approach and the phrase structure rule analysis) are reviewed. In chapter 3 (Subordinating Conjunctions—A

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Question of Categorization) the categorization options for subordinate conjunctions are discussed.

Part II (Recent Conceptions of Phrase Structure) summarizes the conceptions of phrase structure in the Principles and Parameters Theory and the Minimalist Program. In chapter 4 (Phrase Structure) the distinction between lexical and functional heads is discussed. In chapter 5 (Clause Structure) clause structure is examined in terms of the “split-Inf” hypothesis.

Part III (Lexical Properties of Complementizers, Prepositions and Subordinating Conjunctions) develops a theory of subordinate conjunctions. In chapter 6 (Lexical Properties of Complementizers and Properties of Category C) it is argued that complementizers make up a functionally defined category, isolating the lexical properties of lexical elements in the C position. In chapter 7 (Lexical Properties of Prepositions) it is argued that PP is dominated by functional architecture. In chapter 8 (Subordinating Conjunctions Straddle the Dividing Line between the Lexical and the Functional Universe) a third category (Sub-con) is introduced as a conflating category, unifying properties of lexical and functional heads. In the concluding chapter (chapter 9) the derivation of the subordinate-matrix order is discussed.

Part I and Part II can be seen as a survey of past analyses and the current state of linguistic theory of subordinating elements. These parts set a stage for part III. In the following three sections, I outline Haumann’s arguments concerning complementizers and their feature specifications (section 2), the lexical prepositions that introduce temporal adverbial clauses and their extended projections (section 3), and subordinating conjunctions as a distinct syntactic category which conflates properties of both the functional head C and the lexical head P (section 4). In section 5, I discuss some problems and consequences of Haumann’s analysis. Section 6 is the conclusion.

2. Properties of Complementizers

Since Bresnan (1970, 1972, 1973), complementizers have been analyzed as being a syntactic category. The category C is not only a label but also a functional head that projects CP. Assuming that complementizers serve to introduce argument clauses, Chapter 6 is devoted to examining lexical properties of complementizers and properties of
Haumann analyzes *that* and *if* as complementizers. On the other hand, Haumann analyzes *whether* as an interrogative specifier. *For* is argued to be a Case-assigner inserted into C. Trying to isolate the lexical properties of the items base-generated in C, complementizers and the structure of the clause they head are discussed in chapter 6.

Let us first see Haumann's analysis of *that* complementizers. They are divided into two groups: the indicative complementizer *that*\textsubscript{indicative} and the subjunctive complementizer *that*\textsubscript{subjunctive}. CPs headed by *that*\textsubscript{ind} are of two kinds: factive and non-factive. Factive CPs induce definiteness in the sense that their distribution is restricted to the internal argument position of "predicates which assert or presuppose truth value, or which imply knowledge or certainty" (Bresnan (1972: 65)). Melvold (1991) argues that *that*\textsubscript{ind} in factive CPs is analyzed as bearing the feature [+def\{initeness\}] which licenses the iota operator in a spec-head-agreement manner. Basically following Melvold (1991), Haumann argues that there are two *that*\textsubscript{ind}-complementizers, one that heads factive CPs and one that heads non-factive CPs. In factive CPs, *that*\textsubscript{ind} is specified as [+def]. It licenses an operator in the specCP, marking it as [+def]. On the other hand, in non-factive CPs, *that*\textsubscript{ind} is specified as [−def], so that its specifier is also marked as [−def]. Note that, contrary to Melvold (1991), Haumann does not assume that *that* introducing non-factive CPs is semantically inert and inserted at PF.

For the agreement between a [+def]-head and its specifier, Haumann proposes the following formulation:

\begin{enumerate}
\item a. A [+def]-Operator must be in a Spec-head configuration with an X\textsubscript{0} [+def].
\item b. An X\textsubscript{0} [−def] must be in a Spec-head configuration with a [+def]-Operator.
\end{enumerate}

Since a [+def] operator occupies the specifier position of factive CPs according to (1), specCP is unavailable as an intermediate landing site for long *wh*-extraction. Thus, argument extraction out of factive CPs causes a weak island effect and adjunct extraction yields a strong violation:

\begin{enumerate}
\item a. ?Who\textsubscript{i} did Fred confess that he fired t\textsubscript{i}?\footnote{Following Riemsdijk (1984), Haumann assumes that clauses with a lexical complementizer are CPs. On the other hand, Haumann rejects the assumption made by Abney (1987) and Fukui and Speas (1986) that the relation between C and Agr\textsubscript{S}P is characterized by f\{unctional\}-selection.}\
\end{enumerate}
b. *How did Bill reveal that Ann solved the problem?  

On the other hand, extraction out of CPs headed by non-factive that\textsubscript{ind} is possible:

(3) a. Who did John believe that Susan invited?
    b. How did Bill believe that Ann solved the problem?

Since the specifier position of non-factive that\textsubscript{ind} does not contain an operator, it is available for wh-movement.

Furthermore, factive complements differ from non-factive arguments in that they may be wh-initial:

(4) a. Fred figured out who Peter eloped with.
    b. The scientists realized immediately what they had discovered.

(5) a. *Fred insisted who Peter eloped with.
    b. *The scientists claim what they had discovered.

Haumann assumes that (non-)interrogativity is represented in terms of the binary feature [+Q] in the sense of Rizzi (1991). Although all wh-initial CPs are marked as [+wh], only those which are marked as [+Q] are interrogative and thus indefinite. Since the argument CPs of the factive verbs are not interrogative in (4), they are interpreted as [−Q]. Such wh-initial CPs, being [−Q], count as definite. The definiteness of the CPs is accounted for by specifying C as [+wh] and [−Q]. According to the requirements stated in (1), the wh-phrases in the specifier positions of the factive complements are specified as [−Q] and [+def]. On the other hand, [−def] CP-arguments of non-factive predicates cannot be wh-initial, as shown in (5). Since the governing verbs are not interrogative, they cannot license wh-initial complements.

Although Haumann recognizes two that\textsubscript{ind}-complementizers (one that introduces [+def] CPs and one that introduces [−def] CPs), that\textsubscript{ind}-complementizers are always finite. Haumann assumes that (non-)finiteness is marked as [±fin], taking [+fin] to be a weak feature. Under this analysis, Agr\textsubscript{S}-to-C movement is deferred until LF unless there is some strong feature in C. Overt Agr\textsubscript{S}-to-C movement is assumed to be forced by strong features such as [+Q] in matrix interrogatives, [+Agr] in V2 contexts, [+subj(unctive)] in V2 argument clauses in German, and [+cond(itional)] in counterfactual conditionals in English and German. Relevant cases are exemplified below:
(6)  a. Will she fix the car?
    b. Sie hat das Auto nicht repariert.
        she has the car not fixed
        ‘She hasn’t fixed the car.’
    c. Sie sagte, sie werde das Auto nicht reparieren.
        she says she will_subj the car not fix
        ‘She said she would not fix the car.’
    d. Had she repaired the car, he might still be alive.

In the examples given in (6), overt Agrs-to-C movement has taken
place as a consequence of C specified by strong features such as [+Q],
[+Agr], [+subj], and [+cond]. In (6c), for example, the subjunctive
argument clause is characterized by the feature [+subj]. Being strong,
the feature [+subj] needs to be lexicalized in overt syntax.

Notice here that, in German, lexicalization of [+subj] is executed
either by the base-generation of dasssubj or by Agrs-to C movement:
(7)  a. Sie sagte, sie werde das Auto nicht reparieren.
        she says she will_subj the car not fix
    b. Sie sagte, dass sie das Auto nicht reparieren werde.
        she says that she the car not fix will_subj

In English, C [+subj] selected by verbs such as require must be lexicalized
as the base-generated that_subj:
(8)  a. It is required that he shave before noon.
    b. The situation demanded that the dishes be done im-
       mediately.

Recall that under Haumann’s analysis subjunctive CPs are taken to be
finite. Assuming, following Roberts (1993), that every verb must be
PF-identified by being associated with some inflectional feature of a
governing head, Haumann argues that T in subjunctive CPs may be
occupied by a modal null element. Thus, lexical materials such as the
aspectual auxiliary have cannot occur in the T position:
(9)  a. *I suggest that he have not left before noon.
    b. *I suggest that he be not there by 8.
    c. I suggest that he not have left before noon.

2 In British English, should is inserted in T of subjunctive CPs.
d. I suggest that he not be there by 8.  

In negative preposing cases, the null modal $\emptyset$ (or the overt modal *should*) undergoes overt movement over the subject:

(10) a. ... that under no circumstances should he bring out the trash.

b. ... that under no circumstances $\emptyset$ he bring out the trash.

(10) (adapted from p. 171)

Under Haumann's analysis, *if* is also analyzed as a complementizer. Argument CPs headed by *if* are finite and restricted to the internal argument position of interrogative heads.

(11) a. Joe asked if Tom knew about the gossip.

b. *Joe asked if Tom to know about the gossip.

c. *Joe said if Tom know about the gossip. (pp. 171–172)

*If* is thus assumed to be marked as [+fin] and [+Q]. The specifier position of the CP *if* heads is also marked as [+Q]:

(12)

\[
\begin{align*}
\text{CP} & \\
[+Q] & \text{OP} & \text{C}' \\
[+Q] & \text{CP} & \text{AgrsP} \\
& \text{if} &
\end{align*}
\]

Since CPs headed by *if* host an empty operator as depicted in (12), they show island effects as factive CPs do:

(13) a. ?What did you ask [if Tom knew t]? 

b. *How did you wonder [if Tom made it home t]? (p. 173)

Argument CPs with a wh-element marked as [+Q] in its specifier are taken as indefinite arguments in the sense of Bresnan (1972) and Baker (1970). In this regard, CPs headed by *if* resemble non-factive CPs in that both show indefiniteness.

Like CPs headed by *if*, argument CPs introduced by *whether*, being specified as interrogative, appear in the internal argument position of an interrogative head:

(14) a. I am asking whether you will accompany me.

b. *I think whether you will accompany me. (p. 174)

Argument CPs introduced by *whether* are differentiated from argument CPs headed by *if/that*$_{ind/subj}$ in that they can be either finite or non-finite:

(15) I wonder *whether* to go home right now. (ibid.)
Assuming that *whether* is the lexical counterpart of the empty interrogative operator, Haumann argues that *whether* occupies specCP, lexicalizing [+Q].

Haumann also assumes that *whether*, being a specCP-element, is not specified for the head feature [±fin]. *Whether* in specCP is analyzed as being in a specifier-head-agreement relation with an empty [+Q]-complementizer.

In the end of chapter 6, Haumann examines the properties of *for*. *For* takes non-finite declarative clauses with a lexical subject:

(16)  
\begin{align*}
  a. & \quad \text{We hope for him to succeed.} \\
  b. & \quad *\text{We hope for PRO to succeed.} \quad \text{(p. 178)}
\end{align*}

Governance verbs such as *try, convince, hope, want*, etc. select complementizers associated with future tense. The [+fut] feature in C selects a non-finite T, a T head which is lexically filled by *to*. Haumann takes *for* as a (de-)prepositional complementizer that functions as a structural Case-assigner for a lexical subject:

(17)
\[
\begin{array}{c}
V' \\
V \\
CP \\
\vdots \\
[+fut] \\
C' \\
\vdots \\
C \\
[-fin] \\
\vdots \\
[+fut] \\
\vdots \\
\text{spec} \\
\vdots \\
\text{Agr}_S \\
\vdots \\
\text{Agr}_S' \\
\vdots \\
\text{TP} \\
\vdots \\
\text{spec} \\
\vdots \\
T' \\
\vdots \\
T \\
[-fin] \\
\vdots \\
\text{VP} \\
\text{to} \\
\text{succeed}
\end{array}
\]

\text{(p. 187)}

3 As supporting evidence for the claim that *whether* is a specifier, Haumann cites the observation of Lightfoot (1979) that *whether* and *that*, a genuine C-head, could cooccur in earlier stages of English.
Under this analysis, for is not a complementizer but a Case-assigner, and its presence has nothing to do with selection. Since neither [−fin] nor [+fut] are taken to be strong features, for cannot be regarded as a lexicalization of such features. The head of the CPs of the form “PRO-to-...-VP” is a non-lexical counterpart of for, characterized by identical features [−fin] and [+fut]. The CPs of the form “for-DP-to-...-VP” and the CPs of the form “PRO-to-...-VP” are both marked as [−def].

3. Lexical Prepositions and the Functional Architecture

Whether prepositions such as before, after, and since with sentential complements are lexical or functional has been a long-standing question. In the recent literature, there have been two major analyses. Webelhuth (1992) analyzes them as prepositions taking IP complements. Huang (1982) and Dubinsky and Williams (1995) take them as complementizers. Chapter 7 is devoted to examining the lexical properties of prepositions. In this section, I review Haumann’s new analysis of the prepositional heads that take sentential complements forming temporal adverbial clauses. Prepositions of the subclass are termed lexical prepositions. It is argued that the prepositional elements show thematic properties. Under Haumann’s analysis, “matrix clauses” in the traditional sense are analyzed as the external arguments licensed by head-specifier relation within PP. Furthermore, Haumann develops a theory of the functional structure dominating PPs.

The lexical prepositions after, before, since, until, when, and while are associated with an argument structure containing three arguments: an external, an internal, and a referential argument (a spatial <s> or a temporal argument <t>). (In)transitivity depends on whether an internal argument is encoded or not.

In addition to the argument structures, prepositions are lexically specified for Case-marking properties. After, before, since, and until in

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4 Prepositional elements that are not associated with a lexical argument structure are called Case-prepositions (or grammatical(ized) prepositions):

(i) He is good at tennis. (p. 191)
(18) take a nominal internal argument which must be assigned a structural Case:

(18) a. We planned to meet after the conference.
    b. I didn’t see him before the conference.
    c. I haven’t seen him since the conference.
    d. We couldn’t get hold of him until the end of the conference.

These prepositions have the following specification:

(19) \{<1,2,t>, [+CAS], [+S]\} (ibid.)

Here, <1> designates the external argument, <2> the internal argument, and <t> the referential argument. [+CAS] marks (non-)Case assigning properties. [±S] distinguishes structural Case ([+S]) and inherent Case ([−S]). The following specification (20) accounts for after, before, since, until, when, and while in (21):

(20) \{<1,2,t>, [−CAS]\} (ibid.)

(21) a. We planned to meet after the conference was over.
    b. I didn’t see him before the conference started.
    c. I haven’t seen him since the conference started.
    d. We couldn’t get hold of him until the conference was over.
    e. I met him when I was in Paris.
    f. We talked about Jill while the kids were out. (ibid.)

The internal argument is discharged by theta-marking.5 In the following structure, the internal argument of the preposition before (<2>) is coindexed with the referential argument of the semantic head of the complement (N in (22a) and V in (22b)).6

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5 Theta marking is defined as follows;
(i) A lexical head L theta-marks a phrase FP iff:
   a. L governs FP, and
   b. the referential argument of the semantic head of FP is coindexed with a thematic argument of L. (p. 194)

6 In (22) and (24), e stands for a referential argument e(vent).
Haumann further argues that the external argument is discharged by theta-marking a maximal projection, specPP:

(23)

We had a party after she left
They all left before the fireworks started
I haven’t seen him since the conference
You will have to wait until noon
We met when I was in Paris
We planned to meet while the kids were out

Lexically defined properties of P require and license the presence of a functional structure above PP. There are at most three functional projections dominating PP as depicted below:
The presence of $P\text{-Agro}_P$ is triggered by prepositions that are associated with an argument structure containing an internal argument and are specified as structural Case-assigners:

$\{<1,2,t>, [+\text{CAS}], [+\text{S}]\}$

The prepositional/postpositional order in (27) is accounted for by assuming overt/covert movement of the direct object of $P$ into the specifier position of $P\text{-Agro}_P$:

(27) a. They met before the conference.
    b. They met three weeks ago.

(28) a. $PP$

    spec $P'$
    $
    \begin{array}{c}
    P \\
    \text{before}
    \end{array}$
    $\text{the conference}$
Haumann assumes that [+S]-feature of ago is strong so that it triggers the overt movement to P-AgrO and specP-AgrO. On the other hand, in cases such as (27a), movement of P into P-AgrO and movement of DP into specP-AgrO are deferred until LF.

The presence of P-DegP is triggered and licensed by the fact that the argument structure of P contains a referential argument. Haumann further argues that modificational elements such as right, long, and two hours in (29) are base-generated in specP-DegP as represented in (30):

(29) a. The dizzy turns started right/long/two hours after the conference started.

b. The dizzy turns started right/long/two hours before the conference started.

(30) P-DegP

7 The referential argument is discharged by being theta-bound by a functional head, that is, by being coindexed with the functional head P-Deg.
Here, (non)simultaneity is specified as [±simult] and (non)terminative function of subordinate clauses is expressed as [±perf(ective)]. Modificational elements such as *right and two hours* are assumed to have lexical specifications that enter into a specifier-head agreement relation with P-Deg. In LF, the head P moves into P-Deg to have its [+time]-feature checked.

The subject of P (the matrix clause under the traditional sense) moves to some higher position preceding both P-AgroP and P-DegP:

(31) a. *He left*;[P-DegP two hours [P-AgroP [PP t_1 [P' after the party started]]]]

b. *[P-DegP Two hours [P-AgroP [PP he left [P' after the party started]]]]

(adapted from p. 227)

Haumann argues that the subject undergoes overt movement to the specifier position of a functional projection, ΔP:

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8 Elements such as *right* and *two hours* are specified for their ability to measure (temporal) distances in terms of degrees. *Right* is marked as degree zero ([deg-0]) and measure phrases such as *two hours* are marked as degree n ([deg-n]).
For the question of why sentential elements should move overtly, Haumann suggests that sentence-type features are strong and trigger the movement of sentential external arguments into spec ΔP. Note here that, contrary to the sentential internal argument of P (AgrsP), the sentential external arguments vary in sentence-type (declarative, interrogative, etc.) and they can be realized as AgrsP, CP, or TopP, as the following examples show:

(33) a. \[\DeltaP [\text{He left}] [\Delta' \text{two hours after the party started}]]

b. \[\DeltaP [\text{Who did he call}] [\Delta' \text{before the party started}]]

c. \[\DeltaP [\text{Yesterday, his friends arrived}] [\Delta' \text{before he had finished the dishes}]]

(33) is assumed to be the topmost level within the extended projection of P. The specifier position of ΔP carries sentence type information and hosts the subject of P.

For the following examples, Haumann argues that the matrix governing verbs select spec ΔP, the host of the moved external argument of P, which bears sentence type information:

\[\DeltaP [\text{He left}] [\Delta' \text{two hours after the party started}]]

\[\DeltaP [\text{Who did he call}] [\Delta' \text{before the party started}]]

\[\DeltaP [\text{Yesterday, his friends arrived}] [\Delta' \text{before he had finished the dishes}]]

Haumann takes selection as selection of either the highest specifier or the high-
(34)  a. Paul said $[_{\Delta P} [_{CP} (that) he left] [_{\Delta} \cdot two hours after the party started]]$

b. I pointed out $[_{\Delta P} [_{CP} that I hadn’t seen him] [_{\Delta} \cdot since]]$

c. We all wondered $[_{\Delta P} [_{CP} who he called] [_{\Delta} \cdot before the party started]]$  
(adapted from p. 231)

4. Subordinating Conjunctions

Chapter 8 develops a theory of subordinating conjunctions such as although, because, causal for, if, in case, in order, causal since, unless, conditional whether, and adversative while. Haumann argues that these elements cannot be unambiguously attributed to either complementizer or preposition. Haumann proposes subordinating conjunctions should be analyzed as a distinct syntactic category Subcon, which conflates properties of both the functional head C and the lexical head P.

4.1. Functional Properties of Subcon

In the case of the category C, a functional head, the relation between a C head and its sentential complement is established by checking features such as $[\pm fin], [\pm subj], and [\pm fut]$. The feature checking is executed by covert movement of a verbal material into a C head. In chapter 8, Haumann first examines the relation between subordinating conjunctions and their structural complement.

Subordinating conjunctions take finite sentential complements, as shown in (35). Haumann assumes that the feature $[+ fin]$ determines the relation between Subcon and the sentential complement in these cases:

(35)  a. Although he had no driver’s license, Tom drove us home.

b. He didn’t show up at the conference because he hadn’t read the abstracts.

c. She didn’t come to the party for she had papers to grade.

est head of the extended projection.

10 Haumann argues in chapter 9 that the subordinate-matrix order in cases such as (35a), (35d), (35f), (35h), and (35i) is derived as a result of leftward movement of the subordinate clause.
d. If she had not forgotten to grade the papers, she would have come to the party.

e. I had to watch where I put my feet in case I left.

f. Since you are a man you are supposed to know about this.

g. We won’t get the train unless we leave at 5 a.m.

h. Whether you like or not, I will do it.

i. While John refuses to take up linguistics himself, he talked Tom into it.

In order is specified as [+fut] and takes a CP complement marked as { [+fut], [-fin] } (as in (36)) or { [+fut], [-fin], [+subj] } (as in (37)):

(36) a. She came home early in order to get some sleep.
b. She typed the paper in order for him to get some sleep.

(p. 239)

(37) a. She typed the paper in order that he might get some sleep.
b. She came home early in order that she get some sleep.

(ibid.)

Although, whether, and while can be marked as { [-fut], [-fin] }, allowing gerundive sentential arguments:

(38) a. Although playing with the wind in the first half they were never able to control the play. (p. 238)
b. Whether living in London or not, John employed himself.
c. While refusing to take up linguistics himself, John talked Tom into it.

(p. 239)

The structural complement of although, whether, if, and unless marked as [-fut] is realized as a small clause:11

(39) a. Although drunk, he made it home alive.
b. Whether in a bad mood or not, don’t call me.
c. While drunk himself, John tried to prevent Tom from drinking too much.
d. If tired, she will not come to the party.

11 Although Haumann (p. 243 (15)) marks the ability of although, if, unless, and whether to take a small clause complement, while also takes a small clause complement as (39c) shows.
e. *Unless* in hospital, you have no opportunity to see your doctor twice a day.  

The relation between Subcon and its complement is assumed to be based on feature checking. For example, Subcons such as *although, because, for, if, in case, since, unless, whether,* and *while* and their finite sentential complement (AgrsP) are related to the finite features of the embedded verb. The relation between *in order* and its CP complement (finite or non-finite) is based on the feature [+fut] involved in both Subcon and C.

Haumann takes conditional *if* to be a prime example of Subcon as a functional head within the extended verbal projection. It is argued that the feature [+cond] is involved in examples like the following:

(40) a. *If* she had repaired the car, he might still be alive.  
    b. *If* she were to compromise, this matter would be easier to settle.  

(41) a. *Had* she repaired the car, he might still be alive.  
    b. *Were* she to compromise, this matter would be easier to settle.  

[+cond], being strong, is lexicalized by the base-generation of *if* or overt head movement of a finite verb bearing [+cond]-specification:

(42) Subcon'  

Subcon AgrsP  

spec Agrs'  

Agrs TP  

spec T'  

T VP  

if[+cond] she  

had[+cond] repaired the car  

if[+cond] she  

were[+cond] to compromise  

had[+cond] repaired the car  

were[+cond] to compromise  

(42) Subcon'  

4.2. Lexical Properties of Subcon

The relation between Subcon and its sentential complement is re-
duced to the checking relation based on the feature of the embedded verb (or T). In this sense, the projection of subordinating conjunctions is an extended projection of the embedded verb. Put differently, the relation is not based on thematic properties. On the other hand, the relation between P and Agr\textsubscript{S}P is thematic in that P theta-marks and licenses Agr\textsubscript{S}P as its internal argument.\textsuperscript{12}

Subcons, however, share some properties with prepositional subordinators. The projections of Subcons are barred from argument positions within the lexical projection of a head. Furthermore, Subcons show the lexically defined property of having an external argument:

\begin{equation}
\begin{array}{c}
\text{SubconP} \\
\text{XP} \\
\text{Subcon'} \\
\text{Subcon} \\
\text{AgrS}P \\
<..., \text{ref.arg.}\_j> <1\_j>
\end{array}
\end{equation}

(p. 252)

Under this analysis, the matrix clause is taken as a base-generated A-specifier within the projection of Subcon. Haumann further argues that SubconP is dominated by the functional projection ΔP constructed on the basis of the lexical part of Subcon. Since the argument structure of Subcon contains an external argument, SubconP functions as a predicate:

\textsuperscript{12} Assuming condition (i) proposed in chapter 7, Haumann observes examples such as (ii) as evidence for the view that Subcon does not theta-mark its sentential complement:

(i) The highest specifier in a theta-marked extended projection must be an A-specifier, unless required otherwise by selectional properties. (p. 213)

(ii) To his surprise he has discovered that although [never before in his life] had he tried to play tennis right-handed he plays quite well. (p. 248)
The "matrix" clause overtly moves into the specifier position of $\Delta P$.\(^{13}\)

In the following example, the matrix clause has undergone movement over the focus particle *even* adjoined to SubconP:

\[
(45) \ [\Delta P [We \ didn't \ want \ to \ give \ in]; [\Delta' \ [SubconP \ even \ [SubconP \ ti \ [Subcon' \ although \ [AgrsP \ pressure \ was \ quite \ hard]]]]]])
\]

(adapted from p. 256)

As is the case with the projection of P, the projection of Subcon is a predicate of the event referred to by the "matrix" clause, and the specifier position of $\Delta P$ is the landing site for the external sentential argument of P/Subcon.\(^{14}\)

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\(^{13}\) Subcon moves into the head position of $\Delta P$ in LF.

\(^{14}\) In chapter 9, Haumann touches on the derivation of the "subordinate-matrix" order in (i):

(i) a. *After she left, we had a party.*  
   b. *Although she did not feel well, she tried to appear normal.*  

Though detailed mechanics are left unsettled, Haumann assumes that the "subordinate-matrix" order is derived by leftward movement of P-DegP/SubconP as depicted below:

(ii) a. $[\Delta P [P-DegP \ ti \ after \ she \ left]; [\Delta' \ [AgrsP \ we \ had \ a \ party]] [\Delta' \ [P-DegP \ ti]]])$
   b. $[\Delta P [SubconP \ ti \ although \ she \ did \ not \ feel \ well]; [\Delta' \ [AgrsP \ she \ tried \ to \ appear \ normal]] [\Delta' \ [SubconP \ ti]]])$  

(adapted from p. 266)

In line with Takano's (1995) analysis of predicate fronting, it is assumed that the preposed subordinate clauses, being predicate under Haumann's analysis, are interpreted in their base positions at LF.
5. Some Problems and Consequences

Haumann's novel analysis of subordination gives rise to several problems and consequences. In 5.1., I take up some problems of Haumann's proposals concerning that-complementizer shown in section 2 and the movement of "matrix" clauses to spec\(\Delta P\) given in section 4. In 5.2., I discuss some consequences of Haumann's analysis of prepositional subordinators outlined in section 3.

5.1. Problems

Let us first consider that-less cases in non-factive complements. Since Kiparsky and Kiparsky's (1970) work on factive predicates, the correlation between the semantic properties of factive complements and their syntactic behavior has been discussed by a number of researchers. Hegarty (1991) argues that factive predicates choose a complementizer that has the ability of \(\delta\)-binding the event argument of the embedded verb. Melvold (1991) argues that the event argument of the embedded verb is bound by an existential quantifier bound by an iota operator in spec\(CP\). Haumann's analysis of factive CPs is close in spirit to the analyses proposed by Hegarty (1991) and Melvold (1991).

However, Haumann's analysis crucially differs from such previous analyses as to how to handle that introducing the non-factive CPs. Hegarty (1991) assumes that that of non-factive complements has no semantic role. Similarly, Melvold (1991) assumes that that\(_{nd}\) in non-factive CPs is semantically inert and inserted at PF. On the other hand, Haumann assumes that the head of non-factive CPs is specified as \([-\text{def}]\). If this is the case, a question arises here: Why that specified as \([-\text{def}]\) can be deleted in examples such as the following?

(46) He believes (that) the world is flat. (p. 151)

A possible answer is to assume that there exists a null complementizer (\(\theta_{that}\)) in that-less cases. Since the embedded clause is not definite in the sense of Haumann, the head \(\theta_{that}\) must be specified as \([-\text{def}]\). It is then necessary to examine the properties of \(\theta_{that}\), though the issue is left untouched in Haumann's analysis.

Whether finite subordinate clauses which lack an overt complementizer are CPs or IP complements has been a long-standing issue. For IP-hypothesis, see Doherty (1997). Ormazabal (1995) argues convincingly that both finite and non-finite propositional clauses are CPs. Under the CP-hypothesis, that-less CPs are headed by a null C. He
further argues that empty complementizers such as $\emptyset_{that}$ should be taken as affixes. Under Ormazabal’s analysis, the following contrast is accounted for in a different way from Haumann’s analysis:\textsuperscript{15}

\begin{enumerate}
\item[47] a. Mary pointed out that [Sue wasn’t there].
\item[47] b. *Mary pointed out [$\emptyset_{that}$ [Sue wasn’t there]].
\end{enumerate}

(Ormazabal (1995: 256))

Ormazabal argues that the main syntactic difference between factive and non-factive CPs should not be attributed to the nature of their heads. According to Ormazabal (1995), the difference lies in the position in which they are located. He proposes that non-factive CPs remain internal to VP at LF while factive CPs are moved out of the c-command domain of the factive verb that selects them. Being $\emptyset$-affix, the null head in (47b) must be incorporated into the matrix verb. At LF, the complement clause moves into a position higher than the matrix VP:

\begin{enumerate}
\item[48] a. He left two hours after the party started.
\end{enumerate}

\textsuperscript{15} For the obligatoriness of an overt complementizer in factive CPs, Haumann observes the following examples:

\begin{enumerate}
\item[49] a. *She regrets she had not accepted the offer.
\item[49] b. *She realized she had run out of coffee.
\item[49] c. *He pointed out movement out of adjuncts is impossible. (p. 152)
\end{enumerate}

Also, Haumann notes (p. 152, note 10) that judgments vary among speakers for (ia) and (ib).
b. Who did he call before the party started?
c. Yesterday, his friends arrived before he had finished the dishes.

(50) a. We refused their proposal only because we feared an uproar.
b. Why did she try to appear normal, although she did not feel well?
c. This offer, he won’t accept it unless you talk him into it.

Under Haumann’s analysis, the “matrix” clause has been moved into the specifier position of ΔP. With regard to (49a) and (50a), however, a question arises. Haumann assumes that AgrsP undergoes overt movement in these cases:

(51) a. \[ ΔP \[ AgrsP \ he \ left \]i \[ Δ'… [PP \ ti \ [P' after \ [AgrsP \ the \ party \ started]]]] \]

b. \[ ΔP \[ AgrsP \ we \ refused \ their \ proposal]i \[ Δ'… [SubconP \ ti \ [Subcon' because \ [AgrsP \ we \ feared \ an \ uproar]]]] \]

It has been widely assumed that AgrsP (IP/TP) cannot be a target of overt movement operation. Some explanation would be called for if we try to maintain the analysis given in (51). The difficulty can be circumvented by assuming that the external sentential argument is CP headed by \( \theta_{that} \). We then face a question discussed above concerning that-less cases in non-factive CPs.

Not only the categorial status of the moved clauses but also the movement hypothesis is dubious. Consider the following examples:

(52) a. Who do you think that \([he \ called \ ti] \ before \ the \ party \ started\].
b. Which paper do you think that \([she \ typed \ ti] \ in \ order \ that \ he \ might \ get \ some \ sleep\]?

Under Haumann’s analysis, these examples are assigned the following representations:

(53) a. who do you think that \[ ΔP \[ he \ called \ ti]j \[ Δ'… [PP \ tj \ [P' before \ the \ party \ started]]]] \]

b. which paper do you think that \[ ΔP \[ she \ typed \ ti]j \[ Δ'… [SubconP \ tj \ [Subcon' in \ order \ that \ he \ might \ get \ some \ sleep]]]] \]

In (53), the external sentential arguments (he called \( ti \) in (53a) and she typed \( ti \) in (53b)) have undergone movement to specΔP. However, extraction out of the phrases that have undergone overt movement usual-
ly causes deviancy:

(54) a. ?*who_i did [IP [a story about t_i]_j [I'Infl [VP t_j [V' amuse you]]]]?  
   (adapted from Lasnik and Saito (1992: 42))

b. ??who_i do you wonder [CP [which picture of t_i]_j [C' C [IP Mary bought t_j]]]  
   (adapted from Lasnik and Saito (1992: 102))

Haumann's analysis would predict that the examples in (53) show degradation, contrary to the fact.

5.2. Some Consequences

Under Haumann's analysis, what we refer to as a subordinate clause traditionally is the prepositional predicate, and what is being modified under the standard analyses is taken as the external argument of the prepositional head. In this sense, "subordinate clauses" are no longer adjuncts structurally. This analysis seems to be borne out by the facts concerning extraction. As Lasnik and Saito (1992) observe, extraction out of the sentential complements of prepositional elements such as before, after, and since results in mild deviancy:

(55) ??Which linguist_i did you write your thesis [after you consulted t_i]?  
   (adapted from Lasnik and Saito (1992: 91))

The example in (55) is better than the example in the following:

(56) *Where_j did you see the book [which_i John put t_i]?  
   (adapted from Lasnik and Saito (1992: 71))

The difference in acceptability between (55) and (56) follows if we assume that the "subordinate clause" in (55) is not a pure adjunct.

Haumann assumes that adjuncts in general are predicates of referential arguments. In (57), for example, the PP after he was administered the poison is predicated of the event the dizzy turns started:

(57) The dizzy turns started after he was administered the poison.

Under the analysis Haumann develops in chapter 7, what is moved to be licensed is the external sentential argument (the matrix clause in the traditional sense). This analysis extends to PPs whose head does not take an internal argument:

(58) I haven't seen him before.  
    (p. 196)

16 I have no explicit explanation of the mild deviancy of (54b).
The example in (58) should be assigned the following structure:  \(^{17}\)

(59) \[\Delta P [I haven't seen him]; \Delta' [PP ti [P' before]]\]

This analysis opens up a new way to handle adverbs such as badly in the following example:  \(^{18}\)

(60) He treated Jill badly.

Alexiadou (1997) argues that complement-type adverbs (completely, easily, badly, well, lovingly, etc.) are generated in the complement domain of the verb. Put differently, such adverbs are taken as optional complements of V. See McConnell-Ginet (1982) for related discussion. Cinque (1999) proposes that adverb phrases are generated in the specifier position of their relevant functional heads. Their intuitions may be reoriented if we extend the analysis of (59) to (60) by assuming the following structure:

(61) \[XP [he treated Jill]; X'X [AdvP ti [Adv' badly]]\]

Taking parallelism strictly, badly is not a complement, but it is actually predicated of he treated Jill. There is a functional head related to the adverb. The “matrix” clause is moved into the specifier position of the functional head.

6. Conclusion

The book under review attempts to resolve the long-standing questions concerning the categorization of subordinating conjunctions, the syntactic format of subordinate clause, and the licensing of subordinate clauses in complex structures. Accounting for these questions, Haumann offers a novel analysis of “the spectrum ranging from lexical to functional categories” (p. 147). In this review article, I have examined Haumann’s analysis of subordinating conjunctions, discussing some consequences and problems. Despite the shortcomings one finds in it, the book should be praised for its innovative proposals as well as

\(^{17}\) In (59) P-DegP and P-AgroP are omitted. The preposition before moves to \(\Delta\) at LF. Note also that, if P is not involved, the root sentence forms a CP. Thus, in (i), the complement of the matrix predicate is taken to be a CP:

( i ) Paul said [CP that he left two hours].

\(^{18}\) See Higginbotham (1985) for the view that such an adjunct is taken as predicated of events.
its clear, concise, and well-organized discussion. Though left out in this review for reasons of space, Haumann’s thorough review of the literature (Part I and Part II) is also praised. The book is certain to show us where the theory has been, and how future research can advance. *The Syntax of Subordination* is thus of great value to anyone delving into the problems addressed in it.

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