Syntax and Semantics of English Non-restrictive Relative Clause Constructions

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Pak, Sooran. 2008, Syntax and Semantics of English Non-restrictive Relative Clause Constructions. SNU Working Papers in English Linguistics and Language 7, 44-76. Previous studies do not agree with the exact nature of NRCs (non-restrictive relative clauses, e.g. The teacher has rich sons, who are doctors) on the syntactic and semantic perspectives. The goal of this thesis is to illustrate that an NRC is a modifier syntactically, and that at the same time, in terms of semantics, an NRC behaves differently from the other normal restrictive modifiers. NRCs are more like parentheticals in the semantic point of view. I will show how to merge these conflicting syntactic and semantic behaviors of NRCs into one and a single feature structure of the grammar in the framework of HPSG by revising the present system. Moreover, I capture the conjunctive behavior of NRCs and make it possible to apply the new system into other kinds of parentheticals such as comment clauses.
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1. Introduction

The exact nature of restrictive relative clauses has long been the focus of discussion both in generative grammar and non-generative grammar since Ross (1967). However, the spotlight has seldom been turned onto non-restrictive relative clauses. Look at the sentences below:

(1) a. The teacher who is poor has rich sons who are doctors.
   b. The teacher, who is poor, has rich sons, who are doctors.

There are many unclear points about the relation between the antecedents and the relative clauses. There has been a dispute about the syntactic relation between the antecedent and the relative clause, and the meanings of the sentences and the prosodic streams are also different, but there
has not existed any proper structure to show the differences in the framework of Head-driven Phrase Structure Grammar (HPG). In the present state of these scant literature and varied opinions, this study is focused on the syntactic and semantic behaviors of non-restrictive relative clause construction and on the analyses of it.

As has been noted, relative constructions can be divided into two groups, depending on its restrictiveness: restrictive relative clause (RRC) constructions and non-restrictive relative clause (NRC) constructions. In the framework of HPG, I propose an NRC is a relative construction syntactically attached to its constituent, but is under the constraint of parentheticality, in semantic and prosodic point of view. It will be shown how these differences can be reconciled in a straightforward way. In section 2, the characteristics of NRCs will be provided. In section 3, previous studies on this construction are briefly mentioned. In sections 4, the syntactic and semantic behaviors and the parentheticality of NRCs are elaborated on, and at the end of the proposal in section 5, theoretical analyses and realistic illustrations of NRC expressions will be given.

2. Characteristics of NRC constructions

Brief characteristics of NRC constructions are given in this section. The first difference can be found in the relative pronouns each construction uses. In RRCs, that relatives, bare relatives, and free relatives appear2), and these relatives are not possible in NRC constructions. Only partial cases of non-relative pronouns such as which and who can initiate NRCs which follow explicit antecedents.

When it comes to the verb usage within the clauses, RRC constructions can be finite, infinitival, or reduced with regard to their verb forms within the clause. Oppositely, however, only finite verb forms appear in NRC

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1) According to the definition made in Pollard and Sag (1994), HPG is “an integrated theory of natural language syntax and semantics,” whose framework is characterized as non-derivational and sign-based. For the general introduction to Head-driven Phrase Structure Grammar, the detailed illustration of the framework, and the specific differences from other grammars such as GB or LFG, please refer to Pollard and Sag (1994), Sag et al. (2003), or Ginzburg and Sag (2001) etc.

2) There is disagreement on whether free relative clause constructions can be considered as RRC constructions. I will not stick to the discussion on whether it is RRC or not, since it will make the whole study off the focus.
constructions.

Moreover, the choice of the antecedents are much freer in NRC constructions than in RRC constructions. In RRCs, only NPs can serve as antecedents, but in NRCs, various parts of the speech, such as sentences, VPs, APs, AdjPs, and PP can be the head of the antecedent phrases. NRC constructions even take proper nouns as their antecedents, which are not possible in the case of RRCs. Also, it is generally accepted that NRC does not take an indefinite article like every or no as a part of their antecedent; that is, NRC must be outside of the quantifier scope of the antecedent. This has been provided as one of the major differences between RRC and NRC through the literature. However, counter examples do exist, and the reason of the ungrammaticality of quantified sentences may have little to do with syntax or scope; rather, it is a matter of discourse context or pragmatics. (See Arnold (2007) with the regard to detailed the characteristics and the example sentences for the explanation made above.)

The next characteristic is found through the prosody the NRCs bear. According to Quiet et al. (1985), RRCs are connected to their antecedent prosodically (5.64.294), but not NRCs. They explain in 17.22.1257 that NRC has a tone unit boundary with a pause which occurs together. The tone unit pattern preceding the relative clause (onset ~ nucleus ~ pause) is repeated in the relative clause. However, typically, there is no tone unit boundary before the RRC. In addition, Jackendoff (1977) remarks that NRCs cannot have a focused element in it. Generally, as Arnold (2007) and others point out, focused element presupposes another element that can be contrasted with it. NRCs cannot being a contrast set interpretation (which will be elaborated on in the following section). Therefore, the element in the NRC cannot be focused.

The last feature of NRC construction is checked in the semantics. Roughly, an NRC simply adds information to its host clause, but an RRC confines the meaning of its antecedent. Moreover, as Arnold (2007) suggests, a contrast set can be introduced to RRC constructions, but this is not the case in NRC constructions. I will revisit this issue in detail later in chapter 4.

3. Previous analysis and problems
According to the outline Vries (2002:203) provides, there have been two major positions toward the structure of NRC constructions. One is the *constituency* point of view that the antecedent and the NRC form constituency, and the other is the *orphanage* position that they do not show any constituency. In the constituency view, an NRC is a complement of determiner (Sinith 1964), adjoined to the antecedent (Jackendoff 1977, Perzanowski 1980) or a coordinated phrase to the antecedent (de Vries 2000a). In contrast, orphanage advocates argue that the NRC is a coordinated structure to the host clause at deep structure (Ross 1967, Emonds 1979), a discontinuous constituent (McCawley 1982), or generated not on a grammatical level but on a post-grammar (or discourse) level where all the other operations are over (Safir 1986, Pelle 1990). In this section, I will briefly look into two studies of constituency view, Arnold (2007) and de Vries (2002, 2006b), defending against the orphanage view.

### 3.1 Arnold (2007): syntactic integrity

Basically Arnold (2007) denies the Radical Orphanage (RO) point of view, which suggests that an NRC is generated on a different tier, after all the other grammar processes are over. In this RO approach, the antecedent and RRC form constituency, but the NRC behavior is so different from the NRC that the antecedent and the NRC are not attached to each other in the course of grammar, thus failing to form constituency. In contrast, Arnold (2007) adopts the Syntactic Integrity (SI) approach toward NRC. In his SI assumption, an NRC and its NP antecedent form a constituent, as other RRC plus antecedent constructions do. That is, as seen in (2) and (3), the syntactic behaviors of RRC and NRC toward the antecedents are the same, and thus there is no difference between those two constructions with regard to their constituency.

\[(2) \text{ RRC construction:} \]

\[
\begin{tikzpicture}
  \node (S) {S}
    child {node (NP) {NP}
      child {node (np) {a person}}
      child {node (sync) {who I distant}}
    }
    child {node (VP) {will win}}
\end{tikzpicture}
\]
(3) NRC construction:

To support his analysis, he explains the syntactic parallels between RRCs and NRCs very well. There are some grammatical processes that work in a similar way on both of them: parenthetical intervention, heavy NP shift, adjunct placement, stacking, extraposition, VP ellipsis, right-node raising, etc. These comparisons of the two constructions make his anti-RO view clear. In other words, these two structures are similar in their structure, consequently letting the NRC be syntactically not apart from its host clause; that is, in the same way as in RRC cases, an NRC is syntactically attached to its host clause.

However, although he provides very elaborate explanation for the syntactic integrity of NRC, he focuses only on some cases where the antecedents are NPs. More illustrations and elaborations are needed to show that NRC is a consistent phenomenon regardless of the part of speech of its antecedents, and that the syntactic integrity holds the same in every NRC construction.

He also misses to clarify the lexical identity of nonrestrictive relative pronouns. An NRC has different modificational and semantic properties from an RRC, which should be incarnated in the lexical information structure of the nonrestrictive relative pronoun.

I agree with him on his syntactic constituency analysis, so his worthwhile work of comparison and explanation will be employed as the background of my proposal.

3.2 de Vries (2002, 2006b): coordination analysis

What makes de Vries' analysis original is that he hypothesizes a third type of coordination, added to and and or: a Specifying Coordination, which means 'that is'\(^9\). NRC is a specifying conjunct providing additional
information to (or specifying) the antecedent, and the antecedent and NRC are conjoined by a phonologically null conjunction &c., forming constituency. When a specifying coordination phrase is made, its head is &c.; His analysis is as follows:

(4) The CFR analysis of appositive relativization construction:
   a. An appositive relative is Coordinated to the antecedent.
   b. The ARC is a DP, hence a kind of Free relative.
   c. There is Raising within the ARC.

(5) a. John, who I know well
   b. [cop[...]]&c.[dp[CN+D][c[pv-ref[ne-6]]Dav[lo]]]lol[...]]

John who I know well

One of the advantages of his proposal is that because the antecedent and the NRC form a constituent, it is useful in showing that there is some syntactic connectivity between those two elements, or in explaining some grammatical restrictions on NRC. For example, like a coordination phrase, the antecedent and the NRC can be topicalised together, but may not be separated by preposing only one of the two\(^3\). It is because Coordinate Structure Constraints\(^4\) can be applied here.

Moreover, he succeeds in incorporating into the syntactic structure the idea that the semantic behavior of NRC is the same as that of coordination (Quirk et al. 1985:983)\(^5\).

Nevertheless, even though his ideas are original, well organized and proofed, to make up and hire another kind of coordinator can be regarded

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\(^3\) He uses the term appositive instead of non-restrictive, so NRC is expressed as ARC (appositive relative clause) in his approach. He chooses this term because NRC is included as a subtype of appositive, even though he admits those two terms are synonyms.

\(^4\) CoP: coordination phrase

\(^5\) According to him, the reason an RRC shows similar behavior is not because it is conjunction also but because it forms a DP (determiner phrase) with its antecedent.

\(^6\) CSC: in a coordinated structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct (Ross 1976:181)

\(^7\) Quirk et al. notes as follows:

"NRC has also been considered semantically equivalent to coordinated clauses. Such a classification seems to particularly appropriate in the case of sentence relative clauses, where the relative clause has the rest of the superordinate clause as its antecedent."
as too much stipulation on grammar. If the new concept should be useful, it could be fitting to other grammatical structures other than NRC. If this construction is only for the non-restrictive relative clauses, then it will be hard to gain its generality.

In addition, in his analysis, NRC is a DP and a kind of free relative clause. He does not deal with the cases where antecedents are other than NPs. Same as in Arnold (2007), we do not know what it would be like in other cases where antecedents are APs or VPs.

I agree with him in that NRC gives additional or specifying information to the antecedent in the meaning aspect as coordination does, but I will not propose that even the structural organization is the same. Such semantic characteristic will be incorporated into the feature structure of the NRC construction.

4. NRCs and other constructions: RRCs and parentheticals

4.1 NRCs and RRCs: syntax and semantics

In this section, the syntactic similarities of the two constructions are discussed, which provide the evidence that syntactically RRCs and NRCs act in the same way in relation to their antecedents. Semantically, however, their behavior is different, and this point will be highlighted in my proposal section.

4.1.1 Common syntactic behaviors between RRCs and NRCs

To support his claim that NRC is syntactically integrated to its host sentence, Arnold (2007) made such comparisons between RRC constructions and NRC constructions. Parenthetical intervention, nominal complement extraposition, adjunct placement, stacking, extraposition, and attachment of the possessive marking clitic's are common phenomena, whether it is an RRC or an NRC. This supports that those two constructions behave in a similar way in terms of the syntactic integrity onto the host clause.

The first syntactic operation that occurs in common is the parenthetical intervention. Parenthetical expressions can intervene between the antecedent and the relative clause regardless of RRC or NRC.

Another common operation isnominal complement extraposition.
Nominal complement of the antecedents can be extraposed to the back of the relative clause regardless of whether it is RRC or NRC.

The third common operation between RRC and NRC is the adjunct placement: NRCs can precede RRCs, and vice versa. This would be possible because the syntactic relationship of NRC and the antecedent is the same as that of RRC.

Fourthly, despite the known belief that NRCs cannot be stacked, stacking of NRC is also possible enough if the context is appropriate. Arnold argues that the ungrammatical cases of the sentences with stacked NRCs are not so much a matter of syntax as it is a problem of discourse or context.

Next, both RRCs and NRCs can be extraposed. Extraposition moves RRC toward the right edge of the sentence, and this applies the same in NRC constructions. This would be impossible if the syntactic structure of those two relative clauses were different.

In addition to those common operations mentioned above, RRC and NRC go through the attachment of possessive marking clitic 's in the same way. Possessive marking clitic 's attaches only to the constituents, and behave in the same way both in RRCs and NRCs, thus making it plausible to assume that RRC and NRC form constituency with their own antecedents.

(6) a. The person that ruined the party's mother left early. (RRC)

b. King Alphonso - who ruined the party-'s mother left early. (NRC)

c. my mother (who used to live in Edinburgh)'s new flat (NRC)⁸ (ibid: 284)

Therefore, based on these observations he makes, I assume that NRC is syntactically attached to its antecedent in the same way as RRC does⁹.

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⁸ Sentences (19b) and (c) would sound much more natural, he argues, when they are spoken, not written as shown. The visual address is due to punctuation, presumably.
⁹ One of the reviewers suggested me that these syntactic tools employed here may demonstrate the freedom of these operations, rather than serving as tools to show the structural similarities between RRC and NRC.
4.1.2 Semantic differences

About the manner of modification, there exists a significant difference between RRCs and NRCs. According to the definition Quirk et al. (p.1239) makes, the modification is “restrictive when the reference of the head is a member of a class which can be identified only through the modification that has been supplied.” RRCs such as (7a) go through this kind of modification, and they confine or narrow down the extension of the meaning of the antecedent, restricting the range of the meaning of the antecedent from usual three dogs to specific dogs which like bagels. We don’t know how many dogs Tom keeps in total and what their appetites are like. As Arnold (2007) remarks, a contrast set can be introduced into the domain of discourse, with regard to RRC antecedents, as in (7b).

(7) a. Tom keeps three dogs which like bagels.
   b. Tom keeps three dogs which likes bagels, and others
      which like donuts.

However, as for the NRCs, in the same section Quirk et al. continues,

A referent of a noun phrase may be viewed as unique or as a member of a class that has been independently identified. Any modification given to such a head is additional information which is not essential for identification, and we call it nonrestrictive.

In (8a), the information that Tom’s dogs like bagels is no more than simply added one. The fact that Tom has three dogs must be a unique and independent one, so the fact is not affected, changed, or adjusted by the supplemented comment that those dogs like bagels. The three dogs are all Tom has due to the ‘totality’ interpretation NRC construction brings to its antecedent.

(8) a. Tom keeps three dogs, which like bagels.
   b. #Tom keeps three dogs, which like bagels, and others
which like donuts.

Traditionally, this sort of nonrestrictive modification is said to be brought as a way of commenting, information-adding, assertion, or supplementing. This aspect is very similar to the behavior of 'and' coordination, giving rise to the 'Specifying Coordinate Analysis' of de Vries (2002, 2006b).

Additionally, owing to the property of NR pronoun which should indicate an independently existing element in the world, semantically empty nominals cannot be the antecedent of the relative pronouns, such as a nominal part of an idiom chunk. One of the famous collocational expressions is to make headway, and because headway is not referential or independent, it cannot be modified non-restrictively. (e.g. *headway, which we made)

Consequently from these semantic properties of NRC, Arnold (2007) draws a conclusion that NRCs are not semantically integrated to their host sentences. I will reflect this restrictive versus non-restrictive difference of the semantics onto the feature structure I will propose later.

4.2 NRCs and parentheticals

In Dehé and Kavalova (2007), they divide parentheticals into several categories: (a) one-word expressions (e.g. what, say, like), (b) sentence adverbials (e.g. however), (c) comment clauses and reporting verbs (e.g. I think), (d) nominal appositions (e.g. She claimed that the new Prime Minister Jim Callaghan had offered ...) and non-restrictive relative clauses, (e) question tags (e.g. They're called Gassers the people next door are they?), (f) clauses which may or may not be introduced by a connector, and which can or cannot be elliptical.

According to the definition made by Burton-Roberts (2005), while being 'hosted' by another expression (i.e. the host sentence) in some sense, a parenthetical makes no contribution to the structure of the host sentence. Parentheticals are part of the sentence linearly, but it has been controversial whether it can be contained on the hierarchical axis as well. There are two

10 Different scholars use different terms to refer to this linguistic phenomenon. In Quirk et al. (1985), they refer to this as apposition, while Burton-Roberts (2005) calls this parenthetical. In this thesis, the term parenthetical is used instead of apposition.
different perspectives on the hierarchical position of parentheticals; one is the orphanage point of view, and the other is the syntactic integrity analysis. (Two perspectives on the NRC status in grammar are originated from those on parentheticals.) In this section, the similarities and differences between NRCs and parentheticals are provided in their prosodic, syntactic, and semantic properties.

4.2.1 Prosody

It is generally believed that in English, a parenthetical expression interrupts the prosodic flow of the frame utterance (Bolinger 1989) and forms its own prosodic domains, set off from their host by pauses. So to speak, discontinuity of the utterance stream of the parenthetical is the most obvious prosodic characteristic a parenthetical brings. According to the summary made by Dehé and Kavalova (2007:12), typical prosodic characteristics of parentheticals are surrounding pauses, preceding and following prosodic boundaries, lower pitch, diminished loudness, increased tempo, rising-type tones, etc. It is also possible to be marked by higher (rather than lower) pitch, and marked by falling-rising pitch at the end of immediately preceding material. In short, parentheticals can be said to have regular prosodic pattern with minor irregularity depending on situations. This partially inconsistent tendency is observed similarly in NRC constructions. In Auren and Loock (2006), tonal aspects of the NRC show characteristics of traditional parentheticals. In conclusion, it can be said that parentheticals and NRCs share the similarity, so to speak discontinuity, and that parentheticals and NRCs have a special characteristic in terms of intonation contour, although it is not an absolute one. The influencing factors may be semantics, pragmatics, or discourse functions.

4.2.2 Syntax

Along with the categorization Dehé and Kavalova (2007) have produced according to their structural characteristics, parentheticals have their own grammatical behaviors which lead people to argue from two different positions, as mentioned earlier. One of the two analyses is the orphanage approach. In this approach, parentheticals are not a part of their host sentence
structurally or hierarchically at all. Bspinal (1991) and Haegeman (1988) are among the RO approach, with several supporting grammatical phenomena: parentheticals cannot be the focus of a cleft sentence, cannot be questioned, cannot be located under the scope of quantifiers, cannot be under the c-command domain or scope of any propositional operator from the host structure, etc.

Nevertheless, non-orphanage approaches do exist as well, which argue that there are grammatical relations between parenthetical and the host sentence. For example, anaphors in a parenthetical can be bound by antecedents in the host clause, parentheticals can be secondary predicates taking a DP in the host structure as subject, can contain parasitic gaps that are licensed by A’ movement in the host clause, etc. Likewise, Arnold (2007) argues that NRC is also contained in a host sentence as a grammatical element.

Along with these syntactic argument that they both are grammatically connected to the host sentence, there are some differences as well between them, which make these two constructions distinguished from each other. According to Arnold (2007), whereas and- and as- parentheticals can occur inside their ‘host’ constituent, NRCs must appear after their antecedents, and as- parentheticals can also precede their antecedents, but this is not possible for NRCs.

As a conclusion, the syntactic integrity of parentheticals shows that NRCs are also syntactically integrated onto its host sentence, but the constituency of the antecedent and NRC resulting from this integrity makes NRC construction different from other parentheticals conversely.

4.2.3 Semantics and pragmatics

According to Quirk et al (1985), Dehé and Kavalova (2007), etc., traditionally parentheticals have been regarded as serving the functions of modifiers, comments, information-adding, supplementive, assertion, etc. They are understood as conveying speaker’s attitude toward the content of the utterance, expressing the degree of endorsement, or providing some background information. In Blakemore (2005), she argues that the host clause and parenthetical make a collective contribution to the interpretation of the utterance at the level of implicit content, and the parenthetical is an option which guarantees the derivation of the intended cognitive effects at a minimum cost in processing effort. In Blakemore (2006), she divides
parentheticals into two categories: grammatical parentheticals (presumably including non-restrictive relative clauses, nominal appositions, and parenthetical adverbial clauses), and discourse parentheticals. Discourse parentheticals are related to their hosts at the level of pragmatic interpretation, and they contribute their own cognitive effects. They do not affect the relevance of the host. Auran and Loock (2006) also categorizes NRCs according to the semantic/pragmatic background. I agree with the point that NRC can be included as a special case of parentheticals, but it should be only from a semantic perspective. An NRC does not restrict the meaning of the antecedent, but contributes to the collective meaning of the host sentence.

5. New analysis toward NRC constructions

5.1 Sag (1997) and the HPSG framework

As a background of this analysis I take Sag (1997), but the details of his proposals will be revised, for in his analysis NRCs are not taken into consideration.

Through the HPSG theoretical tradition, it is accepted that every phrase in language is considered to have its own position at the leaf of the hierarchy of grammar, and the hierarchy is structured two-dimensionally. These two dimensions are HEADEDNESS and CLAUSALITY, and each phrase or leaf has double identities; one identity is decided by its headedness, and the other by its clausality. A relative clause, likewise, belongs to these two dimensions at the same time, and there are two kinds of relative clauses in his analysis: wh-subj-rel-cl (e.g. who won the prize) and fin-wh-fill-rel-cl (e.g. who everyone likes). When this relative clause and the antecedent are conjoined, the phrase is of hid-rel-ph.

5.2 Phrasal hierarchies and NRCs

5.2.1 PARENTHEticalITY and subtypes

NRC and parentheticals share some common features. I suppose that NRCs are not parentheticals syntactically, but that they do share several properties with parentheticals which differentiate NRCs from RRCs in prosodic and
semantic terms. In other words, the things that make NRCs distinguished from RRCs are the features NRCs have in common with parentheticals. I call these properties as parentheticality\(^{11}\), and introduce a third dimension into the hierarchy of phrases. (For clarification, parentheticals refers to the linguistic expressions, and parentheticality refers to the characteristic of those expressions.) Parentheticality has as its types parenthetic (prth) and unparenthetic (unprth).

\[(9) \text{ Type hierarchy of dimension PARENTHETICALITY;}
\]

To begin with, I assume that types of parentheticals mentioned in section 4 are instances of prth, and other normal expressions than those are of unprth. Type prth is supposed to have further subtypes, and those subtypes are determined according to their distinctive semantic characteristics, since the PARENTHETICALITY is a meaning domain rather than being a syntactic one such as CLAUSALITY or HEDONEDNESS\(^{12}\). Type prth has two subtypes: relevant and irrelevant. When the content of the parenthetical expression is closely related to the main clause, then it is an instance of type relevant, but when it is not, it is of irrelevant. (e.g. The main point why not have

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11) Taglicht (1998) poses the need of the third dimension also, which he calls it as 'Continuity'. However, other than mentioning the need, there is no further research following up.

12) Possibly, type unprth is supposed to have further subtypes as type prth does depending on the meaning differences, but not will be focused on here.
a seat? is outlined in the middle paragraph. Burton-Roberts, 2005) As for the
type relevant, among many possible subtypes I assume there are modification,
conjunction, comment, semi-question, and etc. One word parentheticals go
under type modification, for they prepose other expressions and gives
additional meanings to them. Expressions of type conjunction gives
additional information to the main clause, and this type has two subtypes:
referential and supplementing. NRCs and nominal appositions are of type
referential, since in the main clause there are items having the same
reference with the parenthetical expressions. However, in the case of
and-parentheticals, the parenthetical expression just supplements
additional information to the main clause. The third type is comment, and by
the definition made by Quirk et al. (1985), there are two kinds of comment
expressions: content disjunct and style disjunct. Content disjuncts are used to
"express the speaker's comments on the content of the matrix clause." On the
other hand, style disjuncts serve to "convey the speaker's view on the way
they are speaking." (p. 1112) They consider as-parentheticals, SV comment
clauses such as I think or you know, and nominal relative clauses as seen in
"What was more upsetting, we lost all our luggage." to be the former one.

To-in infinitive expressions (e.g. to be honest), -ing clauses (e.g. speaking as a
layman), and ed clauses (e.g. stated bluntly) are instances of style disjuncts.
Following the categorization they made, I suppose that type
(content)-disjunct and (style)-disjunct are the subtypes of comment. Instances
of type (content)-disjunct are typical SV comment clauses, and as-parentheticals, and
instances of type (style)-disjunct are the latter three verbal constructions
mentioned above. In addition, based on the classification Ifantidou-Troukki
(1993) made, I assume that attitudinal adverbs, hearsay adverbs, and
evidential adverbs are of (content)-disjunct, and illocutionary adverbs are of
(style)-disjunct. For convenience sake, let's call the former three kinds of adverbs
as non-locutionary adverbs. This new classification is based on the criteria
Quirk et al. made on the characteristic of disjuncts. The fourth subtype of
relevant is semi-question, which is a type for tag questions. Typical tag
questions have two functions: verification and confirmation. When a tag
question has a verificational meaning, the speaker is "expecting the hearer
to decide the truth of the proposition in the statement", and with the
confirmational meaning, the speaker is "inviting confirmation of the
statement" and the tag "has a force of an exclamation rather than a genuine
question." (Quirk et al. 1985: 811) These two different functions are
distinguished by the tone. Verificational tag questions have a rising tone,
and confirmational tag questions have a falling tone. For example, if a
speaker utters "He likes his job, doesn't he?" in a rising tone at the end, he or
she is implying that "I assume he likes his job; am I right?" However, if it is
stated in a falling tone, the speaker is expressing a strong feeling or
conviction about what has been stated right before the tag question.
Accordingly, I divide type semi-question into two subtypes: verification and
confirmation.

Now we have three dimensions, HEADEDNESS, CLAUSALITY, and
PARENTHEticality, and presumably, each and every parenthetical
expression belongs to the three dimensions at the same time. NRC is of
congessional, wh-rel-cl, and hat-subj-ph (or fin-hat-fill-ph). In the case of NRC,
even though NRCs are not parentheticals, they can be included as instances of
the subtype of prth, because they share many traits with parentheticals,
as seen in section 4. (Those traits, which I will elaborate on in the following
sections, are prosodic and semantic characteristics that parenthetical
expressions have.) An RRC is a subtype of unprth, added to the same
subtypes of other dimensions. Onto those subtypes of NRCs I will put 'nr' at
the beginning of the name which their RRC counterparts have, as meaning
nonrestrictive. nr-wh-subj-rel-cl and nr-fin-wh-fill-cl. I will change the names
for RRC constructions also by putting 'r' in the front, in order for those two
constructions to be counterparts of each other: r-wh-subj-rel-cl versus
nr-wh-subj-rel-cl and r-fin-wh-fill-cl versus nr-fin-wh-fill-cl. Look at the
following hierarchy.

(10) Multi-dimensional hierarchy of NRC constructions:
(11) Multi-dimensional hierarchy of RRC constructions:

5.2.2 Prosody and semantics

To capture the distinctive characteristics which parenthetical expressions bear, I propose a new constraint, namely Parentheticality Constraint.

(12) Parentheticality Constraint (PC):

(i) P-PRS value is ‘+’ if a linguistic expression has a prosodically discontinuous contour of parentheticals at the beginning and end of itself; otherwise, it is ‘−’.

(ii) The SEM value of an expression is the element of the E-SET when it is of prth; otherwise, the SEM value is not included in the E-SET.

\[
prth = \begin{cases} 
\text{PHON} & P-\text{LIST} \ < \ \text{notat} > \ \text{SEM} \\
\text{SEM} & P-\text{PRS} \ + \\
\text{E-SET} & \{1\} \cup \{\ldots\}
\end{cases}
\]

The first common feature of parentheticals and NRCs I looked into in the earlier sections was its prosody\(^\text{13}\). I propose that parentheticals have a special prosodic feature P-PRS (parenthetic prosody), which marks that the linguistic expression has a distinctive phono-logical contour different from other normal constituents. As many have observed such as Bolinger (1989) and Dehé and Kavalova (2007), a parenthetical expression brings a

\(\text{13}\) For detailed explanations and examples, please refer to section 2.4 and 4.2.1.
discontinuity to the flow of utterance right before where they are spoken. This is the same when it comes to NRC. As Quirk et al. (1985), Auran and Loock (2006), and Arnold (2007) report, NRC causes a discontinuity when it appears. Therefore, it becomes necessary to devise a feature that will separate parenthetical expressions from unparenthetical ones. By virtue of this constraint, an NRC and other parenthetical expressions will inherit [P-PRS + ] value, but for the RRCs and other unparenthetical expressions it is [P-PRS - ] because it does not have a parenthetical prosody contour. In the P-List(14) list, words uttered by a speaker are listed.

Next, with regard to the semantics, in HPSG literature, specifically in Seg et al. (2000)(15), the constitution of SEM(antics) is MODE, INDEX, and RESTR(iction). The RESTR part is composed of SITuation, RELN(ation), etc. Subparts of MODE is prop(osition), ques(tion), direct(ive), refer(ence), and none. As for INDEX, it is i, j, ... type for nominals and s1, s2, ... type for others. This type stands for situation. The RESTR part contains conditions that the entity must meet in order for it to be legitimately referred to by the expression. Among the subparts of those conditions, there is a feature SIT which tells us in what kind of situation the individuals, properties, or relations of the sentence are involved. The RBLN indicates what kind of relation is involved.

From this background of semantics, since parenthetical expressions bring additional information to the host clause, the semantic contribution of them should be different from the one that other restrictive modifiers deliver. That is, the modification of red in 'my red flowers withered' and in 'my flowers, red, withered' is different in its meaning contribution to the modified head 'flower'. In the former sentence, the speaker only talks about the flowers which are red, but not about other flowers of different colors he or she has, thus narrowing down or restricting the range of reference from all the flowers he or she has to only the ones that are red. But in the latter, all his or her flowers withered, and all of them are red. Therefore, the meaning that nonrestrictive modifiers bring can be said to be additional. This is the same, of course, with NRC. The examples can be replaced from 'my red flowers withered' to 'my flowers which are red withered,' and from 'my flowers, red, withered' to 'my flowers, which are red, withered.' Between each paired

14) P-List: phonetic list
15) From now on, I will use Seg et al.(2000) way of style to describe semantic part of our focus, since it is the newest version of HPSG generalization.
sentences, there is no difference for interpretation.

As a result, it becomes necessary to find a way to express this additional contribution of nonrestrictive or parenthetical expressions do to the host, separately from the restrictive modification that normal adjuncts do. I propose that there is a set feature B-SET (meaning 'a set of extra meanings'), which is a set of SEM values. I suppose that every expression has this kind of set feature, and if an expression is of prf, then it will have its own SEM value as one of its elements, along with other elements that already exist in that set. This feature will mark that the restrictions a phrase has are not restrictive but nonrestrictive or additional. If the expression is not a parenthetical one, then the SEM value of it is not included in the B-SET. The B-SET functions like a kind of a bag where the meanings each expression carries are stored until the sentence becomes root clause. In Ginsburg and Sag (2000), a root clause is defined as a head-only-phrase. This clause is specified as [ROOT +] when the sentence is uttered by a speaker. The head daughter is S whose ROOT value is 's', and the content of the head daughter becomes the message argument of the root clause. In this thesis, I only borrow the idea of using feature ROOT without the assuming head-only-phrase structure. It be uttered by a speaker.

By virtue of this new constraint, which are red in 'my flowers which are red withered' will have (13a) as a part of their feature structure, and will have (13b) in 'my flowers, which are red, withered'

(13)a. my flowers which are red withered

| PHON | P-LIST < which, are, read > |
| SEM  | 1                           |
| E-SET| ∅                          |

b. my flowers, which are red, withered

| PHON | P-LIST < which, are, read > |
| SEM  | 1                           |
| E-SET| (1)                         |

In addition, because the B-SET is also about semantics, it should undergo semantic principles such as SIP (Semantic Inheritance Principle) and SCP (Semantic Compositionality Principle). The B-SET value should be maintained throughout the course of construction to deliver the extra meaning when the sentence is finally completed without missing any. Therefore, the SCP demands a slight revision. The original one is (15), but the revised one
is (15).

(14) **Semantic Inheritance Principle (SIP):**
In any headed phrase, the mother's MODB and INDEX values are identical to those of the head daughter.

(15) **Semantic Compositionality Principle (SCP, original version):**
In any well formed phrase structure, the mother's RESTR value is the sum of the RESTR values of the daughters.

(16) **Semantic Compositionality Principle (near final version):**
In any well formed phrase, which is not of proth, the RESTR value is the sum of the RESTR values of the daughters, and the B-SET is the union of the B-SET of daughters.

5.3 Lexical information of *wh*-pronouns

According to Sag (1997), relative pronoun *who* has a lexical entry shown in (17):

(17) **who:**

\[
\begin{array}{c|c|c}
\text{CAT} & \text{NP} & \text{INDEX}\\
\text{CONT} & \text{[3]} & \\
\text{REL} & \text{[3]} & \\
\text{QUE} & \{\} & \\
\end{array}
\]

In a similar way, I suggest the lexical entry of RRC pronoun *which* would be the same as (17), but as for *which* of NRC, it is not the case. As we have seen earlier, NRCs can have various kinds of parts of speech as their antecedents. So it is necessary to modify its lexical information. I assume that the category of the relative pronoun *which* is not fixed in the lexicon. In effect, none of those two important constraints for relative clause, that is, *hd-subj-ph* or *hd-fill-ph* in Sag (1997) calls for the category value of the subject or the filler to be fixed from their lexical state, but it is proper only when the LOCAL values are the same. The only demand necessary is that the lexical category of the relative pronoun be decided not by itself but by the element they share index with. Therefore, the lexical information of the relative pronoun *which* should be changed as follows:
(18) relative pronoun which:

\[
\begin{array}{c|c|c}
\text{word} & \text{cont} & \text{index} \\
\hline
\text{rel} & (3) & \text{()}
\end{array}
\]

By deleting the category information of which, regardless of whether it is used in restrictive clause or non-restrictive clause, the HBAD value of the relative pronoun which can be any category depending on the circumstance. As a matter of fact, there will be no problem even though we remove the category value NP from the lexical information of who on the same ground.

5.4 Wh-relative clauses and parentheticality

5.4.1 Basic constraints for wh-relative clauses

Even though I have shown that NRC inherits constraints from prth, there still remain unsolved problems. The first one is that the present constraints of rel-cl and wh-rel-cl in Sag (1997) fail to include the characteristics of NRC constructions, even though they are super types of it. Since rel-cl and wh-rel-cl have as their subtypes both RRC and NRC constructions, rel-cl should be unspecified on the category of the antecedent, and the category of wh-rel-cl also should not be fixed as a constraint. The present constraints of both constructions in Sag (1997) need to be changed as follows based on the reasoning made above:

(19) relative-clause constraint:

\[
\text{rel-cl} \Rightarrow \text{head} \quad \text{inv} \quad \text{mod} \quad \text{content} \quad \text{proposition}
\]

(20) wh-relative-clause constraint:

\[
\text{wh-rel-cl} \Rightarrow \text{head} \quad \text{non-hd-dtrs} \quad \text{mod} \quad \text{xp} \quad \text{xp}
\]

In the revision made above, the category information of antecedent has been changed from [HBAD noun] to [HBAD X v XP] to be able to include AP or sentential antecedents of NRC, as well as N' antecedents of RRC, in (19).
This improvement is reflected on the HUBAD value of \textit{wh-rel-cl} as seen in (20).

The next problem is that the finiteness of NRC construction is missing in the present system. The present constraint needs to be improved to include the finiteness of the NRC construction, as seen below\(^\text{16}\). By adding V(erb)-FORM feature and specifying it to be finite, the unique characteristic which differentiates NRC from RRC in terms of verb forms is displayed successfully in (21).

\[(21)\] \textit{wh-rel-cl} and \textit{prth} constraint:

\[
\begin{array}{c}
\text{PHON} \\
\text{HEAD} \\
\text{SEM} \\
\text{E-SET} \\
\text{H-HD-DTRs}
\end{array}
\begin{array}{c}
P-\text{LIST} < \text{netlist}\ \ \\
P-\text{PRS} + \ \\
\text{verb} \ \\
V\text{-FORM finite} \ \\
\text{MOD} \ \\
\text{XP} [1]
\end{array}
\]

When it comes to RRC, with regards to the improvements made on NRC here, it is expected that in type \textit{wh-rel-cl} \lor \textit{unprth}, the V-FORM is unspecified, and the MOD value is NP, not XP.

5.4.2 Semantic constraints

NRC is a case of \textit{prth}, and one of the semantic characteristics parenthetical expressions have is that they contribute to the collective meaning of the main clause differently from the way that other restrictively modifying expressions do. That is why I proposed the B-SET feature to the parenthetical expressions in the previous section. In addition to the B-SET feature, I suppose that each terminal type of \textit{prth} has its own relation with the main sentence which is distinctive from what other types have. This aspect can be captured in terms of \textit{situation} that utterances carry with them. The present feature structure system as it is cannot express the differences among the situations involved in various utterances. For example, if you look at the sentence 'the teacher who is poor has rich sons who are doctors,' only one situation is involved: 'the poor teacher has rich doctor sons.' However, in the sentence where NRCs are attached, 'the teacher, who is poor, has rich sons, who are doctors,' there are four situations concerned in total: that is, 'the

\(^{16}\) Please refer to 2.2 on the finiteness of NRC construction.
teacher has rich sons, someone is poor, some people are doctors, and a situation where all these three separate situations are involved together. The last situation is supposed to be the information understood by a hearer at the moment uttered by the speaker, and the former three ones should serve as arguments of the last one. If the first situation is s₁, the second s₂, the third s₃, and the last s₄, then the feature structure system as it is will look like below according to the SIP and other constraints and principles. At the top of the sentence, the only situation left as the INDEX of the whole sentence is s₄, on the course of SIP (which demands the MODE and INDEX values of the mother to be identical with those of the head daughter), even though it should be s₃ where all the three situations are involved.

(22)a. The teacher, who is poor, has rich sons, who are doctors.

To fix this problem, I suggest that we be able to express the relation of the situations of the main clause and parenthetical expressions in the feature structure of the latter. In addition, I assume that situation may have its own subtypes such as s₅ (situation of the matrix verb which is the head of the main clause), s₆ (situation of the parenthetical expression), s₇ (situation of
intermediate level) and \( s_A \) (situation of the root clause where the main clause and the parenthetical expression are composed together and uttered by a speaker). This subcategorization of situation is only for the convenience of notation.

(23) Subtypes of situation:

![Diagram showing subtypes of situation]

The relation a parenthetical has concerning the main clause can be shown in its semantic information. I hypothesize that the relation an NRC has with its main clause is *coreferentially-conjunctive* one. To include this relational aspect into the feature structure, I propose to breakdown the SEM part of the NRC into subdivisions: C-SEM, B-SET, and P-RELN (parenthetical relation). C-SEM shows the semantic information of its own, B-SET is as seen previously, and P-RELN is to display the relation the expression holds with regard to the main clause. If the expression is of *pron*, then the value of this feature will be specified as seen below, but if it is not, the value will be an empty one. An NRC expression has cor-cf (co-referentially-conjunctive) relation.

(24) a. new SEM feature structure:

```
SEM
\[\begin{array}{c}
\text{C-SEM} \\
\text{B-SET} \\
\text{P-RELN} \quad (\ldots)
\end{array}\]
```

b. SEM specification of NRC:

```
SEM
\[\begin{array}{c}
\text{C-SEM} \\
\text{B-SET} \\
\text{P-RELN} \\
\end{array}\]
\[\begin{array}{c}
\text{[ ] [ SIT } \\
\text{ SIT} \\
\text{ ARG} \\
\end{array}\]
\[< s_m, s_p >\]
```

Based on this new feature structure of SEM, the situation of NRC in (24b) is

---

17) C-SEM supposedly has the same inner structure as the one of the former SEM, that is, MOD, INDEX, and REST.
expressed in the C-SEM value and the B-SET value (by co-indexing) as $s_\alpha$ and intermediate situation $s\alpha$ has been created which takes as its arguments the situation of the matrix verb and the one of the parenthetical expression. The relation of the three situations is expressed as cor-qj. If there is only one NRC in the whole sentence, then $s\alpha$ will equal to $s_\alpha$, P-RELN is a kind of list, and the values of this feature of the daughters are composed in the list of the mother, which will be made possible by modifying SCP to include this aspect. Remaining problem is that the matrix verb that $s_\alpha$ maps onto is to be found outside of this structure. However, I believe this is possible because there would be no such parenthetical expressions as having no matrix verb in the main clause.

(25) Semantic Compositionality Principle (near near final version):
In any wellformed phrase, which is not of prth, the RESTR value is the sum of the RESTR values of the daughters, and the B-SET is the union of the B-SET of daughters: regardless whether it is of prth or not, P-RELN value is the sum of the P-RELN values of daughters.

When the sentence becomes a root clause, the situation value will be $s_\alpha$, which takes as its arguments $s_\alpha$ and one or more number of $s\alpha$. Look at the following constraint:

(26) NRC Restriction Constraint (NRC-RC):

a. In a root clause whose P-RELN is nonempty and its RELN value is of cor-qj, in the RESTR list one member is added, whose RELN is cor-qj. The SIT value of this root clause is structure shared with the SIT value of this new element, which takes as its arguments the SIT value of the head daughter and the elements of P-RELN's ARC list $s\alpha$.

---

18) $\text{\textsuperscript{[18]}}$ is a hypothetical notation, introduced for the list where more than one lists are put together in an orderly manner. By definition, if there is an element which appears in more than one list, then it should be listed only once in the result list. In the case of (37c), $\alpha \in \text{\textsuperscript{[18]}}$ and $\beta \in \text{\textsuperscript{[18]}}$. Therefore, $\alpha \oplus \beta \in \text{\textsuperscript{[18]}}$, where $\text{\textsuperscript{[18]}}$ is listed only once.
By this constraint, (26), the revised description of the sentence given in (22) is as seen in what follows:

(27) the teacher, who is poor, has rich sons, who are doctors.

Here, the SIT value of the whole sentence is $s_{10\rightarrow 10}$, which takes as arguments $s_{10\rightarrow 10}$ from the head daughter (that is, the matrix verb *has*), $s_{10\rightarrow 10}$ and $s_{10\rightarrow 10}$ from the B-SET elements.
As the next step, this revision of semantics should be included in the wh-rel-cl and prth constraint as a final state.

(28) \text{wh-rel-cl and prth constraint (final version):}

\[
\begin{aligned}
\text{wh-rel-cl } \vee \text{ prth } & \Rightarrow \\
\text{PHON} & = \left[ \begin{array}{l}
P-\text{LIST} < \text{nounlist} > \\
P-\text{PRS} + \\
\text{verb} \\
\text{MOD} \\
\text{XP}_{[i]} \\
\end{array} \right] \\
\text{HEAD} & = \left[ \begin{array}{l}
\text{V-FORM} \\
\text{finite} \\
\text{XP}_{[il]} \\
\end{array} \right] \\
\text{SEM} & = \left[ \begin{array}{l}
\text{G-SEM} [i] \\
\text{E-SET} \left[ \begin{array}{l}
\text{ST} \\
\text{S}_{j} \\
\end{array} \right] \\
\left[ \begin{array}{l}
\text{RELN} \\
\text{cor-cj} \\
\text{ARG} \\
\text{< s}_{h}, \text{s}_{p}> \\
\end{array} \right] \\
\end{array} \right] \\
\text{REL-DIR} & = \left[ \begin{array}{l}
\text{REL} [i] \\
\end{array} \right]
\end{aligned}
\]

In this point, the previous PC (parentheticality Constraint) is now revised based on the new SEM structure system, as below:

(29) Parentheticality Constraint (PC):

(i) P-PRS value is '+' if a linguistic expression has a prosodically discontinuous contour of parentheticals at the beginning and end of itself; otherwise, it is '-'.

(ii) The G-SEM value of an expression is the element of the E-SET when it is of prth; otherwise, the C-SEM value is not included in the E-SET.

\[
\begin{aligned}
\text{prth } & \Rightarrow \\
\text{PHON} & = \left[ \begin{array}{l}
P-\text{LIST} < \text{nounlist} > \\
P-\text{PRS} + \\
\text{C-SEM} [i] \\
\text{E-SET} \left[ \begin{array}{l}
\text{ST} \\
\text{(...)} \\
\end{array} \right] \\
\left[ \begin{array}{l}
\text{P-RELN} < \text{...}> \\
\end{array} \right] \\
\end{array} \right]
\end{aligned}
\]

5.5 Head-adjunct phrases

Now, I will look into the antecedent plus the relative clause here. I believe that an NRC modifies its antecedent only structurally, not semantically. So, there is no need to adjust constraint for \text{hd-adj-ph} in Sag (1997). But when it comes to the constraint for \text{hd-rel-ph}, there is a problem.

First, the head daughter of a head-relative clause must be any category now, since we take NRCs into consideration. Therefore, the HBAD value
noun should be eliminated.

The next problem is that, as we have seen in the prior sections, parentheticals or NRCs cannot restrict the meaning of its antecedent or host sentence, the current constraint as it is cannot express this different property of NRC since the content of the non-head daughter is added to the RESTR list of the phrase.

Before I begin to settle these problems, I will first assume that present head-adj-ph is further divided into two subtypes, because there can the restrictive modification and nonrestrictive modification in the same way as we do with the relative clauses. When a parenthetical adjunct is attached to the head, such as red in ‘my flowers, red, withered,’ the phrase ‘my flowers, red’ would be a nonrestrictively modified head-adjunct construction. However, the phrase ‘my red flowers’ is a restrictively modified head-adjunct construction with the restrictive modifier red. Thus, as subtypes of head-adjunct phrase (hd-adj-ph) we now have head-restrictive-adjunct-phrase (hd-r-adj-ph) and head-nonrestrictive-adjunct-phrase (hd-nr-adj-ph). In addition, head-restrictive-adjunct-phrase (hd-r-adj-ph) has head-restrictive-relative-phrase (hd-r-rel-ph) as one of its subtypes along with other subtypes such as head-restrictive-adjective-phrase (hd-r-adj-ph) (e.g. my red flowers). In the same way, head-nonrestrictive-adjunct-phrase (hd-nr-adj-ph) has head-restrictive-relative-phrase (hd-nr-rel-ph) as one of its subtypes along with other subtypes such as head-nonrestrictive-adjective-phrase (hd-nr-adj-ph) (e.g. my flowers, red). The parentheticality of each subtype is unspecified here. It can be either parenthetical or unparenthetical, theoretically, depending on the circumstance in which it appears. If the whole head plus adjunct phrase is to be used as parenthetical again, it will belong to the subtype prh; otherwise, it will be under the subtype unprh. I suggest the hierarchy as follows:

\[(30)\] Multi-dimensional hierarchy of head-adjunct phrases:

Now, the two subtypes hd-r-rel-ph and hd-nr-rel-ph are specified completely as what follows, with new SEM features added:

\[(31)\] Head-restrictive-relative-phrase
  a. Head-restrictive-relative-phrase constraint:
b. Feature structure completely specified\(^{19}\):

```
SYN  [HEAD [2] [NOMI [C-SEM [INDEX [69] [RESTR [\(\alpha \oplus \beta\)]])]])]
SEM  [E-SET [60] [\(\gamma\)]]
      [P-RELN [\(\delta\) \(\gamma\)]]]
      [C-SEM [INDEX [10] [RESTR [\(\alpha\)]]]]
HD-BTR [SEM [C-SEM [INDEX [10] [RESTR [\(\alpha\)]]]]]
      [E-SET [60] [\(\gamma\)]]
      [P-RELN [\(\delta\) \(\gamma\)]]]
      [P-PRS [\(\alpha\)]]
      [PHON [\(\beta\)]]
K-HD-BTR [SEM [C-SEM [INDEX [52] [MODE [\(\gamma\)]]]]]
      [E-SET [70] [\(\gamma\)]]
      [P-RELN [\(\delta\) \(\gamma\)]]]
```

In this structure, the HBAD value of the phrase and the head daughter is specified as \(\alpha\). It is because RRCs join only to nouns, and the index sharing is as guaranteed by HPI\(^{20}\). The \(\text{RESTR}\) value of daughters \((\alpha, \beta)\) are put together in the \(\text{RESTR}\) value of the mother \((\alpha \oplus \beta)\), as SCP requires. The E-SET values \(^{19}\) and \(^{20}\) are also put together in mother's E-SET \((\alpha \cup \beta)\) by SCP. If neither the head daughter nor the non-head daughter has a parenthetical expression, this union will be \(\alpha\). The INDEX values of the mother and the head daughter is the same, as SIP calls for. In addition, since

---

\(^{19}\) Numbers are arbitrarily chosen to show structure-sharing of features.

\(^{20}\) Please refer to 5.1.
the non-head daughter is not a parenthetical one, its P-PRS value is '—'. The P-RELN value is \[ \{20, 30\} \] by SCP.

Next, we will see what the structure of head-nonrestrictive-adjunct-phrase is like.

(32) Head-nonrestrictive-relative-phrase

\[ \text{hd-nr-rel-phrase} = \]

a. Head-nonrestrictive-relative-phrase constraint:

\[
\begin{array}{c}
\text{SYN} \\
\text{HD-DTR} \\
\text{N-HD-DTR} \\
\text{SEM} \\
\text{C-SEM} \\
\text{E-SET} \\
\text{P-RELN} \\
\end{array}
\]

b. Feature structure completely specified:

In this constraint, HEAD value of the phrase is unspecified because it can be any category depending on the category of its antecedent. The C-SEM value of the non-head daughter is becomes the element of E-SET set by PC (Parenthetical Constraint) in non-head daughter's feature structure. This is the major point that distinguishes \textit{hd-nr-rel-ph} from \textit{hd-r-rel-ph}. The E-SET set values are put together in the mother by SCP, and if the head daughter does not have parenthetical expressions under, then the E-SET value would be just \[ \{20, 30\} \]. The RSTR value of non-head daughter \[ 30 \] is composed with \[ A \] into the RSTR value of mother by SCP. Moreover, since the non-head daughter is a parenthetical one, its P-PRS value is '—'. Finally, as for the
P-RELN value, and from both daughters are put together according to SCP.

At this point, there still remains a problem with regard to the RESTR list. Despite the fact that a nonrestrictive modifier cannot restrict the meaning of the head, the RESTR list value of non-head daughter NRC is added when we look at the RESTR value of the phrase, as seen in (108). To fix this problem, I propose to revise the SCP once more. Current SCP as it is cannot help but include non-head daughter’s RESTR value into that of mother’s, regardless whether the non-head daughter is a parenthetical or not. Therefore, the solution is to add a condition for the RESTR value of the parenthetical daughter not to be included in the mother. The finally revised version is given below:

(33) Semantic Compositionality Principle (final version):
   In any wellformed phrase, which is not of prth, the RESTR value is the sum of the RESTR values of the daughters that are NOT of prth and the B-SET is the union of the B-SET of daughter regardless whether it is of prth or not, P-RELN value is the sum of the P-RELN values of daughters.

By doing so, the restrictions that the parenthetical expressions contribute to the head only remain in the B-SET set values, without affecting the meaning of the head in any restrictive way.

6. Conclusion

NRC is similar to RRC in that syntactically it forms constituency with its antecedent, but is different prosodically and semantically, since it brings prosodic discontinuity and extra meaning to its host. From the point of view of prosody and semantics, it is closer to parentheticals rather than to RRC. To reconcile this discordance, I proposed a new dimension PARENTHETICALITY on the existing phrasal hierarchy, so that NRCs can inherit those prosodic and semantic characteristics from a type prth of this dimension, along with existing ones CLAUSALITY and HEADIRONIES. Also, by introducing new feature types of prosodic and semantic features, it became possible to express this special behavior of NRC in the one and single feature structure. In addition, the SEM part has been broken into three
subparts, that is C-SEM, B-SET, and P-RHNL. C-SEM succeeds to the existing
SEM features, B-SET is to store nonrestricive meanings, and P-RHNL marks
unique relations each subtype of parenthetical expressions has with regard
to main clause. The understanding of situation values of the NRCs makes the
discussion complete. In conclusion, NRC is syntactically relative clause but
prosodically and semantically parenthetical, which this construction can
express in a single feature structure by multiple inheritance hierarchy.

Advantage of this study is that, through the extensive study conducted on
the semantics in this paper, it becomes more possible to capture the
multi-aspectual characteristics of NRC constructions. Moreover, the
expanded features of SEM part will make it workable to explore other
semantic facets of grammatical phenomenon. Further researches on
parenthetical expressions and other non-restricive modification
constructions will benefit on the theoretic basis made in this thesis.
Nevertheless, since the attempts made here on the hierarchy and
categorization is relatively superficial, more investigation is called for on the
nature and its inner composition of the dimension to gain its adequacy as a
grammatical premise or assumption.

References

Arnold, D. 2007. Non-restricive relatives are not orphans. Journal of Linguistics 43:
271-309.

realization in spoken discourse: a corpus study of phonetic aspects in British
English. Proceedings of the Workshop on Constraints in Discourse: available from
http://www.constraints-in-discourse.org/cdd05/


116(10): 1670-1687

London: Edward Arnold.


N. Dehé and Y. Kavalova (eds), 1-22, Amsterdam/Philadelphia: John
Benjamin

De Vries, M. 2000. 'Appositive Relative Clauses.' Linguistics In the
Netherlands, 221-231.


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