Abstract

The paper presents a dependency grammar theory of non-gapping coordination. The approach draws a distinction between standard cases of coordination — called String Coordination — and gapping. Only small conjuncts are acknowledged. The core of the approach is expressed in terms of three constraints — the Contiguity Requirement (CR), the Parallelism Requirement (PR), and the Restriction on Shared Constituents (RSC) — that restrict which strings may be coordinated and in terms of the material that conjuncts may share. The claims made are valid for both English and German.

Keywords: Coordination, dependency grammar, constituency grammar, shared material, gapping, constituent structure

1. The challenge of coordination

Coordination challenges theories of syntax. Difficulties arise with respect to non-constituent conjuncts like the following:

(1) [Sue prepared] and [Fred ate] lunch before work.

(2) [The young] and [the old] men arrived.

(3) Jane saw [Bill on Tuesday] and [Sue on Wednesday].

(4) dass Bill [ihm eine Tulpe] und [ihr eine Nelke] geschenkt hat that Bill gave him a tulip and her a carnation given has

(5) [Franz hat zwei] und [Brigitte hat drei] Biere getrunken. Franz drank two beers and Brigitte has three beers drunk

‘Franz drank two beers and Brigitte drank three beers.’
The conjuncts indicated by the brackets do not correspond to constituents under standard assumptions. Faced with such data, one might hypothesize that coordination is extremely flexible; it can coordinate any strings as long as they are contiguous. Such a hypothesis fails, however, with the following cases:

(7) *In [Paris we danced] and [Rome we sang]. (Hudson 1988: 338)
(8) *Fred sent [a letter to Sue] and [a package] yesterday.
(9) *Fred [bought an old car] and [fixed].
(10) *Vor [der Arbeit ging er laufen] und [der Party hörte er Musik].
    Before the work went he running and the party heard he music.
    ‘Before work he went running, and before the party he listened to music.’
(11) *Das Warten [auf ihn ärgert mich] aber [auf sie stört mich]
    the waiting for him angers me but for her bothers me.
    not
    ‘Waiting for him angers me, but waiting for her doesn’t bother me.’
(12) *[vor einer kargen und nach einer Mahlzeit.
    before a meager and after a meal
    ‘before a meager meal and after a meal’

These additional data demonstrate that there are restrictions on the strings that can be coordinated. The challenge, then, is to identify the principles responsible for determining which strings may and may not be coordinated.

This paper strives to meet this challenge. It presents a theory of coordination based in dependency grammar. The approach acknowledges small conjuncts only. It draws a clear distinction between gapping and non-gapping coordination. The latter is called *String Coordination* (SC). The analysis of SC rejects all deletion and ellipsis mechanisms. It relies heavily on the concept of *shared material*, identifying which material may and may not be shared by the conjuncts of a coordinate structure. Three constraints are proposed:
1. Contiguity Requirement (CR)
2. Parallelism Requirement (PR)
3. Restriction on Shared Constituents (RSC)

These three constraints help predict which strings can be coordinated. They are, however, constraints on structure, meaning they do not address the semantic and functional aspects of coordination.

The paper is organized as follows: Section 2 briefly considers the large vs. small conjunct debate, stating why small conjuncts should be preferred over large conjuncts. Section 3 delineates the phenomena associated with the sharing of coordination. A clear distinction is drawn between the sharing of SC and the sharing of gapping. Section 4 illustrates the differences between forward and backward sharing in SC. Section 5 emphasizes an aspect of dependency grammar that makes it an appropriate framework for a theory of coordination. Section 6 presents a novel approach to coordination. It is broken into subsections; the three constraints just mentioned are presented in these subsections. Section 7 examines three exceptions to the CR and PR. Section 8 concludes the paper.

2. The size of conjuncts

There are three basic possibilities concerning the size of conjuncts. The large conjunct approach posits that all conjuncts correspond to complete

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1. The following acronyms are used in this paper:
   ATB Across the board
   CR Contiguity Requirement
   CSC Coordinate Structure Constraint
   PR Parallelism Requirement
   RNR Right Node Raising
   RSC Restriction on Shared Constituents
   SC String Coordination
   SLK Subjekt-Lücken-Koordination

2. By limiting the focus of the paper to the structural aspects of coordination, a discussion of numerous difficult questions is left to another day. For instance, this paper shall not explore contrasts like the following:
   (i) a. * [What] and [where] has John seen?
      b. * [What] and [where] has John eaten? (Grosu 1987: 428)
   (ii) a. * John ate [with his mother] and [with good appetite]. (Schachter 1977: 89)
        b. John ate [with his mother] but [with good appetite]. (Whitman 2004: 404)
   (iii) a. * I know a man who [Bill saw] and [likes Mary]. (Williams 1978: 34)
          b. I know a man who [Bill likes] and [we hope will win]. (Williams 1978: 34)

   Since the a- and b-sentences are essentially equivalent in structure, the contrast in acceptability cannot be addressed by referencing structural aspects alone, but rather some notion of functional equivalence is needed.
sentences below the surface. The small conjunct approach assumes that conjuncts contain only the material present in them on the surface. The eclectic approach allows for both possibilities depending on the particular example at hand. The theory of coordination presented below acknowledges small conjuncts only.


(13) [The old men arrived] and [the young men arrived].

(14) [Er liebt das Bier aus Japan], aber [sie hasst das Bier aus Japan].

The weakness of the large conjunct approach is that the reduced and non-reduced versions of a structure are often semantically and/or syntactically non-equivalent.

(15) a. John and Mary are alike.
   (Lakoff & Peters 1969: 113)
   b. *John are alike, and Mary are alike.

(16) a. Soldiers who mutinied or deserted were punished by death.
   (Quirk et al. 1985: 934)
   b. Soldiers who mutinied were punished by death, or soldiers who deserted were punished by death.


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3. Some of these linguists might disagree with my characterization of their approach. Muadz’ (1991) “planar model”, for instance, explicitly rejects the large conjunct idea, yet it operates with complete planes. I do not see a difference between complete sentences reduced by a deletion transformation and the complete planes of Muadz’ planar model.
The small conjunct approach also has a significant history. It too has many proponents: Dik (1968, 1997), Jackendoff (1977), Schachter (1977), Gazdar (1981), Gazdar et al. (1985), Sag et al. (1985), Chao (1988), Hudson (1988, 1990), Munn (1993), Wesche (1995), Eroms (2000), Phillips (2003), Peterson (2004), etc. The strength of the small conjunct approach is that it does not need a deletion mechanism and is hence not confronted with the syntax/semantics mismatch between the reduced and non-reduced versions of a structure. Its weakness, however, is its inability to satisfactorily account for non-constituent conjuncts.

The third possibility is the eclectic approach. This approach tends to acknowledge small conjuncts whenever possible, but allows for large conjuncts whenever necessary, i.e. whenever the conjuncts correspond to non-constituent strings. The eclectic approach is pursued by the following linguists among others: Lakoff & Peters (1969), Dougherty (1970), Williams (1978), Grosu (1985, 1987), Höhle (1990, 1991), Herringer (1996), te Velde (1997), Groß (1999), Hartmann (2000), etc. The particular appeal of the eclectic approach is its ability to account for all the problems facing both of the other approaches. Its drawback, however, is its lack of theoretical stringency. By allowing for both small and large conjuncts, it fails to present a consistent account of coordination. For this reason, the eclectic approach is rejected here.

With respect to the three approaches just mentioned, it is worth noting that each approach has its strengths and weaknesses. The large conjunct approach has fewer problems with non-constituent conjuncts, but it stumbles with respect to the syntax/semantics mismatch between the reduced and non-reduced versions of the conjuncts. The small conjunct approach has less of a problem with this mismatch, but it has great difficulty with non-constituent conjuncts. The eclectic approach combines the strengths of both ‘pure’ approaches, while avoiding their weaknesses. Due to the mixing of basic principles though, it is less desirable from a theoretic standpoint.

In my view, there is no plausible way — despite the numerous attempts in the literature — to remedy the mismatch in syntax/semantics that plagues the large conjunct approach. It is also not possible to remedy the weakness associated with the eclectic approach, since the necessity of theoretical stringency disqualifies it from the start. That leaves the small conjunct approach. This paper claims that a small conjunct approach based in Dependency Grammar can overcome the difficulties posed by non-constituent conjuncts.

4. An important point concerning the small conjunct approach is that it does NOT necessitate the rejection of all ellipsis mechanisms. Standard cases of gapping have the smallest conjuncts possible, yet the gap appears inside the non-initial conjunct(s): [He likes her], and [she/her__him].
3. **String Coordination (SC) vs. Gapping**

There are various delineations of phenomena associated with coordination. Some linguists provide an essentially unified account of all shared material occurring in coordination, e.g. Koutsoudas (1971), Langendoen (1975), Oirsouw (1985, 1987, 1993), Lobin (1993), Wilder (1994, 1996, 1997), Groß (1999), etc. These linguists view the sharing associated with Conjunction Reduction, Right Node Raising (RNR), and gapping as essentially one and the same phenomenon. In contrast, many other linguists separate gapping from ‘normal’ cases of coordination, e.g. Jackendoff (1972), Kuno (1976), Williams (1978), Neijt (1980), Gazdar (1981), Gazdar et al. (1985), Sag et al. (1985), Chao (1988), Hudson (1988, 1989), Wesche (1995), Eroms (2000), Hartmann (2000), Phillips (2003), etc. This paper follows this latter group. The sharing associated with coordination is divided into two distinct phenomena. Borrowing a term from Grosu (1987: 435) and Heringer (1996: 198 ff.), the first of these shall be called **String Coordination (SC)** as mentioned above; the second is called gapping in line with common practice.

At least four empirical considerations support the distinction between SC and gapping. The first is that the shared material of SC appears outside the coordinate structure, whereas the shared material of gapping appears inside the initial conjunct.

(17) Fred [bought an old car] and [repaired it]. \hspace{1cm} \text{SC}
(18) [Fred bought] and [Sue sold] an old car. \hspace{1cm} \text{SC}
(19) [Fred likes Mary], and [Mary Fred]. \hspace{1cm} \text{Gapping}

The second empirical difference between SC and gapping occurs with finite verbs. Finite verbs do not appear in the non-initial conjuncts of gapping, whereas they can appear in the non-initial conjuncts of SC.

(20) \textit{Fred kaufte} \textit{heute ein Auto}. \hspace{1cm} \text{SC}
Fred bought and Sue sold today a car
‘Fred bought and Sue sold a car today.’

(21) \textit{Fred kaufte heute ein Auto}, und \textit{Sue gestern}. \hspace{1cm} \text{Gapping}
Fred bought today a car and Sue yesterday
‘Fred bought a car today, and Sue yesterday.’

(22) *\textit{Fred kaufte heute ein Auto}, und \textit{Sue verkauften} \hspace{1cm} \text{Failed}
Fred bought today a car and Sue sold yesterday
‘Fred bought a car today and Sue sold a car yesterday.’
Sentence (22) is disallowed because the finite verb has not gapped along with the object NP. Whatever is licensing the sharing of gapping, it requires that the dominate verb be gapped.

The third empirical difference between SC and gapping occurs with the phonological identity of a shared verb. The sharing of SC requires that the phonological identity of such a verb be consistent across conjuncts. Gapping, in contrast, is lenient in this regard. Wesche (1995: 139) addresses the distinction directly. The following examples are from Eisenberg (1973):

(23)  
      if Franz the house and I the garden buy  
      — Failed SC  
      ‘if Franz buys the house and I buy the garden’
      if Franz the house and I the garden buy could  
      — SC  
      ‘if Franz could buy the house and I could buy the garden’

(24)  
   a. ?? die Bücher [die du] und [die er] kauft  
      the books that you and that he buys  
      — Failed SC  
      ‘the books that you buy and he buys’
   b. die Bücher [die er] und [die sie] kauft  
      the books that he and that she buys  
      — SC  
      ‘the books that he buys and she buys’

Examples (23a) and (24a) are problematic for an obvious reason: the verb cannot agree with both subjects simultaneously. In contrast, examples (23b), (24b) are grammatical because the verb’s morphology and phonology does agree with both subjects simultaneously. Notice that these structures are analyzable as SC, for the shared material in each appears external to the coordinate structure. McCawley (1997: 285) provides similar data from English:

(25) ?The only person [who you] and [who Tom] admires/admire is Walter Cronkite.

(26) The only person [who you] and [who I] ?am/*are happy with is Jerry Brown.

The sentences (23)—(26) have the finite verb following the conjuncts. The same effect obtains when the finite verb precedes the conjuncts:
(27) a. ??Has [he finished] and [you started]?
   b. Has [he finished] and [she started]?

(28) a. ?? Bist [du müde] und [sie gestresst]?
    Are you tired and she stressed
    ‘Are you tired and is she stressed.’
   b. Ist [er müde] und [sie gestresst]?
    Is he tired and she stressed
    ‘Is he tired and she stressed?’

The pattern is different for gapping, which is more lenient with respect to the phonological identity of the verb:

(29) [Fred prefers Mary], but [his parents, Jane].

(30) wenn [Franz das Haus kauft] und [ich den Garten]
    ‘if Franz buys the house and I buy the garden’

Note the ungrammaticality of *his parents prefers Jane and *wenn ich den Garten kauft ‘if I buy the garden’. Hence gapping, unlike SC, does not require the phonological identity of the finite verb to be consistent across conjuncts.


(31) Sue eats [watermelon at work] and [watermelon at home].

(32) *[I want beer], and [you, beer].

(33) dass [er lange] und [sie lange] geschlafen hat
    ‘that he slept a long time and that she slept a long time’

(34) * [Lesen gefällt ihm], und [Lesen ihr].
    ‘Reading pleases him, and reading pleases her.’

The conjuncts in the SC examples are somewhat redundant, whereas the gapping cases do not allow this sort of redundancy at all.
Four areas in which SC and gapping differ have just been enumerated. In view of the data, the SC vs. gapping distinction is well motivated. Observing this distinction, the syntax of coordination can be broken down into two areas:

(35) Coordinaton

String Coordination (SC)  Coordination with gapping

SC is to be understood as coordination that does not involve the gapping mechanism. This paper concentrates on SC; it will have little to say about gapping. Indeed, the approach presented below remains non-committal about the ‘true’ nature of gapping, i.e. whether or not gapping should be understood as an ellipsis mechanism.

4. Forward vs. backward sharing in SC

The literature on coordination frequently draws attention to the differences between forward and backward sharing, e.g. Neijt (1980: 39 ff.), Hudson (1988: 331, 338), Höhle (1991: 146 ff.), Klein (1993: 772), Wesche (1995), Wilder (1994: 308 ff.), Hartmann (2000: 32 ff.). This section considers three such differences. These differences shall motivate a further delineation of phenomena, whereby the backward sharing of SC is separated from the forward sharing of SC, meaning the one is not the mirror image of the other.

The first difference has to do with the constituent status of the shared material. When the shared material precedes the conjuncts, the conjuncts

5. The SC vs. gapping distinction is merely a means of discerning and isolating the two sharing phenomena of coordination. The two types of sharing are not mutually exclusive. The peripheral sharing of SC and the conjunct internal sharing of gapping can indeed appear in one and the same sentence:

(i) \[Ich \text{ bin gestern}, \text{ und } [du \text{ vorgestern}], \quad \text{ins Kino gegangen.}\]

‘I went to the movies yesterday, and you the day before yesterday.’

6. At present I am leaning toward a non-ellipsis analysis of gapping. The ellipsis-based analysis is fraught with the same difficulties that plague large conjunct approaches in general:

(i) \[I \text{ didn’t eat fish}, [Bill rice], *and/or [Harry roast beef].\] (Jackendoff 1972: 23)

(ii) \[John didn’t win the car], *and/or [Mary the free trip].\] (Neijt 1980: 66)

These data indicate that when the verb is gapped out of the second conjunct, the negation scopes over both conjuncts. The non-gapping versions of these sentence require, in contrast, that and appear, not or. Hence we see a similar sort of syntax/semantics mismatch between the gapped and non-gapped versions of the sentences as we saw above.
themselves generally qualify as constituents, whereas they often do not qualify as constituents when the shared material follows them:

(36) Bill [arrived] and [ordered a beer]. – VP+VP

(37) [Bill buys] and [Sue repairs] old bicycles. – ??+??

(38) Wir trafen [einen Mann] und [eine Frau].
we met a man and a woman
‘We met a man and a woman.’

(39) dass [er sie] und [sie ihn] vermeiden will
that he her and she him avoid wants
‘that he wants to avoid her, and she him’

This insight is strengthened by the additional observation that forward sharing involving non-constituent conjuncts often results in ungrammaticality. The following sentences are in part repeated from section 1:

(40) *In [Paris we danced] and [Rome we sang].
(Hudson 1988: 338)

(41) *The picture [of Tom was funny] but [of Sue was sad]. – ??+??

(42) *Vor [der Arbeit ging er laufen] und [der Party hörte er
before the work went he running and the party heard he
Music]. – ??+??

music
‘before work he went running and before the party he listened
to music’

(43) *Das Warten [auf ihn ärgert mich] aber [auf sie stört
the waiting for him annoys me but for her bothers
mich nicht].
me not
‘Waiting for him annoys me but waiting for her doesn’t bother me.’

It appears as though these instances of forward sharing are disallowed because the conjuncts do not qualify as constituents.

A second difference between forward and backward sharing occurs with the scope of indefinite pronouns and quantified expressions. Höhle (1991: 148), Klein (1993: 773), and Hartmann (2000: 69) observe that a
shared indefinite pronoun following the conjuncts is ambiguous between a co-referential and non-co-referential reading, whereas one that precedes the conjuncts allows only the non-co-referential reading. The following examples are from Klein (1993: 773):

(44)

a. Jemand kam um vier und ging um fünf.
someone came at four and left at five

Only one person

‘Someone came at four and left at five.’

b. [Jemand kam um vier], und [jemand ging um fünf].
someone came at four and someone left at five

Someone came at four and someone left at five.’

(45)

a. [Um vier kam] und [um fünf ging] jemand.
at four came and at five left someone

Probably two persons

‘Someone came at four and someone left at five.’

b. [Um vier kam jemand], und [um fünf ging jemand].
at four someone came and at five someone left

‘At four someone came, and at five someone left.’

Sentence (44a) does not mean the same thing as sentence (44b), whereas sentence (45a) can mean the same thing as sentence (45b). Höhle (1991) and Hartmann (2000: 67 ff.) take such data to support the view that forward sharing is nothing more than constituent coordination (of maximal projections), whereas RNR (=backward sharing involving non-constituent conjuncts) is a separate phenomenon involving a deletion transformation.

(45) a’. [Um vier kam jemand] und [um fünf ging jemand].
at four someone came and at five someone

‘At four someone came, and at five someone left.’

The large conjunct analysis sees the subject in (45a) being deleted out of the initial conjunct.

This paper acknowledges this second difference between forward and backward sharing, but it does not adopt the large conjunct analysis of the latter. The problems with the large conjunct analysis of RNR have been discussed in numerous places in the literature, e.g. Jackendoff (1977), Gazdar (1981), Erteschik-Shir (1987), Wesche (1995). The problem is that certain cases do not conform:
(46) a. [I met a woman] and [you met a man] who know Bill.
   b. *[I met a woman who know Bill] and [you met a man who know Bill].

(47) a. I [thanked Mary] and [respect Susan] for their/*her help.
   (Ertescik-Shir 1987: 110)
   b. *I [thanked Mary for their help] and [respect Susan for their help].

(48) a. [John avoided] and [Bill ignored] similar issues.
   b. *[John avoided similar issues] and [Bill ignored similar issues].

Contrary to what the large conjunct analysis of backward sharing predicts, (46b) is unacceptable; *their, not *her, must appear in (47a), which is inconsistent with (47b); and (48b) is allowed only on the unlikely ‘third party’ reading – see Hartmann (2000: 79). Due to such difficulties, the large conjunct approach to backward sharing is not pursued here. Despite this decision though, it is clear that forward and backward sharing do differ with respect to the scope properties of indefinite pronouns and quantified expressions.

A third difference between forward and backward sharing occurs with a certain contrast constraint. A contrastive stress accent often appears on the conjunct final elements of RNR, whereas no such accent appears on the conjunct initial elements of forward sharing:

(49) [He cán] but [she cán’t] stay.
(50) [Peter köcht] und [Sue isst] die Spargel.

Peter cooks and Sue eats the asparagus

This insight has motivated Hartmann (2000: 112) to stipulate that the conjunct final elements of RNR must contrast. If they do not contrast, ungrammaticality obtains.

(51) * [I find it easy to believe] but [Joan finds it hard to believe]
   Tom to be dishonest.
   (Postal 1974)
(52) *[Tom sat ón] and [Bill stood ón] the table.
(53) * [Er müß] und [sie müß] in Salt Lake City übernachten.
   He must and she must in Salt Lake City stay. the. night
   ‘He must stay the night and she must stay the night in Salt Lake City.’
This trait of RNR is reminiscent of gapping. As mentioned in section 3., the remnants in a gapped conjunct must contrast with their parallels. This similarity supports an analysis of coordination that groups RNR and gapping together contrary to the stance taken in the previous section. The problem with such a move, though, is that in certain cases, the conjunct final elements of RNR need not contrast: 7

(55) a. weil [Töm lange] und [Fréd lange] geschlafen hat
because Tom long slept has
‘because Tom slept a long time and Fred slept a long time’

b. weil [Töm lange geschlafen] und [Fréd lange geschlafen] hat
because Tom long slept and Fred long slept has
‘because Tom slept a long time and Fred slept a long time’

(56) a. dass [Töm etwas] und [Fréd etwas] mitgebracht hat
that Tom something and Fred something brought has
‘that Tom brought something and Fred brought something’

b. dass [Töm mir etwas] und [Fréd mir etwas]
that Tom me something and Fred me something
mitgebracht hat
brought has
‘because Tom brought me something and Fred brought me something’

7. Concerning the acceptability of (55)–(56), my informants prefer the following formula-
tions:

(i) dass [Tom] und [Fred] lange geschlafen haben
that Tom and Fred long slept have
‘that Tom and Fred slept a long time’

(ii) dass [Tom] und [Fred] mir etwas mitgebracht haben
that Tom and Fred me something brought have
‘that Tom and Fred brought me something’

The difference between (55)–(56) and (i)–(ii) lies with the combinatory vs. segregatory readings. (i)–(ii) are ambiguous, the single event reading competing with the dual event reading. Sentences (55)–(56) in contrast allow only the dual event readings. Thus speakers will choose (55)–(56) over (i)–(ii) in order to disambiguate the utterance in favor of the segregatory reading. Thus redundancy in coordination can serve to reduce ambiguity.
Since Hartmann (2000: 113) views examples similar to (55)–(56) as instances of RNR, these cases challenge the claim concerning any contrast requirement on the conjunct final elements. Notice that the same redundancy can occur in NP and PP structures, which are not traditionally viewed as involving RNR:

(57) [these young] and [those young] men

(58) a. [vör einer kargen] und [nách einer kargen] Mahlzeit before a meager and after a meager meal
   ‘before and after a meager meal’

b. [vör einer] und [nách einer] kargen Mahlzeit
   before a and after a meager meal
   ‘before a and after a meager meal’

The importance of (55)–(58) for the current theory is that they reduce the rational for grouping the backward sharing of SC and gapping together. They hence support the delineation of phenomena presented at the end of the previous section, whereby the backward sharing of SC is kept apart from gapping.

While an examination of the examples in this section thus far has not provided sufficient evidence to group backward sharing and gapping together, it does raise the question about the contrast: Why must the conjunct-final elements in (51)–(54) contrast, but not so the conjunct-final elements in (55)–(58)? The answer to this question probably lies with the status of the conjunct-final elements in relation to the shared material. In (51)–(54), the conjunct-final elements are heads of the shared material, e. g. believe and believe in (51) are the heads of Tom and to be dishonest, respectfully. In (55)–(58) on the contrary, the conjunct final elements are dependents of the shared material, e. g. lange and lange are dependents of geschlafen in (55a). So apparently conjunct-final elements must contrast only if they head the shared material. Note that this limitation on backward sharing does not limit forward sharing too; conjunct-initial elements that share a dependent need not contrast:

(59) Sue [has eaten] and [has done her homework].

(60) dass Fred alles [hören will] und [hören soll].
    that Fred all hear wants and hear should
    ‘that Fred wants to hear everything and is supposed to hear everything’

Comparing (51)–(54) with (59)–(60), there is sufficient evidence to posit a third difference between forward and backward sharing: conjunct-final
elements must contrast if they are heads of the shared material, but the conjunct-initial elements need not contrast regardless of whether they are the heads or the dependents of the shared material.

The delineation of phenomena from the end of the previous section can now be expanded to acknowledge the differences between the forward and backward sharing of SC.

Of the numerous theories of coordination in the literature, this delineation of phenomena has the most in common with the approaches of Hudson (1988, 1989) and Wesche (1995: 60). The approach below predicts the first difference between forward and backward sharing mentioned above, i.e. constituent vs. non-constituent conjuncts, via the RSC. The RSC limits the forward, but not the backward, sharing of SC. The second difference, i.e. the scope of indefinites and quantified expressions, and the third difference, i.e. the contrast constraint on conjunct-final heads, shall not be explored any further in this paper.

5. Dependency vs. constituency

This section presents and emphasizes an aspect of dependency grammar central for the theory of coordination presented below. The intent is not to introduce dependency grammar to an audience not already versed in it, but rather merely to emphasize a core trait of dependency grammar that is necessary for the theory of coordination. The dependency grammar utilized here is in line in many relevant respects with the dependency grammars of numerous linguists, e.g. Tesnière (1969), Kunze (1975), Matthews (1981), Hudson (1984, 1990), Mel’čuk (1988), Schubert (1988), Starosta (1988), Lobin (1993), Pickering & Barry (1993), Jung (1995), Heringer (1996), Weber (1997), Groß (1999), Eroms (2000), Kahane (2000), Tarvainen (2000), etc. The systems of these linguists (can) acknowledge the following aspect of the dependency grammar approach to syntax: CONSTITUENT STRUCTURE IS PRESENT.

To illustrate this point, consider that each subtree of a dependency tree qualifies as a constituent of the entirety.
The standard definition of the ‘constituent’ is applicable:

**Constituent**: A node plus all the nodes that that node dominates.

According to this definition, the dependency tree (62a) contains just eight constituents: *in the morning X1 X2 X3, the morning X2 X3, the X2, his mother X4 X5, his X4, bagels with honey X7 X8 X9, with honey X8 X9,* and *honey X9.* Note that since they dominate other nodes, the single nodes *in X1, morning X3, mother X5, likes X6, bagels X7,* and *with X8* do not each alone qualify as a constituent according to the definition.

The constituency tree of (62) involves much more structure.

According to the definition, this tree contains 16 constituents, twice the number as the dependency tree: *in, the, morning, in the morning, his, mother, his mother, likes, bagels, with, honey, likes bagels with honey, bagels with honey,* and *with honey.* Note that unlike dependency, constituency always has each word alone qualifying as a constituent.
It is not common for dependency structures to be viewed in terms of constituents. The issue, though, is merely a matter of terminology. Dependency grammarians use various terms to denote the syntactic unit defined in the definition. Tesnière (1959/69: 14) calls the unit a *nœud* ‘node’; Kunze (1975: 13) names it a *vollständiger Teilbaum* ‘complete partial tree’; Hays (1964: 520) and Mel’čuk (1988: 14) call it a *subtree*; Groß (1999: 69) and Eroms (2000: 86 ff.) call it a *phrase*. Pickering & Barry (1993: 865) use the term *full-constituent*. Hudson (1984: 92) and Siewierska (1988: 142) use the term *constituent*. This paper follows Hudson and Siewierska in this regard. The advantage of using the term *constituent* is that it makes a comparison of the dependency and constituency views of constituent structure possible.

The dependency view of constituent structure is supported by the results of numerous constituency tests. Tests like topicalization, clefting, pseudoclefting, pronominalization, stripping, and answer fragments identify far less structure than constituency stipulates. In this respect, the dependency view of structure cleaves much closer to the results of the tests. This point is illustrated here by juxtaposing the constituency tree and dependency tree of one and the same sentence. Each structure makes a prediction about the strings that do and do not qualify as constituents. Consider topicalization (Allerton 1979: 114 ff., Borsley 1991: 24, Haegeman & Guéron 1999: 46, Lasnik 2000: 10, Poole 2002: 32 ff.) first:

(63) Sue saw Bill on Tuesday.

The dependency tree of the sentence is: 

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    X1
   /   
  X2   X3
 /     /
X4   X5
 /     /
X6   X7
      /
X8
```

In this tree, the *constituents* are:

- *Sue*
- *saw*
- *Bill*
- *on*
- *Tuesday*

The constituency tree of the sentence is:

```
    X1
   /   
  X2   X3
   / 
 X4   X5
  /   /
X6   X7
```

In this tree, the *constituents* are:

- *Sue*
- *Bill*
- *on*
- *Tuesday*

The advantage of the dependency view is that it makes a comparison of the dependency and constituency views of constituent structure possible. The dependency view cleaves much closer to the results of the constituency tests. This point is illustrated here by juxtaposing the constituency tree and dependency tree of one and the same sentence. Each structure makes a prediction about the strings that do and do not qualify as constituents. Consider topicalization (Allerton 1979: 114 ff., Borsley 1991: 24, Haegeman & Guéron 1999: 46, Lasnik 2000: 10, Poole 2002: 32 ff.) first:
The constituency tree on the left predicts eight constituents in sentence (63), whereas the dependency tree on the right predicts just four. Of course topicalization cannot identify Sue as a constituent because Sue is already at the front of the sentence. It is reasonable to assume, however, that Sue is a constituent also, for other constituency tests do identify it as one. Thus with respect to topicalization, one can assume that there are at least three constituents in (63): Sue, Bill, and on Tuesday. Therefore the number of constituents identified by topicalization is much closer to the dependency prediction. Constituency grammars utilizing X-bar structures (Radford 1997: 108 f.) must reference maximal projections in order to address the discrepancy between the number of constituency constituents predicted and the actual number of constituents identified by the tests.


(64) Sue saw Bill on Tuesday.
   a. It was Sue that saw Bill on Tuesday.
   b. *It was saw that Sue Bill on Tuesday.
   c. It was Bill that Sue saw on Tuesday.
   d. *It was on that Sue saw Bill Tuesday.
   e. ?It was Tuesday that Sue saw Bill on.
   f. *It was saw Bill on Tuesday that Sue (did).
   g. *It was saw Bill that Sue (did) on Tuesday.
   h. It was on Tuesday that Sue saw Bill.

Clefting identifies just four strings as constituents and these four are exactly those that dependency predicts. Pseudoclefting (Brown & Miller 1980: 25, Borsley 1991: 24, McCawley 1997: 661, Haegeman & Guéron 1999: 50) delivers a similar result:

(65) Sue saw Bill on Tuesday.
   a. (The one) who saw Bill on Tuesday was Sue.
   b. *(The occasion) when Sue saw Bill Tuesday was on.
   c. (The one) who Sue saw on Tuesday was Bill.
   d. *(The day) that Sue saw Bill on was Tuesday.
f. *What Sue did was saw Bill on Tuesday.
g. *What Sue did on Tuesday was saw Bill.
h. (The occasion) when Sue saw Bill was on Tuesday.

The four constituents identified by pseudoclefting are exactly those that dependency predicts. Pronominalization using definite proforms (Radford 1997: 109, Haegeman & Guéron 1999: 46, Lasnik 2000: 9, Poole 2002: 29 f.) is next:

(66) Sue saw Bill on Tuesday.
   a. She saw Bill on Tuesday.
   b. *Sue so/that/it Bill on Tuesday.
   c. Sue saw him on Tuesday.
   d. *Sue saw Bill then Tuesday.
   e. *Sue saw Bill on then.
   f. *Sue so/that/it.
   g. *Sue so/that/it on Tuesday.
   h. Sue saw Bill then.

In this case, only three constituents are identified. Dependency correctly predicts each of these three to be constituents. Stripping (McCawley 1997: 62) is the fifth test:

(67) Sue saw Bill on Tuesday.
   a. Sûe saw Bill on Tuesday, not Fréd.
   b. *Sue sáw Bill on Tuesday, not avôided.
   c. Sue saw Bîll on Tuesday, not Lárry.
   d. *Sue saw Bill ón Tuesday, not befôre.
   e. Sue saw Bill on Tüesday, not Wêdnesday.
   f. *Sue sáw Bill on Tuesday, not avôided him on Tuesday.
   g. *Sue sáw Bill on Tuesday, not avôided him.
   h. Sue saw Bill ón Tuesday, not befôre Tuesday.

Stripping identifies exactly those four strings to be constituents that dependency predicts. The sixth and final test is answer fragments (Brown & Miller 1980: 25, Dinneen 1995, Radford 1997, and Haegeman & Guéron 1999):

(68) Sue saw Bill on Tuesday.
   a. Who saw Bill on Tuesday? — Sue.
   b. What did Sue do to Bill on Tuesday? — *Saw.
   c. Who did Sue see on Tuesday? — Bill.
d. *When did Sue see Bill Tuesday? – *On.
e. What day did Sue see Bill on? – Tuesday.
f. What did Sue do? – *Saw Bill on Tuesday.
g. What did Sue do on Tuesday? – *Saw Bill.
h. When did Sue see Bill? – On Tuesday.

Dependency succeeds again in predicting exactly which strings the test
does and does not identify as constituents.

The results of each of the six tests just examined cleave reasonably
close to the dependency prediction. In contrast, constituency involves
more structure than the tests warrant. This situation speaks strongly for
the dependency grammar view of syntax.8

6. String Coordination (SC)

The term “String Coordination” (SC) is borrowed from Heringer (1996:
198). He (1996: 199) characterizes SC in the following manner:

“Man kann sich das ganze so vorstellen, dass der Sprecher den String
an einer Stelle unterbricht und einen Parallelweg geht, der natürlich
on-line nicht parallel, sondern nur nach dem ersten Teilweg begangen
werden kann. An seinem Ende kehrt er zur Abzweigstelle zurück.”

‘One can imagine the entire matter as if the speaker interrupts the
string at a certain point and moves to a parallel path that is of course
not parallel on-line, but rather can be taken only after the original
path has been started. When the parallel path is complete, the speaker
returns to the interruption point of the original path.’

This general understanding of SC is adopted here. SC is viewed as a
mechanism that interrupts the production of a structure to repeat a part

8. An anonymous reviewer emphasizes that the six tests just discussed would deliver much
different results in other languages. In German for instance, the V2 principle allows
many more strings to be fronted than in English. While this point is certainly true, one
should keep in mind that those linguists who have contributed most to establishing
constituency as the dominant principle upon which theories of syntax are built, e.g.
Bloomfield and Chomsky, have English as their native language. Constituency is in
general viewed as the appropriate principle for ‘configurational’ languages, of which
English is perhaps the most prominent example, whereas dependency is deemed more
appropriate for the free word orders of ‘non-configurational’ languages. In this respect,
the fact that dependency makes a more accurate prediction in English, but not neces-
sarily in other languages, should still be a concern for those who choose constituency
over dependency.
of that structure that was just produced; when the coordination is finished, the original structure picks up again where it left off. The mechanism is represented schematically as follows:

(69) Fred sent a letter to Sue yesterday.

and a package to Jane

The original string is interrupted after Sue, the structure of the string corresponding to a letter to Sue is reproduced with other lexemes, i.e. a package to Jane, and the original string is then re-continued to its completion.

This coordination mechanism is quite flexible. It can coordinate most strings, seemingly regardless of their status as constituents or non-constituents:

(70) Fred ate lunch before work.

a. [Fred] and [Sue] ate lunch before work.
b. [Fred prepared] and [Sue ate] lunch before work
c. [Fred ate lunch] and [Sue watched TV] before work.
d. [Fred ate lunch before] and [Sue watched TV after] work.
e. Fred [prepared] and [ate] lunch before work.
f. Fred [ate lunch] and [prepared dinner] before work.
g. Fred [ate lunch before] and [watched TV after] work.
h. Fred [ate lunch before work] and [watched TV after work].
i. Fred ate [lunch] and [dinner] before work.
j. Fred ate [lunch before] and [dinner after] work.
k. Fred ate [lunch before work] and [dinner after work].
l. Fred ate lunch [before] and [after] work.
m. Fred ate lunch [before work] and [after work]

The sentences (70a−n) demonstrate just how flexible the mechanism is; it can coordinate every possible string in (70). Contrary to the impression generated by (70a−n) though, it will be made clear that SC is actually limited in the strings it can coordinate.

In order to explore the behavior of the mechanism, some basic assumptions about the nature of conjuncts are necessary. The first assumption is that the material inside conjuncts obeys the standard principles of structure. For instance, the conjuncts in (70h) have the following structures:
Following Hudson (1988: 323) and Pickering & Barry (1993: 891), the supreme node in a conjunct shall be called the root (of that conjunct). Thus *ate* and *watched* are the roots of the conjuncts in (70h’). Roots are henceforth shown in italics. The next assumption concerns the number of roots appearing in a conjunct. Again following Hudson (1988: 324) and Pickering & Barry (1993: 891 f.), the assumption shall be that more than a single root may appear in a conjunct. This situation holds in (69) for instance:

Each of the conjuncts has two roots — i.e. *letter* and *to*, and *package* and *to*. “Root” is defined as follows:

**Root:** A node in a conjunct that is not immediately dominated by any other node in that conjunct.

According to this definition, each of the words in italics in (69’) and (70h’) is a root because it is not dominated by any other word within its conjunct. Note that the definition says nothing about the number of roots appearing in a conjunct. In this respect, the flatness of dependency structures results in cases where the number of roots in the conjuncts reaches four (or even more).
In this case, the definition identifies four roots in each conjunct.

The next aspect of the current approach concerns the complete dependency grammar representations of sentences containing coordinate structures. A three-dimensional format shall be used.

(72)

\[\begin{align*}
\text{She likes } & \text{[bagels with honey] and [muffins with vegemite].}^9
\end{align*}\]

The smaller font and slightly higher position are intended to indicate that the one conjunct is in an equi-level position behind the other. Italics continue to mark the roots of the conjuncts. The dashed line connects parallel roots. Three-dimensional space is understood in terms of planes; shared material and the initial conjunct appear on the initial plane, the second conjunct appears on the plane immediately behind the initial plane, etc. Notice that the coordinator \textit{and} is granted a neutral position between the conjuncts. This view of the coordinator is essentially in line with the stances of numerous linguists, e.g. Tesnière (1959, 1969), Ross (1967, 1986), Dougherty (1970), Koutsoudas (1971), Jackendoff (1977), Williams (1978), Gazdar et al. (1985), Starosta (1988), Moltmann (1992), Borsley (1994), te Velde (1996), Eroms (2000), etc.

When the conjuncts each contain more than one root, each of the roots is connected to its parallel via a dashed line.

(69’’)

\[\begin{align*}
\text{Fred sent } & \text{[a letter to Sue] and [a package to Jane].}
\end{align*}\]

---

9. The constituents \textit{with honey} and \textit{with vegemite} are shown adjoined to \textit{bagels} and \textit{muffins}, respectively. An alternative analysis has them as dependents of the verb, i.e. as sisters of \textit{bagels} and \textit{muffins}. I believe both analyses are possible. Topicalization demonstrates that the analysis shown in (72) is in any case plausible, i.e. \ldots but \textit{bagels with honey, she certainly likes}.
The three-dimensional idea is prominent in the literature: Williams (1978), Ertelschik-Shir (1987), Goodall (1987), Muadz (1991), Moltmann (1992), Wesche (1995), te Velde (1996), Groß (1999). While the current dependency-based approach has some similarities with the approaches of these linguists, it is unique mainly in its use of dependency. Excepting Groß (1999), the other theories are all constituency-based. Furthermore, the central concept of the current three-dimensional theory, i.e. the ‘root’, does not appear in any of these other three-dimensional approaches.  

A third relevant point has to do with the willingness to acknowledge large conjuncts. Many of these approaches acknowledge and operate with large conjuncts, employing a deletion or ‘merging’ transformation to remove redundant material. The current analysis of SC remains entirely on the surface, no deletion or merging transformations ever being employed.

6.1. The Contiguity Requirement (CR)

Given Heringer’s ‘on-line’ view of SC, it should be apparent that the conjuncts of coordinate structures are contiguous. This contiguity is expressed in the first constraint on SC, which is called the CR; it predicts where shared material, i.e. material common to each of the conjuncts, can and must appear in relation to the conjuncts.

**Contiguity Requirement (CR)**

(i) Within the coordinate structure, shared material may not follow the (first) root in the initial conjunct.
(ii) All material external to the conjuncts must be shared.

Part (i) prevents shared material from appearing after the first root in the initial conjunct and anywhere within the non-initial conjunct(s). The constraint makes concrete predictions about the strings that can and cannot be coordinated. Shared material may not appear between the conjunct roots.

---

10. To my knowledge, Hudson (1988) and Pickering & Barry (1993) are the first and only ones before now to employ the ‘root’ concept. They do not, however, develop the notion to the same extent that the current theory does.
The shared material in the acceptable (73b, d, e) appears before the first conjunct root and/or after the final conjunct bracket. (73d) is less acceptable than (73b, e); notice, however, that the marginality disappears if the subject changes, e.g. *Tom bought, and Sue fixed, an old car. In contrast, the ungrammatical (73a, c, f, g) have shared material appearing between the conjunct roots, which is prohibited by the CR. The CR holds for German as well.

The shared material in the acceptable (74a, b, c) appears before the first conjunct root and/or after the final conjunct bracket. (74a, b, c) is less acceptable than (74b, c); notice, however, that the marginality disappears if the subject changes, e.g. *Thomas kaufte ein altes Auto und er reparierte es. In contrast, the ungrammatical (74d, e, f, g) have shared material appearing between the conjunct roots, which is prohibited by the CR. The CR holds for German as well.
The finite verb is the root of each conjunct in (73)–(74). The CR makes the same prediction when the roots are common nouns:

\[(75)\]

\[
\begin{align*}
X1 & \quad X2 \\
X3 & \quad X5 \\
X4 & \quad X7 \\
X6 & \quad X8 \\
X9 & \quad X10
\end{align*}
\]

[his description of the situation] and [his explanation of the situation]

a. *[his description] of the situation and [his explanation]
b. his [description of the situation] and [explanation of the situation]
c. *his [description] of the situation and [explanation]
d. [his description] and [his explanation] of the situation
e. his [description] and [explanation] of the situation
f. *[description of the situation] and his [explanation of the situation]
g. *[description] and his [explanation] of the situation

The a- and c-examples can be acceptable on the reading where of the situation is not shared, meaning that the explanation is not necessarily understood as an explanation of the situation, but rather of, say, the reaction to the situation.

The CR is applicable to numerous other types of coordinate structures. For instance, it predicts that a shared complement of prepositions must follow the prepositions, a shared adverb must precede or follow its verbs, and a shared infinitival verb must follow its finite verbs.

\[(76)\]

\[
\begin{align*}
X1 & \quad X2 \\
X3 & \quad X4
\end{align*}
\]

a. [in] and [under] the desk
b. *[in] the desk and [under]
Part (ii) of the CR requires all material appearing outside of the coordinate structure to be shared, i.e., it must be common to all the conjuncts. Hence if conjunct-external material fulfills the structural requirements of one conjunct but not the other, ungrammaticality results:

\[(79)\]
\[
a. \text{What did Bill } [\text{drink}] \text{ and } [\text{eat}]? \\
b. *\text{What did Bill } [\text{drink}] \text{ and } [\text{relax}]?
\]

\[(80)\]
\[
a. \text{Wen hast du } [\text{gesehen}] \text{ und } [\text{gegrüßt}]? \\
\quad \text{Who have you seen and greeted} \\
\quad \text{‘Who did you see and greet?’} \\
b. *\text{Wen hast du } [\text{gesehen}] \text{ und } [\text{geschwiegen}]^{11} \\
\quad \text{Who have you seen and remained silent} \\
\quad \text{‘Who did you see and remain silent?’}
\]

\[^{11}\text{An anonymous reviewer comments that (80b) is not unacceptable. Since my informants dislike (80b), it is given here as ungrammatical. However, the reviewer is correct insofar as there is a class of widely discussed acceptable structures that violate part (ii) of the CR, e.g.}\]
The a-sentences are fine because the conjunct external material is shared by both conjuncts in a like manner. The b-sentences in contrast are unacceptable because the wh-element is not shared in a like manner. The transitive verbs *drink* and *gesehen* have the wh-element fulfilling the subcategorization requirement for an object, whereas the intransitive verbs *relax* and *geschwiegen* do not subcategorize for objects.

With respect to derivational theories, parts (i) and (ii) of the CR are analogous to the two components of Ross’ (1967: 161) CSC:

**Coordinate Structure Constraint (CSC):** In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

By preventing shared material from appearing between the conjunct roots, part (i) of the CR covers the same data as the ‘no conjunct movement’ component of the CSC. And by requiring all conjunct external material to be shared, part (ii) of the CR addresses the same data as the prohibition on non-ATB extraction out of conjuncts. It should be noted that while the CR and the CSC largely address the same data, they differ significantly in their core views of the nature of syntax. The CR references surface strings only, whereas the CSC peers below the surface, acknowledging a movement procedure.

An important aspect of part (i) of the CR is that it does not specify the behavior of the material within the initial conjunct that precedes the first root. Indeed, the pre-root material in the initial conjunct exists in a grey zone that is not covered by part (i) or part (ii) of the CR. At times, German allows such material to be shared. Wilder (1994: 314, 1997: 75) discusses the following cases:

(i) What did he [turn around] and [say]?
(ii) What has he [gone] and [ordered]?

The intransitive verbs in the initial conjuncts do not share the wh-element with the transitive verbs in the non-initial conjuncts. The relevant insight with such cases concerns the chronology of events. The one conjunct adds ‘adverbial’ meaning to the other. This fact suggests that such cases are actually a masked form of subordination. These exceptions to part (ii) of the CR shall not be discussed in this paper.

12. The sentences are from Wilder; the dependency analyses of them are mine.
(81)

a. Ich habe [gestern ein Buch geholt] und [heute zurückgegeben]
   I have yesterday a book picked.up and today given.back
   ‘I picked up a book yesterday and returned it today.’

The conjunct-internal *ein Buch* is shared. Since it appears before the roots *geholt* in (81a) and *hat* in (82a), its position does not violate either part of the CR. Note that if *ein Buch* is placed between or after the conjunct roots, ungrammaticality results:

(81)  
   b. *Ich habe [gestern geholt] und [heute ein Buch zurückgegeben].
       I have yesterday picked.up and today a book given.back
       ‘I picked up a book yesterday and today gave it back.’
   c. *Ich [holte gestern] und [gab ein Buch heute zurück].
       I picked.up yesterday and gave a book today back
       ‘I picked up a book yesterday and returned it today.’

(82)  
   b. *dass Hans [mir ein Buch gekauft hat] und [ihr geben wird]
       that Hans me a book bought have and her give will
       ‘that Hans bought me a book and will give it to her’
Hans has me bought and will her a book give
‘Hans has bought me a book and will give it to her.’

When shared material appears in this grey zone in English, reactions vary:

(83) *[Yesterday Bill found his old watch] and [today gave it to me].
(84) *[At work he checked his email] or [at home listened to his messages].

Neither German nor English allows shared material to appear in the grey zone of coordinated NPs:

(85) *[der alte Student] und [die Studentin]
the old student.m and the student.f
− Disallowed on the reading where alte is shared
(86) *[this red car] and [that bicycle]
− Disallowed on the reading where red is shared

The grey zone is, perhaps, explainable within the current approach. Given the ‘on-line’ view of coordination adopted, a coordinate structure will not be identified fully as a coordinate structure until the first root in the second conjunct is uttered, at which point the roots are paired and the coordinate structure emerges; anything between the conjunct roots is immediately acknowledged as being part of the coordinate structure, meaning it cannot be shared. At the point when the pre-root material in the initial conjunct is uttered however, its status as conjunct-internal material is not yet evident, so that in certain cases it is not so readily identified as being inside the coordinate structure.

6.2. The Parallelism Requirement (PR)

Pickering & Barry (1993: 892 ff.) observe that some coordinate structures in which the conjuncts do not appear to be exactly parallel are acceptable, whereas other similar coordinate structures are unacceptable. They explain this contrast by stipulating that each conjunct must have a matching parallel root in each of the other conjuncts. This second constraint on SC predicts the extent to which the conjuncts must be parallel. It is called the PR here.

**Parallelism Requirement (PR):** Each root in a conjunct of SC must have a matching parallel root in each of the other conjuncts.
The PR ensures that the conjuncts of SC contain the same number of roots. If one conjunct contains a root that has no parallel root in the other conjunct, ungrammaticality results. The examples that illustrate this aspect of the PR best involve NPs and PPs.

(87)

a. [these young] and [those old] donkeys  

b. *[these young] and [those] donkeys

(88)


The conjuncts in the a-examples are parallel because each of the roots has a parallel root in the other conjunct. In (88a) for instance, vor and einer in the first conjunct are matched by nach and einer in the second conjunct. In the b-sentences in contrast, the first conjunct has a root that has no matching root in the second conjunct. For instance in (88b), einer in the first conjunct has no parallel in the second conjunct.

This aspect of the PR holds regardless of the categories involved or structures coordinated. The following English sentences illustrate the constraint in a declarative main clause, in a wh-interrogative clause, and again in an NP.

(89)

a. Sam eats [vegetables on Tuesday] and [fruit on Wednesday].

b. *Sam eats [vegetables on Tuesday] and [fruit].

13. The acceptability of (89b) increases if a pause occurs after Tuesday and fruit is stressed: Sam eats vegetables on Tuesday, and fruit (too). Such cases involve stripping. The
The matching roots in the a-examples obey the PR. The b-examples violate the constraint however because the second conjuncts lack a root to match the second root in the first conjuncts.

The following examples illustrate the constraint in subordinate clauses and in an NP in German.
Since the number of roots across the conjuncts in the a-examples match, they are acceptable. The b-examples are again disallowed because the initial conjuncts each contain a root that has no matching root in the second conjuncts.

An important point to note about the PR is that it says nothing about the material appearing under the roots. In other words, the material that the roots dominate need not be parallel. This point is illustrated best via an instance of RNR:
Even though the second conjunct contains much more material than the initial conjunct, the sentence is fine. The PR predicts the acceptability because the conjuncts are parallel with respect to their roots, each conjunct having just a single finite verb as the root.

6.3. The Restriction on Shared Constituents (RSC)

The data challenging theories of coordination the most concern the differences between forward and backward sharing in SC, as discussed in section 4. SC treats constituents preceding the conjunct roots differently than those following them. The relevant constraint is called the RSC.

**Restriction on Shared Constituents (RSC):** No constituent preceding matching conjunct roots of a coordinate structure may consist of shared and non-shared material.

The RSC prevents the initial conjunct of a coordinate structure from cutting into a constituent that precedes the conjunct roots. The following data are repeated from above:

(96) [Sue prepared] and [Fred ate] lunch.

(97) dass [er sie] und [sie ihn] vermeiden will that he her and she him avoid wants ‘that he wants to avoid her and she wants to avoid him’

(98) [Er sitzt auf diesem] und [sie liegt unter jenem] Tisch. He sits on this and she lies under that table ‘He is sitting on this table and she is lying under that table.’

(99) *His [brother stayed] and [sister left].

(100) *The picture [of Tom was funny] but [of Sue was sad].

(101) *Das Warten [auf ihn ärgert mich] aber [auf sie stört the waiting for him annoys me but for her bothers mich nicht].

me not

‘Waiting for him annoys me but waiting for her doesn’t bother me.’

The shared material follows the roots in (96)–(98), so there is no possibility of an RSC violation. Examples (99)–(101), in contrast, have the
shared material preceding the roots. Each of them is disallowed because a constituent containing both shared and non-shared material precedes at least one pair of roots. The trees of (99) and (101) illustrate this situation. The relevant constituents are underlined.

(99)

a. *His [brother stayed] and [sister left].
b. [His brother stayed] and [his sister left].

(101)

a. *Das Warten [auf ihn ärgert mich] aber [auf sie stört mich nicht]
   the waiting for him bothers me but for her disturbs me not
   ‘Waiting for him bothers me, but waiting for her doesn’t bother me.’
b. [Das Warten auf ihn ärgert mich] aber [das Warten auf sie stört]
   The waiting for him bothers me but the waiting for her disturbs
   mich nicht].
   me not
   ‘Waiting for him bothers me, but waiting for her doesn’t disturb me.’

In (99a), *his brother* is a constituent preceding the roots *stayed-left*. Since *his* is shared, but *brother* is not, the RSC is violated. Similarly, in (101a) *das Warten auf ihn* is a constituent preceding the roots *ärgert-stört*. Since *das Warten* is shared, but *auf ihn* is not, the RSC is violated again. The same sort of RSC violations occur in (100) as well.

The RSC makes the correct prediction in related cases.
(102)

![Tree Diagram]

a. * Susan repairs old [bicycles in winter] and [cars in summer]
b. Susan repairs [old bicycles in winter] and [old cars in summer].

(103)

![Tree Diagram]

a. ? Bill arrived from [Dallas on Saturday] and [Tucson on Sunday]
b. Bill arrived [from Dallas on Saturday] and [from Tucson on Sunday].

The relevant constituents are again underlined. Sentence (102a) is disallowed on the reading indicated; old cannot be shared, meaning that the cars are not necessarily old cars. The violation occurs because the RSC prevents the constituent old bicycles, which precedes the roots in-in, from containing both shared, i.e. old, and non-shared, i.e. bicycles, material. The same reasoning explains the marginality of (103a); the RSC dislikes the constituent from Dallas, which precedes the roots on-on, consisting of both shared, i.e. from, and non-shared, i.e. Dallas, material.

The examples (99)–(103) demonstrate the force of the RSC in clauses. The same result obtains in coordinated NPs.

(104)  

a. *his [mother’s opinion] and [girlfriend’s opinion]  
b. [his mother’s opinion] and [his girlfriend’s opinion]

(105)  

a. *the King [of England’s crown] and [of Spain’s scepter]  
b. [the King of England’s crown] and [the King of Spain’s scepter]

(106)  

a. * seines [Vaters Meinung] und [Bruders Meinung]  
his father’s opinion and brothers opinion

---

14. The marginality of (103a) stands in contrast to the unacceptability of (102a). The relevant difference between the two has to do with the shared material. In (102a), old is a shared dependent, whereas in (103a), from is a shared head. Apparently the ungrammaticality is stronger if the RSC violation involves a shared dependent rather than a shared head.
b. [seines Vaters Meinung] und [seines Bruders Meinung]
his fathers opinion and his brothers opinion

(107) a. * die Steuern [schaffenden Kommunen] und [bezahlenden Bürger]
the taxes creating municipalities and paying citizens
b. die [Steuern schaffenden Kommunen] und [Steuern bezahlenden Bürger]
the taxes creating communities and taxes paying citizens

The trees of the (104a)–(107a) up to the coordinator illustrate the RSC violations.

(104)

a’. *his [mother’s opinion] and ...

(105)

a’. *the King [of England’s crown] and ...

(106)

a’. *seines [Vaters Meinung] und ...
his fathers opinion and
The underlined constituents violate the RSC since they contain both shared and non-shared material. Constituents in the midfield in German illustrate the force of the RSC well:

(107)

\[
\begin{array}{c}
X1 \\
\downarrow \\
X2 \\
\downarrow \\
X3 \\
\downarrow \\
X4 \\
\end{array}
\]

a'. *die Steuern [schaffenden Kommunen]

the taxes creating communities

(108)

\[
\begin{array}{c}
X1 \\
\downarrow \\
X2 \\
\downarrow \\
X3 \\
\downarrow \\
X4 \\
\downarrow \\
X5 \\
\downarrow \\
X6 \\
\downarrow \\
X7 \\
\downarrow \\
X8 \\
\end{array}
\]

a. *dass [er lange Briefe schreibt] und [sie Briefe liest]

that he long letters writes and she letters reads

‘that he writes long letters and she reads long letters’

b. dass [er lange Briefe schreibt] und [sie lange Briefe liest]

that he long letters writes and she long letters reads

‘that he writes and she reads long letters’

(109)

\[
\begin{array}{c}
X1 \\
\downarrow \\
X2 \\
\downarrow \\
X3 \\
\downarrow \\
X4 \\
\downarrow \\
X5 \\
\downarrow \\
X6 \\
\downarrow \\
X7 \\
\downarrow \\
X8 \\
\end{array}
\]

a. *weil sein [Vater uns liebt] aber [Bruder uns hasst]

because his father us loves but brother us hates

‘because his father loves us but his brother hates us’
b. weil [sein Vater uns *liebt*] aber [sein Bruder uns *hass*]
   because his father us loves but his brother us hates
   ‘because his father loves us but his brother hates us’

Sentence (108a) is unacceptable on the intended reading where *lange* is shared. The underlined constituents in the a-sentences again violate the RSC; they contain both shared and non-shared material and precede the conjunct roots.

The data are consistent with respect to the RSC. The only contradictory cases are those alluded to in footnote 14. The RSC phenomenon is sometimes addressed in terms of Hankamer’s (1973: 18 fn. 2) rather vague ‘major constituent’ notion, i.e. the initial conjunct may not cut into a major constituent — see (Wilder 1997: 76). Phillips (2003) offers an explanation of the data in terms of ‘incremental structure building’ imposed on strictly right-branching structures. The RSC has an advantage over these proposals. In comparison with the ‘major constituent’ explanation, the RSC is valid for all constituents in a uniform manner; it is not restricted to a particular type of constituent. With respect to Phillip’s incremental structure building, the validity of the RSC is not reliant on strictly right-branching structures.

7. Apparent exceptions to the CR and PR

The following subsections examine three apparent exceptions to the CR and PR: N-ellipsis, adjuncts, and SLK coordination. In each case, it is demonstrated that the phenomenon does not actually challenge the validity of the CR or PR. N-ellipsis is not really ellipsis at all, but rather the pre-noun element slides into the position of the noun and takes on the role of an identity of sense pronoun. Adjuncts establish situational context; they can hence scope beyond the clause in which they immediately appear. And SLK is a masked form of subordination, meaning that it is not required to obey the constraints on coordination.

7.1. N-ellipsis

The behavior of N-ellipsis appears to contradict the PR.

(110) [The first train] and [the second] arrived on time.

(111) [His home] and [hers] are in the old part of town.
(112) *Sie besitzt [ein großes Meerschweinchen] und [ein kleines].*
    she owns a large guinea pig and a small
    ‘She owns a large guinea pig and a small one.’

(113) *[Sein Hund] und [ihrer] sind befreundet.*
    his dog and hers are friends

The second conjuncts in these cases do not appear to be parallel to the
first conjuncts. In (110) for instance, the common noun *train* in the first
conjunct does not appear to have a matching parallel root in the second
conjunct. These cases thus challenge the PR.

A common analysis of such cases assumes the noun has been elided
out of the second conjuncts and in its place an empty identity of sense
pronoun appears. The current approach shall not adopt this analysis in
terms of empty elements. Indeed, the stance taken here is that such struc-
tures do not involve ellipsis in any sense, but rather the pre-noun element
is seen sliding into the position of the missing noun, where it takes on
the role of an identity of sense pronoun. This analysis is as follows:

(110’)

(111’)

(112’)

Sie besitzt [ein großes Meerschweinchen] und [ein kleines].
    she posseses a big guinea pig and a small
    ‘She posseses a big guinea pig and a small one.’
The root of the second conjunct in each case is normally a pre-noun determiner or adjective. When N-ellipsis occurs, this pre-noun element slides into the position of the noun and becomes an identity of sense pronoun. While this analysis may seem like an ad hoc means of overcoming the challenge that N-ellipsis poses to the PR, it actually receives independent support. This support is present in the competing forms my/mine, your/yours, her/hers, it/its, our/ours, their/their in English, and in the strong vs. weak endings that appear on pre-noun elements in German. When N-ellipsis occurs, a pre-noun possessive adjective becomes a possessive pronoun:

(114)  
(a)  [his dog] and [her/*hers dog]  
(b)  [his dog] and [*her/hers]

In German, a weak ending becomes strong:

(115)  
(a)  [dein Hund] und [mein/*meiner Hund]  
your dog and my mine dog  
(b)  [dein Hund] und [mein/*meiner]  
your dog and [mein/meiner mine]

These competing forms are an indication of the role that the pre-noun element is playing. The alternate forms occur to indicate when a determiner or adjective is functioning as an identity of sense pronoun.

A noteworthy aspect of N-ellipsis is that it can (marginally) function backwards. That is, the identity of sense pronoun can precede the noun.

(116)  Even though he ordered red, she brought white wine.  
(117)  *If you’ll fix yours, I’ll fix my bike.
The weak players are jealous because the strong ones play more.

Although a blue car would have pleased him more, Anton bought a red one.

The ability of N-ellipsis to function backwards clouds the picture. Certain instances of backward N-ellipsis generate confusion with respect to the PR. The following example is due to an anonymous reviewer:

Fred ordered fresh fish, but the waiter brought two old fish.

Since the second conjunct contains three roots but the first just two, this sentence appears to contradict the PR. On a backward N-ellipsis analysis though, the PR is not violated:

Fred ordered fresh fish but the waiter brought two old ones.

The conjuncts now obey the PR, each having just a single root. 15

15. The backward N-ellipsis analysis of (120) generates a further question: Shouldn’t cases like *[diese kleine] und [jene Katze] ‘this small and that cat’ also be allowed on a backward N-ellipsis analysis? The answer to this question is no, they should not. N-ellipsis requires that the NP containing the identity of sense pronoun not contain more
7.2. Adjuncts

Goodall (1987) and Lobin (1993) take note of a problem associated with adjuncts. Prima facie, the following data challenge the validity of the CR:

(121) [John eats porridge in the winter] and [Mary cooks bacon].
(1987: 30)

(122) [John drove to Tucson] but [Larry flew].

(123) Paul [ist gestern gekommen] und [hat uns von seiner Ägypten- Reise erzählt].
Paul came yesterday and told us about his Egypt trip.
Lobin (1993: 121)

The adjuncts in the initial conjuncts appear to be shared by both conjuncts in each case, i.e. Mary cooks bacon in the winter, Larry flew to Tucson, and Paul recounted his Egypt trip yesterday. The CR should block such instances of sharing though, since the time adjunct in each case appears between the roots.

The following claim addresses the difficulty represented by such data:

Claim Concerning Adjuncts: Certain adjuncts are scope-bearing items, and scope is a phenomenon separate from the sharing of SC.16

Two observations shall establish the validity of this claim. The first concerns the ability of temporal and situational adjuncts to scope over clauses beyond the immediate clauses in which they appear.

(124) Last year, Larry spent a lot of money. He traveled to Europe.

(125) Larry plays sports after school. Bill, however, since he hates sports, prefers to play chess.
When the weather is good, the family goes to the beach. The children build sandcastles. The parents read or swim.

Strictly speaking since no coordinator appears between these sentences, they do not involve coordination at all. Adjuncts typically establish the situational context; this context need not be repeated for each new clause. Hence the meaning ‘Larry traveled to Europe last year’ is quite natural for the second sentence in (124); likewise, the meaning ‘Bill plays chess after school’ is quite natural for the second sentence in (125); and it is clear in (126) that the children are building sand castles and the adults reading and swimming at the beach when the weather is nice. The point, then, is that adjuncts establish situational context, and this context often extends beyond the structure that immediately contains the adjunct. In this light, the adjuncts in (124)–(126) are taking scope over the following clauses; they are not being shared in the manner associated with SC.

The second observation concerns adjuncts appearing within non-initial conjuncts. These adjuncts cannot take scope over the initial conjunct.

When yesterday appears before the first (127a), inside the first (127b), or after the second conjunct (127c), it takes scope over both conjuncts. When it appears inside the second conjunct (127d), however, it takes scope over only the second conjunct, and the result is awkward. A three-dimensional analysis of coordination, like the current one, can offer a principled explanation of this aspect of adjunct scope. As mentioned in section 6, each conjunct of a coordinate structure is seen as appearing on a separate plane; these planes extend backward into three-dimensional space. In order, then, for an adjunct to take scope over the entire coordinate structure, it must appear somewhere on the initial plane. If it appears on a non-initial plane, then it can take scope only over that non-initial plane and any other non-initial planes further back.
In view of these two observations, the Claim Concerning Adjuncts makes a concrete prediction about the constituents that can appear between the roots of a coordinate structure. If the relevant constituent qualifies as an adjunct, then it need not be repeated in order to extend over both conjuncts. If it qualifies as an argument, then it cannot appear between the roots according to the CR. Section 6.1 has already demonstrated that typical arguments may not appear between the roots.

(128) [Thomas kaufte ein altes Auto] und [er reparierte es].
    Thomas bought an old car and he repaired it
a. *[Thomas kaufte] ein altes Auto und [er reparierte].
b. Thomas [kaufte] ein altes Auto und [reparierte es].
c. *Thomas [kaufte] ein altes Auto und [reparierte es].
d. *[Thomas kaufte] und [er reparierte] ein altes Auto.
f. *[Kaufte ein altes Auto] und Thomas [reparierte es].
g. *[Kaufte] und Thomas [reparierte] ein altes Auto.

In this respect, the Claim Concerning Adjuncts and the CR together can help distinguish adjuncts from arguments:

(129) [Bill drove to Miami] and [Sue flew].
(130) a. *[Bill put the letter on the table] and [Sue put the package].
b. [Bill put the letter on the table] and [Sue put the package there].

(131) [Thomas fuhr mit dem Zug nach München] und [Marcel
drove by the car
‘Thomas went by train to Munich, and Marcel went by car.’
(132) a. * [Vater legte den Brief ins Postfach] und [Mutter
carry the package
‘Father laid the letter in the post box and mother put the package.’
b. [Vater legte den Brief ins Postfach] und [Mutter steckte
carry the package
‘Father put laid the letter in the mailbox and mother put the package there.’
Since to Miami and nach München can scope over the second conjuncts in (129) and (131), they must be adjuncts. In contrast, on the table and ins Postfach in (130) and (132) must be arguments since they cannot scope over both conjuncts.

This section has demonstrated that certain adjuncts can appear between the conjunct roots and yet take scope over both conjuncts. This ability is associated with the tendency of such adjuncts to establish situational context. The point is that the CR is not challenged by the behavior of such adjuncts.

7.3. Subjektlücken-Koordination (SLK)

The final (and most serious) challenge to the CR is called Subjektlücken-Koordination ‘subject-gap coordination’ (SLK) (Büring & Hartmann 1998) or Subject Lacking in F-structure coordination (SLF) (Höhle 1990). SLK occurs when a shared subject appears between the conjunct roots.

(133) [In den Wald ging der Jäger] und [fing einen Hasen]. ‘The hunter went into the forest and caught a rabbit.’ (Wunderlich 1988: 289)

(134) [Gestern spielten sie Klavier] und [sangen Lieder]. ‘Yesterday they played piano and sang songs.’ (Hudson 1988: 335)

(135) [In Italien schätzt man Rotwein] und [hasst die Franzosen]. ‘In Italy one values red wine and hates the French.’ (Büring & Hartmann 1998: 173)

These sentences all have a shared subject appearing between the roots, so they violate the CR. The fact that they are acceptable challenges the current theory.

In order to address this challenge, four observations about SLK demonstrate that it actually involves subordination.

1. SLK occurs only with subjects; it does not occur with other constituents, e.g. objects or PPs.
2. SLK cannot occur if the pre-verbal position of the non-initial conjunct is occupied.
3. SLK occurs best with subjects that are semantically typical, i.e. with agents or patients. If the subject involves some other semantic role, e.g. cause, then acceptability decreases markedly.
4. The non-initial conjunct of SLK typically adds ‘adverbial’ meaning to the initial conjunct.

Each of these points is illustrated in the following paragraphs.

Höhle (1990: 231) and Wilder (1996: 176) point out that SLK is limited to subjects, meaning that ungrammaticality results if some other constituent besides the subject is shared.

(136) * [Vielleicht sucht sie den Hund] und [findet sie nicht].
   ‘Perhaps she is looking for the dog and not finding it.’
   (Höhle 1990: 230)

(137) * [Der Jäger hat den Hasen gesucht] und [hat er auch gefunden].
   ‘The hunter sought the rabbit and also found it.’
   (Wilder 1996: 176)

(136)–(137) attempt to share a direct object. As the CR predicts, these attempts fail because the shared material appears between the roots.

Wilder (1996: 175) and Büring & Hartmann (1998: 177) point out that SLK fails if the preverbal position in the non-initial conjunct is occupied.

(138) * [Gestern ist Maria einkaufen gegangen] und [heute hat sich einen Pullover gekauft].
   ‘Yesterday Maria went shopping and she bought herself a sweater today.’
   (Wilder 1996: 174)

(139) * [In Italien schätzt man Rotwein] und [aus Frankreich importiert deshalb Trauben].
   ‘In Italy one regards red wine highly and therefore imports grapes from France.’
   (Büring & Hartmann 1998: 177)
Each of these examples has a constituent appearing in preverbal position in the second conjunct, a situation that renders SLK impossible. The data hence demonstrate that SLK is reliant on V1 order.

SLK stumbles if the shared subject is semantically atypical. That is, the subject should have a thematic role typical of a subject, e.g. agent or patient. If it has a thematic role that is atypical of subjects, e.g. cause, then acceptability decreases. This effect is quite pronounced with psyche-verbs:

(140)  * [Uns gefiel die Musik] und [war nicht zu laut].
       ‘The music pleased us and it was not too loud.’

(141)  * [Ihr passt das Hemd] und [ist nicht zu teuer].
       ‘The shirt suits here and it is not too expensive.’

The non-initial conjunct in most instances of SLK is laden with ‘adverbia’ meaning, e.g. final, concessive, temporal, etc. In this respect, it is often possible to reformulate the second conjunct as a standard subordinate clause.

(142)  In den Wald ging der Jäger, um einen Hasen zu fangen.
       ‘The hunter went into the forest to catch a rabbit.’

(143)  Gestern spielten sie Klavier, während sie Lieder sangen.
       ‘Yesterday they played piano while they sang songs.’

(144)  In Italien schätzt man Rotwein, obwohl man die Franzosen
       hasst.
       ‘In Italy one values red wine, although one hates the French.’

This last trait of SLK is perhaps the most telling. It indicates that the second conjunct is actually subordinate to the first conjunct. In other words, SLK is actually a masked form of subordination. Indeed, Büring & Hartmann (1998) and Hartmann (2000) enumerate a number of additional aspects of SLK indicating that SLK actually involves subordination. They argue that the second conjunct in SLK is a subordinate CP that has undergone topic drop. Höhle (1990) also sees the SLK conjunct as being subordinate to the initial conjunct. The observations in
this section essentially support this view, although dependency grammar
does not operate with functional categories such as CP.

Given a pure subordination analysis of SLK, the current approach
might view *and/und* as a subordinator and represent SLK in the follow-
ing manner:

(133’)

\[
\begin{array}{c}
\text{X1} \\
\text{X2} \\
\text{X3} \\
\text{X4} \\
\text{X5} \\
\text{X6} \\
\text{X7} \\
\text{X8} \\
\text{X9} \\
\text{X10}
\end{array}
\]

In den Wald ging der Jäger und fing einen Hasen.
in the forest went the hunter and caught a rabbit
The tree shows *und fing einen Hasen* as a subordinate clause. It is subor-
dinate to the root verb just like any other subordinate clause would be. While this solution does justice to the behavior of the second clause as
an adjunct clause, it does not do justice to the traits of that clause which
normal subordinate clauses do not have. Standard subordinate clauses
in German do not, for instance, allow topic drop; they have V-last in-
stead of V1 word order; and they can be pre-posed.

(145) \textbf{In den Wald ging der Jäger, damit er einen Hasen fangen konnte.}

\textquote{The hunter went into the forest so that he could catch a
rabbit.}

\textbf{a.} \textit{In den Wald ging der Jäger, damit einen Hasen fangen
konnte.}

\textquote{The hunter went into the forest so that he could catch a
rabbit.}
b. Damit er einen Hasen fangen konnte, ging der Jäger in den Wald.

‘In order to catch a rabbit, the hunter went into the forest.’

In den Wald ging der Jäger und fing einen Hasen.

‘Into the forest went the hunter and caught a rabbit.’


‘To catch a rabbit, the hunter went into the forest.’

These observations support a coordination analysis of SLK.

Confronted with such conflicting data — i.e. the second conjunct of SLK demonstrates traits of both subordination and coordination — a unique solution is warranted. The three-dimensionality of the current approach presents an opportunity in this regard. The SLK conjunct can be viewed as simultaneously subordinate and coordinate to the initial conjunct.

As in cases of pure coordination, the smaller font indicates that the second conjunct is behind the first. The dominate nodes in each conjunct are still connected via the dashed line indicating coordination. Unlike pure coordination though, the subordinator und occupies its own node, and the second conjunct is now placed slightly below — instead of slightly above — the first conjunct. This lower position indicates subordination. In this manner, the representation acknowledges that the second conjunct behaves as if it is both coordinate and subordinate to the first conjunct.
The proposal represented by (133") does not ‘solve’ the riddle of SLK – for instance, it does not explain what is licensing the ‘subject-less’ clause headed by the subordinator und. The discussion in this section has, however, illustrated that the subject sharing of SLK is something beyond the sharing associated with standard cases of SC, and as such, SLK does not present a serious challenge to the CR.

8. Summary and conclusion

This paper has presented a dependency grammar theory of SC. The pillars of the theory are expressed as three constraints.

Contiguity Requirement (CR)
(i) Within the coordinate structure of SC, shared material may not follow the (first) root in the initial conjunct.
(ii) All material external to the conjuncts must be shared.

Parallelism Requirement (PR)
Each root in a conjunct of SC must have a matching parallel root in each of the other conjuncts.

Restriction on Shared Constituents (RSC)
No constituent preceding matching conjunct roots of a coordinate structure may consist of shared and non-shared material.

The ‘root’, which all three constraints reference, has been defined as follows:

Root: A node in a conjunct of SC that is not immediately dominated by any other node in that conjunct.

I am not aware of any data that seriously challenge the RSC. The PR and CR, in contrast, are challenged by at least three areas: N-ellipsis, adjuncts, and SLK. All three of these areas have been discussed; none of them presents a serious problem for the theory. To address the behavior of adjuncts, the following claim was made:

Claim Concerning Adjuncts: Certain adjuncts are scope-bearing items, and scope is a phenomenon separate from the sharing of SC.

And to address the challenge posed by SLK, it was noted that SLK is a limited exception to the CR, and as such, it can be narrowly defined. A
solution was proposed that views SLK conjuncts as being simultaneously coordinate and subordinate to the initial conjunct.

A final comment concerns the economy of the overall approach. The dependency grammar theory of non-gapping coordination presented in this paper remains entirely in surface syntax. It does not acknowledge derivational processes or unseen strata. In this regard, it has an advantage over those theories that must stipulate derivational processes. Furthermore, dependency structures are truly minimal in comparison with the corresponding constituency structures. As demonstrated in section 5, dependency structures generally contain half the number nodes and edges as the corresponding constituency structures, yet they make a more accurate prediction with respect to many constituency tests. The success of dependency grammar in producing a coherent theory of non-gapping coordination — a task that it accomplishes with much less structure than constituency grammar — speaks strongly for dependency grammar in general.

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References


