

Comparative Correlatives – The Case of German

STEFAN HUBER

University of South Florida, Tampa

0. Introduction

Comparative correlatives (CCs), i.e. constructions such as the ones in (1), have recently gained increased linguistic attention (cf. the contributions by Beck 1997, Culicover and Jackendoff 1999, Roehrs, Sprouse, and Wermter 2002, den Dikken 2005, Taylor 2006 and others). An obvious feature of CCs is their two-partite structure. In English, these two components are encoded as *the*-clauses containing comparative phrases. In accordance with Culicover and Jackendoff 1999 (= CJ), I will name these parts C_1 and C_2 . A related construction type with the inverted order and a somewhat modified morphological make-up will be called CC':

- (1) a. CC: [C_1 The more you eat], [C_2 the fatter you get].
b. CC': [C_2 You get fatter], [C_1 the more you eat.]

The occurrence of CCs and CC's has been attested cross-linguistically (cf. den Dikken 2005, Taylor 2006). German, too, displays these two types of constructions (cf. Roehrs, Sprouse, and Wermter 2002 = RSW). (2) is the translation of the English examples in (1):

- (2) a. CC: [C_1 Je mehr du isst], [C_2 desto dicker wirst du].
 the more you eat the fatter get you
b. CC': [C_2 Du wirst umso/desto dicker], [C_1 je mehr du isst].
 you get the fatter the more you eat

In this paper, I aim to address the semantics and the syntax of the German constructions anew, showing that two popular claims cannot be upheld. More specifically, I will show that (i) from a semantic perspective, CCs cannot be likened to conditional sentences (as suggested by Beck 1997, Taylor 2006), and that (ii) from a syntactic perspective, German CCs can be derived under standard (generative) assumptions, without claiming that they have to be acquired as “constructions” (as suggested for the English equivalents by CJ). The paper is organized accordingly, i.e. in section 1, the meaning of CCs will be discussed, whereas the

morphosyntactic properties of the German constructions will be examined in section 2.

Two general properties of CCs, which play a major role for their understanding, deserve to be mentioned at the very outset: First, note that the comparative phrases in both clauses are fronted in CCs (cf. examples 1a, 2a). This is not so in CC's (cf. 1b, 2b). Second, both comparatives are "implicit" (or "incremental"), i.e. a comparative *than-* or *als-*phrase is considered odd:¹

- (3) a. The more you eat ([?] than Peter), the fatter you get ([?] than him).
 b. Je mehr du isst ([?] als Peter), desto dicker wirst du ([?] als er).

Instead, we find a comparison of two correspondingly increasing degrees of properties x_1, x_2, \dots, x_n and y_1, y_2, \dots, y_n at different ordered points of reference p_1, p_2, \dots, p_n (cf. Beck 1997). This observation will become crucial later on (see 1.3.).

1. The Interpretation of CCs

1.1. CCs – Correlative or Conditional?

Regarding the meaning of CCs, one finds two contrasting accounts in the literature, which I will label here the "correlative approach" and the "conditional approach", respectively.

As we will see in section 2, den Dikken (2005) strongly advocates a (universal) correlative syntactic structure for CCs. Since he also claims that CCs are properly derived sentences, it follows naturally that the correlative syntactic form corresponds to a correlative reading. Hence, a paraphrase for sentences such as (1a) should be the following:

- (4) To the extent that you eat increasingly more, to that extent you get increasingly fatter.

Beck (1997:257ff.), however, explicitly rejects such a ("functional") account. In her view, a paraphrase like (4) implies two monotonously increasing degrees. Showing potential truth conditions (6) for an example of her own (5), she demonstrates that a parallel development with CCs cannot always be observed:

- (5) Letztes Jahr hat Luise bei den Punktspielen umso mehr
 last year has L. at the league-games the more
 Tore erzielt, je wärmer es war.²
 goals scored the warmer it was.
 'In last year's games, Luise scored more points the warmer it was.'

¹ Some speakers (including myself) accept these comparative phrases. Nevertheless, the primary meaning of sentences such as (3) does not focus on the comparison between *you* and *Peter*.

² Beck's example (1997:261) is a CC'.

(6)	Game	Temperature	Number of Goals
	1	15° C	1
	2	20° C	2
	3	25° C	3
	4	25° C	4
	5	25° C	4
	6	30° C	5
	7	35° C	7

The compared properties are the increasing temperature and the increasing amount of goals scored by Luise. The crucial point is the difference between the games 3 and 4, where the temperature did not rise, but the number of goals did. Since the truth conditions in (6) are compatible with the CC in (5), it appears that a correlative paraphrase along the lines of (4) is incorrect.

Instead, Beck favors an approach, in which the proposition of C_1 is treated as a condition for the proposition of C_2 , rendering the following paraphrase for a sentence like (1a):

- (7) If you eat more and more, you get fatter and fatter.
 (roughly formalized: $\forall p_1 p_2$ [you eat more in p_2 than in p_1]
 \Rightarrow [you get fatter in p_2 than in p_1])

Among the empirical arguments that support her proposal, Beck mentions the licensing of so-called “donkey anaphors”, i.e. pronominal anaphors in the main clause that can be bound by referential (de dicto) expressions situated in the conditional clause. This type of anaphors can be found in conditionals and CCs alike:

- (8) a. Je mehr Anna einen Esel_i liebt, desto mehr schlägt sie ihn_i.
 the more Anna a donkey loves the more beats she him
 ‘The more Anna loves a donkey, the more she beats it.’
 b. Wenn Anna einen Esel_i liebt, (dann) schlägt sie ihn_i.
 if Anna a donkey loves, then beats she him.
 ‘If Anna loves a donkey, she beats it.’

Beck’s approach has been very influential and almost all recent contributions adopt some version of it. However, on a closer view the conditional reading of CCs seems problematic: Note, e.g., that the purported similarity between conditionals and CCs should also lead to a parallel regarding the distribution of negative polarity items. This prediction is not borne out, i.e. CCs do not allow for NPIs:

- (9) a. The more you (*ever) eat, the fatter you get.
 b. If you (ever) eat more and more, you get fatter and fatter.

Also, true conditionality always requires some degree of potentiality and/or irreality. As becomes evident from CCs in the past, no such potential or irreal reading is required:

- (10) The more Peter ate, the fatter he got.

This sentence states that Peter in fact did eat more and more and that he did get fatter and fatter. There is no doubt about this, i.e. the proposition is presented as a real event.

Thus, also the conditional approach makes the wrong predictions and must be met with some skepticism.

1.2. A Modified Correlative Account

In order to understand the semantic nature of CCs, it is imperative to recall that they contain incremental comparatives, in which increasing degrees of a property are compared to each other at subsequent points of reference. It is noteworthy, however, that incremental comparatives do not necessarily have to obey strict monotony. For instance, the basic meaning of a sentence like (11a) is something like ‘throughout the week in question, the temperature rose continuously.’ It is not required, though, that the growth in temperature be monotonous, as the suitable truth conditions in (11b) demonstrate:

- (11) a. That week, it got hotter and hotter.

b.	Day	Temperature
	1	10° C
	2	15° C
	3	20° C
	4	25° C
	5	25° C / 22° C
	6	30° C
	7	35° C

The important point is the difference between the days 4 and 5: Not only does the temperature not have to rise between day 4 and day 5 (i.e. it can stay at 25° C), but it can even decrease (i.e. lower to 22° C) without making the conditions incompatible with the statement. Thus, incremental comparatives do not require a monotonous growth, as long as the outcome shows a higher degree than the original one and a certain gradual growth can be ascertained.

Returning to CCs, then, Beck’s argument against the correlative approach (see above) can be easily refuted: Containing incremental comparatives, CCs do not have to imply parallel increases in both properties and a correlative approach can still be upheld. This is indeed what I would like to suggest here: The “correlation”

is there, although it might be vague. For an example such as (1a), probably the best paraphrase includes the conjunction *as* (as suggest by CJ), cf. (12).³

(12) As you eat more and more, you get fatter.

Finally, the ostensible argument in favor of a conditional reading, i.e. the licensing of donkey anaphors, is compatible with true correlative constructions as well:

(13) Was Anna einem Freund_i erzählte, sagte sie ihm_i im Vertrauen.
what Anna a friend told, said she him in confidence
'What Anna told a friend, she told him in confidence.'

Therefore, it is plausible to maintain a correlative semantic analysis of CCs.

2. The Syntax of CCs

Within the syntactic investigations of CCs, the main question is whether they are constructions *sui generis* that must be acquired separately (CJ) or whether they can be derived without any stipulative ado (den Dikken 2005, Taylor 2006). In this section, I will show that German CCs are “well-behaved”, i.e. that they follow regular syntactic mechanisms and do not have to be learned. It is questionable, though, if this analysis can be extended to English as there are crucial differences between the morphosyntactic properties of CCs in these two languages.

2.1. The Controversy – “Bad” vs. “Good” CCs

In their provocative work from 1997, CJ suggest that CCs should be treated as syntactically coordinated but semantically subordinated (i.e. conditional) structures. In claiming this, they build on a previous hypothesis about constructions whose syntactic structure strongly diverges from their interpretation (Culicover and Jackendoff 1997). In particular, syntactic coordinations can imply conditional readings, as CJ demonstrate in examples like (14):

(14) a. You drink another glass and I'll leave.
b. If you drink another glass, I'll leave.

³ Other, more temporally colored paraphrases (i a,b) are a bit misleading since the points of reference do not have to be ordered points of time but could also be different settings or varying individuals from the same set (ii; cf. Beck 1997):

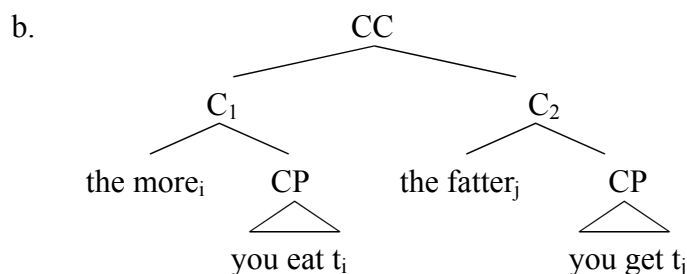
(i) a.[?] You eat more and more, and (simultaneously) you get fatter.
b.^{??} While you eat more, you get fatter.

(ii) The slimier an advocate is, the more money he makes.

Example (ii) can have a temporal interpretation, in which the same (generic) lawyer increases in sliminess. However, the comparison of various lawyers is equally plausible.

Thus, although not morphosyntactically encoded as such, (14a) can be paraphrased by the conditional sentence (14b). This is the very structure CJ ascribe to CCs:

(15) a. The more you eat, the fatter you get.



CJ corroborate their claim by showing that although C_2 in some respects behaves like a main clause and C_1 as a subordinate clause – for example, subjects of tag questions can only be borrowed from C_2 , not C_1 (16) –, extractions are possible out of both clauses (17), which makes a paratactic approach plausible:

(16) a. [C_1 The more we eat], [C_2 the angrier you get], don't you?

b. [C_1 The more we eat], [C_2 the angrier you get], * don't we?

(17) a. [C_1 The sooner you solve this problem], [C_2 the more easily you'll satisfy the folks up at corporate headquarters].

b. This is the sort of problem which_i [C_1 the sooner you solve t_i], [C_2 the more easily you'll satisfy the folks up at headquarters].

c. The folks up at headquarters are the sort of people who_i [C_1 the sooner you solve this problem], [C_2 the more easily you'll satisfy t_i].

CJ also present some further interesting observations: First, it is possible to insert *that* into both C_1 and C_2 :⁴

(18) The more (that) you eat, the fatter (that) you get.

This observation lends one to believe that English CCs are structures comprising of two subordinate clauses. Another odd property is that the comparative phrase in C_2 must be moved to the front for no obvious reason. In light of these peculiarities, CJ claim that CCs have to be learned as separate constructions.

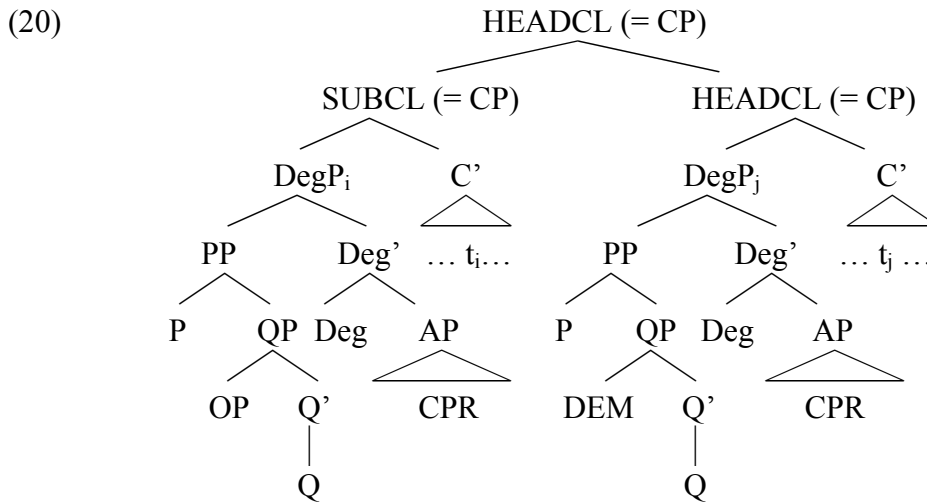
Den Dikken (2005) rejects CJ's paratactic account, claiming that the extraction data in (18) could also be used as an argument against a coordination account: True coordinations should only allow across-the-board (ATB) extractions,

⁴ As CJ and Taylor (2006) note, speakers vary considerably as to the various realizations of *that*-enhanced CCs. However, most speakers seem to be able to accept at least one occurrence of *that*.

and not individual ones from either clause. In fact, den Dikken (2005:504) shows that ATB movement is compatible with CCs (19c).

- (19) a. a person who [the more you meet *t*], [the more you hate him]
 b. a person who [the more you meet him],[the more you hate *t*]
 c. a person who [the more you meet *t*], [the more you hate *t*]

In general, den Dikken takes a contrary stand regarding the syntax of CCs: Not only does he assume that (English) CCs can be acquired in compliance with standard assumptions, but he also proposes a universal structure for CCs, as illustrated in (20). The basic assumption is that CCs follow a correlative operator-demonstrative pattern (OP-DEM), according to Srivastav's (1991) analysis:



Den Dikken (2005:516) tries to “flesh out” his theoretical proposal with a wide array of different (stages of) languages, e.g. Archaic and Modern English, German and Dutch:

(21)

		[_{DegP} [_{PP} P [_{QP} OP/DEM Q]] [_{Deg'} Deg [_{AP} CPR]]]
a. Archaic English	by	how/so much the
b. Modern English	–	∅ ∅ the
c. German	–	je ∅ ∅
	GEN ⁵ des	∅ -to
	um so	∅ ∅
d. Dutch	GEN des	∅ te
	– hoe	∅ ∅

⁵ By using the term *GEN*, den Dikken apparently assumes covert prepositions assigning specific (lexical) cases. For details see den Dikken (2005:516ff.).

Den Dikken's ambitions to show that CCs are "well-behaved", however, face some empirical problems: Structure (20) does not explain the obligatory fronting of the comparative phrase in C_2 , nor does it allow for a possible *that*-insertion into C_2 (the "head" clause in den Dikken's theory). Finally, the option of extraction out of either clause, including ATB extraction, cannot be accounted for, since the Spec,CP positions of both clauses are occupied by DegPs, which should prevent successive-cyclic movement.⁶

2.2. CCs in German

2.2.1. Some Basic Facts

(High) German CCs and CC's come in a variety of morphological shapes, which are illustrated in (22):⁷

- (22) a. [C_1 Je/[?]umso/^{??}desto mehr du isst], [C_2 desto/umso/[?]je dicker wirst du].
 the more you eat the fatter get you.
- b. [C_2 Du wirst umso/[?]desto/[?]je dicker], [C_1 je/[?]umso/^{??}desto mehr du isst].
 you get the fatter the more you eat.

Note that the comparative phrases in C_1 are preferably introduced by *je*. However, at least *umso* may be used as well, whereas *desto* seems to be more restricted. In C_2 all these items appear to be acceptable (pace RSW).

From a morphosyntactic point of view, C_1 is clearly marked as a subordinate clause as it displays V-last. This fact becomes particularly evident when using complex tense forms, such as the future tense in (23): The auxiliary appears clause-finally after the dependent infinitive.

- (23) Je mehr du essen wirst, [EP desto dicker wirst du werden].
 the more you eat will the fatter will you get
 'The more you will eat, the fatter you will grow.'

C_2 , on the other hand shows the verb in a raised position: In CC's we find V_2 , in CCs V_3 (cf. the positions of *wirst* in 22a vs. 22b). C_1 as a whole is placed in the extraposition field in CC's, which is the position after the final verbal element in

⁶ Taylor (2006), too, tries to derive the structure of CCs from basic minimalist assumptions. In order to account for the extraction data, she applies a new type of movement ("sideward movement", cf. Nunes 2004) and analyzes *the* as a complementizer (head). However, besides the fact that "sideward movement", i.e. the parallel merging of trees, is utterly stipulative, Taylor cannot avoid den Dikken's problem either, namely the question how two subordinate clauses can be merged into one (main) sentence.

⁷ In my native dialect Swabian, which is spoken in Southwest Germany, two subordinate (i.e. V-last) *je*-clauses can be used to form a CC. The additional complementizer *dass* can be inserted into either clause. For a sentence like (1a), this renders the following output:

- (i) Je mehr (dass) da isch, je dicker (dass) da wirsch.
 the more that you eat the fatter that you become

the main clause (marked EP in 23). In CCs, on the other hand, C₁ seems to be in a left-dislocated position, triggering V₃. Note that V₂ in CCs is not licit (24a). In this fronted position, C₁ must be followed by the comparative phrase of C₂; nothing else can occur in this position (24b):

- (24) a. Je mehr du isst, {*wirst} desto dicker {wirst} du.
 b. *Je mehr du isst, du wirst umso dicker.

These facts, i.e. the rather rigid word order of German CCs, need a proper explanation, which will ensue in section 2.2.

Extractions are never allowed out of C₁, but only out of C₂ (and in this case only out of C₂ of CC's; contra den Dikken 2005):⁸

- (25) a. Je öfter du Schokolade isst,
 the more-often you chocolate eat,
 desto mehr bedauerst du dein Gewicht.
 the more regret you your weight
 'The more often you eat chocolate, the more you regret your weight.'
 b. * ... Schokolade, die je öfter du t isst,
 chocolate which the more-often you eat
 du desto mehr dein Gewicht bedauerst
 you the more your weight regret
 c. # ... dein Gewicht, das, je öfter du Schokolade isst,
 your weight which the more-often you chocolate eat
 du desto mehr t bedauerst⁹
 you the more regret
- (26) a. Du bedauerst dein Gewicht umso mehr,
 you regret your weight the more
 je öfter du Schokolade isst.
 the more-often you chocolate eat

⁸ Den Dikken tries to show that also in German CCs, movement out of C₂ is possible and uses the following example:

(i) ^{?(?)} ein Sänger, *den*, [C₁ je öfter du ihn hörst],
 a singer whom the more-often you him hear
 [C₂ du t desto mehr treffen möchtest]
 you the more meet would-like

'a singer, who the more you hear him, the more you would like to meet'

However, such a sentence can only be realized if the *je*-clause is isolated by intonational breaks and if it has a focus-background domain of its own, i.e. if it forms a parenthesis. Thus, (i) is basically an example of a truncated CC only consisting of the main clause (C₂). RSW (2002) run into a similar problem.

⁹ The pound sign indicates that the sentence is only acceptable if C₁ is analyzed as a parenthesis (see the preceding footnote).

- b. ... dein Gewicht, das du umso mehr *t* bedauerst,
 your weight which you the more regret
 je öfter du Schokolade isst
 the more-often you chocolate eat
- c.* ... Schokolade, die du umso mehr dein Gewicht bedauerst,
 chocolate which you the more your weight regret
 je öfter du *t* isst
 the more-often you eat

Finally *dass* can usually not be inserted into CCs. While some speakers accept *dass* in C_1 , it is not allowed in C_2 , mainly because *dass* competes with the finite verb for this position. The overt realization of a complementizer would trigger V-last, which generally is not accepted:

- (27) * Je mehr (%*dass*) du isst, desto dicker {**dass* du wirst} {^{OK} wirst du}.

This all makes the analysis of C_2 as the main clause plausible, whereas C_1 must be regarded as a subordinate clause.

2.2.2. The Correlative Nature of *je* and *umso/desto*

To explain the syntactic oddity of German CCs, recall the correlative reading of CCs suggested above. At this point, I would like to propose that this interpretation is triggered by the morphosyntactic components. I will follow Srivastav (1991) and den Dikken (2005) in assuming that CCs contain demonstratives that correspond to (relative) *wh*-clauses, as is the case with other correlatives:

- (28) a. Ich mache das _{SO_{DEM}}, [wie ich es immer gemacht habe]_{WH}.
 I do that so as I it always done have
 ‘I will do it the way I always did.’
- b. Ich arbeite so lange_{DEM}, [wie ich muss]_{WH}.
 I work so long as I must.
 ‘I will work as long as I have to.’

Moreover, in accordance with den Dikken (2005), I will analyze the comparative phrase in C_2 as the demonstrative part, while C_1 represents the *wh*-part. As RSW and den Dikken correctly point out, *umso* and *desto* (and probably *je*) are prepositional phrases. In these phrases a preposition and a clause-substituting element have been merged. The clause they substitute is C_1 .

Now note that in German, complement clauses of prepositions can never be preposition-adjacent. Instead, they must be replaced by pro-forms, e.g. *da*-compounds. The clause itself is normally extraposed:

- (29) *Maria besteht *auf/^{OK}darauf dass Helga morgen abspült.¹⁰
 Maria insists on on-it that Helga tomorrow dish-washes
 ‘Maria insists that Helga do the dishes tomorrow.’

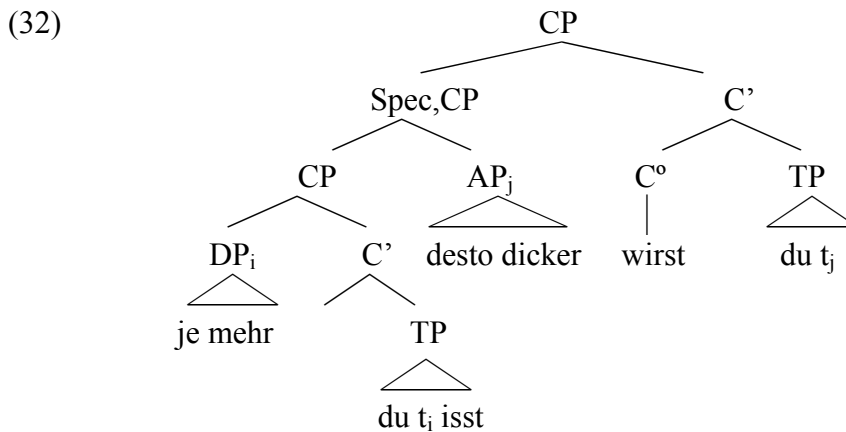
If the complement clause is to be fronted, the pro-form must be right- or left-adjacent to the moved element:

- (30) a. * [Dass Maria morgen abspült], besteht Helga darauf.
 b. Darauf, [dass Maria morgen abspült], besteht Helga.
 c. [Dass Maria morgen abspült], darauf besteht Helga.

Now, assuming that *umso/desto* are similar prepositional pro-forms, we expect the same distributions. This prediction is borne out:

- (31) a. *Du wirst um [C₁ je mehr du isst] dicker.
 b. Du wirst umso/desto dicker, [C₁ je mehr du ist].
 c. * [C₁ Je mehr du isst], wirst du umso/desto dicker.
 d. Umso/desto dicker, [C₁ je mehr du isst], wirst du.
 e. [C₁ Je mehr du isst], umso/desto dicker wirst du.

Thus, “regular” German CCs display some sort of a left-dislocation. I suggest the following structural analysis:



Note the right-adjunction of the *umso/desto*-phrase to the highest Spec,CP. In this way a c-commanding relationship between the “head” AP and C₁ can be maintained, which is meant to reflect the “relative” character of the structure.

¹⁰ Example taken from RSW (2002).

3. Concluding Remarks

It seems, then, that German CCs are truly well-behaved and follow the usual pattern of constructions with prepositional complement clauses.

The question is whether such an analysis is suitable for English as well. One possible argument favoring such a view might be obtained from the fact that C₂ cannot host *the* in CC's (33). If one adopts the idea that *the* in English is a prepositional element such as *umso* and *desto* in German, this ban could be construed as a parallel to the ban on overt prepositions if their complements are clauses (34).

(33) [C₂ You get (* the) fatter] [C₁ the more you eat].

- (34) a. I insist (^{??}/* on) that you stay here.
 b. I insist on you staying here.
 c. I insist on that.

But one would still have to explain the extraction data and the possible *that*-insertion into C₂.

Thus, if there is any conclusion to be drawn after this short exercise then it is that some languages realize CCs according to their regular syntactic mechanisms (German), whereas others do not (English).

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