

Semantic Coordination Without Syntactic Coordinators

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One (of very many) important life lessons we can learn from Ray Jackendoff's work is to eschew quick identification of syntactic and semantic properties. Rather, allow for a good amount of independence between syntax and semantics, and each realm stays simpler. Plus, with a little luck, phenomena that resist analysis in either one dimension alone can be nicely divided and conquered (e.g. Culicover and Jackendoff, 2006).

Culicover and Jackendoff (1997) presents arguments that a construction can at the same time involve syntactic coordination and semantic subordination, explaining many of its otherwise puzzling properties. In this paper, we aim to make a similar argument for a type of coordination in German, in which the syntactic coordinator *aber*, 'but', suddenly appears in a position characteristic of conjunct-internal particles. We argue that indeed, in these cases *aber* is syntactically a sentence-internal particle, yet semantically the coordinator it always was. Such an analysis is empirically adequate and arguably simpler than either of the alternatives (to wit: syntactic displacement of a coordinator, or analysis as juxtaposition, rather than coordination).

1 Introduction

The German adversative coordinator *aber*, 'but' allows for two classes of syntactic construals. First, just like English *but*, it can occur between two constituents of the same syntactic category, e.g. V1 in (1-a) and VP in (1-b);¹ in other words, it behaves like *and*, except with an adversative meaning:

¹We somewhat agnostically use the following syntactic labellings for German examples: V2 for complete verb-second clauses (CP in most contemporary analyses), V1 for finite verb initial constituent and \bar{S} for complementizer initial verb end clauses ($\approx \bar{C}$), S for a constituent with final finite verb, and VP for a constituent with final finite verb and no

- (1) a. Lola ist reich, aber gönnt sich nie etwas.
 L. [_{V1}is rich] **but** [_{V1}treats self never something]
 ‘Lola is rich but never treats herself to anything.’
 b. Lola soll sehr reich sein, aber sich nie etwas gönnen.
 L. shall [_Svery rich be] **but** [_Sself never s.th. treat]
 ‘Lola is said to be very rich but to never treat herself to anything.’

We refer to coordinators which appear in canonical coordinator positions as SYNTACTIC COORDINATORS.

Second, however, *aber* can occur *within* the second conjunct:

- (2) a. Lola ist reich, gönnt sich aber nie etwas.
 L. [_{V1}is rich] [_{V1}treats self **but** never s.th.]
 ‘Lola is rich but never treats herself to anything.’
 b. Lola soll sehr reich sein, sich aber nie etwas gönnen.
 L. shall [_Svery rich be] [_Sself **but** never s.th. treat]
 ‘Lola is said to be very rich but to never treat herself to anything.’

The position *aber* occupies in (2) is a typical position for adverbials and particles in German, but, needless to say, not for coordinators, compare (2-a)/(2-b) to (3-a)/(3-b):

- (3) a. *Lola ist reich, gönnt sich und oft etwas.
 L. [_{V1}is rich] [_{V1}treats self **and** often s.th.]
 b. *Lola soll sehr reich sein, sich und oft etwas gönnen.
 L. shall [_Svery rich be] [_Sself **and** often s.th. treat]

The sentences in (1) and (2) are equally acceptable and do not seem to differ in meaning, not even broadly construed (i.e. neither in truth conditions nor—as best as we can tell—‘use conditions’). The question is how to analyze cases like (2), which we refer to as BURIED COORDINATORS. Two hypotheses suggest themselves:

- H1: Buried *aber* is truly a coordinator (just like conjunct-initial *aber*); its surface position inside the second conjunct is deceptive.
 H2: Buried *aber* is truly an adverb/particle (which happens to be homophonous with the coordinator); the coordination is in fact asyndetic (lacking a coordinator between the conjuncts).

subject.

Note that S constituents do not necessarily contain a subject, either, as that may be outside the coordination; in such cases, S-hood is diagnosed by the presence of other uncontroversially VP-external elements such as weak pronouns (e.g. *sich* in (1-b), (2-b), see also section 5.1).

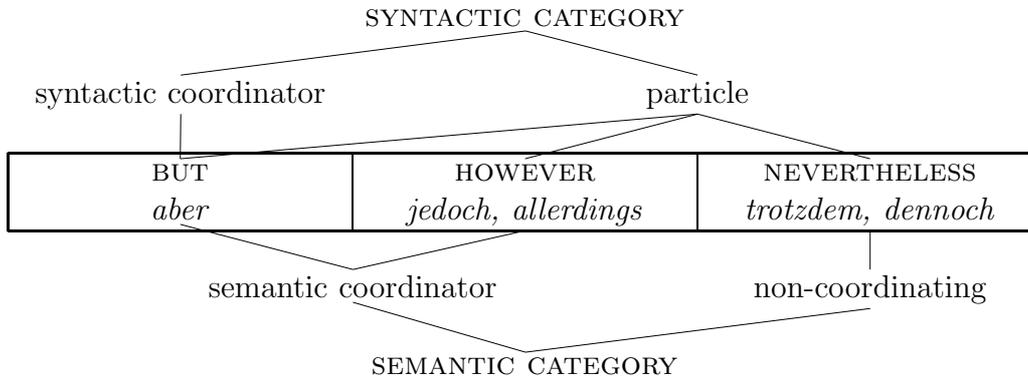


Figure 1: The players: adversative markers discussed in this paper

In this paper, we will argue for a synthesis of these positions: Buried *aber* is semantically a coordinator, but syntactically a (clause-internal) particle.² Sentences like (2) are thus syntactically asyndetic, but semantically equivalent to regular coordinations. *Aber* has one meaning, but occurs in two syntactic categories.

Our arguments for this conclusion call upon a number of other adversative elements in German, which we will briefly introduce now; the full cast of players, along with what we want to claim about them, is presented in figure 1.

Allerdings and *jedoch* —which we both gloss as ‘however’— are syntactically particles, and hence occur buried within the second conjunct; on the other hand, we argue, they are *semantic* coordinators, which means they have the same mix of properties as buried *aber*; these three elements will be called COORDINATING PARTICLES. These contrast with *trotzdem* and *dennoch* —glossed ‘nevertheless’— which may occupy the same positions as *allerdings*, *jedoch*, ‘however’, and buried *aber* (and are hence analyzed as syntactic particles, too), but are *not* semantic coordinators. We argue for this, among other things, by showing that asyndetic coordinations with the coordinating particles —buried *aber* and *allerdings/jedoch* (‘however’)— are semantically complete (because these are semantic coordinators), but those with *trotzdem* and *dennoch* (‘nevertheless’), or without any particle, are not.

²What we call ‘particles’ in this paper are equally commonly classified as adverbials; nothing hinges on this distinction here.

2 *Aber* (and *jedoch*, *allerdings*) is a semantic coordinator

This section presents in detail two arguments that buried *aber* (and *jedoch*, *allerdings*, ‘however’) has a truly coordinating semantics. In the context of our final diagnosis, this is taken to indicate that —unlike semantically similar particles like *trotzdem* and *dennoch* (‘nevertheless’)— they are *coordinating* adversative particles.

2.1 Pragmatic completeness in coordination

If two conjuncts are juxtaposed without an overt coordinator, coordination is said to be asyndetic. Asyndetic coordination typically occurs between all but the last two conjuncts of a multi-part coordination, see (4).

- (4) Sie ist reich, besitzt eine Yacht und fährt Ski in St.
she [V₁is rich] [V₁owns a yacht] **and** [V₁drives ski in St.
Moritz.
Moritz]
‘She is rich, owns a yacht, and skies in St. Moritz.’

PURE ASYNDETIK COORDINATION, as illustrated in (5-a), gives an impression of incompleteness, a notion of the sentence still being in-the-air. We indicate this orthographically by ‘...’ at the end of the sentence.

- (5) a. Sie ist reich, besitzt eine Yacht...
she [V₁is rich] [V₁owns a yacht]
b. Ich glaube, dass sie reich ist, eine Yacht besitzt...
I think that she [V_Prich is] [V_Pa yacht owns]
‘I think that she is rich, owns a yacht...’

Such coordinations are typically realized with a major prosodic break between the conjuncts, and both conjuncts ending in an intonational high plateau (a H-L% in ToBI notation; Hirschberg and Beckman, 1994; Beckman et al., 2005). Although we are not going to pursue this here, it seems plausible to us to assume that such coordinations are in fact syndetic coordinations in which the final conjunct(s) simply remain unspoken, which would explain their pragmatic and prosodic signature.

No sense of incompleteness is found, of course, if a syntactic coordinator is inserted, as in (6).

- (6) Ich glaube, dass sie reich ist und eine Yacht besitzt.
 I think that she [_{VP}rich is] **and** [_{VP}a yacht owns]
 ‘I think that she is rich and owns a yacht.’

Likewise, the prosodic juncture between the two conjuncts in (6) can be much less dramatic or even absent, and the second conjunct will typically be realized with a final fall, as is characteristic for declarative sentences.

A structure with a buried coordinator —and this constitutes our Exhibit A— clearly patterns with the syndetic coordination in (6), rather than the asyndetic ones in (5):

- (7) a. Sie ist nicht reich, besitzt aber eine Yacht.
 she [_{V1}is not rich] [_{V1}owns **but** a yacht]
 ‘She is not rich, yet owns a yacht.’
 b. Ich glaube, dass sie nicht reich ist, ihr Bruder aber eine
 I think that [_Sshe not rich is] [_Sher brother **but** a
 Yacht besitzt.
 yacht owns]
 ‘I think that she isn’t rich, but that her brother owns a yacht.’

We submit that this contrast (between sentences like (5) on the one hand, and those like (6) and (7) on the other) should be taken seriously, even though it ‘merely’ involves intonation and pragmatic intuitions (about ‘up-in-the-air-ness’): asyndetic coordinations without *aber* are a different species from those with buried *aber*.

To make the point we are arguing more perspicuous, we introduce the term BARE COORDINATIONS for coordination structures which involve neither a syntactic coordinator, nor buried *aber* (nor its class mates *jedoch* or *allerdings*, to be discussed more in section 3 below). Our claim is that bare coordinations are pragmatically incomplete (and thusly marked intonationally), but coordinations with buried *aber*, and coordinating particles in general, are not. We conclude from that that buried *aber* —apart from expressing adversativity— has a genuinely coordinating function even in asyndetic coordinations (which we will model by making it a semantic coordinator in section 4 below).

Before going on, let us note that the bare coordination counterparts to (7) are even more marked than the bare coordinations in (5):

- (8) a. ??Sie ist nicht reich, besitzt eine Yacht...
 she [_{V1}is not rich] [_{V1}owns a yacht]

- b. ??Ich glaube, dass sie nicht reich ist, ihr Bruder eine Yacht
 I think that [_Sshe not rich is] [_Sher brother a yacht
 besitzt...
 owns]

It seems to us that the sentences (8) suffer from an additional defect, namely a failure to mark the pragmatic opposition between the conjuncts lexically. It seems fair to say that the syndetic coordinations in (9) are odd in the same way (but of course lack any sense of incompleteness).

- (9) a. ??Sie ist bettelarm und besitzt eine Yacht.
 she [_{V1}is destitute] **and** [_{V1}owns a yacht]
 b. ??Ich glaube, dass sie bettelarm ist, und ihr Bruder eine
 I think that [_Sshe destitute is] **and** [_Sher brother a
 Yacht besitzt.
 yacht owns]
 ‘I think that she is destitute and that her brother owns a yacht.’

The problem in (9) can be remedied by inserting adversative particles in the second conjunct, for example *dennoch* or *trotzdem*, ‘nevertheless’, as in (10) (and of course *aber* as seen in (7) above).³

- (10) a. Sie ist nicht reich und besitzt dennoch eine Yacht.
 she [_{V1}is not rich] **and** [_{V1}owns nevertheless a yacht]
 b. Ich glaube, dass sie nicht reich ist, und ihr Bruder
 I believe that [_Sshe not rich is] **and** [_Sher brother
 trotzdem eine Yacht besitzt.
 nevertheless a yacht owns]

In a manner of speaking, then, addition of *und*, ‘and’, removed the ... (incompleteness) from (8), and addition of *dennoch/trotzdem*, ‘nevertheless’, removed the ?? (lack of adversativity indication). Crucially, and as expected

³An anonymous reviewer suggests that the oddness of failing to mark pragmatic opposition seen in (8) and (9) might be explained as an instance of failure to maximize presupposition: *aber*, *dennoch*, *trotzdem* etc. grammatically express opposition, while plain *und* does not, so the former are in a sense ‘stronger’, and —where they are appropriate— block using the latter due to some principle of ‘Maximize Presupposition!’ (Heim, 1991).

We think this is a plausible suggestion, except that it is unclear to us how the ‘contrastive’ or ‘adversative’ content of *aber* and its ilk could be a presupposition (given that *A aber B* clearly presupposes neither A nor B, how could it presuppose any relation between them?). Assuming instead that it is a conventional implicature, we could perhaps derive the intended effect from a generalization of ‘Maximize Presupposition!’ to something like ‘Maximize Non-At-Issue Content!’

from our perspective, adding *dennoch/trotzdem* to an asyndetic coordination like (8) alone is not sufficient to make it pragmatically complete, though it does remove the additional oddness:

- (11) a. Sie ist nicht reich, besitzt dennoch eine Yacht...
 she [_{V1}is not rich] [_{V1}owns nevertheless a yacht]
 b. Ich glaube, dass sie nicht reich ist, ihr Bruder
 I believe that [_Sshe not rich is] [_Sher brother
 trotzdem eine Yacht besitzt...
 nevertheless a yacht owns]

We summarize this state of affairs as follows: *dennoch/trotzdem* and buried *aber* are all particles, and adversative markers, but only buried *aber* is a semantic coordinator as well. Therefore, asyndetic coordinations with *dennoch/trotzdem* are pragmatically incomplete (they are the adversative variant of a bare coordination), while those with buried *aber* are not.

2.2 *Zwar*

Our Exhibit B for arguing that buried *aber* is a true semantic coordinator involves the concessive particle *zwar*, inserted in the first conjunct. Similar to English *true...but*, *zwar* absolutely requires an adversative coordinator in the second conjunct, which can be *aber* in coordinator position as well as, crucially, buried:

- (12) a. Sie ist zwar nicht reich, aber sie besitzt eine Yacht.
 [_{V2}she is **zwar** not rich] **but** [_{V2}she owns a yacht]
 b. Sie ist zwar nicht reich, besitzt aber eine Yacht.
 she [_{V1}is **zwar** not rich] [_{V1}owns **but** a yacht]
 ‘True, she is not rich, but she owns a yacht.’

Crucially, the adversative particles *dennoch* und *trotzdem*, ‘nevertheless’, we met earlier do not qualify well as confederates for *zwar*, with or without a syntactic coordinator, compare (13) to (10-a) and (11-a) above.⁴

⁴We find examples like (13) seriously degraded. A reviewer suggests, however, that examples similar to (13) could be found in corpora, and that they do occur in Google search results.

To obtain a more systematic picture, we ran a search on a 22,248,965 word corpus of German newspaper texts, *Berliner Morgenpost*, October 1997, May–December 1998, January–December 1999, using the COSMAS II_{web} interface provided by the Institut für deutsche Sprache, Mannheim. We found that of the 7,962 occurrences of *zwar*, only 1,39% occur as sentence-mates with *dennoch/trotzdem* but without one of *aber/jedoch/doch/allerdings* (more than half of them clause initially, incidentally); as opposed to that, 63,26% of *zwar*

- (13) *Sie ist zwar nicht reich, (und) besitzt dennoch/trotzdem
 she [_{V1}is **zwar** not rich] (**and**) [_{V1}owns **nevertheless**
 eine Yacht.
 a yacht]

From a distributional point of view, this suffices to make the argument: buried *aber* patterns with the syntactic coordinator *aber* in allowing *zwar*, but not with adversative particles like *dennoch/trotzdem*, ‘nevertheless’.

We claimed above that the difference between buried *aber* and the particles *dennoch/trotzdem* is that only the former is a semantic coordinator. We can then conveniently blame the unacceptability of (13) on the same fact: *zwar* requires a contrasting second conjunct, with an adversative semantic coordinator.

3 Other buried coordinators

In the previous section we have shown that buried *aber* behaves just like the syntactic coordinator *aber*: it makes for a pragmatically complete coordination, and it can satisfy *zwar*’s appetite for an adversative second conjunct, two things the regular adversative ‘nevertheless’-type particles cannot. This may seem like evidence in favor of H1: given that *aber* also occurs as an uncontroversial syntactic coordinator, why not claim that buried *aber* is in fact the same as the syntactic coordinator, shuffled into the second conjunct by some syntactic displacement operation?

In this section we will turn to two other adversative particles, *jedoch* and *allerdings* (‘however’). The crucial observation is that these (unlike *trotzdem* and *dennoch* discussed in the previous section) share all the properties we took to be indicative of buried *aber*’s coordinator status, except they cannot occur as syntactic coordinators. This means there has to be an analysis of these properties that does not rely on being a syntactic coordinator.

co-occur with *aber/jedoch/doch/allerdings* (and without *dennoch* or *trotzdem*) in the same sentence (we didn’t search for cooccurrences across sentence boundaries, which probably accounts for most most of the remaining 35%).

Even considering that *aber/jedoch/doch/allerdings* are more than 15 times more frequent than *dennoch/trotzdem* in total, they are still in fact more than 45 times more frequent with *zwar* (and without *dennoch/trotzdem*) than *dennoch/trotzdem* (without *aber/jedoch/doch/allerdings*). We take this to confirm our original judgment that there is a marked and systematic difference between the two classes.

3.1 *Jedoch* and *allerdings* are semantic, but not syntactic, coordinators

First, asyndetic coordinations with *allerdings* or *jedoch* are pragmatically complete, just like their counter-parts with buried *aber*, compare (14) to (7) above:⁵

- (14) a. Sie ist nicht reich, besitzt jedoch/allerdings eine Yacht.
 she [_{V1}is not rich] [_{V1}owns **however** a yacht]
 ‘She isn’t rich, owns a yacht, however.’
- b. Ich glaube, dass sie nicht reich ist, ihr Bruder
 I think that [_Sshe not rich is] [_Sher brother
 jedoch/allerdings eine Yacht besitzt.
however a yacht owns]
 ‘I think that she isn’t rich, that her brother, however, owns a yacht.’

Jedoch/allerdings thus patterns with buried *aber*, and not with the adversative particles *trotzdem/dennoch* (‘nevertheless’).

Second, *jedoch/allerdings* occur with *zwar* in the first conjunct, just like buried *aber*, and unlike *trotzdem/dennoch*, compare (15) to (12-b) above:

- (15) Sie ist zwar nicht reich, besitzt jedoch eine Yacht.
 she [_{V1}is **zwar** not rich] [_{V1}owns **however** a yacht]
 ‘She might well not be rich, however owns a yacht.’

All of this would just indicate that *jedoch/allerdings* are just like *aber*, were it not for the fact that they are *not* syntactic coordinators: (16-a) is completely impossible, in sharp contrast to the impeccable (1-a), repeated in (16-b):

- (16) a. *Lola ist reich, jedoch/allerdings gönnt sich nie etwas.
 L. [_{V1}is rich] **however** [_{V1}treats self never s.th.]
- b. Lola ist reich, aber gönnt sich nie etwas.
 L. [_{V1}is rich] **but** [_{V1}treats self never s.th.]
 ‘Lola is rich but never treats herself to anything.’

This is straightforwardly modelled if we say that *jedoch/allerdings* are particles, but not syntactic coordinators. But that in turn means that none of the properties of buried *aber* discussed above can be blamed on its *syntactic* status as a coordinator, for *jedoch/allerdings* share all of them. Put

⁵The English translations with *however* work less than perfectly well (we think because *however* prefers to have its contrasting element in a separate sentence); we provide them nonetheless in order to convey —as best as possible— a feel for the German construction.

differently, if we insisted that all the differences between *aber* and the ‘nevertheless’ particles *trotzdem/dennoch* discussed in section 2 could ultimately be reduced to *aber* being a syntactic coordinator, we would still be left with the task of explaining the difference between the ‘nevertheless’ particle and the ‘however’ particles *jedoch* and *allerdings*, and in particular why the latter behave exactly like buried *aber*.

The strategy we choose instead is to assume that *jedoch/allerdings* and *aber* —but not *trotzdem/dennoch*— are semantic coordinators. The existence of *jedoch/allerdings* shows that being a semantic coordinator is independent of being a syntactic coordinator. *Aber* is both, *jedoch/allerdings* only the former (and *trotzdem/jedoch* neither). And of course, as *und* shows, not every (semantic) coordinator can occur buried within the second conjunct.

3.2 Semantic coordinators cannot be doubled

Having identified other buried coordinators besides *aber* brings us in a position to mount a final argument for our claim that these are in fact semantic coordinators, while other particles are not: *allerdings*, *jedoch* and buried *aber* cannot co-occur with syntactic coordinators, while the non-coordinating adversative particles *trotzdem* and *dennoch* can; this contrast is illustrated in (17) (recall that (17-a) without *und/aber* is a perfectly acceptable instance of buried coordinators).⁶

- (17) a. *Sie ist reich und/aber arbeitet jedoch/ allerdings/ aber
 she [_{V1}is rich] **and/but** [_{V1}works **however/ but**
 an der Tankstelle.
 at the gas station]
- b. Sie ist reich und/aber arbeitet trotzdem/dennoch an
 she [_{V1}is rich] **and/but** [_{V1}works **nevertheless** at
 der Tankstelle.
 the gas station]
 ‘She is rich and/but works at the gas station nevertheless.’

⁶Again, prompted by a reviewer’s Google result similar to (17-a), we conducted a search on a 4,491,138 word tagged corpus of German newspaper texts (Tagged-C), using the COSMAS II_{web} interface provided by the Institut für deutsche Sprache, Mannheim. The results confirm our intuitive judgements. While *allerdings* and *jedoch* occur about three times more often in the corpus than *trotzdem* and *dennoch*, the latter occur more than 50 times more often (1,315 and 1,187 occurrences, respectively) than the former (25 and 23 occurrences) in the context . . . *und/oder V allerdings/jedoch/trotzdem/dennoch* (excluding *V und/oder V* coordinations, as the most blatant case of non-clausal coordination).

This fact once again confirms our contention that the elements in (17-a) are themselves semantic coordinators; adding an additional syntactic coordinator is redundant. In fact, assuming that syntactic coordinators —*und* and non-buried *aber*— are also semantic coordinators, this follows from the semantics we will sketch in section 4 below.

4 Semantics

We assume that *aber* as well as the coordinating particles *allerdings* and *jedoch* (‘however’) denote a relation between propositions (sentence meanings), a relation which we simply write as **adv**, so that **adv**(s2)(s1) implies something like ‘s2 contradicts an expectation triggered by s1’ (how to spell out the adversative relation in detail is immaterial for the purposes of this paper, see e.g. Umbach, 2004; Vicente, 2010). This meaning, we assume, is a conventional implicature, though nothing hinges on this; the literal meaning of *s1 aber s2* would then be the same as that of *s1 und s2*: **s1 & s2**.

When coordinating two complete sentences, as schematized in (18), semantic composition proceeds smoothly via function application or something equivalent to it:

- (18) [(c)[she is rich] [(b) **aber** [(a)her brother works at the gas station]]]
- a. that her brother works at the gas station
 - b. **adv**(that her brother works at the g.s.)
 - c. **adv**(that her brother works at the g.s.)(that she is rich)

When *aber* occurs in embedded position, as e.g. in (2), its syntactic argument does not denote a complete proposition, see (19-a). In this case, semantic composition with *aber/adv* proceeds via function composition to yield (19-b);⁷ the resulting two-place function combines with the remainder of the second clause by function application again, (19-c):

- (19) [(d)[she is rich][(c)her brother [(b)**aber** [(a)works at the gas station]]]]]
- a. $\lambda x.$ that x works at the gas station
 - b. $\lambda x.$ **adv**(that x works at the g.s.) (= **adv**◦(19-a)⁸)

⁷An alternative suggested by an anonymous reviewer would —as we understand it— give up the assumption that every syntactic constituent is associated with its own denotation, so that in particular **adv** never needs to compose semantically with a predicate. This would obviously solve the problem of interpreting buried *aber*. The derivations given in this section assume the ‘worse case scenario’, i.e. that semantic composition proceeds entirely compositional, i.e. in lockstep with the syntactic structure.

⁸Function Composition: For any functions $f : X \rightarrow Y$ and $g : Y \rightarrow Z$, $g \circ f$ is that

- c. $[\lambda x.\text{adv}(\text{that } x \text{ works at the g.s.})](\text{her brother})$
 $\equiv \text{adv}(\text{that her brother works at the g.s.})$
- d. $\text{adv}(\text{that her brother works at the g.s.})(\text{that she is rich})$

Note that (19-c) is the same function as (18-b) (as becomes clear after β -reduction, see the second line in (19-c)). That is, $[\text{aber } [s_2 \dots]]$ in (18) and $[s_2 \dots \text{aber} \dots]$ in (19) denote the same function, as desired; whether *aber* occurs as a coordinator, or within the second conjunct, makes no semantic difference.

It is rather straightforward to explain, finally, why a clause with buried *aber* or *allerdings/jedoch* cannot be inserted in a syndetic coordination. Assume that *and* denotes the logical ‘and’, i.e. $\lambda p1.\lambda p2.p1 \ \& \ p2$. Then combining, say (18-b)/(19-c) with it will, again by function composition, yield the function in (20):

$$(20) \quad \lambda p3.\lambda p2.\text{adv}(\text{that her brother works at the gas station})(p3) \ \& \ p2$$

This, however, cannot combine with another proposition to yield a sentence meaning (it would, in fact, require two propositions to do so). It is not an appropriate meaning for a coordination lacking a first coordinate. This seems sufficient as a starting point to explain the impossibility of ‘coordinator doubling’.

Let us address two loose ends before closing this section. First, consider adversative particles that are not semantic coordinators, such as *trotzdem* and *dennoch* (‘nevertheless’). Although these are not synonymous with *aber/jedoch/allerdings*, we still assume that their semantic content, too, involves an adversative relation, which we call adv^* , so that again $\text{adv}^*(p1)(p2)$ implies that the simultaneous truth of $p1$ and $p2$ is less expected than that of $\text{not } p1$ and $p2$; for short $p2$ *despite* $p1$.

The crucial difference, we want to suggest, is that the second argument of *trotzdem/dennoch* is anaphoric. For illustration, consider *trotzdem*, which conveniently provides morphological evidence for this idea, as it is literally ‘despite.that’. Assume that *trotz* in fact denotes adv^* , while *dem* is a propositional anaphor, which receives its meaning from context. *Trotzdem*, then, denotes not a relation between propositions, but the property *despite* ϕ , where ϕ is the denotation of *dem*. This property holds of any proposition $p1$ whose truth leads one to expect that $\text{not } \phi$ rather than ϕ .

The crucial part in this is that a sentence containing *trotzdem* denotes the

function h s.t. for any $x \in X, h(x) = g(f(x))$.

same kind of semantic object as one without it: a proposition. The second propositional argument of *adv** is saturated by *dem*, and hence no semantic argument place for a first conjunct is provided by *trotzdem*. This is what it means to *not* be a semantic coordinator. The analysis for *dennoch* proceeds identically, except that the propositional anaphor here has no morphological reflex.

The second loose end regards sentences with *aber*, *jedoch* or *allerdings*, but without coordinations, such as in (21):

- (21) Sie ist reich. Sie gibt ihr Geld aber/ jedoch nicht gern
 she is rich she give her money **but however** not happily
 aus.
 out
 ‘She is rich. She doesn’t like to spend her money, though.’

From what we said so far, it follows that the second sentence in (21) denotes a function from propositions to propositions, not a proposition (as a declarative sentence should). It is, in effect, a second conjunct waiting for a first. (In contradistinction, the same sentence with *trotzdem* in place of *aber*. . . should denote a proposition).

We acknowledge that this is a puzzling result, although no more puzzling than the fact that in general, final conjuncts can occur as independent sentences, or indeed independent utterances:

- (22) A: She is rich.
 B: And/But she has good taste.

Descriptively speaking, the linearly first argument of a syntactic coordinator can remain unspoken, when its content is salient in the context. Our claim is that buried coordinators are semantically identical to run-of-the-mill syntactic coordinators (the kind that precede the final conjunct), and that their semantic content is sufficient to create a pragmatically complete coordination. However one goes about explaining cases like (22-B), the explanation will carry over to (21). What is important is simply that one would not attempt to ‘explain’ (22-B) by saying that *and/but* are not, ever, relational, so by the same token, (21) is not an argument against our claim that buried coordinators are relational.

5 The syntax of embedded coordinators

This section looks at the syntactic distribution of the adversative elements discussed in this paper. So far we have suggested that all adversative particles, whether semantically coordinating or not, including buried *aber*, belong to the same syntactic class, ‘particles’. This leads us to expect that they have the same distribution within their clause, which is by and large correct, but not entirely. Although we cannot offer an analysis of the distributional differences, we will document them in some detail in this section.

For clarity of exposition, we will consider three topological regions of the German clause: (i.) positions following the finite verb (the so-called ‘Mittelfeld’), (ii.) positions immediately following the initial constituent in V2 clauses, and (iii.) the initial position in V2 clauses itself.

5.1 Particles in the ‘Mittelfeld’

As far as we can tell, all elements considered in this paper show the same distribution when occurring after the second-position, finite verb. As is typical for particles and adverbials, they occur after weak pronouns, (23-a), or immediately after the finite verb if there are none, (23-b):

- (23) a. Sie ist reich, gesteht es sich jedoch nicht ein
she [_{V1}is rich] [_{V1}admits it self *however* not in]
‘She is rich, however doesn’t admit it to herself.’
b. Sie ist reich, kauft aber beim Hofer ein.
she [_{V1}is rich] [_{V1}buys *but* at H. in]
‘She is rich, but shops at the Hofer store.’

The particle may be realized above or below a scrambled constituent, which, following van Riemsdijk (1978) and many others, appears outside of VP. (24), from Haider and Rosengren (1998:13) shows scrambling of a quantified NP. The sentence is ambiguous between a high interpretation and a low interpretation of the quantified NP *fast jedes Bild*, which is taken as evidence for scrambling (the ambiguity is lost if the accusative NP occurs in its base-position below the dative NP).

- (24) ... dass man fast jedes Bild mindestens einem Experten
that one almost every painting at least one.dat expert.dat
zeigte.
showed
‘...that almost every painting was shown to at least one expert’

If a scrambled structure like (24) occurs as the second conjunct of an adversative coordination, the buried coordinator may occur above (25-a) or below (25-b) the scrambled constituent.

- (25) Man konnte eine Fälschung nicht ausschließen, ...
 one [V₁ could a counterfeit not exclude]
 ‘One couldn’t exclude a forgery...’
- a. ... hat allerdings fast jedes Bild mindestens einem
 [V₁ has **however** almost every painting at least one
 Experten gezeigt.
 expert shown]
- b. hat fast jedes Bild allerdings mindestens einem
 [V₁ has almost every painting **however** at least one
 Experten gezeigt.
 expert shown]
 ‘... but showed almost every painting to at least one expert’.

In the preceding examples we have alternated *aber*, *jedoch* and *allerdings*, but the claim is that any of these can occur in any example. Furthermore, when the asyndetic coordinations in these examples are made syndetic, *aber/jedoch/allerdings* can (and must) be replaced by *trotzdem/dennoch*:

- (26) Die Polizei vermutet, dass die gestohlenen Bilder in diesem
 the police assumes [§that the stolen paintings in this
 Haus versteckt sind, und dass [diese Tür aufzubrechen]
 house hidden are] **and** [§that this door to break open
trotzdem/ dennoch keiner je versucht hat.
nevertheless nobody ever tried has

Again, we surmise that this holds in general for both *dennoch* and *trotzdem*, and in all examples discussed.

This picture is what we expect if indeed all of these elements belonged to the same syntactic category, particle, and their clause-internal distribution depended on that alone. Alas, this comforting identity of distribution breaks down in two positions, to which we now turn.

5.2 Post-initial position

All coordinating particles can occur in a position between the initial constituent and the finite verb, as in (27).

- (27) Sie ist eher konservativ, ihr Bruder aber/
 [V₂she is rather more conservative] [V₂her brother **but**
 jedoch/ allerdings ist bei den Grünen.
however is at the greens]
 ‘She is rather more conservative, but her brother is with the Greens.’

Standard wisdom has it that at most one constituent can precede the finite verb in a German main clause, which implies that the coordinating particles in (27) should be analyzed as right-adjoined to the initial subject DP — against any semantic intuitions.

To make matters worse, all other candidate elements we can think of, including crucially the adversative particles in the ‘nevertheless’ class, are impossible in that position:

- (28) * Sie ist eher konservativ, (und) ihr Bruder
 [V₂she is rather more conservative] and [V₂her brother
 trotzdem/ dennoch ist bei den Grünen.
nevertheless is at the greens]

So here we have a case in which the syntactic class of adversative particles in fact splits up into two subclasses, those that may occur in post-initial position (whatever structural position that may be), and those that may not. The former coincides with the class of semantic coordinators, but at present we do not have a hunch why these two properties (being a coordinating particle and occurring in post-initial position) should be correlated.

Pasch et al. (2003:498) observe that the post-initial placement of coordinating particles requires that the initial constituent be contrastive, as in (29-a). If the initial constituent is given (and hence *a fortiori* not contrastive), post-initial placement is impossible, (29-b), even though there is nothing wrong with having a given constituent in the initial position in general, (29-c).⁹

⁹Nor is the post-initial position of the coordinating particle obligatory in order to get a contrastive focus interpretation of the fronted XP. (i) presents a further option for a second conjunct to (29) with a fronted contrasting constituent but a low embedded coordinator.

- (i) ... [auf das Auto] konnte sie aber nicht verzichten.
 on the car could she **but** not dispense with
 ‘...but she could not do without a car.’

- (29) Sie hat in ihrem Berufsleben nicht ein einziges Mal das
 she has in her professional career not a single time the
 Flugzeug benutzt, ...
 airplane used
 ‘She has not once used an airplane in her professional career...’
- a. ... [auf das Auto] aber konnte sie nicht verzichten.
 on the car **but** could she not dispense
- b. *... [sie] aber konnte auf das Auto nicht verzichten.
 she **but** could on the car not dispense
- c. ... [sie] konnte (aber) nicht auf das Auto verzichten.
 she could **but** not on the car dispense
 ‘...but she could not do without a car.’

Intuitively, this cashes in on the affinity of adversative particles to contrastive topic constructions, of which (29-a) (and (27)) are arguably instances, but again we do not have a more precise statement to offer, nor do we think that the non-coordinating adversative particles in (28) are *prima facie* any less appropriate for such uses.

5.3 Initial position

‘However’ and ‘nevertheless’ type particles (i.e. coordinating or not), may occur as the sole preverbal constituent in a second conjunct:¹⁰

- (30) a. Sie ist reich, jedoch/allerdings arbeitet ihr Bruder an
 [V₂she is rich] [V₂**however** works her brother at
 der Tankstelle.
 the gas station]
- b. Sie ist reich, und trotzdem/dennoch arbeitet ihr
 [V₂she is rich] and [V₂**nevertheless** works her
 Bruder an der Tankstelle.
 brother at the gas station]

This is expected since as a rule, any constituent may occupy this position in German. What is utterly surprising in this light is that *aber* does not have this option:

- (31) * Sie ist reich, aber arbeitet ihr Bruder an der Tankstelle.
 [V₂she is rich] [V₂**but** works her brother at the gas station]

¹⁰As expected, the second conjunct must be preceded by a syntactic coordinator with the particles *trotzdem/dennoch*, but must not be with the semantic coordinators *jedoch/allerdings*.

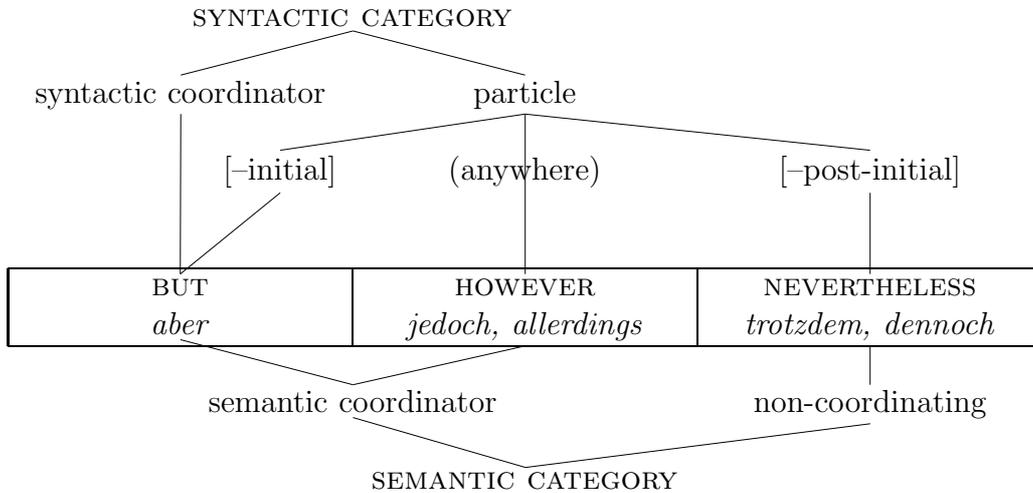


Figure 2: Adversative markers with refined syntactic distribution

We had so far assumed that possible positions for *aber* were as a syntactic coordinator, or in whatever position *jedoch* and *allerdings* occur in (which in turn are by and large the positions that *any* particle can occur in, plus those discussed in section 5.2). In the light of (31), however, this neat subset relation breaks down: *aber* may occur in one position impossible for *bona fide* particles (the syntactic coordinator position), and is banned from one of the positions particles are possible in (initial position in V2-clauses); this is summarized in figure 2.

It seems to us this distributional picture resists modelling in terms of primitive syntactic categories; rather, lexical items must be assigned to one or more rather specific distributional classes, without obvious external correlates.

6 Summary

Our contribution gives a glimpse of the complex field of adversative particles in German. These elements do not form a unified class, and even resist a division into neat subclasses. Syntactically, the traditional separation between syntactic coordinator and particle appears to allow for a classification, the only complication being *aber*, which belongs to both classes. Semantically, however, we argue that *aber* patterns with a subclass of the adversative particles in that it acts as a true coordinator. This result is noteworthy especially with respect to buried particles, including *aber*, whose ability to coordinate is not evident at first. The proof is furnished mainly by asyndetic coordi-

nations which are pragmatically completed only in the presence of a truly coordinating element.

In conclusion, this article provides a further argument to the everlasting debate around the proper architecture of the syntax-semantics interface, showing that neither the syntactic position of an element nor its membership to a class of likes necessarily reveal its semantic properties. With respect to coordination, it shows that two conjuncts may be semantically coordinated in the absence of a genuine syntactic coordinator.

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