

PP-internal particles in Dutch as evidence for PP-internal discourse structure*

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Abstract. Drawing on evidence from Dutch, this paper presents the new observation that discourse particles can not only appear at the level of CP, but also inside the PP domain. In particular, we demonstrate that Dutch *dan* can receive a non-temporal interpretation, and in this reading *dan* can appear as a functional head inside a complex PP constituent. After having established a detailed structural analysis of this phenomenon, we look beyond Dutch and compare the discourse function that *dan* has inside the PP to the role that its German cognate *denn* plays at the level of CP. We conclude that both cases can be analyzed along the same lines because they express the same abstract discourse function: both PP-internal *dan* and German *denn* are discourse-navigating devices that link ‘a ground’ to ‘a figure’, only differing in their semantic domains of application.

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1. Introduction

In this paper, we will focus on the Dutch element *dan* ('then'), which features two readings relevant to the discussion in our paper. First, it can be interpreted temporally and, in this reading, it links one event to another preceding event (1). Second, for many speakers¹, when a route is being described, *dan* may have a non-temporal navigating function, in which it serves to establish a transitional link with a preceding step (2):²

- (1) (en) **dan** zijn we **op de tweede dag** naar Gent gegaan. [temporal]
and then are we on the second day to Ghent went
'... and then on the second day, we went to Ghent.'

- (2) (en) **dan naast de kerk** woont mijn tante. [non-temporal]
and then next-to the church lives my aunt

Our contribution is structured as follows. In Section 2, we introduce the core data in more detail and we argue that in examples like (2), *dan* is part of the prepositional phrase (PP) *dan naast de kerk* ('then next to the church'). Pursuing this insight, Section 3 will elaborate on the internal structure of adpositional projections in Dutch, in line with some of the existing literature (Koopman 2000; see also Den Dikken 2010), and we conclude from our data that PP-internal *dan* is a functional head with a fixed position in the extended adpositional projection. In Section 4, we

¹ At this stage, it is not clear what determines the variation across speakers. A first impression is that Flemish speakers of Dutch are more tolerant of non-temporal *dan* than Dutch speakers from the Netherlands, but we have not precise data to back this up.

² Such examples are most natural when introduced by the coordinating conjunction *en* ('and'), which we add in parentheses. As shown by the parentheses, *en* is however not mandatory.

try to narrow down the interpretation of PP-internal *dan* and we connect our observations on Dutch *dan* to what has been established about the German discourse particle *denn*. More specifically, we will suggest that *dan* has an abstract discourse-navigating function that can be modeled in terms of the broader cognitive function of connecting ‘ground’ to ‘figure’, which is known from Gestalt psychology. On this basis, we will then propose that this function could also be used for analyzing German *denn*, which, in contrast to PP-internal *dan*, operates at the clausal level. In contrast to previous literature that has accounted for particles like *denn* in terms of ‘discourse-navigating devices’ too (e.g., Csipak & Zobel 2015), our proposal takes the term ‘navigation’ more literally by endorsing a spatial interpretation of particles like *denn*, based on the figure-ground configuration that can be observed in the context of PP-internal *dan*.

2. Co-constituency of *dan* and PPs

This section demonstrates that in examples like (2), repeated here for convenience, the element *dan* must be part of the PP.³

- (3) (en) **dan** **naast** **de** **kerk** woont mijn tante
 and then next-to the church lives my aunt

³ We thus depart from Zwart (2005: 28), who briefly discusses the pattern (i) (his [42b]), in which a locative PP *in dezelfde landstreek* (‘in the same area’) is followed by the adverbial element *nu* (‘now’), which does not have its regular temporal reading but rather seems to also have the navigating function which we attribute to non-temporal *dan*. Zwart claims that *nu* in (i) is ‘extra-dependent’, meaning that it does not form a constituent with the PP to its left. At first sight, our arguments advanced below in support of treating non-temporal *dan* as integrated with the locative PP extend to non-temporal *nu*. The analysis of non-temporal *nu* must await further research.

(i) In dezelfde landstreek nu waren herders.
 in the-same area now were shepherds
 ‘Now there were shepherds in that same countryside.’

First, observe that the string with *dan* is the initial constituent of a V2 configuration like (3). Dutch and its dialects are taken to be regular V2 languages. If initial *dan* and the PP *naast de kerk* are taken to form separate constituents, the structure in (3) would violate the V2 constraint.

At this point, let us already extend the data by illustrating that the non-temporal *dan* in (3) can also appear finally, that is, to the right of the respective PP:

- (4) (en) **naast de kerk dan** woont mijn tante.⁴
 and next-to the church then lives my aunt

An analysis for the final occurrence of non-temporal *dan* as a resumptive adverb for the locative PP *naast de kerk* ('next to the church') would be inappropriate because the designated resumptive for a left-dislocated locative PP is the locative *daar* ('there'), as shown in (5a-b), *dan* being the designated temporal or conditional resumptive in a left dislocation like (5c):

- (5) a. (en) **naast de kerk, daar** woont mijn tante.
 and next-to the church, there lives my aunt
 b. * (en) **naast de kerk, dan** woont mijn tante.
 and next-to the church, then lives my aunt

⁴ Note that *dan* may also appear in a middle field position with at first sight the same navigating function:

- (i) a. (en) naast de kerk woont dan mijn tante
 and next-to the church lives then my aunt
 b. (en) daarnaast woont dan mijn tante
 and there-next lives then my aunt

Given the analysis which we will be elaborating in subsequent sections, it is tempting to view middle field *dan* as the outcome of stranding of the PP containing *dan* due to movement of the PP *naast de kerk* or of the R-pronoun *daar* to the left periphery. We won't go into this analysis here. We thank Coppe van Urk for signaling these data to us.

- c. (en) **na de lunch, dan/*daar** gaan we wandelen.
and after the lunch, then/*there go we walk

Crucially, when *dan* appears finally, as in (4), there is no intonation break between the PP (here *naast de kerk*) and *dan*; *dan* is destressed and we observe falling intonation. This prosodic pattern is different from the pattern found with resumption, in which the initial constituent and the resumptive are separated by a prosodic break.

In further support of constituency, the combination of the locative PP and initial or final *dan* can itself be dislocated, and using an appropriate D-word such as the locative resumptive *daar* can be interpreted as resuming the whole string (i.e., including non-temporal *dan*):

- (6) a. (en) [**dan naast de kerk**]_i, [**daar**]_i woont mijn tante.
and then next-to the church, there lives my aunt
b. (en) [**naast de kerk dan**]_i, [**daar**]_i woont mijn tante.

Taken together, this distributional evidence strongly suggests that both with the initial and the final occurrence of *dan*, the string containing *dan* and the associated PP constitutes the initial constituent in V2 configurations.^{5,6}

Let us hasten to add that there is an additional configuration with non-temporal *dan* which we will refer to as ‘intrusive *dan*’ and which will be of interest for our discussion of the functional structure of PPs below. Intrusive *dan* is a configuration in which *dan* is located PP internally, intervening between the displaced R-word *daar*, the complement of the preposition, and the associated preposition such as, for instance, *naast* in *daarnaast*. We will return to this data point in more detail in the next section, but for now let us just mention that in this use, the PP containing intrusive *dan* can itself be more deeply embedded. For instance, in (7a) the PP *daar dan naast* postmodifies the N *bureau*, itself part of the sentence-initial DP *het bureau daar dan naast*.⁷ The same DP is the P-complement in an extraposed PP in (7b), and in an initial PP in the V2 configuration in (7c). Additionally, a PP containing intrusive *dan* can also be the complement of a preposition (*voor* ‘for’) in (7d-e): in this case, the containing PP as a whole may be extraposed

⁵ As pointed out by Marcel den Dikken, p.c., for some speakers of Dutch (including himself) the distributions of the particle *dus* parallels that of the particle *dan* in the context of the examples in (1)-(6). Obviously, in the light of the strong distributional likeness of *dan* and *dus* the question arises whether the interpretive properties that we attribute to *dan* qua event connector and navigator of the figure-to-ground connection can sensibly carry over to *dus*. The question is definitely of interest and merits further study, but we cannot do it justice here. While *dus* can replace *dan* in (2/3) and (4) for Liliane Haegeman, on whose judgments this paper is partly based, and while the particle does play the sequencing function, Liliane Haegeman finds a slight interpretive difference, to the effect that *dus* seems to add an echoic component not present with *dan*, as if the speaker had already introduced the location encoded in the PP and was repeating it. The question merits further thought and further investigation, including more native speaker’s judgments to ensure that the data are reliable.

⁶ The present paper formulates an analysis for the syntax of non-temporal *dan* inside the PP, but we would like to point out that non-temporal *dan* can also display its sequencing function in other contexts, such as, for instance, in nominal projections (see Haegeman & Trotzke 2020 for some data). We thank Marcel den Dikken and Coppe van Urk for raising this issue and for a lot of food for thought for future work.

⁷ See also the discussion in Corver (1990: 37-38) on other patterns of R-pronoun movement internally to DP.

(7d) or it may function as the first constituent in a V2 configuration (7e). We consider such embeddings as evidence for constituency of the string containing intrusive *dan*.

- (7) a. [Het bureau[**daar dan naast**]] is voor de studenten.
the desk there then next is for the students
- b. De doctoraatsstudenten kan je vinden in [het bureau [**daar dan naast**]].
the PhD-students can you find in the office there then next
- c. In [het bureau[**daar dan naast**]] kan je de doctoraatsstudenten vinden.
in the office there then next can you the PhD-students find
- d. Ik heb een bureaulamp gekocht [voor [**daar dan naast**]].
I have a desk-lamp bought for there then next
- e. [Voor [**daar dan naast**]] heb ik een bureaulamp gekocht.
for there then next have I a desk-lamp bought

To sum up, the data above provide empirical distributional evidence that non-temporal *dan* should be viewed as located internally to the complex PP structure. In what follows, we will explore this complex configuration more carefully, based on some current analyses of the Dutch extended adpositional projection.

3. The extended adpositional projection and *dan*

In this section, we introduce two diagnostics to determine the syntactic location of *dan* within the extended adpositional projection: its co-occurrence with R-pronouns such as *daar/er* ('there'),

already briefly illustrated in Section 2, and its use with focus modifiers which express a degree within the PP (e.g., *juist* ‘exactly’).

3.1. R-pronouns and the functional structure of PPs in Dutch

We first return to the R-pronouns and their position within the Dutch extended adpositional projection. Consider the data in (8), which are well known from the literature. In (8), *daar* encodes the complement of the preposition *naast*, but unlike the nominal complement, which follows the preposition (8a), *daar* must precede it (8b-c).⁸ To account for patterns like (8), Van Riemsdijk (1978) has argued that R-pronouns like *daar/er* obligatorily undergo R-movement to the position to the left of P:

- (8) a. (en) [**naast de kerk**] woont mijn tante.
and next-to the church lives my aunt
- b. (en) [**daar naast daar**] woont mijn tante
and there next-to there lives my aunt
- c. * (en) [**naast daar**] woont mijn tante.

In (8b), the pronoun *daar* and the preposition *naast* form one constituent because, again, they are the initial string in a V2 pattern and resumption of the entire string is possible with (locative) *daar*:

⁸ Though in source PPs, *daar* seems to remain in the complement position:

- (i) a. van daar tot daar
fromthere to there
b. van hier naar daar
fromhere to there

Given our analysis developed below, the fact that P can precede *daar* (and *hier*) may suggest that there is more internal structure in the sequence *van daar* than meets the eye. Thanks to Marcel den Dikken for raising this issue.

(8b') (en) [**daar naast**]_i, [**daar**]_i woont mijn tante

We will follow Van Riemsdijk's seminal analysis and assume that the PP-internal *daar* is subject to leftward movement. To formalize the analysis, we adopt a cartographic approach to the Dutch PP, in accordance with Koopman (2000); but see also Den Dikken (2010). Koopman (2000: 223) assumes that PP is dominated by PlaceP, and that within the articulated adpositional system, SpecPlaceP is the structural position for locative (non-directional) R-pronouns: we adopt her analysis. Relevant for later discussion, observe that in the hierarchy adopted here, PlaceP itself is dominated by a CP layer. For motivation we refer to Koopman's work.

(9) [CP [C' C_(Place) [PlaceP daar/er_i [Place' Place [PP Spec [P' [*naast* t_i]]]]]]]]

Inspired by Koopman (2000), the second diagnostic that we would like to use in order to narrow down the location of Dutch PP-internal non-temporal *dan* relies on the distribution of focus modifiers such as *juist* ('exactly'). Such modifiers preferably precede the preposition:

- (10) a. juist daar/er naast
just there/there next-to
b. daar/er juist naast
c. ??? daar/er naast juist

For Koopman (2000), modifying material such as *juist* is the lexicalization of a Degree head whose complement is PlaceP and which is located within the extended adpositional projection as in (11).

In (11a), *juist* spells out Deg, *daar* is in SpecPlace and hence follows *juist*. In (11b), *daar* has undergone leftward movement to the specifier of the CP_{place} layer associated with the PP and hence precedes *juist*:

- (11) a. [CP [C' C_(Place) [DegP Spec [Deg' *juist* [PlaceP *daar/er*_i [Place' Place [PP Spec [P' [*naast* t_i]]]]]]]]]
 b. [CP *daar*_i [C' C_(Place) [DegP Spec [Deg' *juist* [PlaceP t'_i [Place' Place [PP Spec [P' [*naast* t_i]]]]]]]]]

In both orderings (11a,b), *juist* takes narrow scope over the preposition, that is, the interpretation in both cases is ‘exactly next to X’.

According to the structural claims implied in (11), the specifier position SpecDegP could for instance be deployed to host measure phrases like [*drie meter*] ‘three meters’: (12) gives relevant examples, (13) summarizes the representations according to Koopman’s format.

- (12) a. drie meter juist daar/er naast
 three meters just there/there next-to
 b. daar/er drie meter juist naast

- (13) a. [CP [C' C_(Place) [DegP *drie meter* [Deg' *juist* [PlaceP *daar/er*_i [Place' Place [PP Spec [P' [*naast* t_i]]]]]]]]]
 b. [CP *daar*_i [C' C_(Place) [DegP *drie meter* [Deg' *juist* [PlaceP t'_i [Place' Place [PP Spec [P' [*naast* t_i]]]]]]]]]

With the two proposals about the syntax of PP-internal *daar/er* (9) and *juist* (11) in place, the next section turns to PP-internal non-temporal *dan*.

3.2. Locating non-temporal *dan* in the functional structure of Dutch PPs

3.2.1. A first proposal

Observe first (as already introduced above) that *dan* can co-occur with *daar* by either preceding the R-pronoun (14a) or following the R-pronoun and the associated preposition (14b):

- (14) a. (en) **dan daar naast** woont mijn tante
and then there next-to lives my aunt
- b. (en) **daar naast dan** woont mijn tante

As in our initial examples above (featuring a location encoded in a nominal like ‘next to the church’), in these examples too, *dan* receives a non-temporal interpretation. In particular, *dan* navigates by sequencing a path from ‘there’ (*daar*) to ‘next to *x*’ (e.g., next to the church; see our examples above). Note again that as before, PP-final *dan* in (14b) cannot be taken to be a resumptive adverb for the PP to its left, because resumption would involve a locative element like *daar* (15b) rather than temporal or conditional *dan* (15a). As seen in (15c), indeed, resumptive *daar* can resume the string consisting of *daar*, the preposition, and (crucially) *dan*.

- (15) a. * (en) **daar naast, dan** woont mijn tante
- b. (en) **daar naast, daar** woont mijn tante
- c. (en) **daar naast dan, daar** woont mijn tante

In the ‘intrusive *dan*’ pattern, a PP-internal occurrence of *dan* intervenes between the shifted R-pronoun and the preposition (16a) (see also our preliminary remarks already in Section 2). As

before, the entire string features as the initial constituent in a V2 clause (16a), and it can be resumed by locative *daar* (16b), providing evidence that the string is a constituent.

- (16) a. (en) **daar dan naast** woont mijn tante
 (and) there then next-to lives my aunt
- b. (en) **daar dan naast,** daar woont mijn tante
 (and) there then next-to, there lives my aunt

(17) contains some authentic *Google* examples for the intrusive *dan* pattern, which further substantiate the point that this is indeed an ordering option within complex PPs:

- (17) a. Je had Nik Kershaw als leuke vlotte (buur)jongen aan de ene kant
 you had Nik Kershaw as nice cool neighbor on the one side
 en de nerdy afstandelijke Thntantes Dolby aan de andere kant.
 and the nerdy distant Thntantes Dolby on the other side
Daar dan tussen zat weer Howard Jones.⁹

⁹ As pointed out by Marcel den Dikken (whom we thank for the observation), the attested (17a) contains two discourse particles, *dan* and *weer*, with only the former placed PP-internal. Interestingly, placing *weer* inside the PP, to the immediate right of *dan*, would also be acceptable as shown in (i). For Marcel den Dikken, (i) is preferable to (17a).

(i) Daar dan weer tussen zat Howard Jones.
 there then again between sat Howard Jones

That the discourse particle *weer* can indeed occur PP-internally is of obvious interest and raises the questions as to how to handle it in the light of our current analysis and more generally what other particles can be PP-internal both in the context of PP-internal *dan* and in PPs in general. We agree with Marcel den Dikken that these issues are important and certainly merit further study. However, we admit that we do not have an answer to these questions. Indeed, the questions seem to us to go well beyond the scope of our present paper as they compel one to look at a broader range of PP-internal particles. In the light of the discussion below the question arises, for instance, if *weer* should be treated as a functional head (i.e., similar to our analysis of *dan*) or as a maximal projection in specifier or adjoined position (i.e., similar to what we end up proposing for focus marker *juist* ‘just’). Hopefully, we can address this issue in future work.

there then between sat again Howard Jones

<https://www.musicmeter.nl/forum/18/10257>

b. [...] En **daar dan tussen** zit een groot grijs gebied.

and there then between sit a large big area

https://gathering.tweakers.net/forum/list_messages/1666438/22

Recall from (7) that the relevant intrusive *dan* pattern can also itself be further embedded in a DP which is itself located in various positions.

Given the availability of intrusive *dan* patterns, there are three basic ordering patterns when non-temporal *dan* and *daar* co-occur within complex PPs: initial, final, and intrusive *dan*. With this in mind, let us now have a look at the ordering patterns that emerge when we combine these configurations with the adverb *juist*, which, following Koopman (2000), was taken as one instantiation of the Degree head inside the Dutch adpositional system.

(18a) and (18b) show that non-temporal *dan* can precede modifiers like *juist*, but (18a') and (18b') show that in such configurations *dan* itself cannot be focused:

- (18) a. (en) dan juist daar naast
(and) then exactly there next-to
a'. * (en) DAN juist daar naast
b. (en) daar dan juist naast
b'. * (en) daar DAN juist naast

In this respect, the use of non-temporal *dan* examined here differs from that of temporal *dan*, which can be focused without any problem:

(19) DAN juist kwam ze binnen.
then just came she in

Observe that not only can non-temporal *dan* not be focused, but, again unlike temporal *dan*, non-temporal *dan* cannot follow focusing *juist*:

(19') a. juist DAN kwam ze binnen
b. * (en) daar juist dan naast
c. * (en) daarnaast juist dan

By means of an informal questionnaire administered to 7 native speakers of Dutch (1 Brabantian, 3 West Flemish, 3 East Flemish), we tested all possible orderings with *daar* and *juist* and we found that the order *juist* > *dan* (where *dan* would be focused) is indeed unacceptable. Our informants were asked to score the examples from 0, very bad, to 5, very good. Table 1 below summarizes the results:

	BR	WF	WF	WF	EF	EF	EF	Σ
(En) daar dan naast woont mijn oma	5	3	5	5	3	5	4	30
(En) daarnaast dan woont mijn oma	5	2	4	4	3	5	3	26
(En) daar dan juist naast woont mijn oma	5	4	5	4	0	5	5	28
(En) daar juist dan naast woont mijn oma	2	0	3	0	0	2	2	9
(En) juist daar dan naast woont mijn oma	3	0	3	3	4	3	3	19
(En) daarnaast juist dan woont mijn oma	0	0	1	2	1	5	1	10
(En) daar juist naast dan woont mijn oma	5	4	2	4	3	4	2	24
(En) juist daarnaast dan woont mijn oma	5	4	3	4	3	3	4	26
(En) dan juist daarnaast woont mijn oma	5	5	4	4	5	5	5	33
(En) dan daar juist naast woont mijn oma	5	5	3	5	4	3	4	29
(En) dan daarnaast woont mijn oma	5	5	4	5	5	5	5	34

Table 1. Results of questionnaire; scores from 0 (very bad) to 5 (very good).

Recall that the initial hypothesis in this paper is that non-temporal *dan* within PPs is an abstract discourse-navigating device. The restrictions on the co-occurrence and interpretation of focusing *juist* are of interest here because they can be taken to suggest that non-temporal *dan* behaves like elements which have been classified as discourse particles in other languages, because, like these discourse particles, *dan* cannot be focused and stressed (see Munaro & Poletto 2002: 92 on these diagnostics which are taken to hold cross-linguistically). Exploring this hypothesis, we follow Munaro & Poletto (2002, 2008) and propose that, like other discourse particles, *dan* is a syntactic head and hence cannot occupy a specifier position. Accordingly, we argue that PP-internal *dan* has head

status and, based on its abstract navigating function, that it occupies a topmost head position in the functional layer of the adpositional system; tentatively, we submit that this position encodes a topic-like (or deictic) interpretation, and we thus claim that its semantic contribution can be accounted for in information structural terms. In other words, we hypothesize that PP-internal *dan* operates at the level of discourse meaning. Our structural hypothesis can be depicted as follows: in (20), we treat the head *dan* as a spell out of the C head which finishes off the PP functional domain.

- (20) a. [CP [C' *dan* [DegP Spec [Deg' *juist* [PlaceP {*daar*} [Place' Place [PP Spec [P' [*naast* {~~*daar*~~}]]]]]]]]]]
 b. [CP {*daar*} [C' *dan* [DegP Spec [Deg' *juist* [PlaceP {~~*daar*~~} [Place' Place [PP Spec [P' [*naast* {~~*daar*~~}]]]]]]]]]]

3.2.2. Complications: An alternative analysis

Upon further scrutiny, however, the data in Table 1 above raise an immediate problem for the analysis in Section 3.2.1. The representations in (20) would lead us to expect that only two orders are acceptable: *dan juist daar* and *daar dan juist*. Patterns like (21) divert from this and suggest the need for postulating additional functional structure because the examples receive higher scores than those with the unacceptable ordering *juist > dan*. The patterns in (21) are ordered by score (out of 35), and they all pose problems for our tentative analysis in (20):

- (21) a. *dan daar juist naast* (score: 29)
 b. *juist daarnaast dan* (score: 26)
 c. *daar juist naast dan* (score: 24)
 d. *juist daar dan naast* (score: 19)

Our claim in (20) has been that *dan* is a functional head occupying the highest discourse-related head in the functional layer of the PP system. According to (20), *dan* has topical material in its specifier (*daar*) and focal material to its right (*juist naast...*). Consequently, *dan* partitions topical and focal material inside the PP; in other words, it acts as a ‘watershed’ element at the level of information structure (see also below), and we thus postulate that *dan* has a fixed position and does not move. From these assumptions, it follows that the patterns in (21) cannot be derived by our structural claims in (20).

To account for the unexpected acceptability of the word order options in (21), while maintaining the core claims sketched in (20), we will propose an alternative analysis for modifiers like *juist*. We assume that modifiers such as *juist* constitute maximal projections which freely adjoin to already existing phrases (of different sizes). Such an approach has been argued for in the discussion of focus particles, most notably by Büring & Hartmann (2001); but see also Jacobs (1983) for an early account. One of the many data points provided by Büring & Hartmann (2001) in support of the proposal is that German focus particles can occur in the prefield of V2 clauses (i.e., in SpecCP) alone and that therefore, by assumption, they constitute maximal projections. The following cases taken from Büring & Hartmann (2001: 241) exemplify this point:

(22) a. [CP Auch [C' war ich sehr MÜDE]_F]

Also was I very tired

‘Also, I was very tired.’

b. [CP Nur [C' WEISS das keiner]_F].

only knows that nobody

‘It’s just that nobody knows about it.’

While, admittedly, this account may remain controversial for the syntax of CP-level focus particles (see Bayer 1996 for an alternative approach and Bayer & Trotzke 2015 for recent discussion), the option of the focus particles to freely adjoin to existing maximal projections has been argued to also hold for DP-internal focus particles in German (Sudhoff 2010; Kleeman-Krämer 2010).

In line with this approach to focus particles and departing from the earlier analysis in (20) above, we henceforth assume for Dutch that, like other focus particles, PP-internal focus modifiers like *juist* left-adjoin to focusable and maximal projections. The consequence of such an approach would be that *juist* does not occupy a fixed position (i.e., Deg) in the extended adpositional projection as suggested above. Rather, the modifier can adjoin to any projection within the PP provided it is maximal and focusable.¹⁰ This revised account remains in line with our hypothesis in (20) that non-temporal *dan* is a type of discourse particle and thus constitutes a functional head in the PP system. Consequently, in this line of reasoning, the PP-internal configurations which are ruled out are the orderings in which *juist* would have to adjoin to the functional head *dan* (23a-b), and the unacceptability of these word order options is corroborated by the data pattern summarized in Table 1:

¹⁰ Our claim that *juist* can be adjoined freely predicts that there should be no ordering restrictions when *juist* co-occurs with other expressions that have traditionally been analyzed as being part of a Degree Phrase headed by *juist* (e.g., *drie meter*; see Koopman's 2000 proposal in [13] above). However, the ordering *juist drie meter* is only possible in a reading where *juist* is construed with the measure phrase, and thus for a PP-scope interpretation, the ordering clearly is: *drie meter juist*. We submit that this should receive a semantically based explanation, which is needed anyway for many facts in the domain of both particle and adverbial syntax; restrictions such as *Peter even also only drank water* vs. **Peter only also even drank water* (Zimmermann 2011: 2036) most probably can be explained on purely semantic grounds (for adverbials, see Ernst's 2007 scope-based approach in the domain of multiple adverbial modifiers).

- (23) a. *(en) daarnaast juist dan
 (and) there-next-to exactly then
- b. *(en) daar juist dan naast
 (and) there exactly then next-to

Based on the above, we then arrive at the following revised structural claim for the PP-internal occurrence of non-temporal *dan*:

- (24) [_{TopP} {*daar*} [_{Top'} *dan* [_{PlaceP} {*daar*} [_{Place'} Place [_{PP} Spec [_{P'} [*naast* {~~*daar*~~}]]]]]]]]]]

3.2.3. Applying the analysis

The acceptable orderings reproduced in Table 1 and discussed above as well as the data in (14)-(17) remain accounted for because we have not modified the possible positions of the relevant elements *daar*, *dan*, and *naast*. For reasons of space, we will not review these here again. Let us briefly illustrate how our modified analysis can capture the acceptable – but initially problematic – orderings in (21) above, repeated here for convenience.

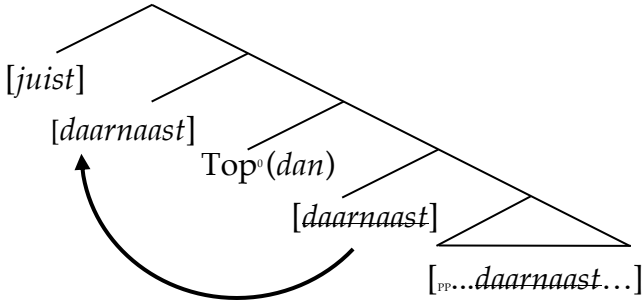
- (25) a. dan daar juist naast (score: 29)
 b. juist daarnaast dan (score: 26)
 c. daar juist naast dan (score: 24)
 d. juist daar dan naast (score: 19)

In (25a), *juist* adjoins to the maximal projection (PP) of the preposition *naast*,; the R-pronoun *daar* moves to SpecPlaceP and stays there; this derivation is summarized in (25a’):

(25a’): [TopP [Top’ *dan* [PlaceP {*daar*} [Place’ Place [PP *juist* [PP Spec [P’ [*naast* {~~*daar*~~}}]]]]]]]]]

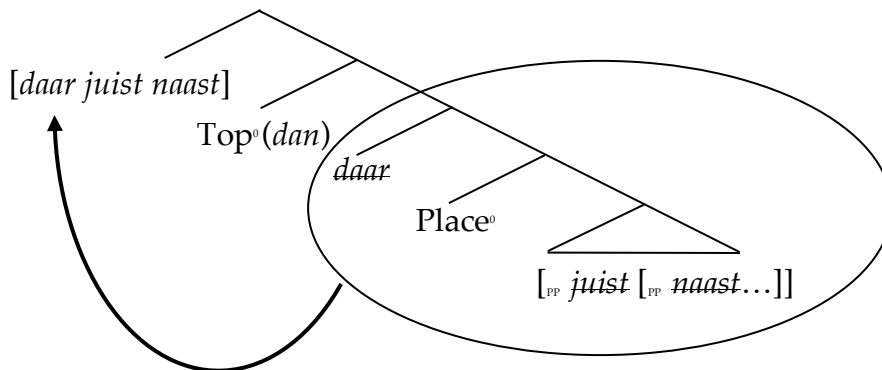
In (25b), *daar* moves from the complement position of P to SpecPlaceP, leading to *daarnaast*. PlaceP moves as one constituent SpecTopP of *dan*, leading to the final position of *dan*. In this example, the focus modifier *juist* adjoins to the maximal projection TopP:

(25b’)



In (25c), the modifier *juist* adjoins to the PP *naast*, and, after *daar* has moved to SpecPlaceP, the constituent PlaceP is again moved to SpecTopP, the specifier position of the particle *dan*:

(25c')



The final ordering in (21d) can be accounted for by postulating that *daar* moves to SpecPlaceP and from there further to SpecTopP headed by *dan*, and that *juist* adjoins to TopP.

At this point, we have shown how our system can derive all (potentially) acceptable PP-internal patterns of non-temporal *dan*. Crucially, our structural analysis is based on a number of claims already established in the literature on the functional makeup of Dutch PPs (e.g., Koopman 2000), on discourse particles (e.g., Munaro & Poletto 2002), and on focusing material within the nominal domain (see the discussion above). In our approach, we intertwine these different empirical domains and structural analyses to capture the PP-internal occurrence of the Dutch particle *dan*.

After having elaborated a proposal for the syntactic position of PP-internal non-temporal *dan*, we will now look both beyond the PP and beyond Dutch by turning to the interpretation of this non-temporal use of *dan* and further exploring how the interpretation of non-temporal *dan* may be relevant in relation to other discourse particles described in the literature.


4. Beyond non-temporal *dan*: Navigating the discourse

Exploring our hypothesis that, as a discourse-navigating device, *dan* partitions topical and focal material within the extended adpositional projection, this section examines the semantic role of this PP-internal particle in more detail. In particular, we will first argue that, as a discourse partitioner, *dan* can to some extent be assimilated to the CP-level discourse particles in German. After having isolated this commonality between PP-internal *dan* and German CP particles like *denn* (lit. ‘then’, but in its particle use distinguished from its use as a conjunction), we will formulate an account according to which, inside the locative PP, non-temporal *dan* navigates between ‘figure’ and ‘ground’. We will extend this approach to examples in which non-temporal *dan* does not navigate space but rather time. Given our understanding of PP-internal *dan*, we will also suggest that our account can also be used for analyzing the controversial semantic contribution of German *denn*, because this particle also serves to navigate between figure and ground in the sense we are discussing below. But before we turn to the general idea of how both *dan* and *denn* contribute to navigating discourse components at different syntactic levels (i.e., PP and CP), let us first illustrate that both these particles have a fixed position in their syntactic domain that can be detected by means of the relevant information-structural setting.

4.1. Particles as discourse partitioners: From PP particles to clause-level particles

Recall that we have shown above that inside the PP, *dan* only allows topical material to its left and that, as shown by means of focus modifiers, PP-internal *dan* cannot itself be focused. Crucially, such information-structural configurations can also be observed in the domain of clause-level particles. In particular, we can easily draw parallels from the PP-internal patterns to the behavior of German CP-level particles such as the German cognate of *dan*: the particle *denn*, which is typically

found in interrogative sentences. In the examples in (26), for instance, movement across the *particle denn* results in shrinking the focus domain of the clause, in that constituents which appear to the right of the particle are interpreted as focused material (see Bayer & Obenauer 2011: 456 for analogous examples). When only the lexical verb remains in the focus domain to the right of the particle, as in (26d), the verb receives heavy stress (i.e., [...] *in der Stadt denn GEGESSEN?*). In all of the examples in (26), *denn* itself cannot be focused and receive stress.

- | | | |
|---------|---|-----------|
| (26) a. | Was hat denn Andreas gestern in der Stadt gegessen? | |
| | what has PART Andreas yesterday in the city eaten | |
| b. | Was hat Andreas denn gestern in der Stadt gegessen? | SHRINKING |
| | what has Andreas PART yesterday in the city eaten | OF |
| c. | Was hat Andreas gestern denn in der Stadt gegessen? | FOCUS |
| | what has Andreas yesterday PART in the city eaten | DOMAIN |
| d. | Was hat Andreas gestern in der Stadt denn gegessen? | |
| | what has Andreas yesterday in the city PART eaten | |
- 

Bayer & Obenauer (2011: 455) provide additional evidence for this discourse-partitioning function of the discourse particle by showing that weak and clitic pronouns obligatory precede *denn*:

- (27) Hat {es/'s} denn {*es/*'s} jemanden interessiert?
 has it PART it someone interested
 'Did someone take an interest in it?'

Observations like those above for *denn* have also been made for the prototypical declarative particles in German such as *ja* and *doch*. Specifically, Grosz (2016) has recently proposed that these particles have an information-structural ‘watershed’ function (Grosz adopts this term from Krivonosov 1977). This is illustrated in (28) (examples from Grosz 2016: 338):

- (28) a. weil Riko ja eine Frau geküsst hat
because Riko PART a woman kissed has
‘(...) because Riko has [JA] kissed a woman.’
- b. weil {man ja / *ja man} arbeitet
because one PART PART one works
‘(...) because one is [JA] working.’

In (28a), the proper name *Riko* is intended to express ‘old/topical’ information, and the indefinite NP *eine Frau* should convey ‘new/focal’ information. A non-focusable phrase such as the arbitrary pronoun *man* cannot appear to the right of the particle *ja*; such elements precede the particle obligatorily (28b).

According to our terminology, both interrogative *denn* (see above) and declarative particles such as *ja* thus act as discourse partitioners. In other words, both in declaratives or interrogatives, the information-structural ‘watershed’ function seems to be a general feature of German CP-level discourse particles. What is more, recent work has also shown that particles like *ja* also operate as watershed elements in this sense at the level of DP (see Trotzke 2018).¹¹ We thus see a clear

¹¹ Cf. the following examples, where we observe a clear information-structural difference between the two different placements of the modifier ‘in the last season’. That is, in (ib) either ‘last’ or ‘season’ would be heavily stressed, in contrast to the ordering in (ia); see Trotzke (2018: 335) for more discussion:

parallel between our structural claim in Section 3, where PP-internal *dan* occupies a topical functional head, and the observations that have been made for discourse particles in other syntactic domains. With this parallel in mind, let us now return to our PP-internal *dan*.

4.2. Discourse partitioning and the figure-ground relation

What all our examples discussed in Sections 2 and 3 share is that in terms of interpretation, PP-internal *dan* in locative PPs (such as *daar naast de kerk* ‘there next to the church’) is a discourse device which navigates between a reference landmark (in these examples encoded by *daar*) and the constituent that it introduces (i.e., the object that is in focus; in some of our examples: ‘the church’). This situation, as we would like to suggest in what follows, can be modelled in terms of the fundamental figure-ground relation, which has often been used, particularly by cognitive linguistics, to model linguistic data in terms of Gestalt psychology. In Talmy’s (2000: 184) words,

“The Figure is a moving or conceptually movable entity whose site, path, or orientation is conceived as a variable the particular value of which is the relevant issue.

The Ground is a reference entity, one that has a stationary setting relative to a reference frame, with respect to which the Figure’s site, path, or orientation is characterized.”

-
- (i) a. ihre in der letzten Saison ja umwerfenden Schuhe
her in the last season JA gorgeous shoes
b. ihre ja in der letzten Saison umwerfenden Schuhe
her JA in the last season gorgeous shoes

This conceptual background is an appropriate tool to capture the function of non-temporal *dan* when found in such locative PPs. More concretely, when *dan* occurs in an utterance like (29), its interpretation can be visualized as in (29’):

- (29) (En) **dan daar naast de kerk** (is een huis).
and then there next-to the church (is a house)
(29’)

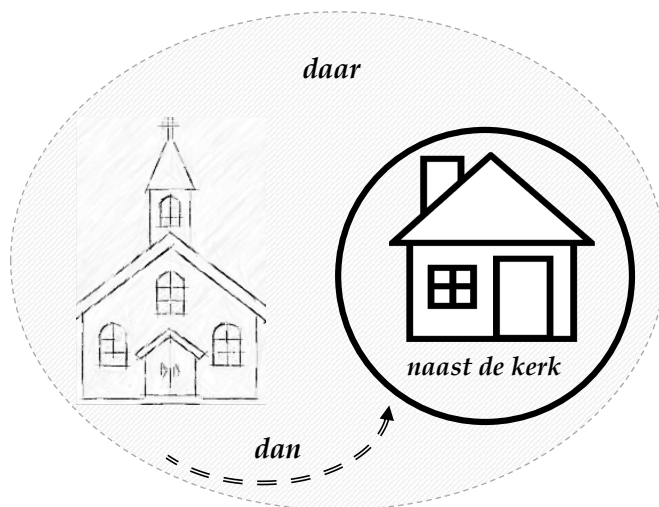


Figure 1. *dan* navigating between ‘ground’ (referred to by *daar*) and the ‘figure’.

The interpretation of non-temporal *dan* is indeed a rather abstract one that has to be accounted for in broad terms like our thoughts on figure and ground and the corresponding situation indicated in Figure 1. This is further supported by the data in the following section, showing that non-temporal *dan* can fulfill its abstract navigating function across different semantic domains.

4.3. Discourse navigation and temporal adjuncts

Interestingly, the navigating function of non-temporal *dan* is not exclusive to locative PPs. Indeed, further inspection of the data shows that the abstract navigating function of *dan* can even be detected in a temporal domain; that is, *dan* can not only navigate space, but also time. Consider the following examples:

(30) a. (en) **dan op de tweede dag** zijn we naar Gent gegaan.

and then on the second day are we to Ghent went

‘... and then on the second day, we went to Ghent.’

b. (en) **op de tweede dag dan** zijn we naar Gent gegaan.

and on the second day then are we to Ghent went

‘... and then on the second day, we went to Ghent.’

We can easily see that the element *dan* in (30) is the same abstract (and thus ‘non-temporal’) discourse-navigating device as in our locative cases above. (31) illustrates that the whole temporal constituent [*dan op de tweede dag*] or [*op de tweede dag dan*] can itself be resumed once again by the temporal resumptive *dan* (= *dan*₂), demonstrating that *dan*₁ must be part of the PP and does not itself convey the temporal reading of *dan*₂. Rather, *dan*₁ is a discourse navigator over times and thus links two points of time according to the figure-ground scheme depicted in Figure 1.

(31) a. (en) **dan₁ op de tweede dag, dan₂** zijn we naar Gent gegaan.

and then on the second day then are we to Ghent went

b. (en) **op de tweede dag dan₁, dan₂** zijn we naar Gent gegaan.

In sum, both in terms of the syntactic positioning and in terms of its interpretation we can conclude that what originates as a regular temporal adverbial (*dan*) can be redeployed to act as an abstract discourse-navigating device which can best be understood in terms of linking figure and ground, as we tried to illustrate in Figure 1 above.

4.4. German *denn* and the figure-ground relation

We have seen that PP-internal non-temporal *dan* reveals that this particle divides the syntactic domain it is associated with into topical and focal material. Moreover, the function of non-temporal *dan* as a linking device for the different components of the discourse structure can be realized both in space and in time, suggesting that the linking encoded by *dan* can be viewed in terms of an abstract concept of partitioning between figure and ground. With these considerations in mind, let us now return to the German cognate of *dan*, i.e., the CP-level particle *denn*, which is typically used in interrogative sentences.

Looking at the rich literature on this particular particle, it emerges that a range of theoretical proposals and refinements have been proposed to characterize the exact semantic contribution of the particle *denn* in questions and to define the specific conditions of its use. To illustrate this point, let us briefly paraphrase some of the accounts found in the literature (summaries/sketches of further accounts can be found in Csipak & Zobel 2015 and Theiler 2017):

König (1977): *denn* signals that the reason for posing the question can be found in the current discourse context.

Romero (2017): *denn* signals that the question ‘has been pondered about.’

Gutzmann (2015): *denn* is only felicitous if the hearer knows the reason why the speaker is asking the question

Csipak &

Zobel (2015): *denn* is felicitous when A believes that B is able to supply an answer.

All the accounts referenced here are based on detailed discussions of relevant examples. However, when looking at the vast amount of literature on *denn*, it emerges that the conclusions drawn on the basis of many of these examples can be – and have been – challenged, and so the selection and inclusion of specific examples heavily depends on the interpretive notion of *denn* which the relevant author is arguing for. To see this point, consider (33), an example discussed by König (1977: 119) which is often cited in the literature on *denn*:

(33) CONTEXT: A wakes up B and A asks:

Wie spät ist es denn?

how late is it PART

According to König (1977), one component of the function of *denn* is that of indicating that the information asked for by the speaker is part of a discourse already established between the speaker and the hearer. (33) is taken to demonstrate that questions featuring *denn* are infelicitous when the addressee (here: B, who has just woken up) lacks a context (read: ‘common ground’) in which to interpret the question.

One prediction of König’s (1977) characterization is that the particle *denn* should be ruled out in an out-of-the-blue usage. However, it has repeatedly been pointed out (most recently by Theiler 2017) that *denn*-questions can arise out of the blue. (34) is perfectly appropriate in an out-

of-the-blue context, and in fact using *denn* in such a context is a very natural way to ask such an information-seeking question out-of-the-blue:

(34) CONTEXT: Someone asking a passerby:

Wo ist denn hier der Bahnhof?

where is PART here the train-station

‘Where is the train station here?’

In what follows, we will not discuss each of the other approaches to *denn* listed above. Let us merely point out that the empirical evidence for the claims made is inconclusive and that, typically, the formal semantics/pragmatics literature provides counterexamples to each of the claims made. The overall conclusion that we would like to draw from this situation is that the discourse function encoded by *denn* must perhaps be conceived in more abstract and broader terms.

To provide an alternative perspective on the conflicting discussions, and based on what we have sketched for PP-internal *dan* above, we would like to further explore some concepts associated with the particle *denn* in the more recent literature, namely that *denn* is a ‘discourse-navigating device’ (Csipak & Zobel 2015), and that it therefore ‘helps interlocutors with navigating a discourse’ (Theiler 2017). Given our data on non-temporal *dan* above, we would like to take these informal paraphrases seriously by endorsing such a more narrowly spatial interpretation of *denn*, which is then conceived as a navigation device between figure and ground in the sense introduced above for PP-internal *dan*. In this approach, an utterance like (35) would encode the meaning depicted in (35’), where the particle *denn* navigates between the ‘ground’ (the reason(s) for posing the question) and the ‘figure’ (the question/the highlighted, focused part of the question):

(35) Wo ist **denn** der Bahnhof?
 where is part the train-station

(35')

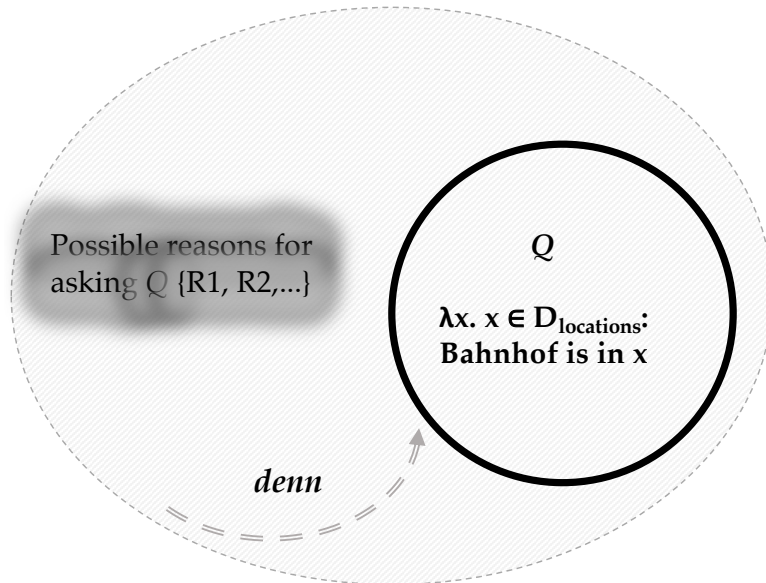


Figure 2. *denn* navigating between the ‘ground’ (the reason(s) for posing the question) and the ‘figure’ (the question/the highlighted, focused part of the question).

This narrowly spatial approach to the discourse particle *denn* is the grammaticalization path that has been postulated for *denn* in the diachronic literature (see Abraham 1991; Wegener 2002). In particular, the particle *denn* can be derived from Idg. root **to*, which expresses a deictic meaning. OHG *danne/thanne* (cf. English *then*) first was a locative adverb and only later became a temporal adverb. Based on this diachronic development, Abraham (1991) sketches the following grammaticalization path:

(36) localistic > temporal > logical > illocutive/discourse functional

The development summarized in (36) can be found elsewhere. Indeed, the final step of the grammaticalization process might also hold for English *then*. Biezma (2014) has recently suggested that in addition to encoding a temporal or logical link at the clausal level, English *then* can also act as an abstract discourse-functional element beyond the clausal level. In her words: “I argue that *then* is a discourse marker establishing an anaphoric relation with the previous *discourse move*.” (Biezma 2014: 374); see also Haselow (2011) for relevant work.

The abstract nature of *denn*, which, according to our claim, is captured in terms of an abstract linking function to relate figure and ground, is also indicated by Bayer’s (2012) work on the dialectal usage of *denn*. Bayer (2012) has proposed that the grammaticalization path in (36) should be prolonged as in (36’) because in Bavarian, the clitic version of *denn* (-n) has become obligatory in genuine *wh*-questions and has thus shifted toward a pure question marker:

(36’) (...) illocutive/discourse functional > *wh*-question marker

- (37) a. Wo wohnst-n du?
 where live-N you
 ‘Where do you live?’
- b. ?? Wo wohnst du?

Our more abstract conception of the interpretation of *denn* in terms of a figure-ground relation allows us to also characterize the functioning of the clitic version of *denn*, which is used in Bavarian. Like in all the other cases of German *denn*, and like in the Dutch examples featuring PP-internal *dan*, the Bavarian version of *denn* continues to function as a linking device. This means

that it is not semantically empty: it is deployed for linking general felicity conditions of questions ('the ground') to the actual posing of the question ('the figure'). More specifically, in those cases, 'the ground' would correspond to Searle's classical conditions: "[...] Preparatory condition: (i) S does not know the answer (ii) It is not obvious that H will provide the information without being asked. Sincerity condition: S wants this information. [...]" (Searle 1969: 66-67); the figure, on the other hand, corresponds to the actual performance of a speaker when he poses the question based on these conditions.

In this section, we have shown what can potentially be gained by exploring cross-linguistic parallels of Dutch *dan* and German *denn*. In particular, transferring the interpretation of the PP-internal occurrence of the Dutch abstract PP-internal discourse navigator *dan* to the German CP-level discourse particle *denn* can help characterize the abstract discourse-navigating function of *denn*. Because to date none of the current accounts in the literature has succeeded in capturing all the relevant readings and examples of *denn*, we suggest in this paper that the interpretive contribution of the particle *denn* should be looked at at a more abstract level. For the interpretation of Dutch PP-internal *dan*, we propose that a spatial understanding of its linking function (between figure and ground) suggests itself. The point of the present section has been that this spatial understanding can fruitfully be extended to capturing the interpretive contribution of CP-level *denn*. While, admittedly, a drawback of this type of approach is that it fails to specify the precise interpretive and discourse restrictions on the particle *denn* in German, by going beyond language-specific data points, it has the advantage of pointing to cross-linguistic patterns and parallels that might eventually lead us to a better understanding of the basic inventory of functional elements and/or projections and their interpretations.

5. Conclusions

In this paper, we have presented the new observation that discourse particles can not only appear at the level of CP, but also inside the PP domain. In particular, we demonstrated that the Dutch lexical element *dan* (lit. ‘then’) can receive a non-temporal interpretation, which we characterize as a discourse-navigating function that links figure and ground. Syntactically, *dan* in this discourse reading appears as a functional head inside a complex PP constituent. To show this, we first illustrated the core data in Section 2 and argued that non-temporal *dan* has to be part of the prepositional phrase. Pursuing this insight, Section 3 has then elaborated on the internal structure of adpositional projections in Dutch, in line with some of the existing literature (Koopman 2000; see also Den Dikken 2010). We concluded from our data that PP-internal *dan* is a functional head with a fixed position in the extended adpositional projection.

After having elaborated a detailed structural analysis of this phenomenon, we have looked beyond Dutch and compared the discourse function that *dan* has inside the PP to the role that its German CP-level cognate *denn* plays at the clausal level. We argued for a unified approach according to which both cases can be analyzed along the same lines because they express the same abstract discourse function: both PP-internal *dan* and German *denn* are discourse-navigating devices that link ‘a ground’ to ‘a figure’, only differing in their semantic domains of application. Using this broader cognitive approach to account for the discourse function of both Dutch *dan* and German *denn* allows us to fruitfully extend the spatial understanding of such linking devices also to non-spatial discourse domains, thereby illustrating how cross-linguistic patterns and parallels might point to an inventory of functional elements and projections that can be found across syntactic domains (in our case, the prepositional and clausal domain). In this regard, our paper is in line with recent work that pointed out that functional categories related to the occurrence of

discourse particles can also be found inside the DP domain, and that these DP-internal categories and their interactions suggest strong parallels to what has been pointed out for CP-level particles (e.g., Lander 2017; Trotzke 2018).

All in all, we hope to have provided a starting point for further investigating the rich functional makeup of PPs, which has developed into a lively area of research more recently (in addition to the literature already cited, see Aelbrecht & Den Dikken 2013; Broekhuis & Den Dikken 2018; and Svenonius 2010). To the best of our knowledge, this chapter on PP-internal occurrences of discourse particles adds a new empirical phenomenon to this strand of syntactic work, and we also open up the possibility of exploring further PP-internal uses of (temporal) adverbs – like Dutch *nu* ‘now’ (Zwart 2005: 28) and German *nun* ‘now’ – that might also feature an abstract and non-temporal discourse-navigating function.

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