

PARTICLES  
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In earlier work on the syntax of argument structure (e.g, Hale and Keyser, 1993, 1997a,b, 1999), we postponed analysis of one of the most interesting and characteristic grammatical phenomena of English, namely, verb and particle constructions of the type exemplified in (1):

- (1) (a) She put her saddle up on the fence.
- (b) He put his tackle down on the ground.
- (c) She put her saddle up.
- (d) He set his tackle down.

Fortunately, there exists a study of particles, by Marcel den Dikken (1995), which has many of the characteristics which we assume are fundamental in a syntactic theory of argument structure. In the present discussion, we will simply attempt to demonstrate how den Dikken's insights and analysis might be represented in the framework we have been developing, making changes (generally of a technical nature) only where necessary.

We agree that particles of the type we are concerned with here are heads projecting structures of some sort. Consequently, we are compelled to ask what properties these heads have which determine the structures they project. To this end, let us consider first the particles in the shorter sentences of (1), the natural question being whether or not they are in some sense elliptical or possessed of a nonovert complement (e.g., a dropped or nonovert PP like those seen in the longer sentences (1a, b)).

We conclude that the answer to the question just posed is probably negative, based on evidence which suggests that an empty category of an understood sort—e.g., the type associated with movement, i.e., a trace—cannot appear in the position which would correspond to that of the complement of the particle. Thus, for example, the PP in (1a) is not an appropriate answer to (2):

- (2) (a) Where did she put her saddle up?
- (b) On the fence.

The dialogue in (2) makes sense—for us, at least—only if *on the fence* is taken to refer to the location of the event as a whole, as in the more likely scenario in (3):

- (3) (a) Where did she put her saddle up?
- (b) In the tack room.

The PP in (2b) cannot be taken to represent the "non-overt sister" of the particle in (2a). The same holds for the following:

- (4) (a) On which rack did she put her saddle up?  
 (b) On the farthest rack.

Again, there is an interpretation for (4a), but it is not one according to which the phrase *on which rack* heads a chain in which the trace occupies the position of the PPs in (1a, b). The question and the answer alike only make sense if the agent were herself *on the farthest rack*, there *putting her saddle up*, on a peg, or the like. We assume, therefore, that the trace which appears in the acceptable readings of (2-4a) is not a complement of the particle. Thus, the structure in (5), where the hypothetical trace is indeed in the complement relation to the particle, is not possible:

- (5) [ $\pi$   $\pi$   $t$ ],  $\pi$  a particle.

It follows then that sentences (2-4a) are unambiguous, corresponding roughly to the paraphrase *where was she when ...*, and not to the sense in which the end point of the saddle is questioned—and therefore not to that in which the trace is, by hypothesis, in the structural position shown in (5). This issue is taken up in den Dikken (1995), where it is proposed that  $\pi$  is not a fully lexical category, and unlike a true preposition, cannot licence a trace. We will assume that this is the correct analysis, with one minor proviso. And we assume further that the analysis extends to the bare-particles of (1c-d); that is to say, there is no “hidden” PP complement following the particle, since such an empty category can not be supported by  $\pi$ .

The proviso is this. Some occurrences of *up* and *down* are not particles but full prepositions (P), hence “lexical” in the sense of den Dikken. These can “strand” in the usual manner:

- (6) (a) Which road did Leecil run down?  
 (b) Which rope did the ants crawl up?

Though the category  $\pi$  is possibly a type of preposition, as suggested by den Dikken, it is not lexical in the sense of a nuclear element capable of licensing a trace, and members of the category are not to be confused with homophonous fully lexical prepositions which exist in some cases.

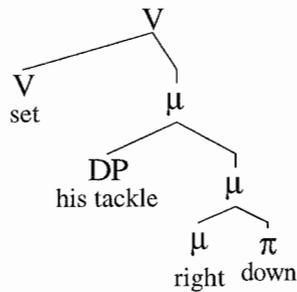
We are also in agreement with den Dikken in his thesis that the particle constructions of the type represented in (1) above are “Small Clauses”. For us, this means a particular thing, since Small Clauses are not an autonomous structure in our conception of syntactic configurations projected from the lexicon. A small clause, in our view, is defined in terms of the relations complement and specifier. This commits us to a certain structure for the particle constructions in (1).

Let us begin with a consideration of the “bare particle” type exemplified in (1d), repeated here as (7a):

- (7) (a) He set his tackle down.  
 (b) He set his tackle right down.

The Small Clause here consists in the string *his tackle down*. As in the case of adjectival small clauses of the type *the sky clear*, as in *with [the sky clear] we can fly today*, we are confronted here with a predicate and the specifier of which it is predicated, but there is no overt head which projects the necessary structure. We assume that there is however a nonovert head—in both cases, that of the adjective and that of the particle—and that there are overt members of the class to which it belongs. In the case of adjectives, the comparative exemplifies the overt head, as in *we found [the sky clearer]* (see Hale and Keyser, 1997c). In the case of particles, we will assume that the elements which den Dikken terms “modifiers” (p. 38-41) are overt instantiations of the minor category  $\mu$  which selects the particle as its complement, as in (7b), whose verb phrase is diagrammed as follows in accordance with our assumptions:

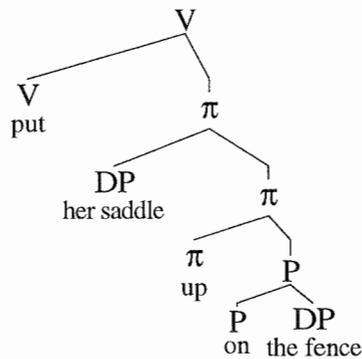
(8)



In (7a), by contrast,  $\mu$  is nonovert.

Returning to the longer sentences of (1), it is evident that the particles there (*up* and *down*) select a prepositional complement — this is what we must assume, given our view of syntactic configurations. The question we need to face now is how the specifier is introduced into the structure. That is to say, with which of the projections is the specifier combined at Merge? It is clear from the surface form that the specifier combines with the  $\pi$ -projection, at least, as shown in the structure corresponding to the verb phrase of (1a), *put her saddle up on the fence*:

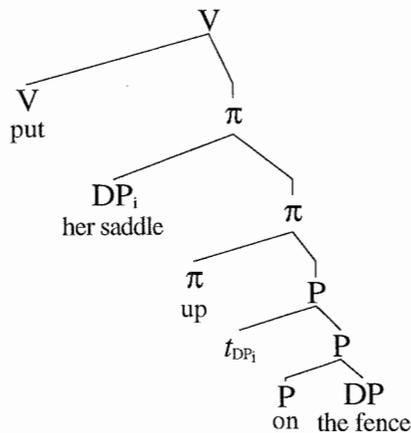
(9)



Here, the particle ( $\pi$ ) selects the prepositional projection (P) as its complement. The construction as a whole, requires a specifier (DP). If we maintain that (9) reflects the actual "history" of the applications of the Merge operation in the derivation of the full  $\pi$ -construction, then we are adopting what might be termed the "delayed gratification" account of the satisfaction of the requirement that P requires a specifier — in short, we are saying that we can wait until the  $\pi$ -projection to introduce the specifier required by P.

But there is another possibility, one which is similar in nature to the analysis proposed by den Dikken. This alternative is the "instant gratification" scenario, according to which the specifier is introduced by Merge at the P-projection and then again, via Move, at the  $\pi$ -projection:

(10)



We maintain that the delayed gratification account, corresponding to (9), is the correct one, and that the alternative in (10) is impossible. This conclusion would be inevitable if, for example, (9) were more economical than (10) and if it therefore preempted the latter. This is in fact what we assume.

It is possible that there is some empirical support for delayed gratification. Consider the following pairs:

- (11) (a) She put her saddle up on the fence.  
(b) \*She put up her saddle on the fence.
- (12) (a) He threw the cat down into the well.  
(b) \*He threw down the cat into the well.

The ungrammaticality of the (b)-sentences here would follow from the delayed gratification account. The structure underlying these sentences is not possible in that account. Whether this is truly relevant depends on a more general understanding of particles, however. If particles themselves require specifiers, then that would also account for the (b)-sentences above. So far as we can see, particles do not *in and of themselves* require specifiers. They are "defective," not only in the sense identified by den Dikken, accounting for their inability to support an empty category in complement position, but also in the sense that they function only synergetically with their overt complements in the projection of specifiers.

The following data from den Dikken (1995:45, 54) are relevant:

- (13) (a) They made John out a liar.  
(b) They made John out to be a liar.  
(c) They made (\*it) out that John is a liar.  
(d) They find \*(it) painful that John is a liar.

A predicate nominal, or an infinitival predicate likewise, requires that a specifier be projected, as in (13a-b), where the particle projects the specifier. But a fully saturated structure, like the embedded CP of (13c), does not require, in fact does not permit, that a specifier be projected. In this case, the particle *out* projects no specifier, rejecting even a proxy (*it*) construed with the embedded CP; this is in contrast to the situation represented by (13d), where proxy *it* is required in specifier position, for well understood reasons.

The particle *out* evidently cannot project a specifier, except synergetically, or parasitically. It cannot project a specifier on its own. If this is representative of all or most particles, it is an additional reflection of the idea that the category is less securely lexical than its prepositional cousin, a proposal which den Dikken expresses in terms of L-marking:

- (14) Particles are non-lexical prepositions, hence do not L-mark their complements (den Dikken's (54), p. 56).

The principle of delayed gratification, ruling out (11b) and (12b), will also account for the following (den Dikken, 1995:55-6):

- (15) (a) They painted the barn up red.  
(b) \*They painted up the barn red.
- (16) (a) They made John out a liar.  
(b) \*They made out John a liar.
- (17) (a) They made John out to be a liar.  
(b) \*They made out John to be a liar.

An adjective forces the projection of a specifier, this being an essential property of the category. Delayed gratification ensures that (15a), not (15b) will be generated. The same can be said of predicate nominals; the same logic rules out (16b).

In relation to (17b), and the b-sentences of (11-12) as well, there is some dispute. Den Dikken assigns to (17b) a parenthetic question mark only, and he judges (18b) (his (52b)) as fully grammatical:

- (18) (a) They put the books down on the shelf.  
(b) \*They put down the books on the shelf.

As indicated, we think, however, that (18b) is no better than the b-sentences of (11-12). However, we concur with his judgment of (19b) (his (53b)):

- (19) (a) They sent a schedule out to the stockholders.  
(b) They sent out a schedule to the stockholders.

We have a disagreement about the data. For the moment, let us assume den Dikken's judgments, in order to see how he accounts for them.

Consider the following set:

- (20) (a) \*They made out John a liar.  
(b) \*They painted up the barn red.  
(c) They made out John to be a liar.  
(d) They put down the books on the shelf.

Den Dikken appeals to (14) to account for the ungrammaticality of (20a-b). The particle is "insufficiently lexical" to L-mark the specifier of the P-projection and, assuming that the maximal projection of P is a barrier, the verb cannot assign case to *John* and *the barn*. On the other hand, (20c-d) are permitted, on his account, by virtue of the particle's defective-P status, according to which the particle is attached to P in the manner of an

adjunct, so that the node dominating it is a "segment" of P, not a maximal projection. The verb can therefore assign case to the specifier of P, as usual in an ECM configuration. The infinitival predicate of (20c) is assimilated to this analysis on the view that *to* is categorially a preposition (den Dikken 1995:60).

This is an interesting idea, but we believe that it will not hold up, because (20c-d) are—for us, at least—ungrammatical, as expected under the delayed gratification account. However, there is a problem for us as well—(19b) is perfectly grammatical. This is rather puzzling, because the stringwise similar (11b-12b) are impossible, for us.

The problem, we believe, is that there is an interpretation of (19b) which belongs to another class of structures, exemplified in (21):

- (21) (a) He wrote out a poem for his class.  
(b) They sent out a message for decoding.  
(c) They laid out a trousseau for the bride.  
(d) They put out a schedule for the stockholder.

We do not know exactly what the structure of these examples is, but we doubt that the particle here takes the PP as a complement. The ordering of the particle and the following DP in (21) is to be understood, we believe, in terms of the well known alternation shown in (22):

- (22) (a) He sent a message out.  
He sent out a message.  
(b) They laid the trousseau out.  
They laid out the trousseau.  
(c) They put a schedule out.  
They put out a schedule.

We contend that these are not relevant to the issues we have been discussing. They represent a true linearization rule, subject to certain morphophonological constraints. Interestingly, if the conditions are right, the particles of (11-12) can participate in this alternation:

- (23) (a) She put her rigging up.  
She put up her rigging.  
(b) He set his tackle down.  
He set down his tackle.

In general, it appears, the particle-before-DP order is not possible if the particle has a true complement, suggesting that the PP constituents in (21) are not complements of the particles. And we would claim further that the PP constituent in the relevant structure of (19) is also not a complement of the particle. The following comparison is relevant:

- (24) (a) To which stockholders did they send out the schedule?  
 (b) \*Into which well did he throw down the money.

The second sentence is impossible for the reasons we have suggested—the DP *the money*, by delayed gratification, must appear in the specifier position projected by the particle; hence, there is no way to derive this sentence; and extraction of the complement PP is impossible, in any event, for the reason given earlier. The first sentence is permitted (i) by virtue of the linearization alternation exemplified in (22-23), and (ii) by the extractability of adverbial PP, as in sentences like those in (25):

- (25) (a) For whom did they lay out a trousseau?  
 For whom did they a trousseau out?  
 (b) With which recipe did he conjure up those demons?  
 With which recipe did he conjure those demons up?  
 (c) In which room did they put up decorations?  
 In which room did they put decorations up?

If the extracted prepositional phrases in (25) are adverbial adjuncts, and not complements, then the variable positioning of the particles is to be expected, on the assumption that there is a rule of "transportation" (cf. Keyser) inverting the order specifier-particle under appropriate conditions, including the condition that the particle not have a complement. The rule of transportation may also apply, of course, when the adverbial PP is not extracted:

- (26) (a) They laid out a trousseau for the bride.  
 They laid a trousseau out for the bride.  
 (b) He conjured up those demons with a new recipe.  
 He conjured those demons up with a new recipe.  
 (c) They put up decorations in the kids' room.  
 They put decorations up in the kid's room.

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