Hidden universal quantification and change of argument structure in particle-verb constructions
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Abstract. I propose an analysis of verb phrases called Ground Promotion constructions (cf. McIntyre (2007)) or involving 'unpredicated particles' (cf. Levin and Sells (2009)) at the syntax-semantics interface. The interface framework combines principles of Minimalist Syntax and Distributed Morphology with Discourse Representation Theory. The analysis follows the hypothesis of a parallelism between the verbal and the prepositional domain, i.e. Split-P Hypothesis, but presents a different analysis for Ground Promotion constructions than the seminal paper Svenonius (2003): A silent passive p-head houses a hidden universal quantifier (HUQ) in the nucleus of which the implicit figure argument is existentially bound.

1. Introduction

1.1. Introductory examples

I propose an analysis of so-called Ground Promotion constructions (cf. McIntyre (2007)). Levin and Sells (2009) call them 'unpredicated particles'\(^1\). The constructions are compared with others built from the same prepositional and verbal roots. The central difference is that between (1a), (2a) and (2b) on the one hand and (1c), (2c) on the other.

\begin{align*}
(1) & \quad \text{a. } \textit{Er strich Farbe an eine Wand} & \quad \text{b. } \emptyset \\
& \quad \textit{he painted paint\textsubscript{acc} at a wall\textsubscript{p\textendash cs}} & \\
& \quad \text{'}he painted paint on a wall’ & \\
& \quad \text{c. } \textit{Er strich eine Wand (mit Farbe)} & \\
& \quad \textit{he painted a wall\textsubscript{acc} (with paint)} & \\
& \textit{an} & \\
& \textit{at.prtc.} & \end{align*}

\begin{align*}
(2) & \quad \text{a. } \textit{Wein lief aus einem Fass} & \quad \text{b. } \textit{Wein lief (aus einem Fass)} \\
& \quad \textit{wine\textsubscript{nom} ran out of a barrel\textsubscript{p\textendash cs}} & \quad \textit{wine\textsubscript{nom} ran (out of a barrel)} \\
& \quad \text{'}wine ran out of a barrel’ & \quad \text{'}wine ran out (of a barrel)’ \\
& \quad \text{c. } \textit{ein Fass lief aus} & \\
& \quad \textit{a barrel\textsubscript{nom} ran out.prtc.} & \quad \textit{a barrel emptied’}
\end{align*}

\(^1\)Their title is motivated by the observation that e.g. \textit{wipe the paint off} corresponds to the predication \textit{the paint is off}, whereas the particle in \textit{wipe the paint-brush off} has no counterpart in *\textit{the paint-brush is off}. 
In the (a) and (b)-examples, the figure DP, i.e. *Farbe* (paint), *Wein* (wine), gets structural case, (accusative or nominative) and the ground argument, i.e. *eine Wand* (a wall), *das Fass* (the barrel), is part of the PP and gets prepositional case (P-cs). In the (c)-examples the figure argument is ‘demoted’ — it is absent or part of a PP headed by *mit* (with) — and the ground DP is promoted to receive structural case.

The experts agree that Ground Promotion constructions, i.e. the (c)-examples are holistic, as indicated in the translations with ‘cover’ or ‘empty’. In terms of Aktionsart the (b)-examples are activities, the (c)-examples are accomplishment. Except for sentence aspect the “alternates” share entailments: fluid changes location: onto a surface; into an interior; from a surface; out of an interior.2

Thinking of the constructions, say (1a) vs. (1c), and (2a),(2b) vs. (2c), they are not simple alternations. The constructions in (1a) and (2a),(2b) describe change of location of the paint (or wine respectively) (1c) and (2c) do not (cp. (5b) and (6b)).

(5) a. *eine Büchse* *Farbe* an *eine Wand* streichen
   a tin of paint onto a wall paint
   ’to paint a tin of paint onto a wall’

   b. *eine Wand aus einer Büchse* anstreichen
   a wall out of a tin at.ptc.paint
   ’to cover a wall out of a tin of paint’

2(3) and (4) are verbal predicates antonymous to (1) and (2). N.B. The gap in (1b) is predictable. Particle *an* governs a redundant PP only if *an* has a support-reading, compare (8b) below.

(3) a. *Er streich* *Farbe* von einem *Pinsel*
   he wiped paintacc off a paint-brushp-cs
   ’he wiped paint off a brush’

   b. *Er streich* *Farbe* (von einem *Pinsel*)
   he wiped paintacc (from a brush) ab
   off,ptc
   ’he wiped paint from a brush’

   c. *Er streich* einen *Pinsel* ab
   he wiped a brushacc off,ptc
   ’he rid the brush of paint’

(4) a. *Wasser lief* in *eine Wanne*
   water ran into a tubp-cs
   ’water ran into a tub’

   b. *Wasser lief* (in *eine Wanne*) ein
   water ran (into a barrel) in,ptc
   ’water ran into a tub’

   c. *eine Wanne lief* (mit *Wasser*) ein
   a tubnom ran (with water) in,ptc
   ’a tub filled (with water)’
1.2. Logical Form and figure demotion

The semantic relation of application as such doesn’t provide any explanation yet for why in (1c) and (2c) the ground argument (the wall, the barrel) is overtly realised in a description containing an +die Wand (or aus + ein Fass), but the figure argument is not. An explanation must be given in terms of their different Logical Forms: The interpretation of Ground Promotion construction involves existential quantification of the variable representing the figure argument y, within the scope of a universal quantification. I refer to this complex quantification operation as Hidden Universal Quantification, HUQ. In a nutshell — reducing it to the bare bones of its Logical Form — HUQ is displayed in (7).

(7) HUQ:  
\[
\begin{array}{c}
\forall \ \ y^i, r' \\
\text{HAVE}(y^i, r')
\end{array}
\]
The Logical Form is to be read as follows: For all sub-regions $r^i$ of a region $r$, there exists a portion $y^i$ of stuff to the effect that each region $r^i$ stands in the HAVE-relation to $y^i$. The state variable $s$ in (7) represents the state where each sub-region $r^i$ is applied with stuff. Thus HUQ accounts for the holistic interpretation of Ground Promotion constructions: $s$ in HUQ represents the result state of application in which all sub-regions of the surface of the wall have stuff in them.

1.3. The alternates are alternatives for production

Viewing Ground Promotion constructions with an application semantics simply as alternates to change-of-location descriptions is misleading. But their semantic kinship is hard to deny. From a point of view of production application events could in principle also be described in terms of change of location — leaving subtleties aside. Change of location descriptions differ from Ground Promotion constructions in that these constructions have two strictly incremental themes in the sense of Krifka (1998), namely the bounded region and the stuff that is applied or removed. The two themes are mutually dependent: the incrementality of the described events $e'$ manifests itself as a succession of sub-events $e^i$ each of which involves the filling (or emptying) of a sub-region $r^i$ with the portion of stuff $y^i$ that end up in $r^i$ (or its removal from it). Ignoring subtleties of truth conditions the speaker who wants to describe an incremental application or removal has the choice: either verbalise the change of state as (i) a change of location of the stuff or (ii) as a change of application state of the region.

1.4. Challenging data

Viewing Ground Promotion constructions as an alternative option for verbalisation isn’t exactly right either, because there are many verbal constructions that exclude Ground Promotion constructions. Ground Promotion constructions are restricted. For example, there is no Ground Promotion construction (8c) that corresponds to (8a) and (8b). Neither do we find (9b) corresponding to (9a).

Moreover, the contribution of the P-elements is not always the same: in our first examples *an + eine Wand* contribute a surface and *aus + ein Fass* contribute an interior. In (10a) *ein + eine Tapete* contribute a surface but an interior in (10b). McIntyre (2007) dubs pairs like (10a) and (10b) ’fake’-alternations.
1.5. Overview of the paper

In the rest of the paper I will present a semantics construction algorithm belonging to a syntax-semantics-interface architecture that combines principles of Minimalist Syntax used in Distributive Morphology (DM) with Discourse Representation Theory (DRT) (cf. Roßdeutscher (2010), Roßdeutscher and Kamp (2010), Roßdeutscher (2014), Roßdeutscher (2012)). Sec. 2.1 is devoted to syntactic, sec. 2.2 to semantic aspects of the syntax-semantics interface.

This construction algorithm of the verb phrase of Ground Promotion constructions from their roots will account for the phenomena illustrated by the examples presented so far.

2. Semantics construction on the basis of word-syntax

2.1. Syntactic background assumptions

German has four syntactic construction types with prepositional roots like √an (at), √ab (off), etc. Examples and their syntactic representation are given below: Verb + PP-constructions (s. (11)) Farbe an eine Wand streichen, particle-constructions (s. (12)), Farbe von einem Pinsel abstreichen;
Ground Promotion constructions (s. (13)) *eine Wand anstreichen*, and prefix-verbs (s. (14)) *einen Berg überfliegen*. A particular challenge for German presents itself in the syntactic difference between verb-particle constructions and prefix-verbs. Prefixes incorporate into the verbal head, particles don’t; they are adjacent to the verb in base position and stay in situ when the verb moves in V2.

(11) *Farbe an eine Wand streichen*

(12) *Farbe von einem Pinsel abstreichen*

(13) *eine Wand anstreichen*

(14) *einen Berg überfliegen*

The syntactic representations follow the basic assumptions of Minimalist Syntax of phrase structure with the operations move and merge (Adger (2003)). There is only one syntactic engine for words and phrases. Incorporation is restricted by Head-Movement-Constraint (HMC) (cf. Baker (1988)). For extended discussion of the syntax-semantics-interface for the structures (11), (12) and (14) see (Rossdeutscher (2013a)) and Rossdeutscher (2013b)). The syntactic representations heavily rely on the Split-P Hypothesis from Svenonius (2003) and subsequent work. Crucial for the Split-P Hypothesis is the assumption of two rather than one prepositional head, $p$ and $P$, in strict parallelism to the verbal domain. $p$ corresponds to Voice and $P$ to the Verb (cf. Kratzer (1996)), see the ‘equation’ (15).

(15) $p = \frac{\text{Voice}}{V}$  \hspace{1cm} ‘$p$ relates to $P$ like Voice relates to $V$’
In verb-plus-PP constructions, like (11), and particle constructions with a corresponding PP, like (12) p licenses case assignments in the governed PPs. As for prefix-verbs, like (14), I explain their incorporation as a consequence of lack of p. In (11) and (12) p is an intervening projection between the P-projection and the verbal domain, in the sense of HMC (cf. Baker (1988)). In prefix-verbs we thus have an unaccusative P-projection. An identical syntactic representation has been proposed for Russian pere-prefix verbs by Svenonius (2004). Lack of p has a case theoretical impact: P doesn’t assign case to its argument DP, the ground argument. The DP moves to vP and receives structural accusative. Here is the analogy: <einen Berg, über> in the prefix-verb (s. (14)) is like <the door, opens> (s. (19) below). The internal argument is promoted. <Farbe, an eine Wand> and <Farbe, von einem Pinsel ab>, (s. (11),(12)) are like <John, open the door>, (s. (18) below). The figure is the external argument of p; the agent is the external argument of voice.

Finally Ground Promotion constructions like eine Wand anstreichen in (13) share properties both with particle verbs in (12) and prefix-verbs in (14). For one, the P-element, e.g. √an in eine Wand anstreichen does not incorporate into the verb. For two, there is no case assignment within P: word-order tells us that the ground phrase in structural accusative eine Wand is to the left of √an; √an, in turn, is adjacent to the verbal kernel √streicht. This word-order configuration is borne out under the assumption that there indeed is an intervening p-level, but that p is deficient with respect of case assignment.

2.1.1. Parallelism in Split-P Hypothesis

My analysis of Ground Promotion constructions differ from the seminal analysis of Ground Promotion constructions in Svenonius (2003). The often cited example of his is the Dutch Ground Promotion construction (17). Ground Promotion is taken literal in a syntactic sense: The particle in is an unaccusative P (just like open is an unaccusative verb). The ground argument haar haar (her hair) is promoted, just like the internal argument the door is promoted, compare (19).

(16) Ingrid smeert henna in haar haar

(17) Ingrid smeert haar haar in (met henna)
2.1.2. Comparison of Svenonius’ and the present analysis

My solution in (13) also follows the idea that \( p \) relates to \( P \) like voice relates to \( V \). Building on the idea that \( p \) corresponds to voice, a \( p \)-head without case assignment is a ‘passive’ \( p \)-head. I owe this syntactic idea of a passive \( p \)-projection to Romanova (2007) from the syntactic representation of Russian prefix-verbs. In Romanova (2007) we find no word of motivation of passive \( p \) in semantic terms of Logical Form. But parallels in Logical Form between passive voice and passive \( p \) in Ground Promotion constructions, they do exist: I assume that the silent passive \( p \)-head is the syntactic locus of the operator of Hidden Universal Quantification (HUG). The binding of the figure-variable in Ground Promotion constructions is in structural analogy to binding the agent variable in passive voice. In both cases the discourse referent that enters the representation as ‘external’ argument in the specifier-position of voice or \( p \) respectively in non-passive projections, becomes existentially bound. As a syntactic consequence the passive projection lacks a specifier and the variable doesn’t receive an overt description. As for the figure variables in Ground Promotion descriptions, they can be made explicit in \textit{mit}-phrases (\textit{with}-phrases) only; as for the agent variable, they can be made explicit by \textit{von}-phrases (\textit{by}-phrases). The analogy has its limitations, however. DPs governed by such \textit{mit}-phrases in Ground Promotion constructions must be cumulative.\(^3\) DPs in agentive \textit{von}-phrases need not be.

2.2. Semantics construction algorithm for Ground Promotion constructions

2.2.1. Syntax-semantics-interface

- Functional heads in syntax are responsible for the introduction and predication of discourse referents of various sorts, providing ‘ontological building blocks’:
  - \( v \) (verbalizer) introduces events: \( e \); — \( n \) (the nominaliser) introduces entities: \( x, y \);  \(^4\);

\(^3\)The restriction will be discussed towards the end of the paper, p. 17.
\(^4\)The nominaliser is not in focus in the current paper, but see Rossdeutscher (2013a), Rossdeutscher (2013b)
— $p$, $P$ introduce states: $s$; — Place introduces regions: $r$ (sets of directed vectors in the sense of Zwarts (1997), Zwarts (2005)); — Path introduces paths: $w$ (directed bounded or unbounded vectors). (Place and Path are subsumed to the syntactic category $P$.)

- Conceptual relations like $\text{CAUSE}$ are introduced by functional layers as predications between XPs. E.g. $\text{CAUSE}$ is introduced in $vP$. Merge of $vP$ with some state introducing XP is interpreted as ‘$e \text{CAUSE}\ s$’.

- Functional heads combined with roots also create argument slots and determine the selection restrictions on them.

- Semantic composition is given formal substance in an extension of the DRT-language (cf. Kamp et al. (2011)) with presuppositions and a $\lambda$-calculus for variable stores (cf. Cooper (1983)). $\lambda$-conversion selects the left-most variable from the store.

I will present the semantics construction in several steps, a first and preliminary step in (20) showing how the bare bones of $\text{HUQ}$ in (7) with its stative interpretation come about by composition at the syntax-semantics-interface. In subsec. 2.2.4 semantics construction will be continued and refined. In an interlude in subsec. 2.2.3 I will discuss the restrictions on the construction under discussion and the ‘fake alternations’ as a consequence of syntactic structure and the semantics of the $\text{HAVE}$-relation.

2.2.2. Preliminary construction of $p_{\text{pass}}$ Phrase

In subsection 2.2.2 I will focus on the semantics composition of the projection $p_{\text{pass}}P$ in the tree (13). A preliminary version of the syntactic tree decorated with the DRS-based representation which builds on (13) is displayed in (20). Note that I represent the ground argument $\text{eine Wand}$ as in situ, i.e. before Ground Promotion takes place.

The substructure $\text{PlaceP}$ is semantically identical with $\text{PlaceP}$ in verb-plus-PP constructions as in $\text{einen Topf Farbe an eine Wand streichen}$ (to paint a tin of paint on a wall) (cf. Rossdeutscher (2013a)). The functional head $\text{Place}$ introduces a region $r_1$ which by the root $\sqrt{\text{an}}$ becomes specified as a surface region $r_{at}$ of some reference object $z$. $\text{Place}$, modified by $\sqrt{\text{an}}$ has an argument-slot that becomes saturated by the DP $\text{eine Wand}$ (a wall), contributing an entity (with a surface). $\text{PlaceP}$ contributes the surface-region $r_{at}$ of the wall $z_1$. That is to say: $\text{PlaceP}$ delivers the region that the operator operates on. $p_{\text{pass}}$, with the operator selects $\text{PlaceP}$, which is represented by $\lambda$-abstraction over a region $r$, and contributes the information that there is a state $s$, to the effect that each part of the region $r$ $\text{HAS}$ some stuff $y$ on (or in) it.
2.2.3. Interlude: \( p_{\text{pass}} \), selector and selectee

The multiply decorated tree in Table 1 is meant to display the restrictions of HUQ in terms of selection. On the one hand this concerns the particle, which is selected as argument by \( p_{\text{pass}} \) and the HUG- operator with the surface- or interior-region it operates over. On the other hand it concerns the nature of the event specified by the verbal root with which \( p_{\text{pass}} \) combines. The decoration on the tree is to be read as follows: in the vP those verbal roots found in Ground Promotion constructions are marked ‘o.k.’; those verbal kernels that are excluded from Ground Promotion constructions are marked ‘no’. At Place-level you find the prepositional elements that occur in Ground Promotion constructions, together with what kind of region they may contribute.

The range of verbal kernels. For instance, we find \( \sqrt{\text{streich}} \) (paint) and \( \sqrt{\text{wisch}} \) (wipe) with one or more particles, the latter being productive according to Stiebels (1996) and Levin and Sells (2009). We find \( \sqrt{\text{fahr}} \) as in \( \text{die Reifen abfahren} \) (to worn out the tyres), where driving leads to the state where the tyres have no rubber with profile on. We even find \( \sqrt{\text{raub}} \) (rob) as in \( \text{einen} \)
Touristen ausrauben (to rob everything of value that tourist has with him). But we never find √kleb (glue). There is neither *eine Wand mit Papier ankleben (cf. (8c)) nor is there, say *ein Album mit Fotos einkleben (to fill an album with pictures). The reason is semantic in nature: √kleb doesn’t allow hidden universal quantification, because ’glue’ contributes SUPPORT. SUPPORT is a force-dynamic notion (cf. Zwarts (2010)) in the sense of acting against forces like gravitation. Importantly, SUPPORT is a relation between two entities: ’glue papers on a wall’ entails ’for each of the papers the wall as whole supports that paper’ and not ’for each part of the wall there is a paper such that that part supports that paper’.

For a second instance, ’run’ excludes Ground Promotion in the sense of automomous motion. One can neither use *das Stadion lief aus nor *das Stadion lief (mit Zuschauern) ein intending to express that the stadion emptied or filled. But we can use the description eine Wanne lief ein (cf. (4c)) or eine Wanne / ein Fass lief aus (cf. (2c)) to express that the tub or barrel filled or emptied. The reason: The stadion isn’t applied with people running in or out; the stadion isn’t conceptualised as ’having people in’; but a tub can be described as having water in; it becomes applied with the running water.

**Range of P-elements**  We have seen from √kleb (glue) that SUPPORT excludes hidden universal quantification over regions. But SUPPORT may as well be contributed by prepositions. German **auf** and English **on** contribute SUPPORT. And this is the reason why *eine Wand mit Farbe aufstreichen (cf. (9b)) is ungrammatical; while Farbe auf eine Wand streichen (9a) grammatical. That, I believe, is also the reason why (21b) is ungrammatical, whereas (21a) is well-formed, an important example from Levin and Sells (2009).°

(21)  a. We smeared (the) lotion on the baby.

    b. *We smeared the baby on.

Structurally the operator is between vP and PP in (13). Therefore it must obey the requirements of the verb. The verb may reject the operator altogether, like ’glue’ does or it might reject or accept the operator in the one or other reading, like ’run’. The operator, in turn, selects the prepositional PP that provides the quantifier with the 2D- or 3D-region, a surface or an interior, of the ground reference object it ranges over.

°Lack of space forbids me to discuss the paper in more detail. The authors take (21) as evidence for the alternation being restricted to verbs with a negative result state like ’wiping something off’. At least for German such a restriction doesn’t obtain.
Comparing the selective potential of the operator which involves HAVE with genuinely spatial particles we observe that the former is a 'generous selector' to put it a bit figurative. You find examples of the differences in Table 2.

<table>
<thead>
<tr>
<th>Examples of 'p_pass selects P':</th>
<th>Examples of 'p+√ selects P':</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) eine Tapete einstreichen (to cover a wall-paper)</td>
<td>Kleister in eine Tapete (hin) einstreichen</td>
</tr>
<tr>
<td>(b) ein Fass auslaufen lassen (to empty a barrel)</td>
<td>Wein aus dem Fass auslaufen lassen</td>
</tr>
<tr>
<td>ein Bild aushortreichen (to butter a baking tin)</td>
<td>Farbe von einem Pinsel abstreichen</td>
</tr>
<tr>
<td>(c) einen Pinsel abstreichen (to rid a brush of paint)</td>
<td>Papier an eine Wand ankleben</td>
</tr>
<tr>
<td>ein Waschbecken ablaufen lassen (to empty a sink)</td>
<td></td>
</tr>
<tr>
<td>(d) eine Wand anstreichen (to cover a wall)</td>
<td></td>
</tr>
<tr>
<td>(e) den Fußboden aufwischen (to wipe the whole ground)</td>
<td></td>
</tr>
</tbody>
</table>

On the right hand side we have spatial particles selecting redundant PPs. The PPs exclusively contribute interior regions with the spatial particle ein(in); the operator in $p_{pass}$ accepts also surfaces.
The spatial particle *aus* selects for *aus*-PPs contributing interior regions, only; $p_{pass}$ accepts interior regions, surfaces and the surface of interior regions. Spatial $\sqrt{\text{ab}}$ selects *von*-PPs, contributing surfaces; $p_{pass}$ accepts also interiors. *Auf* (in a reading different from engl. *on*) is selected exclusively by the operator, it contributes a surface. There is no spatial particle with the same contribution.

2.2.4. Continuing semantics construction

We had stopped with the $p_{pass}$-projection on the left hand side of (22) and go one step upwards merging it with vP.

(22) (preliminary)

$$
\langle s, z_1, r_1, \rangle \\
p_{passP} \quad <\text{eine Wand}>, \sqrt{\text{an}} \\
\langle s, z_1, r_1, \rangle \\
vP \quad \langle e', \text{PAINT}(e') \rangle
$$

Merge of the prepositional projection with vP contributes the information that the painting activity brings about the state of the surface of the wall being fully applied with paint. (s. ‘$e'$ CAUSE $s$ ’ in the semantic representation of upper vP.) A more refined construction yields the upper vP-representation is in (23).
Some comments  At vP-level, the binding list on the left of the DRS in (23) contains discourse referents for the event e', state s, surface-region r_1 and wall z_1. These will be existentially bound at higher levels syntactic levels Voice, Tense, Comp (cf. Adger (2003)). The universe of the DRS contains discourse referents for a Partition P of the event e' described by the clause, a Partition P' of the surface region r_1 of the wall and the size n of these two partitions. As always in DRT the presence of these discourse referents in the universe of the DRS means that they are locally existentially quantified. The event e' is a finite mereological sum of sub-events e^i (the members of the partition P), where each e^i is the event of some stuff y_i being applied to the region r_i from the partition P' of the region r_i. 6.

The event e' is a finite mereological sum of sub-events e^i (the members of the partition P), where each e^i is the event of some stuff y_i being applied to the region r_i from the partition P' of the region r_i. The surface of the wall is a strictly incremental theme in the sense of Krifka (1998). There is one-one-mapping between the mereological Event structure P and the merelogical Part structure P' of bounded regions of space: every unique sub-event corresponds to a unique sub-region of the bounded surface and vice versa. 7.

6The reader might have noticed that there are two loci in the structure, where states enter the representation (i) in the nuclear scope as 's^i: HAVE(y^i,r^i)'. Each s^i is constituted by the saturation of the application relation HAVE between a sub-region r^i of the surface of the wall and a portion y^i of stuff applied to that sub-region. As a matter of fact, the silent p_pass conceptually is a passive of some prepositional 'applicative' head that specifies a stative HAVE-relation. Each s^i is brought about by a change of state application e^i. (ii) The state s that is characterised by the duplex-condition is the resultant state of the sum e' (s. ' e' CAUSE s')

7I ignore the complication that a sub-region of the wall’s surface can be applied with stuff twice (just as a paragraph of a book can be read twice); see Krifka (1998) for dealing with this complication. The problem doesn’t arise with
The semantics construction supports the following predictions: (i) The event description is telic if the ground object DP describes a bounded region of space, s. (24a). (ii) The event description is atelic when the reference object is a bare plural contributing an unbounded set of bounded regions, s. (24b); in this case we have an iterative, distributive reading: for each bounded region there is an event e’ of ‘covering’, ‘filling’ or ‘emptying’ the region, where each e’ is of the form (23). (iii) Descriptions with ground DPs that are bare mass nouns trigger a special activity reading based on incorporation of the sortal predicate contributed by the DP. In contrast the expressions Holz (wood) and Glas (glass) provide sortal information, only. There is no way to conceptualise the description as one describing application or removal of stuff to a bounded region. But there isn’t even a clear sense what particular activity ’wood painting’ or ‘glass wiping’ could consist of. As a consequence (24c) isn’t felicitous.

(24)  a. eine Wand anstreichen
     a wall at.prtc.paint
     ’cover a wall (by painting)

     b. wir haben den ganzen Tag Wände angestrichen; Gläser abgewischt
        we have the whole day wallsbare.plur at.prtc.paint; glasses off.prtc.wipe
     ’we spent the whole day covering walls with paint; with wiping glasses clean’

     c. wir haben den ganzen Tag (?) Holz angestrichen; (?) Glas
        we have the whole day woodbare.sg at.prtc.paint; glassbare.sg
        abgewischt
        off.prtc.wipe

3. Summary. HUQ at its syntactic position

Summing up I would like to emphasise that I account for the lexical semantics of Ground Promotion constructions by syntactic structural assumptions. The semantic contributions of the verbal and prepositional roots and of the operator is determined by their position in sub-lexical syntax. Likewise sub-lexical syntax is determined by the semantic contribution of the roots. Recall that the \textbf{HUQ}-operator of \textit{Hidden Universal Quantification HUQ} (7) and its position in syntax in (13) are the main ingredients of the analysis. The analysis at the syntax-semantics-interface allows us to explain (i) linguistic form as Logical Form in terms of variable binding; (ii) Aktionsart, i.e. accomplishments in terms of quantification; (iii) restrictions on lexical roots in terms of selection restrictions of verbal kernels on HUQ, and of HUQ on P-elements.
4. Afterthought. Two mutually dependent incremental themes

In Ground Promotion constructions the two incremental themes, i.e. the bounded region and the implicit applicandum in the HAVE-relation, are mutually dependent in a way that is fundamentally different from the relation between figure and path in a Figure-Path-Relation discussed in Beavers (2011) and Beavers (2012). Some of Beavers’ examples are (25a), (25b) and (25c).

(25) a. (i) A ball rolled down to bottom of the hill
   (ii) A litre of wine flowed from the jar to the floor (*for /in three minutes)

   b. (i) Balls rolled down to the bottom of the hill
   (ii) Wine flowed from the jar to the floor (for/* in three minutes)

   c. (i) A ball rolled further
   (ii) A litre of wine flowed (for/* in three minutes)

The events described by these motion descriptions have two kinds of participants: The moving theme and the path along which it moves. The descriptions in (25) are examples of such descriptions. Both participants can play a cumulative role and Beavers argues that the event description is telic only if both participants are quantised. (One way in which this condition can be satisfied: the theme argument is realised by the singular count DP ’a ball’, and the path is given by the goal phrase ’to the floor’.) Thus (25a) is a telic description and both (25b) and (25c) are atelic.

Ground Promotion descriptions are not of this general form. In these constructions the figure DP (denoting the stuff that is being applied or being removed) is typically non-quantised (if it is present at all). Despite their non-quantised or fully absent figure constituents these descriptions are telic. The reason is as follows: these descriptions are application descriptions, not motion descriptions. Their semantics does not involve a path along which the denotation of the figure-DP is said to move.

I have analysed event descriptions with Pround Promotion descriptions as involving quantification over both sub-regions (of the regions associated with the ground-object) and portions of stuff (denoted by the DP of a mit-(with-) PP when such a PP is present and accommodated when there is no such constituent). But note well: conceptually this is not a case of two quantifications, one over regions and one over portions of stuff, but of a single quantification over regions (see the semantics construction above), or alternatively as quantification over pairs of a region and portions of stuff, but where each portion of the stuff is uniquely determined by the corresponding region.

In other words: the semantics of Ground Promotion constructions does not involve two distinct event participants that can be separately realised by a phrase that can be either quantised or non-
quantised. There is only one participant whose quantisation status is determinative of the telicity of the description and that is the ground argument. When the ground argument contributes a bounded region as the universal quantificational domain the description is telic; otherwise it is not.

In fact, quantised DPs in mit-PPs of Ground Promotion constructions are not felicitous. (Compare # die Wand mit einem Topf Farbe anstreichen (to cover a wall with a tin of paint)). The intuitive reason is that the amount of paint needed to cover the wall is fixed twice over in such a description, first as the amount of stuff in the tin and then again as the sum of all portions $y^i$ in the pairs $<y^i,r^i>$ that are bound variables by the quantification contributed by $p_{pass}$.

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