

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’². 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.

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| (1) a. <i>Er strich Farbe an eine Wand</i>
he painted paint _{acc} at a wall _{p-cs}
‘he painted paint on a wall’
b. \emptyset

c. <i>Er strich eine Wand (mit Farbe)</i>
he painted a wall _{acc} (with paint)
<i>an</i>
at.prtc.
‘he covered a wall with paint’ | (2) a. <i>Wein lief aus einem Fass</i>
wine _{nom} ran out of a barrel _{p-cs}
‘wine ran out of a barrel’
b. <i>Wein lief (aus einem Fass)</i>
wine _{nom} ran (out of a barrel)
<i>aus</i>
out.prtc.
‘wine ran out (of a barrel)’
c. <i>ein Fass lief aus</i>
a barrel _{nom} ran out.prtc.
‘a barrel emptied’ |
|--|---|

¹This paper developed from work in the project B4 of the long-term research-project *Incremental Specification in Context*, funded by the *Deutsche Forschungsgemeinschaft*. I wish to thank Artemis Alexiadou, Boris Haselbach, Hans Kamp, Tillmann Pross and Florian Schäfer.

²Their title is motivated by the observation that e.g. *wipe the paint off* corresponds to the predication *the paint is off*, whereas the particle in *wipe the paint-brush off* has no counterpart in **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.³

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 (cf. (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'

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

- | | |
|--|--|
| <p>(3) a. <i>Er strich Farbe von einem Pinsel</i>
 he wiped paint_{acc} off a paint-brush_{P-CS}
 'he wiped paint off a brush'</p> <p>b. <i>Er strich Farbe (von einem Pinsel)</i>
 he wiped paint_{acc} (from a brush)
 <i>ab</i>
 off.ptc
 'he wiped paint from a brush'</p> <p>c. <i>Er strich einen Pinsel ab</i>
 he wiped a brush_{acc} off.ptc
 'he rid the brush of paint'</p> | <p>(4) a. <i>Wasser lief in eine Wanne</i>
 water ran into a tub_{P-CS}
 'water ran into a tub'</p> <p>b. <i>Wasser lief (in eine Wanne) ein</i>
 water ran (into a barrel) in.ptc
 'water ran into a tub'</p> <p>c. <i>eine Wanne lief (mit Wasser) ein</i>
 a tub_{nom} ran (with water) in.ptc
 'a tub filled (with water)'</p> |
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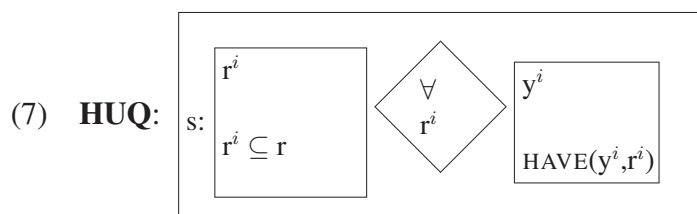
- (6) a. *eine Menge Öl war aus dem Tank in das Erdreich ausgelaufen*
 a lot of oil was out of the tank into the soil out.ptc.run
 ‘a lot of oil had run out of the tank into the soil’
- b. **der Öltank war in das Auffangbecken ausgelaufen*
 the oil tank was into the catch basin out.ptc.run
 ‘the oiltank had emptied into the catch basin’

(1c) and (2c) differ from (1a) and (2a), (2b) as follows: (1a),(2a) and (2b) involve *spatial* relations between the ‘eigenregion’ of the fluid and a region associated with the ground object (the surface or *at*-region of the wall or the interior of the barrel). (1c) and (2c) express *application* relations between a region and stuff: in (1c) the region (the surface of the wall) comes to stand in the application state of ‘having’ the paint that is put on it; in (2c) the barrel first stands in the application relation of having wine in and then, after the event, it does no longer.

Application makes itself felt intuitively in HAVE-paraphrases: *die Wand hat (keine) Farbe (dran)* (the wall has (no) paint on it), *der Pinsel hat (keine) Farbe (dran)* (the paint-brush has (no) paint on it), *das Fass hat (keinen) Wein (drin)* (the barrel has (no) wine in it), etc. I use the predicate HAVE for the application relation in Ground Promotion constructions like (1c) and (2c). HAVE(*y*,*r*) holds between the figure *y*, i.e. the stuff to be applied or removed, and a 2D or 3D-region *r*, i.e. surface or interior of the ground-argument.

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).



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^i 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.

- (8) a. *Papier an eine Wand kleben*
 paper at a wall glue
 ‘glue paper on a wall’
 b. *Papier (an eine Wand) ankleben*
 paper (at a wall) at.prtc.glue
 ‘glue paper on a wall’
 c. **eine Wand (mit Papier) ankleben*
 a wall (with paper) at.prtc.glue
 ‘cover a wall with paper’
- (9) a. *Farbe auf eine Wand streichen*
 paint on a wall paint
 ‘paint paint on a wall’
 b. **eine Wand (mit Farbe) aufstreichen*
 a wall (with paint) on.prtc.paint
 ‘cover a wall with paint’
- (10) a. *eine Tapete (mit Kleister) einstreichen*
 a wall-paper (with glue) in.prtc.paint
 ‘to cover a wall-paper with glue’
 b. *Kleister in eine Tapete streichen*
 glue in(to) a wall-paper paint
 ‘to rub /smear glue into a wall-paper’

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)). Section 2.1 is devoted to syntactic, section 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.

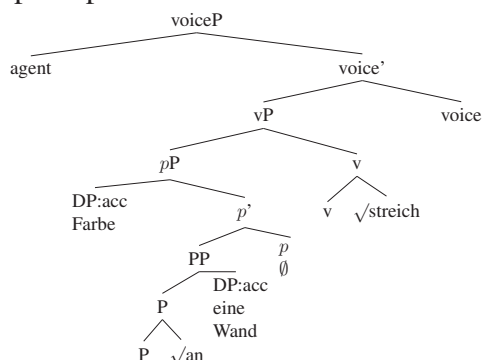
2. Semantics construction on the basis of word-syntax

2.1. Syntactic background assumptions

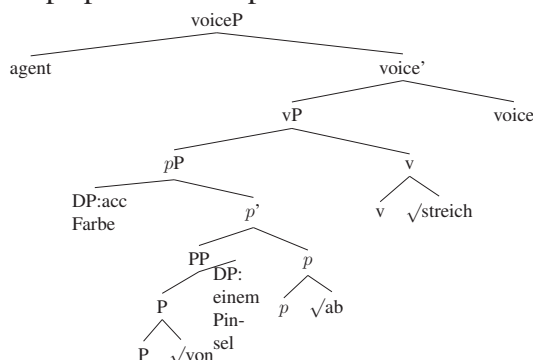
German has four syntactic construction types with prepositional roots like $\sqrt{\text{an}}$ (at), $\sqrt{\text{ab}}$ (off), etc. Examples and their syntactic representation are given below: Verb + PP -constructions (see (11)) *Farbe an eine Wand streichen*, particle-constructions (see (12)), *Farbe von einem Pinsel*

abstreichen; Ground Promotion constructions (s. (13)) *eine Wand anstreichen*, and prefix-verbs (see (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.

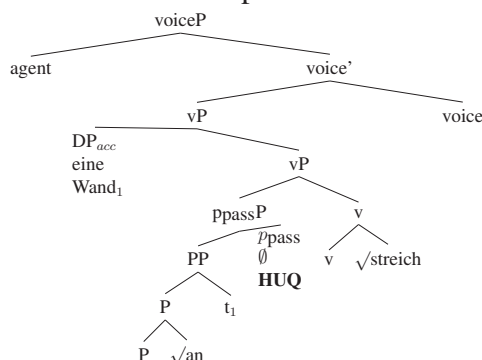
- (11) Farbe an eine Wand streichen
'paint paint at a wall'



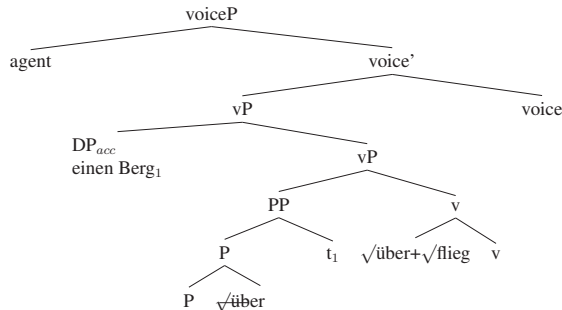
- (12) Farbe von einem Pinsel abstreichen
'wipe paint from a paint-brush off'



- (13) eine Wand anstreichen
'cover a wall with paint'



- (14) einen Berg überfliegen
'to cross a mountain'



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).

$$(15) \quad \frac{p}{P} = \frac{Voice}{V} \quad \text{'}p \text{ relates to P like Voice relates to V'}$$

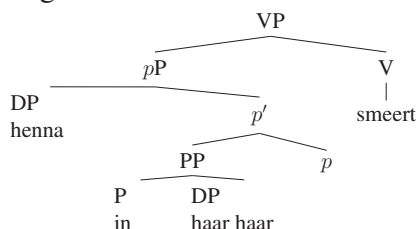
In verb-plus-PP constructions, like (11), and particle constructions with a corresponding PP, like (12) p licenses case assignments in the governed PPs. As for prefix-verbs, like (14), I explain their incorporation as a consequence of lack of p . In (11) and (12) p is an intervening projection between 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. $\sqrt{\text{an}}$ 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 $\sqrt{\text{an}}$; $\sqrt{\text{an}}$, in turn, is adjacent to the verbal kernel $\sqrt{\text{streich}}$. 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.

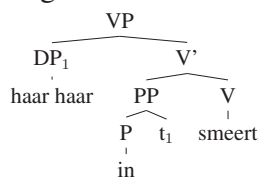
2.1.1. Parallelism in Split-P Hypothesis

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).

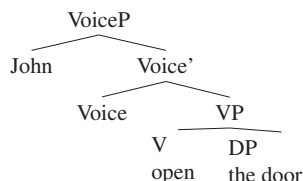
- (16) Ingrid smeert henna in haar haar
'Ingrid smears henna into her hair'



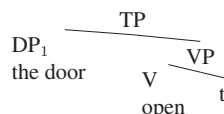
- (17) Ingrid smeert haar haar in (met henna)
'Ingrid covers her hair (with henna)'



(18) John opens the door



(19) the door opens



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 **HUQ**. 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 *mit*-phrases (*with*-phrases) only; as for the agent variable, they can be made explicit by *von*-phrases (*by*-phrases). The analogy has its limitations, however. DPs governed by such *mit*-phrases in Ground Promotion constructions must be cumulative.⁴ DPs in agentive *von*-phrases need not be.

2.2. Semantics construction algorithm for Ground Promotion constructions

2.2.1. Syntax-semantics-interface

In what follows I list principles at the syntax-semantics-interface.

- Functional heads in syntax are responsible for the introduction and predication of discourse referents of various sorts, providing 'ontological building blocks':

⁴The restriction will be discussed towards the end of the paper, p. 17.

- v (verbalizer) introduces events: e ; — n (the nominaliser) introduces entities: x, y ; ⁵;
— 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 CAUSE are introduced by functional layers as predications between XPs. E.g. CAUSE is introduced in vP . Merge of vP with some state introducing XP is interpreted as ‘ e 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 λ -calculus for variable stores (cf. Cooper (1983)). λ -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 **HUQ** in (7) with its stative interpretation come about by composition at the syntax-semantics-interface. In subsection 2.2.4 semantics construction will be continued and refined. In an interlude in subsection 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 HAVE-relation.

2.2.2. Preliminary construction of p_{pass} Phrase

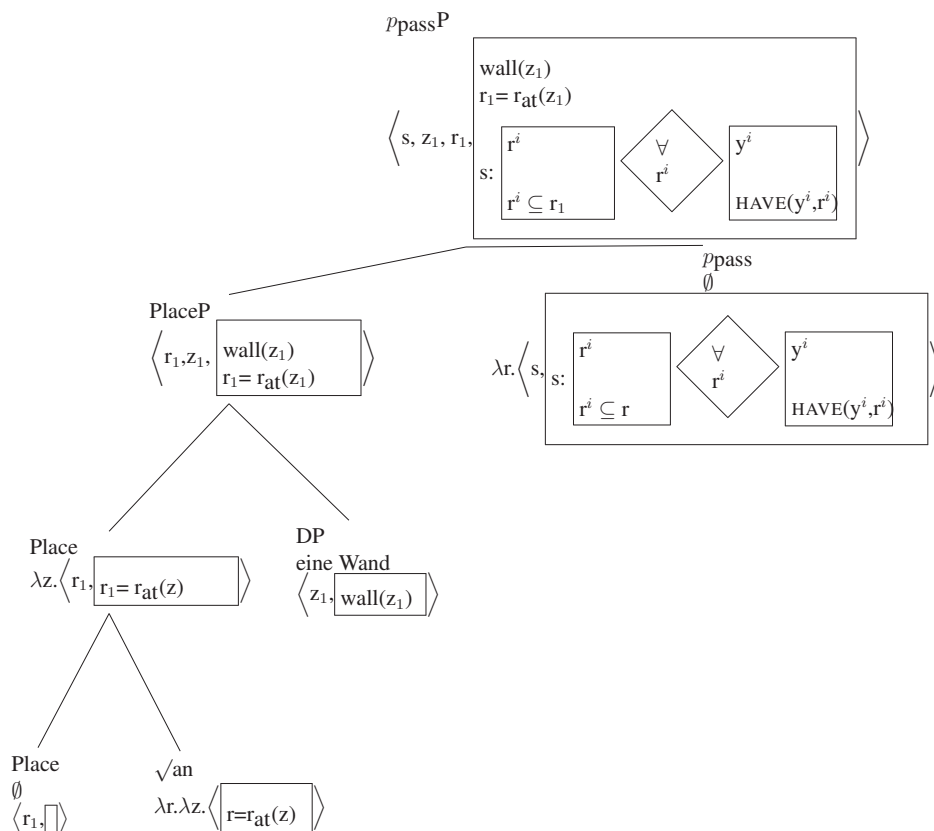
In subsection 2.2.2 I will focus on the semantics composition of the projection $p_{pass}P$ in the tree (13). A preliminary version of the syntactic tree decorated with the DRS-based representation which builds on (13) is displayed in (20). Note that I represent the ground argument *eine Wand* as in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

The substructure PlaceP is semantically identical with PlaceP in verb-plus-PP constructions as in *einen Topf Farbe an eine Wand streichen* (to paint a tin of paint on a wall) (cf. Rossdeutscher (2013a)). The functional head 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 . Place, modified by $\sqrt{\text{an}}$ has an argument-slot that becomes saturated by the DP *eine Wand* (a wall), contributing an entity (with a surface). PlaceP contributes the surface-region r_{at} of the wall z_1 . That is to say: PlaceP delivers the region that the operator operates on. p_{pass} with the operator selects PlaceP, which is represented by λ -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 HAS some stuff y on (or in) it.

⁵The nominaliser is not in focus in the current paper, but see Rossdeutscher (2013a), Rossdeutscher (2013b)

(20)

(preliminary)



2.2.3. Interlude: p_{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_{pass} and the HUQ- 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_{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 $\sqrt{streich}$ (‘paint’) and \sqrt{wisch} (‘wipe’) with one or more particles, the latter being productive according to Stiebels (1996) and Levin and Sells (2009). We find \sqrt{fahr} as in *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{raub} (‘rob’) as in

einen Touristen ausrauben ('to rob everything of value that tourist has with him'). But we never find $\sqrt{\text{kleb}}$ ('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: $\sqrt{\text{kleb}}$ 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'.

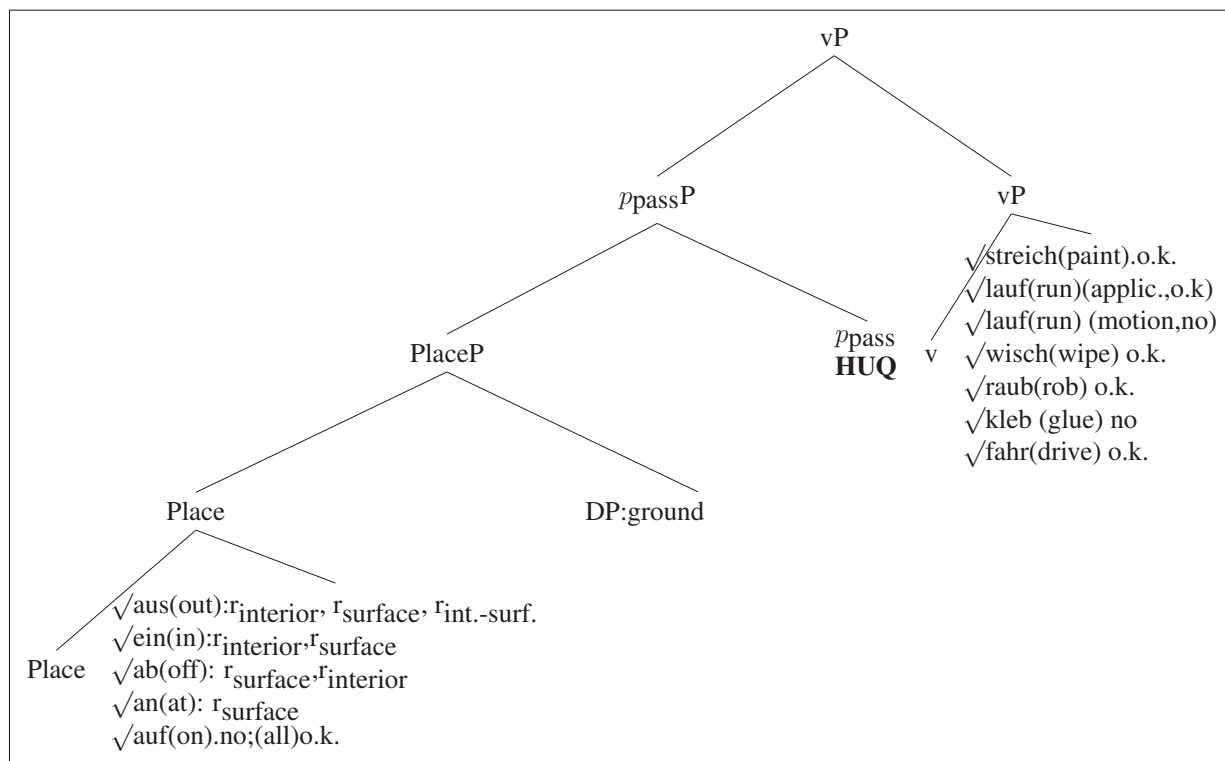
For a second instance, 'run' excludes Ground Promotion in the sense of autonomous motion. One can neither use **das Stadion lief aus* nor **das Stadion lief (mit Zuschauern) ein* intending to express that the stadium emptied or filled. But we can use the description *eine Wanne lief ein* (cf. (4c)) or *eine Wanne / ein Fass lief aus* (cf. (2c)) to express that the tub or barrel filled or emptied. The reason: The stadium isn't *applied* with people running in or out; the stadium 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 $\sqrt{\text{kleb}}$ (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).⁶

- (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.

⁶Lack 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.

Table 1. **HUQ** as selector and selectee.

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.

Examples of ‘ <i>p_{pass}</i> selects P’:	Examples of ‘ <i>p+√</i> selects P’:
(a) eine Tapete (mit Farbe) einstreichen (‘cover a wall-paper (with glue)’)	Kleister in eine Tapete (hin) einstreichen (‘paint glue into a wallpaper’)
(b) ein Fass auslaufen lassen (‘empty a barrel’)	Wein aus dem Fass auslaufen lassen (‘let wine run out of a barrel’)
ein Bild ausmalen (‘fill <i>in</i> a picture’)	
ein Backblech ausstreichen (‘butter a baking tin’)	
(c) einen Pinsel abstreichen (‘rid a brush of paint’)	Farbe von einem Pinsel abstreichen (‘wipe paint from a paint brush off’)
ein Waschbecken ablaufen lassen (‘empty a sink’)	
(d) eine Wand anstreichen (‘cover a wall with paint’)	Papier an eine Wand ankleben (‘glue paper on a wall’)
(e) den Fußboden aufwischen (‘wipe the whole ground’)	

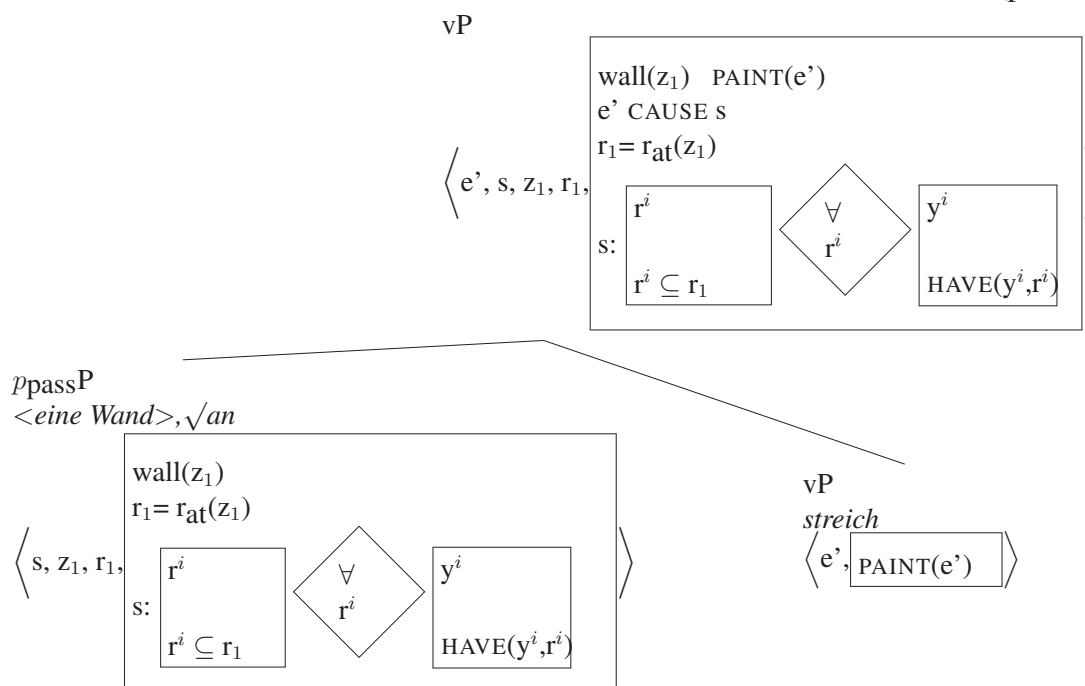
Table 2. Selection restrictions of regions: ‘*p_{pass}*’ vs. spatial particles

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{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.

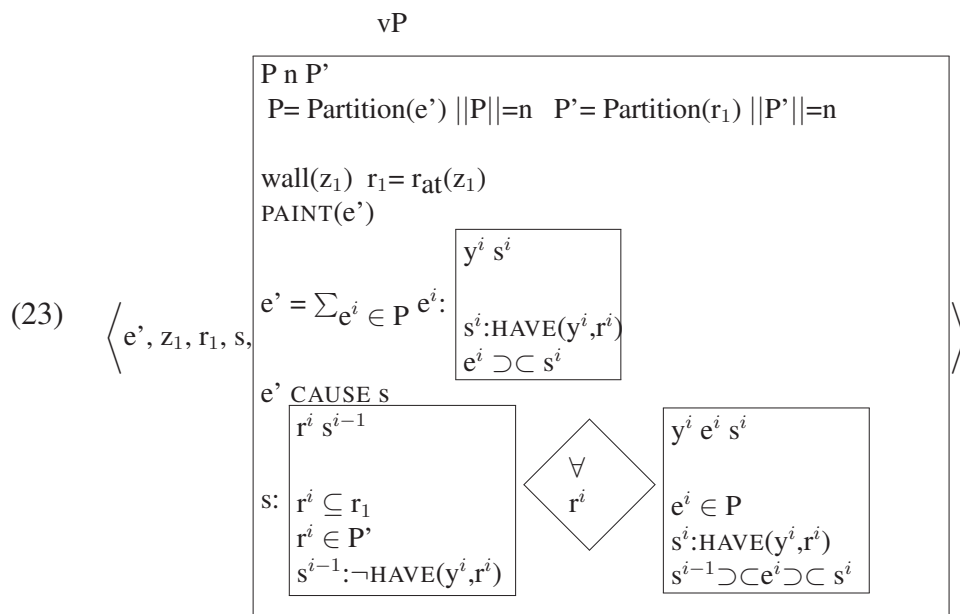
2.2.4. Continuing semantics construction

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)



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).



bounded surface and vice versa⁸

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 walls_{bare.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 wood_{bare.sg} at.prtc.paint; glass_{bare.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 HUQ-operator of *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.

⁸I 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 verbs of removal.

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 | Beavers (2011):335 |
| | | (ii) A litre of wine flowed from the jar to the floor (*for /in three minutes) | Beavers (2012):30 |
| | b. | (i) Balls rolled down to the bottom of the hill | Beavers (2011):335 |
| | | (ii) Wine flowed from the jar to the floor (for/* in three minutes) | Beavers (2012):34 |
| | c. | (i) A ball rolled further | Beavers (2011):335 |
| | | (ii) A litre of wine flowed (for/* in three minutes) | Beavers (2012): 34 |

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 Ground 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 $\langle y^i, r^i \rangle$ that are bound variables by the quantification contributed by p_{pass} .

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