

How to Dance: On the Unergative and Unaccusative Nature of German Manner of Motion Verbs

Boris Haselbach (University of Stuttgart)
haselbbs@ims.uni-stuttgart.de

Unergative Predicates: Architecture and Variation
January 18–19, 2018

1 Introduction

- In German (and generally in Germanic languages), many **manner of motion (MoM)** verbs form a class of verbs that can often be used as (i) **plain** (non-locomotive) **MoM** verbs as in (1a), or (ii) **locomotive MoM** verbs as in (1b). German *tanzen* (dance) is a paradigmatic instance of this phenomenon.

- (1) a. Manchmal machte sie am Morgen nach einem Disco-Besuch
sometimes made she on.the morning after a disco visit
ihrer Tochter in der Küche vor, wie verrückt **die Leute getanzt**
her daughter in the kitchen fore how madly the people danced
hatten
had.AUX
'Sometimes in the morning after she visited a disco, she showed her
daughter in the kitchen how madly the people had danced'
(*Der Tagesspiegel*, 19.07.2001)
- b. Die Bluse bauchfrei geknotet und die Zöpfe schwingend **bist**
the blouse belly-free knotted and the pigtails swinging are.AUX
Du durch die Highschool getanzt und hast *Hit Me Baby One*
you through the high school danced and have Hit Me Baby One
More Time gesungen
More Time sung
'With a cropped blouse and swinging piglets, you danced through
high school and sang *Hit Me Baby One More Time*'
(*Die Zeit*, 08.09.2016)

- More examples of MoM verbs in German are given in (2).

- (2) *bummeln* (stroll), *flattern* (flap), *fliegen* (fly), *galoppieren* (gallop), *hopsen* (hop), *humpeln* (limp), *joggen* (jog), *klettern* (climb), *kraulen* (crawl), *marschieren*

(march), *paddeln* (paddle), *reiten* (ride), *rudern* (row), *schlendern* (saunter), *schlurfen* (scuff one's feet), *schwimmen* (swim), *segeln* (sail), *tanzen* (dance), *tauchen* (dive), *traben* (trot), *turnen* (do gymnastics), *vibrieren* (vibrate), *wackeln* (wobble), *wandern* (hike), a.o.

(cf. Duden 4, § 223; Eisenberg et al. 1998: 122)

- MoM verbs typically imply agentivity. This talk focused on agentive MoM verbs that can be used as plain MoM verbs and, in addition, as locomotive MoM verbs. The locomotive reading of MoM verbs is available when the verb takes a path-denoting constituent as an internal argument. Henceforth, we will focus on path PPs.
- We argue that MoM verbs instantiate an unergative structure when used as plain MoM verbs, while they instantiate an unaccusative structure when used as locomotive MoM verbs. In the unergative case, the verb typically does not take an argument— except for, e.g., (hyponyms of) cognate objects. The subject is an external argument introduced by Voice (Kratzer 1996). In the unaccusative case, the verb takes a path PP as its complement. In addition, a DP merges in the specifier of VP. Moreover, arguments that merge as external arguments in the unergative case merge as internal arguments in the unaccusative case.
- Note that this talk does not look at causative locomotion constructions in the sense of Folli and Harley (2006) as in (3), where two participants are involved in the locomotion description.¹

- (3)
- The jockey galloped the horse past the barn
 - The boy jumped the action figure across the table
 - John ran the package to the office
 - Mary walked the bicycle to the shop
 - John waltzed Matilda around and around the room

(Folli and Harley 2006: 149)

- Interestingly, all equivalent constructions are ungrammatical in German; cf. (4).
- (4)
- *Der Jockey galoppierte das Pferd an der Scheune vorbei
the jockey galloped the horse at the barn past
 - *Der Junge hüpfte die Actionfigur über den Tisch
the boy jumped the action figure across the table
 - *John rannte das Paket zum Büro
john ran the package to.the office
 - *Mary lief das Fahrrad zum Laden
Mary walked the bicycle to.the shop
 - *John tanzte Matilda im Zimmer umher
John danced Matilda in.the room around
- However, the corresponding 'non-causative' locomotion constructions are well-formed in German.

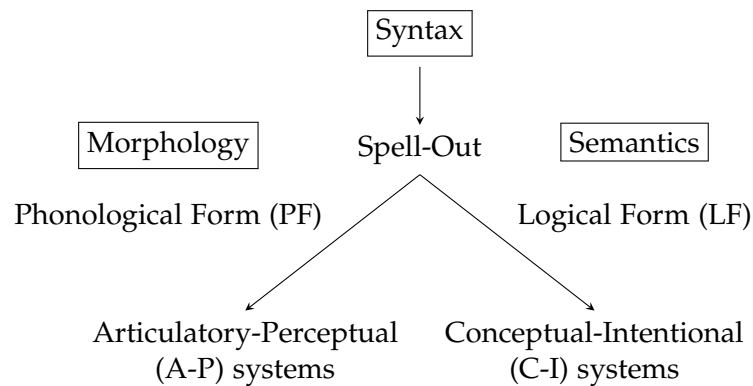
¹Folli and Harley classify the verbs in (3) as [+Agent/ +Path].

- (5)
 - a. Das Pferd galoppierte an der Scheune vorbei
the horse galloped at the barn past
 - b. Die Actionfigur hüpfte über den Tisch
the action figure jumped across the table
 - c. John rannte zum Büro
john ran to.the office
 - d. Mary lief zum Laden
Mary walked to.the shop
 - e. John und Matilda tanzten im Zimmer umher
John and Matilda danced in.the room around

- Section 2 briefly presents the DM/DRT-Framework we use. Section 3 addresses path prepositions (way too long). Section 4 addresses plain and locomotive MoM verbs. Section 5 concludes and provides an sketch how this type of analysis could extend to sound emission verbs.

2 The DM/DRT-Framework

- We advocate a parsimonious Y-model of grammar (Marantz 1997, Bruening 2016) with one combinatorial component generating both phrases and words: syntax.

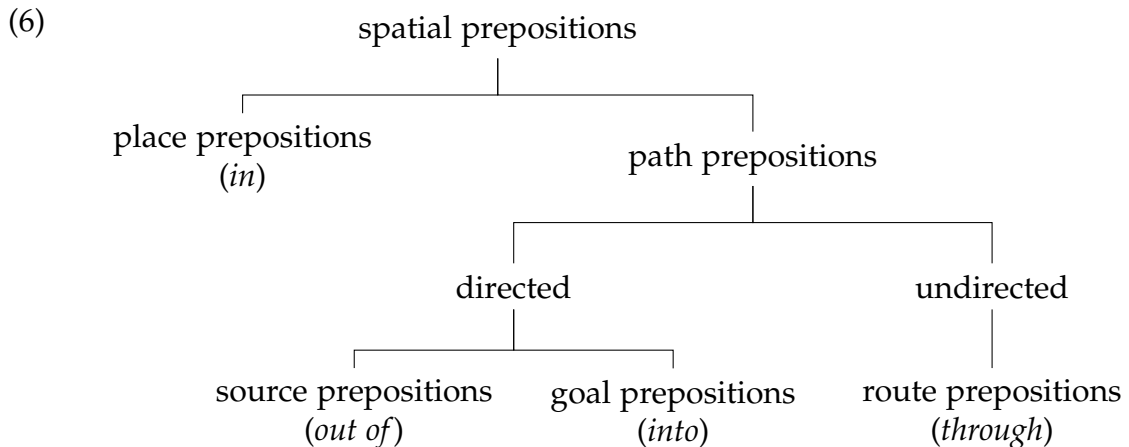


- Syntax is the combinatorial component generating binary structure. The generative items of a language are bundles of features from Universal Grammar (Chomsky 1995), i.e. categories and syntacticosemantic (synsem) features (Embick 2015). We adopt principles of the Minimalist Program with Bare Phrase Structure as its phrase structural component (Chomsky 1995).
- Syntactic structures on which no further syntactic operations are executed constitute Spell-Out. Syntactic structures at Spell-Out interface with the Articulatory-Perceptual (A-P) systems on the one hand, and with the Conceptual-Intentional (C-I) systems on the other. The representational interface level between Spell-Out and the A-P systems is Phonological Form (PF). The set of operations executed at PF constitutes the *morphology*. The representational interface level between Spell-Out and the C-I systems is Logical Form (LF). The set of operations executed at LF constitutes the *semantics*.

- As for morphology, we adopt Distributed Morphology (DM) (Halle and Marantz 1993) with late insertion of Vocabulary Items according to the Subset Principle (Halle 1997).
- As for semantics, we adopt Discourse Representation Theory (DRT) (Kamp and Reyle 1993, Kamp et al. 2011) where interpretation involves a two-stage process: (i) the construction of semantic representations (= LF) referred to as Discourse Representation Structures (DRS) and (ii) a model-theoretic interpretation of those DRSs. We assume late insertion of Encyclopedic Items (DRS-fragments) and unification-based semantic composition along syntactic structure.

3 Path prepositions

- Typology of spatial prepositions (Jackendoff 1983, Piñón 1993, Zwarts 2006, Gehrke 2008, Kracht 2008, Svenonius 2010, Pantcheva 2011)



- Place prepositions denote static locations (regions), while path prepositions denote dynamic locations (spatial paths).
- Path prepositions can be directed (goal and source prepositions) or undirected (route prepositions). Directed path prepositions are syntactically derived from place prepositions, while undirected path prepositions are not derived from place prepositions. Furthermore, path prepositions can be bounded or unbounded.

(7) Overview of morphologically simplex path prepositions in German:

	directed		undirected (route)
	source	goal	
bounded	<i>aus</i> (out of), <i>von</i> (from)	<i>in</i> +ACC (into), <i>unter</i> +ACC (under), <i>zu</i> (to), ...	<i>durch</i> (through), <i>über</i> (across, over), <i>um</i> (around)
unbounded	<i>von ... weg</i> (away from)	<i>auf ... zu</i> (towards)	<i>durch</i> (through), <i>über</i> (over), <i>um</i> (around)

- In German, geometrically specified spatial prepositions (henceforth: geometric prepositions) like *in* (in) or *unter* (under) participate in the well-known place/goal alternation (Bierwisch 1988, Zwarts 2006, Van Riemsdijk 2007, Arsenijević and Gehrke 2009, Caha 2010, Den Dikken 2010, Åfarli 2013, Haselbach and Pitteroff 2015, Haselbach 2017a, a.o.).² Geometric preposition serve as place prepositions when co-occurring with a dative complement as in (8), while they serve as goal prepositions when co-occurring with an accusative complement as in (9).

- (8) a. Hans war **in** einem Wald
Hans was in a.DAT forest
- b. Eine Maus saß **unter** dem Tisch
a mouse sat under the.DAT table
- (9) a. Hans ging **in** einen Wald
Hans went into a.ACC forest
- b. Eine Maus rannte **unter** den Tisch
a mouse ran under the.ACC table

- The German prepositions that participate in the place/goal alternation are: *an* (on), *auf* (upon), *hinter* (behind), *in* (in), *neben* (beside), *über* (above), *unter* (under), *vor* (in front of), and *zwischen* (between).
- Note that the place/goal alternation is a phenomenon that can be found in some other Indo-European languages. For instance, it can be found in some Germanic languages, e.g., in Icelandic (Svenonius 2002) or in Norwegian dative dialects (Åfarli 2013), and in many Slavic languages, e.g., in Czech (Emonds 2007, Caha 2013) or in Russian (Pesetsky 2013). Interestingly, the place/goal alternation is absent in Romance languages, even though it is attested in Latin (Hale and Buck 1903). In other languages, however, the choices and the distribution of cases that figure in the place/goal alternation is different than in German. Nevertheless, it is generally the case that some oblique case co-occurs in the context of a place preposition, while accusative case co-occurs in the context of a goal preposition (Caha 2010, Haselbach 2017a).

²The alternation we refer to as the ‘place/goal alternation’ is sometimes also referred to as the ‘dative/accusative alternation’ or ‘oblique/accusative alternation’. Some scholars also use the term ‘locative/directional alternation’.

- The German geometric path prepositions are always bounded and they do not have unbounded counterparts.
- In contrast to the geometric prepositions, there are also geometrically unspecified spatial prepositions (henceforth: non-geometric prepositions). The German non-geometric prepositions are the place preposition *bei* (at), the goal pre- and circumpositions *zu* (to) and *auf ... zu* (towards), and the source pre- and circumpositions *von* (from) and *von ... weg* (away from).³
- Unlike the German geometric path prepositions, the German non-geometric path prepositions come in pairs where one member is bounded and one member is unbounded. The unbounded counterpart of the bounded goal preposition *zu* (to) is the circumposition *auf ... zu* (towards), and the unbounded counterpart of the bounded source preposition *von* (from) is the circumposition *von ... weg* (away from).
- The non-geometric path prepositions *zu* (to), *von* (from), and *von ... weg* (away from) co-occur with a dative complement, while *auf ... zu* (towards) (idiosyncratically) co-occurs with an accusative complement.
- Note that there is an interesting aspectual difference between geometric and non-geometric path prepositions. When combined with MoM verbs, bounded geometric path prepositions give rise to achievement predicates, while bounded non-geometric path prepositions give rise to accomplishment predicates (Denis 2003, Zwarts 2005, Haselbach 2017a). Consider, e.g., Kratzer's (2004) test involving the verb particle *weiter-V* (continue to V), which is grammatical with accomplishment predicates, but not with achievement predicates. The verb particle *weiter* can combine with a manner of motion verb in the context of a non-geometric path preposition as in (10b), while it cannot in the context of a geometric path preposition as in (10a).

- (10) a. Hans konnte **in** den Ballsaal (*weiter)-tanzen
 Hans could into.the.ACC ballroom further-dance
 b. Hans konnte **zum** Ballsaal (weiter)-tanzen
 Hans could to.the ballroom further-dance

- Route prepositions are systematically ambiguous between a bounded and an unbounded reading (Piñón 1993, Zwarts 2005). Route prepositions always co-occur with an accusative complement.

- (11) Hans rannte in/für 15 Minuten **durch** den Wald
 Hans ran in/for 15 minutes through the.ACC forest

- All types of path prepositions can serve as argument of MoM verbs and thereby turn them into locomotive MoM verbs.

³In line with Noonan (2010), we assume that *zu* (to) is the goal preposition relating to the place preposition *bei* (at).

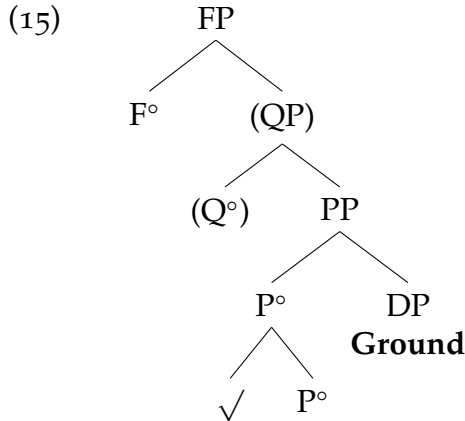
- (12) a. Hans tanzte **aus** dem Ballsaal
Hans danced out of the ballroom
b. Hans tanzte **in** den Ballsaal
Hans danced into the.ACC ballroom
c. Hans tanzte **durch** den Ballsaal
Hans danced through the ballroom

- (13) a. Hans tanzte **zu** Maria
Hans danced to Maria
b. Hans tanzte **auf** Maria **zu**
Hans danced on Maria to
'Hans danced towards Maria'

- Following Van Riemsdijk (1990), Den Dikken (2010), Haselbach (2017a), we assume that the relation between a Figure and a Ground – in the sense of Talmy (1975, 2000) – is not reflected by prepositional structure; unlike Svenonius (2003).
- The Ground (G) can be identified with the complement of a spatial preposition, while the Figure (F) needs to be identified with an element outside prepositional structure. For instance, the Figure can be identified with a direct object marked with accusative (14a), an indirect (here: applied) object marked with dative (14b), a subject of an unaccusative predicate (14c), a subject of an unergative predicate (14d), a nominal element incorporated into a verb (14e), or the complement of another PP (14f).

- (14) a. Hans warf die Münze_F [PP **in** den Brunnen_G]
Hans threw the.ACC coin into the.ACC well
b. Hans half der.DAT Oma_F [PP **in** den Bus_G]
Hans helped the granny into the.ACC bus
c. Hans_F fiel [PP **in** den Brunnen_G]
Hans.NOM fell into the.ACC well
d. Hans_F hüpfte [PP **in** den Brunnen_G]
Hans.NOM jumped into the.ACC well
e. Hans piss_F-te [PP **in** den Brunnen_G]
Hans pissed into the.ACC well
f. [PP **In** den Kerker_G] mit dem Halunken_F!
into the.ACC dungeon with the scoundrel

- The general structure of spatial PPs is depicted in (15).



- The (prepositional) root \checkmark adjoins to P, which takes a DP complement interpreted as the Ground. Hosting the syntacticosemantic feature $[\pm\text{TO}]$, the optional light preposition Q derives goal/source prepositions. At PF, Q lowers to and fuses with P at PF. In English, Q can be realized as *to* in some contexts; cf. *into*.
- Spatial prepositions project functional structure (Van Riemsdijk 1990, Koopman 2000, 2010, Den Dikken 2010, Noonan 2010, Haselbach 2017a). Following (Den Dikken 2010, Haselbach 2017a), we assume that the functional structure of spatial prepositions can comprise the projections: C (complementizer) > Dx (deixis) > Asp (aspect). In (16), the deictic morpheme *hin* (thither) corresponds to Dx and the recurrent prepositional morpheme *ein* (into; allomorph of *in*) corresponds to C (Haselbach 2017a). For convenience, we will henceforth lump together the projections C, Dx, and Asp under the label F.
- In German, the functional structure of (spatial) prepositions is canonically linearized postpositionally, i.e. to the right of the DP complement; cf. (16a). Under certain conditions, the functional structure can be linearized to the left of the preposition (marked position); cf. (16b).

- (16)
- a. $[_{\text{FP}} [\text{in } [\text{den } \text{Ballsaal }]] \text{ hin-ein }]$
 into the.ACC ballroom thither-into
- b. $^m[_{\text{FP}} \text{ hin-ein } [\text{in } [\text{den } \text{Ballroom }]]]$
 thither-into into the.ACC ballroom

- The minimal semantic contribution of the functional prepositional structure F is a spatial path w serving as the referential argument of the path preposition. Spatial paths are virtual rectilinear line segments that are elements of an plain (undirected) path structure (Krifka 1998: 203).

- We take the view that the characteristic feature of a spatial path w is that it is in a Figure/Path Relation (FPR) (Beavers 2012) with a material object x interpreted as the Figure and an locomotion event e . Both the Figure and the locomotion event must be identified outside the prepositional domain, pace Svenonius (2003). We propose the LF-instruction for F in (17).

(17) **LF-instruction for F:**

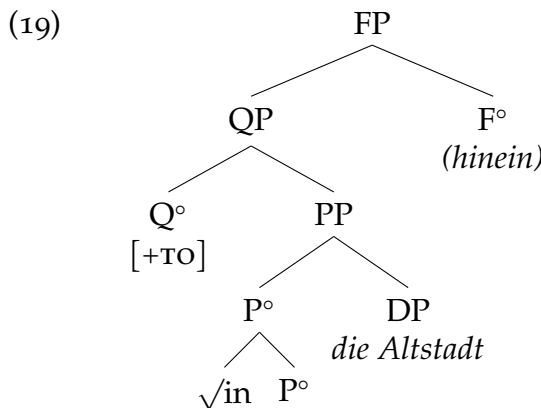
- a. $F \leftrightarrow \begin{array}{|c|} \hline \mathbf{w} \\ \hline \text{FPR}(\bar{x}, w, \bar{e}) \\ \hline \end{array} \quad / \text{ goal or source } Q, \text{ or route } P$
- b. $\leftrightarrow \dots$

3.1 Goal and source prepositions

- Goal and source prepositions are derived from place PPs via the light preposition Q.

- (18) a. Hans war **in** der Altstadt (dr-in)
Hans was in the.DAT old town there-in
- b. Hans ging **in** die Altstadt (hin-ein)
Hans went into the.ACC old town thither-in

- **Structure of the goal PP in (18b):** The root $\sqrt{\text{in}}$ adjoins to P, which takes a DP complement interpreted as the Ground. Hosting the syntacticosemantic feature $[\pm\text{TO}]$, the light preposition Q takes a place PP complement and derives goal/source prepositions. Functional prepositional structure F projects above QP.



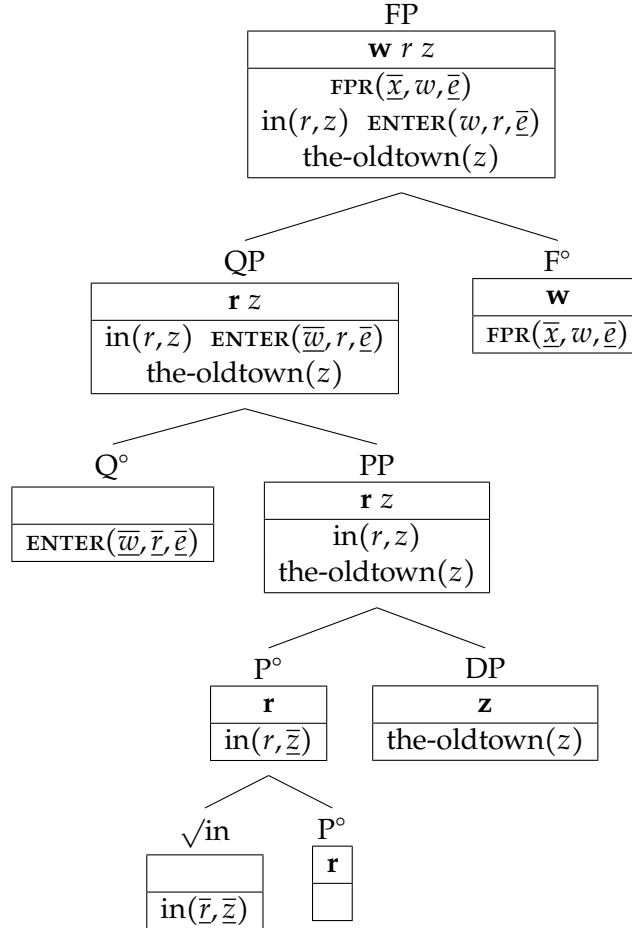
- **PF-realization of (19):** The root $\sqrt{\text{in}}$ is realized as *in*, while the P head receives the null realization \emptyset . The head Q lowers to and fuses with P. In German, the head $Q[+\text{TO}]$ paired with a locative root such as $\sqrt{\text{in}}$ triggers accusative case.⁴

⁴ Following Zwarts (2006), Van Riemsdijk (2007), Haselbach and Pitteroff (2015), Haselbach (2017a), we assume that dative is the ‘default’ case in the prepositional domain. In particular, we assume that Ps inherently assigns dative case features $[\text{+INF}, \text{OBL}]$ to their DP complements at PF. The head $Q[+\text{TO}]$

In English, $Q[+TO]$ can be realized as *-to*, as in *into*. F can host deictic features and can then be realized as *hin-ein* (thither-in), for instance.

• **LF-interpretation of (19):**

(20)



- In the context of a (prepositional) root like $\sqrt{\text{in}}$, the P head is interpreted as providing a region r . The root $\sqrt{\text{in}}$ provides the spatial relation ‘in’ holding between an anticipated region \bar{r} and an anticipated material object \bar{z} . The referential argument of P is the region r ; it saturates the argument slot for \bar{r} stemming from the root. The referential argument of the Ground DP is the old town z (material object). It saturates the argument slot for \bar{z} in PP. The referential argument of PP is r that is an IN-region of the old town z .
- In the context of a locative place PP, the light preposition Q contributes goal or source semantics in the sense of Krifka (1998), Beavers (2012). Q denotes the three-place spatial relation ‘ENTER’ holding between the anticipated spatial path w that enters the anticipated region r in the anticipated motion event e (Haselbach 2017a: 231–2). The spatial path w is transitional (instantaneous, punctual), typically giving rise to achievement predicates

paired with locative roots like $\sqrt{\text{in}}$ triggers an Impoverishment operation (Bonet 1991, Embick 2015) to the effect that oblique case features (here: $[+OBL]$) are deleted (cf. Prepositional Case Impoverishment, Haselbach 2017a: 334), which results in an accusative case configuration.

(Denis 2003, Haselbach 2017a). The referential argument of PP is r , which saturates \bar{r} in QP.

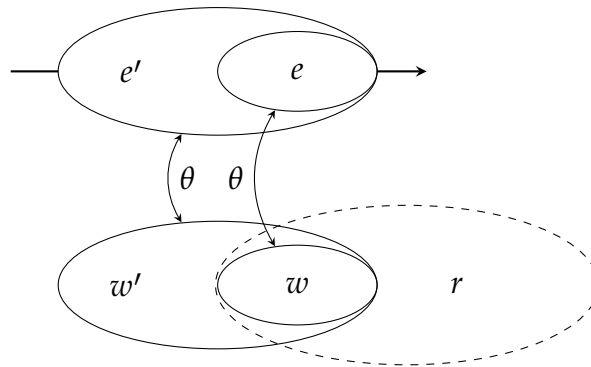
- In the context of a path PP (here: QP), the functional prepositional head F contributes a spatial path w that is in a Figure/Path Relation (FPR) (Beavers 2012) with an anticipated material object \bar{x} (the Figure) and an anticipated locomotion event \bar{e} . The spatial path w saturates \bar{w} in FP. The anticipated locomotion events from F and Q are identified with one another.
- The referential argument of FP is w that is in a Figure/Path Relation with an anticipated material object \bar{x} (the Figure) and an anticipated locomotion event \bar{e} ; and the spatial path w enters the region r in the anticipated event \bar{e} ; and the region r is an IN-region of the oldtown z .
- NB: Source prepositions, which project Q[-TO], involve the predicate LEAVE that can be defined in parallel to the predicate ENTER (see below).
- The predicate ENTER in the LF-representation of the FP in (20) repeated in (21) is similar to Krifka's (1998: 227–8) and Beavers' (2012: 30) GOAL predicates.

(21)

$\mathbf{w} \ r \ x$
$\text{FPR}(\bar{x}, w, \bar{e})$
$\text{in}(r, x) \ \text{ENTER}(w, r, \bar{e})$
$\text{the-oldtown}(x)$

- Spatial paths qua line segments are elements of an undirected path structure H (Krifka 1998: 204). That is, spatial paths do not have an inherent direction (unlike Zwarts 2005).
- In contrast, an event structure E (Krifka 1998: 206) is directed because it comprises a time structure T (Krifka 1998: 205), which itself instantiates a directed path structure D (Krifka 1998: 205). Spatial paths obtain their direction through movement relation θ with event structure.

- (22) If θ is a Strict Movement Relation for spatial path w and event e , then spatial path w **enters** region r in e iff $w < w'$ is contained in r and w is θ -related to the minimal final $e < e'$ such that e' is θ -related to w' .



(Haselbach 2017a: 231–2)

3.2 Route prepositions

- Example of a route preposition:

(23) Hans schob den Karren **durch** die Altstadt (hin-durch)
Hans pushed the cart through the old town thither-through

- Route prepositions without a postpositional element show a systematic ambiguity to the effect that they give rise to a telic and atelic interpretation when combined with locomotive MoM verbs (Piñón 1993, Zwarts 2005). Thus, route prepositions can denote bounded and unbounded spatial paths.

(24) Hans rannte in/für 30 Minuten **durch** den Wald
Hans ran in/for 30 minutes through the forest

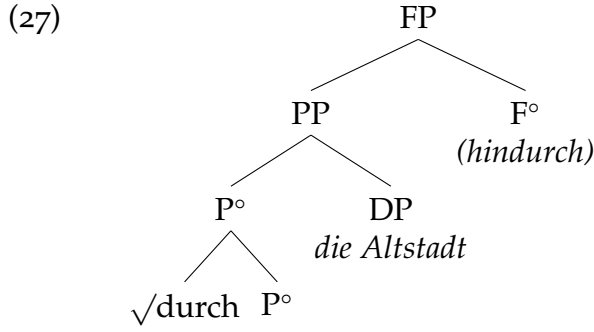
- Route prepositions do not entail a result state, unlike goal and source prepositions. Indicating repetition, *wieder* can give rise to two readings: (i) a repetitive reading where the event is repeated and (ii) a restitutive reading where a (result) state is restored (von Stechow 1996, Beck and Johnson 2004, Ramchand 2012). In the scope of *wieder*, goal and source prepositions as in (25a) give rise to a repetitive and a restitutive reading, while route prepositions as in (25b) give rise to a repetitive reading only (Ramchand 2012, Haselbach 2017a,b).

(25) a. Hans rannte wieder **in** den Wald
Hans ran again into the.ACC forest
b. Hans rannte wieder **durch** den Wald
Hans ran again through the forest

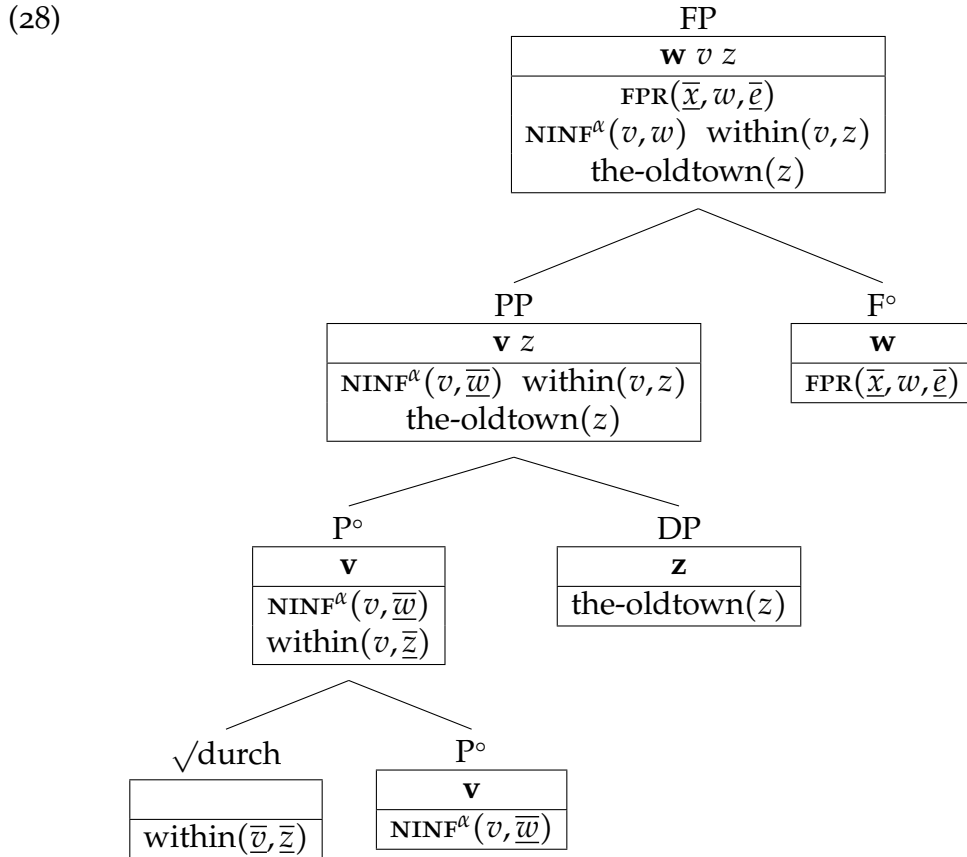
- Route prepositions do not commit to direction. Goal and source prepositions as in (26a) are infelicitous modifiers of underived nominals that are conceptualized as undirected, while route prepositions as in (26b) are felicitous modifiers of such nominals.

(26) a. #Die Mauer **in** die Stadt wurde niedergerissen
the wall into the.ACC city was torn down
b. Die Mauer **durch** die Stadt wurde niedergerissen
the wall through the city was torn down

- **Structure of the route PP in (23):** The root $\sqrt{\text{durch}}$ adjoins to P, which takes a DP complement interpreted as the Ground. Route prepositions are undirected, thus Q (for goal and source semantics) is not projected. Functional prepositional structure F projects above PP.



- **PF-realization of (27):** The root $\sqrt{\text{durch}}$ is realized as *durch*, while the P head receives the null realization \emptyset . Route prepositions generally trigger accusative case. F can be host deictic features and can then be realized as *hin-durch* (thither-through), for instance.
- **LF-interpretation of (27):**



- In the context of a prepositional root like $\sqrt{\text{durch}}$, the P head is interpreted as providing a non-initial, non-final (NINF) path v of an anticipated route path w . The predicate NINF has the binary parameter α . The route path is bounded if α is negative, while the route path is unbounded if α is positive (see below). The root $\sqrt{\text{durch}}$ provides the spatial relation ‘within’ holding between an anticipated spatial path v and an anticipated material object z .

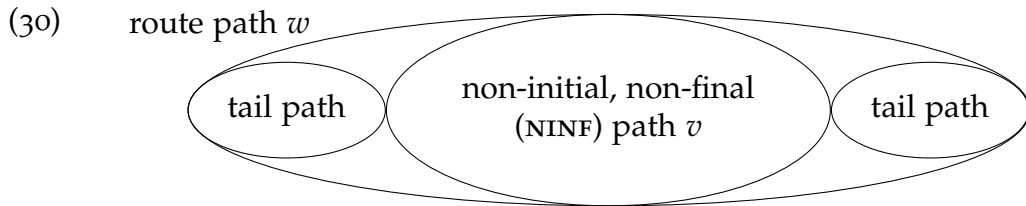
The referential argument of P is the spatial path v ; it saturates the argument slot for \bar{v} stemming from the root. The referential argument of the Ground DP is the old town z (material object). It saturates the argument slot for \bar{z} in PP. The referential argument of PP is v that is a NINF-path of an anticipated route path \bar{w} and that is within the old town z .

- In the context of a path PP, the functional prepositional structure F contributes a spatial path w that is in a Figure/Path Relation (FPR) (Beavers 2012) with an anticipated material object \bar{x} (the Figure) and an anticipated locomotion event \bar{e} . The spatial path w saturates \bar{w} in FP.
- The referential argument of FP is w that is in a Figure/Path Relation with an anticipated material object \bar{x} (the Figure) and an anticipated locomotion event \bar{e} ; and the spatial path w contains a non-initial, non-final path v that is within the old town z .
- The predicate NINF (for non-initial, non-final paths) with the binary parameter α and some geometric predicate over spatial path, e.g. ‘within’, are characteristic of route prepositions. See the LF-representation of the FP in (28) is repeated in (29).

(29)

$\mathbf{w} \ v \ z$
$\text{FPR}(\bar{x}, w, \bar{e})$
$\text{NINF}^\alpha(v, w) \ \text{within}(v, z)$
$\text{the-oldtown}(z)$

- Route prepositions denote route paths w that have a tripartite mereological structure consisting of a non-initial, non-final (NINF) path v and two peripheral tail paths.

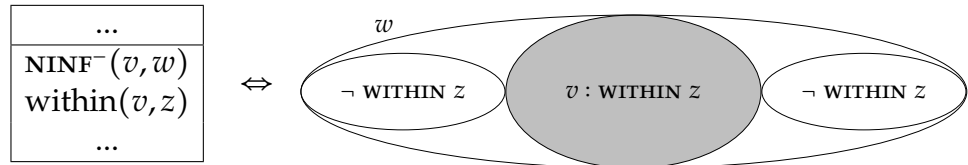


- The NINF-path v and the route path w are visible at LF; the tail paths are not. The root (here: $\sqrt{\text{durch}}$) contributes some geometric predication over NINF-paths at LF, e.g. $\text{within}(v, z)$.
- Spatial path v is an α non-initial, non final (NINF^α) path of route path w iff v is a proper subpath of w ; and v satisfies the geometric predicate B ; and there are exactly two paths y', y'' (tail paths) that are proper subpaths of w ; and w is the mereological sum $y' \oplus v \oplus y''$; and v is adjacent to y' and to y'' , i.e. $y' \propto v \propto y''$; and y' and y'' are indistinguishable with respect to the predicate B , that is, either both satisfy B (i.e. $\alpha = +$) or both do not satisfy B (i.e. $\alpha = -$).

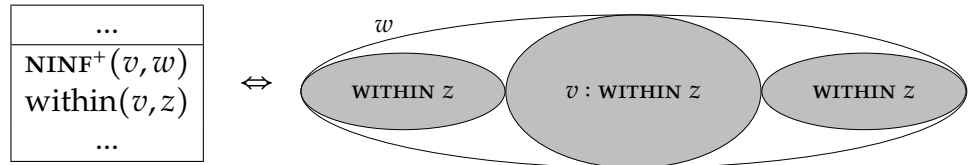
(Haselbach 2017a: 252)

(31) **durch** die Altstadt
through the old town

a. route path goes into and out of the old town (bounded spatial path):



b. entire route path is within the old town (unbounded spatial path):



4 Manner of motion verbs

4.1 Plain MoM verbs: unergative structure

- Plain MoM verbs select for the perfect auxiliary *haben* (HAVE).

(32) Hans hat/*ist getanzt
Hans has.AUX danced

- Hyponyms of cognate object are often optionally possible with plain MoM verbs (cf. *ein Tanz*, a dance).

(33) Hans hat (einen Tango) getanzt
Hans has.AUX a.ACC tango danced

- Plain MoM verbs cannot be used as prenominal participles.

(34) *der getanzte Hans
the danced Hans

- Plain MoM verbs can form resultative constructions.

(35) Hans hat das Parkett stumpf getanzt
Hans has.AUX the dance floor blunt danced

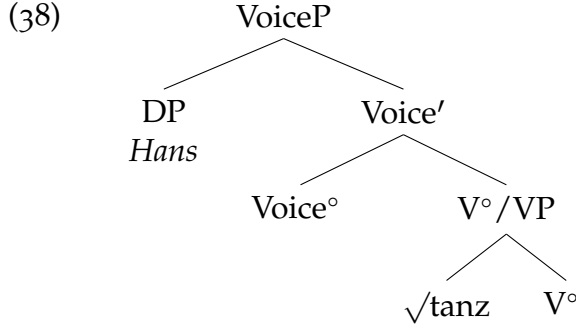
- Plain MoM verbs can form impersonal passives.

(36) Auf der Hochzeit wurde getanzt
at the.DAT wedding was.PASS danced

- Plain MoM verbs do not imply a spatial path.

(37) Hans hat auf der Stelle getanzt
Hans has.AUX on the.DAT spot danced

- Plain MoM instantiate an unergative structure.



- Voice introduces the external argument of verbs (Kratzer 1996).⁵ Crucially, the thematic status of an external argument is determined on the basis of its syntacticosemantic context. Following Wood and Marantz (2017: 256), we take the view that “syntactic heads crucially involved in the interpretation of argument structure [...] are subject to contextual allosemy at the semantic interface.”
- We assume the generalized LF-interpretation of Voice as in (39).

(39) **LF-instruction for Voice:**

$$\text{Voice} \leftrightarrow \begin{array}{|c|} \hline \theta_{\text{EXT}}(\bar{e}, \bar{x}) \\ \hline \end{array}$$

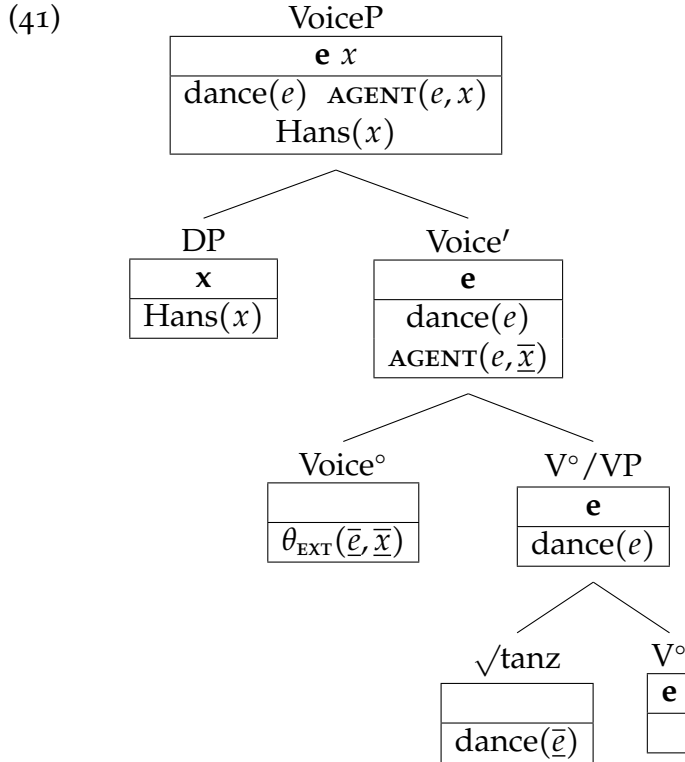
- Agentive predicates like ‘dance’ imply that external arguments are interpreted as agents. We propose the instantiation rule of θ_{EXT} in (40).

(40) **Instantiation of θ_{EXT} at LF:**

$$\begin{array}{|c|} \hline \mathbf{e} \\ \hline \phi(e) \\ \theta_{\text{EXT}}(e, \bar{x}) \\ \hline \end{array} \rightarrow \begin{array}{|c|} \hline \mathbf{e} \\ \hline \phi(e) \\ \text{AGENT}(e, \bar{x}) \\ \hline \end{array} \quad / \quad \phi \in \{\text{dance, sing, ...}\}$$

⁵NB: We follow Wood and Marantz (2017: 257) in assuming the generalized external-argument introducer i^* . In particular, they 2017: 258 define ‘Voice’ as bare (i.e. non-root-adjoined) i^* that merges with vP (here: VP). For convenience, we use the label ‘Voice’.

- **LF-interpretation of (38):**



- The root $\sqrt{\text{tanz}}$ provides the MoM predicate ‘dance’ with an anticipated event \bar{e} . The verbal head V is interpreted as providing the event argument e , which saturates the open argument slot of the MoM predicate ‘dance’ in V°/VP . Voice introduces a thematic argument slot for the external argument. The LF-rule of instantiation of θ_{EXT} formulated in (40) applies at the level of Voice’. The external argument is introduced in the specifier of Voice. Its referential argument x saturates \bar{x} in VoiceP.
- The verb particle *nach* (after) can combine with the plain MoM verb *tanzen*. In this configuration, the verb particle creates an argument slot for a dative DP.

(42) Hans hat der Lehrerin nach-getanzt
 Hans has.AUX the.DAT teacher after-danced
 ‘Hans copied the teacher’s manner of dancing’

- The verb particle *nach* is a presupposition trigger. When combined with the plain MoM verb *tanzen*, the verb particle *nach* triggers the presupposition that there was a dancing event e^0 preceding the dancing event e . The individual denoted by the dative argument is interpreted as the agent of the presupposed dancing event e^0 . Furthermore, the presupposed event e^0 is similar to the event e in that both are events of dancing. Hans’ dancing event e can be understood as a copy of the teacher’s dancing event e^0 .

(43) LF-interpretation of (42):

$$\left\langle \begin{array}{|c|} \hline e^0 \ t^0 \\ \hline \text{dance}(e^0) \ \text{AGENT}(e^0, y) \\ e^0 \subseteq t^0 \quad t^0 < t \\ \hline \end{array} \right\rangle, \begin{array}{|c|} \hline e \ t \ x \ y \\ \hline \text{dance}(e) \ \text{AGENT}(e, x) \\ \text{Hans}(x) \ \text{the-teacher}(y) \\ e \subseteq t \quad t < n \\ \hline \end{array} \right\rangle$$

4.2 Locomotive MoM verbs: unaccusative structure

- The MoM verb *tanzen* (dance) combined with a path-denoting argument, e.g., a path PP, is a locomotive MoM verb. It instantiates an unaccusative structure.
- Locomotive MoM verbs select for the perfect auxiliary *sein* (BE).

(44) Hans ist/*hat in den Ballsaal getanzt
Hans is.AUX into the.ACC ballroom danced

- Hyponyms of cognate objects are impossible with locomotive MoM verbs.

(45) Hans ist (*einen Tango) in den Ballsaal getanzt
Hans is.AUX a tango into the.ACC ballroom danced

- Locomotive MoM verbs can be used as prenominal participles.

(46) der in den Ballsaal getanzte Hans
the into the.ACC ballroom danced Hans

- Locomotive MoM verbs cannot form resultative constructions.

(47) *In den Ballsaal tanzte Hans das Parkett stumpf
into the.ACC ballroom danced Hans the dance floor blunt

- Locomotive MoM verbs cannot form impersonal passives.

(48) *Auf der Hochzeit wurde in den Ballsaal getanzt
at the.DAT wedding was.PASS into the.ACC ballroom danced

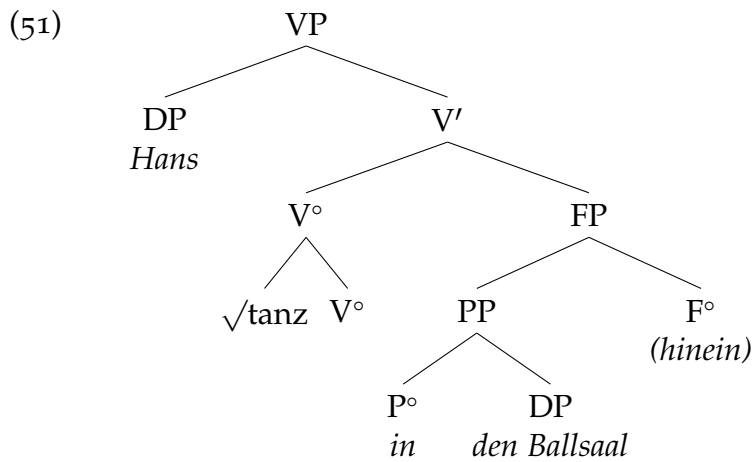
- Locomotive MoM verbs imply a spatial path.

(49) *Hans ist auf der Stelle in den Ballsaal getanzt
Hans is.AUX on the.DAT spot into the.ACC ballroom danced

- Prepositional phrases are arguments of locomotive MoM verbs. This can be diagnosed by using the German equivalent of Folli and Harley's (2006: 134) English *do-so* VP elision test, viz. *dasselbe tun* (lit.: do the same). Elements adjoined to a VP, like the locative PP with dative in (50a), are typically outside the domain of *dasselbe-tun* elision. In contrast, VP-internal PPs, like the path PP with accusative in (50b), cannot be excluded from *dasselbe-tun* elision. This is because such PPs are structurally part of the VP that is elided.

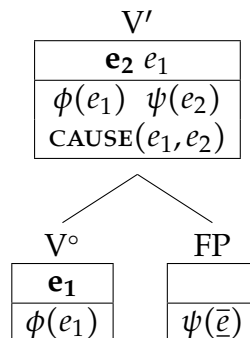
- (50) a. Hans tanzte in der Küche und Maria tat dasselbe
Hans danced in the.DAT kitchen and Maria did the.same
(in der Stube)
in the.DAT living room
- b. Hans tanzte in die Küche und Maria tat dasselbe
Hans danced into the.ACC kitchen and Maria did the.same
(*in die Stube)
into the.ACC living room

- We propose the unaccusative structure illustrated in (51) for locomotive MoM verbs.

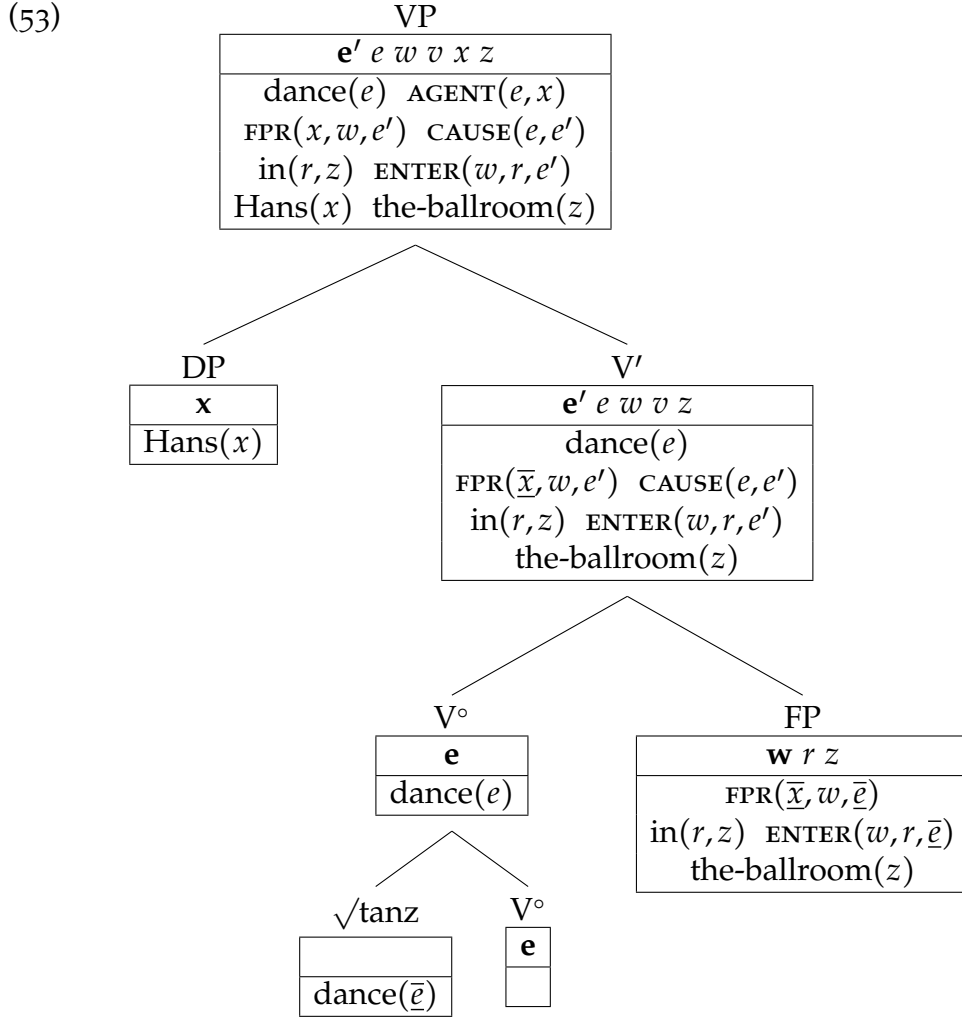


- How can a plain MoM predicate like ‘dance’ – which we assume to be the semantic contribution of the root $\sqrt{\text{tanz}}$ also in this case – combine with path semantics contributed by the path PP?
- We propose the LF-rule for locomotive MoM verbs in (52). If FP is a (prepositional) argument of V° , and e_1 is the referential argument of V° , and ϕ is a MoM predicate, and \bar{e} in FP is an anticipated locomotion event; then the locomotion event e_2 is introduced as the referential argument of V' , and e_2 saturates the argument slot for \bar{e} , and e_1 CAUSES e_2 .

(52) **LF-rule for locomotive MoM verbs:**



• LF-interpretation of (51):



- Again, the root $\sqrt{\text{tanz}}$ provides the MoM predicate 'dance' with an anticipated event \bar{e} . The verbal head V is interpreted as providing the event argument e , which saturates the open argument slot of the MoM predicate 'dance'. The verb takes the path-denoting prepositional phrase FP as a complement. The referential argument of FP is w that is in a Figure/Path Relation with an anticipated material object \bar{x} (the Figure) and an anticipated locomotion event \bar{e} . The referential argument of V e cannot saturate the anticipated locomotion event \bar{e} from FP. The LF-rule for locomotive MoM verbs formulated in (52) applies at the level of V', viz., the locomotion event e' is introduced as the new referential argument and it saturates the \bar{e} in V'. Furthermore, the dancing event e is interpreted as causing the locomotion e' . The referential argument of the DP *Hans* is x ; it saturates open argument slot of the Figure/Path Relation \bar{x} in VP.
- The domain of the dancing event e is closed off at V'. The locomotion event e' is now the referential argument. In this sense, the DP *Hans* is external to the domain of the dancing event e . Thus, it is legitimate to interpret the individual Hans x as the agent of the dancing event e , even though it is an internal

argument of the VP.

- The verb particle *nach* (after) can also combine with the locomotive MoM verb *tanzen*. Again, the verb particle creates an argument slot for a dative DP.

(54) Hans ist der Lehrerin in den Ballsaal nach-getanzt
Hans is.AUX the.DAT teacher into the ballroom after-danced
‘Hans followed the teacher into the ballroom in a dancing manner’

- In this case, the verb particle *nach* targets properties of the locomotion event e' , not properties of the dancing event e .
- As usual, the verb particle *nach* is a presupposition trigger. When combined with the locomotive MoM verb *tanzen*, the verb particle triggers the presupposition that there was a locomotion event e^0 preceding the locomotion event e' . The individual denoted by the dative argument is interpreted as the Figure of the presupposed locomotion event e^0 . Furthermore, the presupposed locomotion event e^0 and the locomotion event e' share similar spatial paths. In particular, the respective presupposed spatial path w^0 is also a path entering the ballroom z , like the spatial path of the locomotion event e' . Note that the presupposed locomotion event e^0 is not caused by a dancing event of the teacher, i.e. the teacher could have walked into the ballroom.

(55) LF-interpretation of (54)

$$< \left\{ \begin{array}{|c|} \hline e^0 \ t^0 \ r^0 \ w^0 \\ \hline \text{FPR}(y, w^0, e^0) \\ \hline \text{in}(r^0, z) \ \text{ENTER}(w^0, r^0, e^0) \\ \hline e^0 \subseteq t^0 \quad t^0 < t \\ \hline \end{array} \right\}, \begin{array}{|c|} \hline e' \ e \ t \ w \ v \ x \ y \ z \\ \hline \text{dance}(e) \ \text{AGENT}(e, x) \\ \text{FPR}(x, w, e') \ \text{CAUSE}(e, e') \\ \text{in}(r, z) \ \text{ENTER}(w, r, e') \\ \text{Hans}(x) \ \text{the-ballroom}(z) \\ \text{the-teacher}(y) \\ \hline e' \subseteq t \quad t < n \\ \hline \end{array} >$$

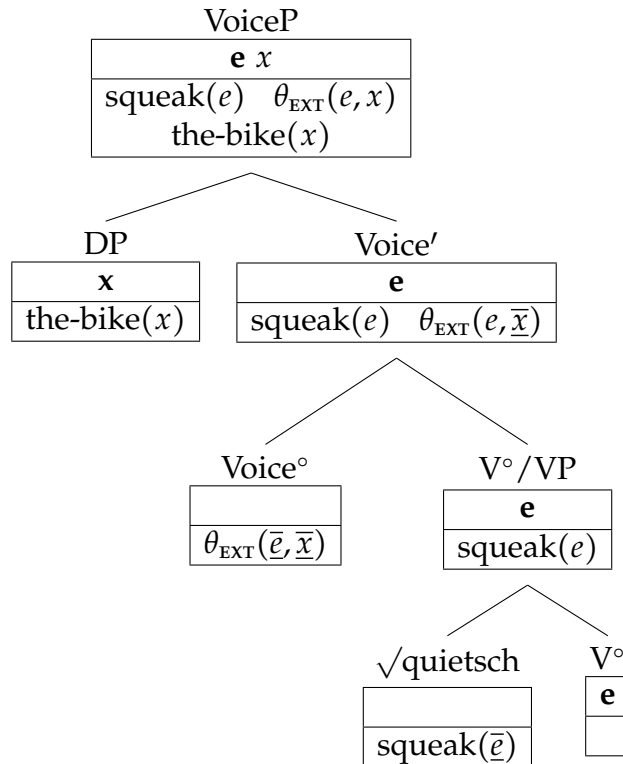
5 Conclusions and extension to sound emission verbs

- We have provided an explanation for the fact that German manner of motion (MoM) verbs can be used (i) as plain (non-locomotive) MoM verbs and (ii) as locomotive MoM verbs.
- We have argued that plain MoM instantiate an unergative structure, while locomotive MoM verbs instantiate an unaccusative structure.
- Using DRT, we have semantically fleshed out the unergative and unaccusative structures MoM verbs can enter.
- In addition, we have provided a syntactic and semantic analysis of German path PPs.

- Non-agentive sound emission (SE) verbs show a behavior similar to MoM verbs.⁶ We have reason to believe that the plain SE verb *quietschen* (squeak) in (56a) instantiates an unergative structure, while the locomotion SE verb *quietschen* in (56b) instantiates an unaccusative structure.

- (56) a. Das Fahrrad hat gequietscht
the bike has.AUX squeaked
b. Das Fahrrad ist in die Altstadt gequietscht
the bike is.AUX into the.ACC old town squeaked

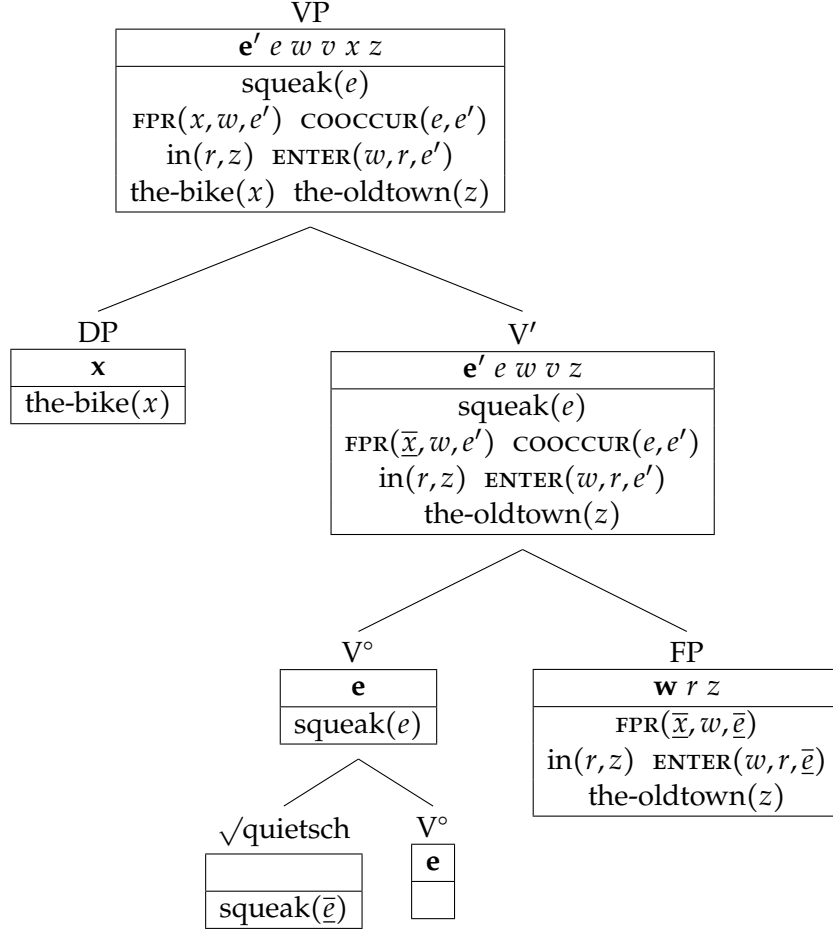
- (57) LF-interpretation of the structure of the clause in (56a):



- NB: The SE verb *quietschen* does not imply agentivity.
- The LF-interpretation of the unaccusative structure of SE verbs like *quietschen* can be reconstructed similarly to the LF-interpretation of MoM verbs like *tanzen*. However, one difference is that the relation between the SE event *e* and the locomotion event *e'* is not one of causation. In particular, the SE event *e* does not cause the locomotion event *e'*. Instead, we can say that the SE event *e* and the locomotion event *e'* co-occur (Goldberg and Jackendoff 2004: 541).

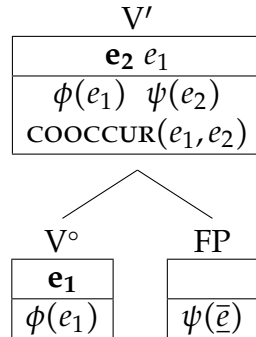
⁶For a thorough discussion of sound emission verbs, we refer the reader to Goldberg (1995), Levin and Rappaport Hovav (1995, 1999), Goldberg and Jackendoff (2004), Folli and Harley (2008), Engelberg et al. (2011), Buscher (2017), a.o.

(58) LF-interpretation of the structure of the clause in (56b):



- For this, we need to add an LF-rule for locomotive SE verbs as sketched in (59). If FP is a (prepositional) argument of V°, and e_1 is the referential argument of V°, and ϕ is a SE predicate, and \bar{e} in FP is an anticipated locomotion event; then the locomotion event e_2 is introduced as the referential argument of V', and e_2 saturates the argument slot for \bar{e} , and e_1 and e_2 CO-OCCUR.

(59) LF-rule for locomotive SE verbs:



Acknowledgements

This work is funded by the Deutsche Forschungsgemeinschaft (DFG) via the special research center SFB 732 *Incremental Specification in Context*.

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