Theta-head Binding in German Locative Alternations
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Introduction

Locative Alternations: the location argument, which normally is realized as a prepositional object, is realized without any local preposition, thus a type of location "promotion" takes place.

Free Landmark Datives (FLD)

(1) **der Kamera** die Linse zuhalten
the camera$_{DAT}$ the lens hold.closed
'hold the camera lens closed'
base: die Linse zuhalten

Locative Alternation of the *spray/load*-type in German

(2) **den Kuchen** mit Eigelb **be**-streichen
the cake$_{ACC}$ with egg.yolk be-smear
'coat the cake with egg yolk'
base: Eigelb **auf den Kuchen** streichen

FLDs obligatorily bind a possessor variable in a local domain. The same holds true of the reference to the neighborhood region SURFACE/OUTSIDE with productive instances of *be*-prefixations.

(3) a. **der Kamera**$_i$ ihre$_i$ Linse zuhalten
the camera$_{DAT}$ its lens hold.closed
'hold the camera lens closed'
b. **den Kuchen**$_i$ {an seiner$_i$ Oberfläche} mit Eigelb **be**-streichen
the cake$_{ACC}$ at its outside with egg.yolk be-smear
'coat the cake with egg yolk at its outside'

Be- co-occurs productively with the neighborhood region OUTSIDE but not with INSIDE.

(4) *das Loch {innen} mit Wachs **be**-stopfen
the hole$_{ACC}$ inside with wax be-stuff
int.: 'stuff the hole with wax'
base: Wachs in das Loch stopfen
(5) das Buch {von außen/*von innen} **be**-malen
the book$_{ACC}$ from outside/from inside be-paint
'paint the book {from the outside/*on the inside}'

Our aims:
- The core of our analysis elaborates Kratzer's (2009:194) proposal to implement reflexivity in an agent-severed system that centers around verbal functional heads which introduce bare binder indices into the structure.
- We extend this proposal beyond FLDs (Hole 2014) to the *be*-marked Locative Alternation.
- This extension forms part of a larger endeavor to demonstrate the necessity to describe quite a few well-known argument alternations as depending on the presence of binder theta-heads

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Previous analysis of Free Landmark Datives (Hole 2012, 2014)

Assumptions

(i) The free dative argument is a location argument introduced by the Landmark theta head θ_{LDM} in its specifier (by analogy to introduction of Agents by the Voice theta head in Kratzer 1996).

(ii) Semantically, the landmark head maps the DP referent in its specifier to the neighborhood regions and entails that the complement state holds within those neighborhood regions (Hole 2012, 2014).

(6) $[\![\theta_{LDM}]\!] = \lambda x.\lambda s.\exists s'$. s holds in the neighborhood of x(s') & s is a part of s'

(iii) The Landmark theta head comes with a binder feature [+b] which leads to structure expansion along the lines of Hole's (2014) Generalized Binder Rule in the tradition of Büring's (2005) Binder Rule; cf. (7). Spelling out Kratzer's (2009) program, it is tied to a verbal functional head, in this case the landmark theta-head θ_{LDM}. This binding feature makes sure that the Landmark DP binds a variable in the VP.
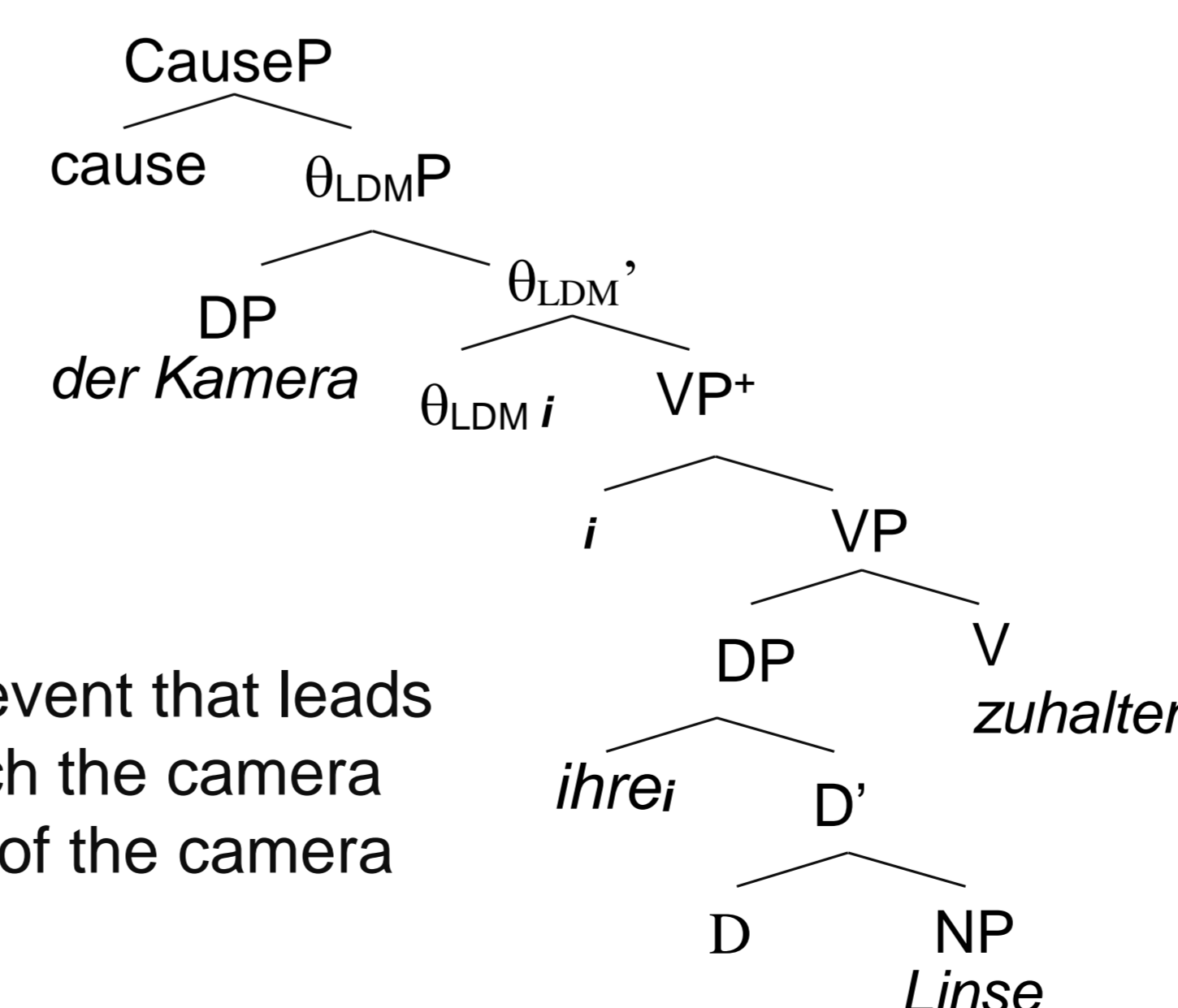
(iv) What is highly peculiar about the free dative voice is the tree-geometrical requirement that goes along with it. The variable that free datives bind must be at the left edge of a clause-mate cophasal phrase ('Knight Move Binding'). Standard implementations of binding don't include requirements of this kind

(7) Binder Rule (Hole 2012, 2014)
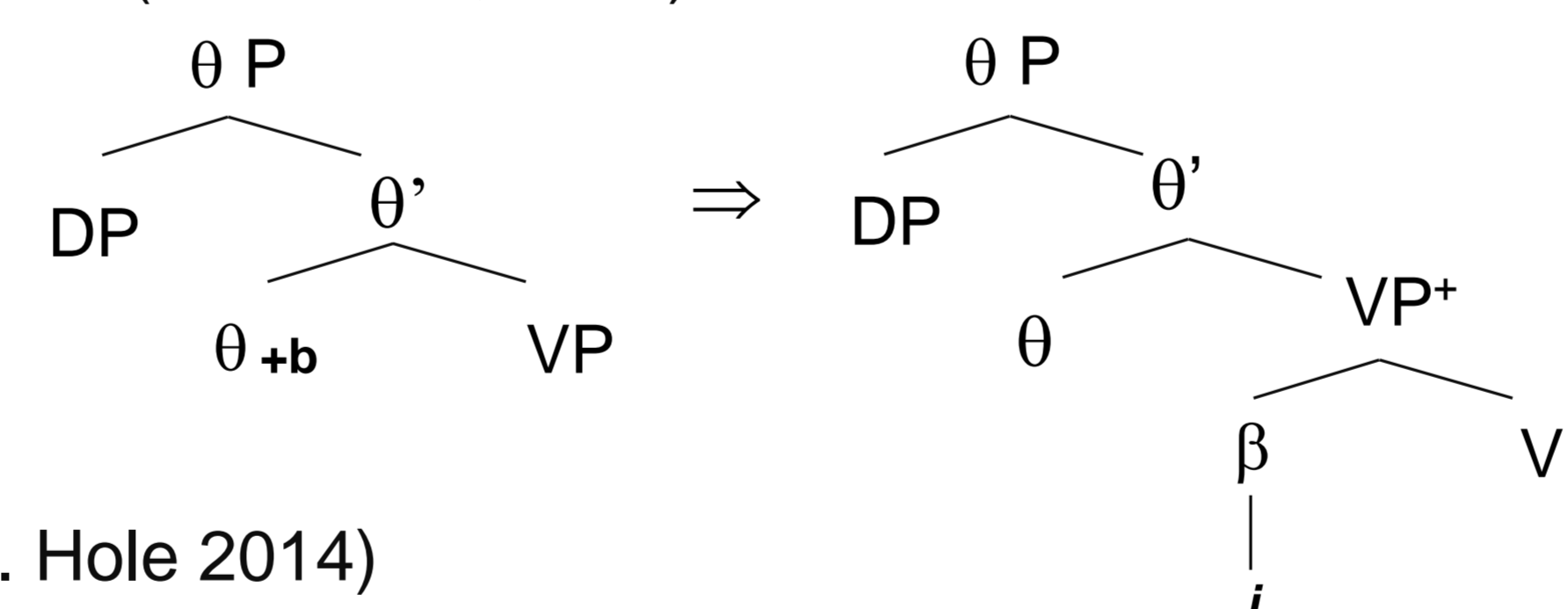
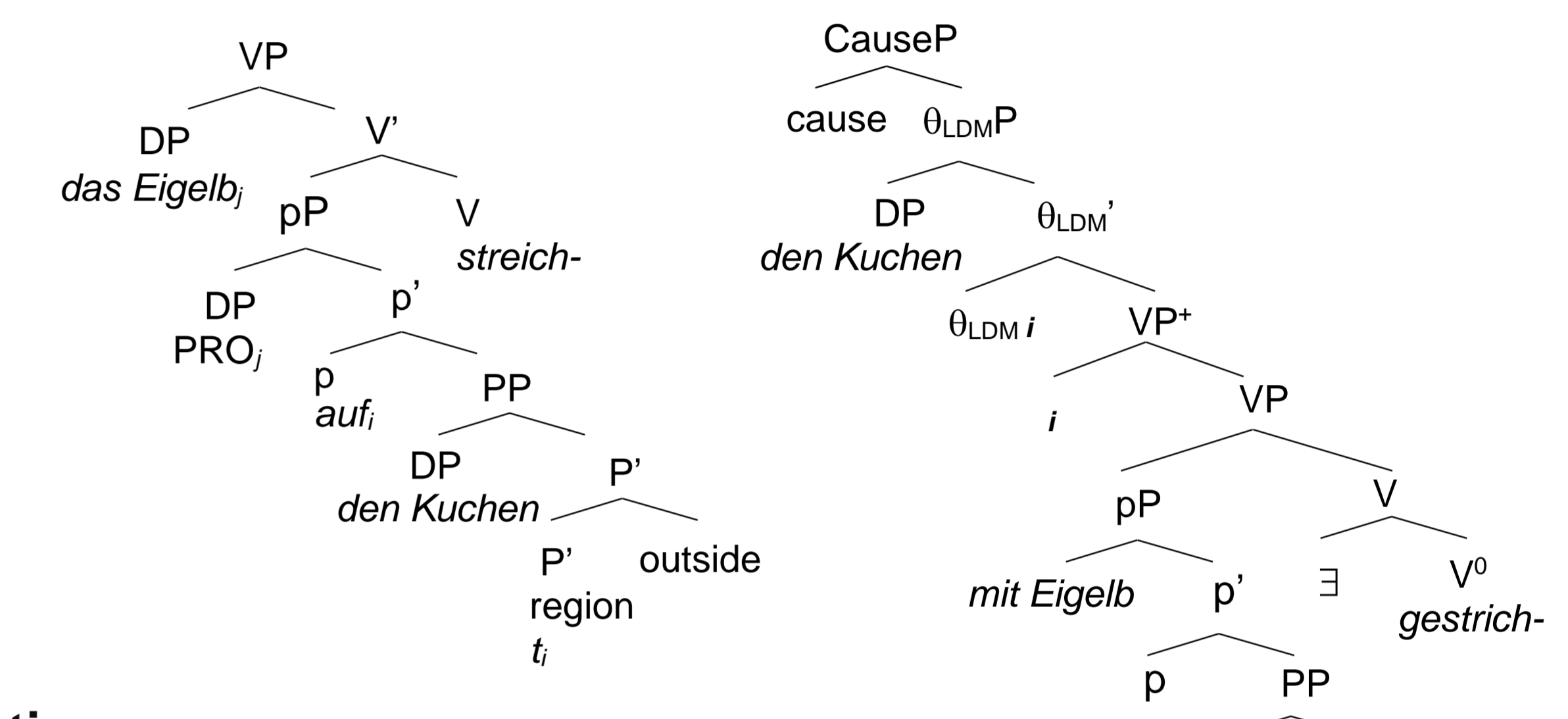**Analysis** (cf. Hole 2014)

(8)

Interpretation: 'There is an event that leads to the resultant state in which the camera is the landmark of the state of the camera lens being closed.'

Analysis of the Locative Alternation with *be*-verbs

Syntax
(9) a. das Eigelb auf den Kuchen streichen b. den Kuchen be-streichen
the egg.yolk on the cake$_{ACC}$ smear the cake$_{ACC}$ be-smear

Semantics
(10) a. $[\![[_{V0} \, getrich\text{-}]]\!] = \lambda x.\ \lambda y.\ \lambda s$. s is a state of y being smeared to x
b. existential closure of the complements of *streich*-
$[\![[_V \exists \, gestrich\text{-}]]\!] = \lambda s$. s is a state of something being smeared somewhere
(11) $[\![[_P \, be\text{-}]]\!] = \lambda y.\ \lambda z.\ \lambda x.\ \lambda s$. s is a state of x being at the region y of z
(12) Saturation of the arguments of *be*
For any assignment g:
$[\![[\, PP \,]]\!]^g = \lambda x.\ \lambda s$. s is a state of x being at the outside of g(i)
(13) For any assignment g:
$[\![[\, pP \,]]\!]^g = \lambda s$. s is a state of egg-yolk being at the outside of g(i)
(14) For any assignment g:
$[\![[\, VP \,]]\!]^g = \lambda s$. s is a state of egg-yolk being smeared at the outside of g(i)
(15) $[\![[\, VP^+]]\!] = \lambda y.\ \lambda s$. s is a state of egg-yolk being smeared at the outside of y
The combination of the VP+ and θ_{LDM} can be interpreted with standard machinery (FA, pred. abstraction, (Davidsonian) predicate modification $\odot$).
(16) $[\![\theta_{LDM}]\!] \odot [\![[VP^+]]\!] = \lambda x.\ \lambda s.\ \exists s'$. s holds in the neighborhood of x(s') & s is part of s' & s is a state of egg-yolk being smeared at the outside of x
(17) $[\![[\theta_{LDM}P]]\!] = \lambda s.\ \exists s'$. s holds in the neighborhood of x(s') & s is part of s' & s is a state of egg-yolk being smeared at the outside of the cake
(18) $[\![cause]\!] = \lambda P.\ \lambda e.\ \exists s$ CAUSE(s)(e) & P(s)
$[\![[CauseP]]\!] = \lambda e.\ \exists s\ .\exists s'$. s holds in the neighborhood of the cake(s') & s is part of s' & s is a state of egg-yolk being smeared at the outside of the cake & CAUSE(s)(e)
(19) Existential closure of the event variable
$\exists e.\ \exists s\ .\exists s'$. s holds in the neighborhood of the cake(s') & s is part of s' & s is a state of egg-yolk being smeared at the outside of the cake & CAUSE(s)(e)
'There is an event that leads to the resultant state in which the cake is smeared with egg yolk at the outside'

Conclusion: Just as with Free Landmark Datives, theta-induced Knight Move Binding can be used to model the Locative Alternation involving *be*-prefixation in German.