Possessor Datives of Modern Hebrew: A Repel-Based Locally Optimized Raising Analysis (A work in progress)

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December 9, 2011
Grammatik-Kolloquium

Outline

1. Basic Facts
   - The classic puzzle
2. Landau: Case-driven Raising
   - Overview
   - Open Questions
3. New Analysis
   - The plot
   - Movement by Repel
   - (Local) Intra-derivational Optimization
   - Case and Thematic Roles
   - Putting it all together
   - Summary

"The classical puzzle of possessive datives"

An argument in the clause (the possessor) derives its *semantic* role from another argument (the possessee), but its *syntactic* behavior from the predicate. What is the possessor dative an argument of? (Landau, 1999)

Some examples (from Landau, 1999)[1]

(1) a. ha-yalda kilkela le-Dan et ha-radio. (Hebrew)
the-girl spoiled to-Dan ACC the-radio
"The girl broke Dan's radio"

b. J'ai coupé les cheveux à Pierre. (French)
I cut the hair to Pierre.
"I cut Pierre's hair"

c. Les revisé los informes a los estudiantes. (Spanish)
to-them I-revised the reports to the students
"I revised the students' reports"

[1] All examples adapted from there unless noted otherwise.

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Semantics of Hebrew PDC: Affected Possessor

Possessor Dative Constructions (PDC) are interpreted with the extra dative argument (PD) as the possessor.

They also carry the implication that the PD is somehow affected (often adversely, sometimes beneficially).

Semantics of Hebrew PDC: PD ≠ DP theme

PD cannot be the theme of the possessed DP:

(2) a. Gil hegdil et ha-tmuna šel Rina. (Genitive possessor)
Gil enlarged ACC the-picture of Rina
"Gil enlarged Rina's picture" [Rina = owner/creator/theme]

b. Gil hegdil le-Rina et ha-tmuna. (Dative possessor)
Gil enlarged to-Rina ACC the-picture.
"Gil enlarged Rina's picture" [Rina ≠ theme]

Syntax of PDC: possessee ≠ external argument

The possessed DP cannot be an external argument – even in single-argument constructions:

(3) a. ha-kelev ne'elam le-Rina. (unaccusative)
the-dog disappeared to-Rina
"Rina's dog disappeared"

b. *ha-kelev hitrocec le-Rina. (unergative)
the-dog ran-around to-Rina
("Rina's dog ran around")

Syntax of PDC: PD c-commands possessee

PD must c-command the possessee or its trace,

(4) *Inalienable possession and PDC:*

a. Gil šataf et ha-panim le-Rina.
Gil washed ACC the-face to-Rina
"Gil washed Rina's face for her" *or* "Gil washed his face for Rina"

b. Gil šataf le-Rina et ha-panim.
Gil washed to-Rina ACC the-face
Only: "Gil washed Rina's face"

Syntax of PDC: summary

Landau offers a summary of properties:

(5) a. *PD must be interpreted as possessor/creator, not object/theme.*
b. *Possession (or creation) interpretation is obligatory.*
c. *The possessed DP cannot be an external argument.*
d. *PD must c-command the possessed DP (or its trace).*
e. *Possessive interpretation is constrained by locality.*

Note: Properties (a) and (b) appear to be equivalent for all intents and purposes. The only difference is that (a) emphasizes that a PD Theme is impossible, whereas (b) emphasizes that interpretation of PD must always be as possessor or creator.

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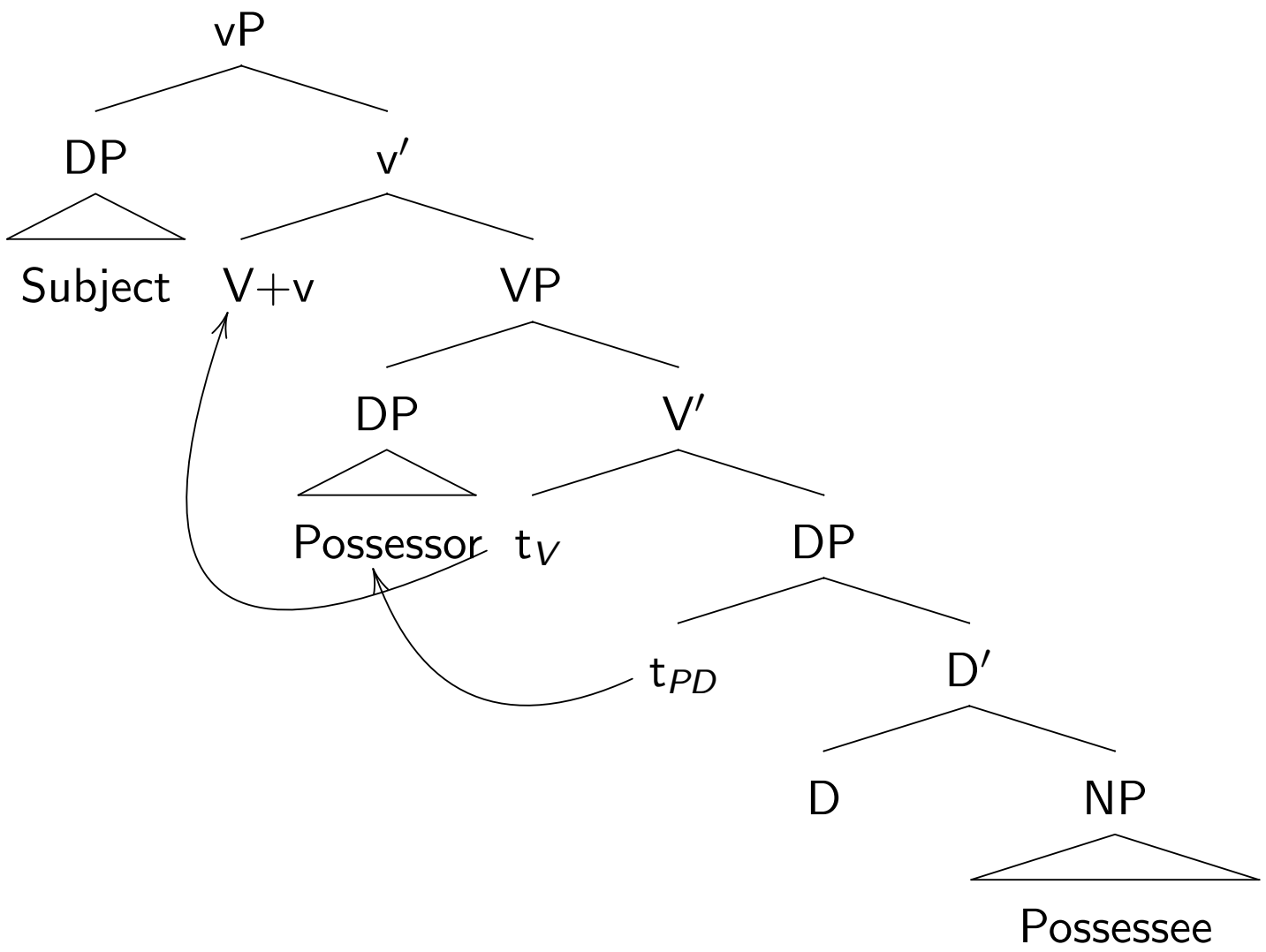
The basic plot is very simple

- A DP is Merged as possessor, but carrying Dative case
- As soon as possible, the DP moves to a place where its case can be checked (usually [Spec,V])

Landau's analysis in arboreal form

(6)



Some assumptions

Possessors are Merged in [Spec,D]

Dative case can only be checked by V,
and only in [Spec,V] or [Spec,v]

The role of Theme is available
only in complement positions

Deriving the data

Property (5a) (PD must be interpreted as possessor/creator):

Themes are Merged as complement.
Comp,Ncan be a Dative-marked DP:

(7) ha-harca'a la-balšanim
the-lecture to.the-linguists
(This example mine.)

Raising out of the complement domain would be critically uneconomical.

Also, PDC and Dative [Comp,N] are not in complementary distribution:

(8) 'ibadeti le-Gil et ha-matkon (la-uga)
I-lost to-Gil ACC the-recipe (to.the-cake)
"I lost Gil's recipe (for the cake)"

Deriving the data, cont'd

Other properties of PDC follow quite automatically from a raising analysis:

Property (5b) – PD must be interepreted as possessor/creator:
movement chain with a trace in possessor/creator position.

Property (5c) – the possessed DP cannot be an external argument:
movement from [Spec,vP] would place PD too high
for Dative case-checking.

Property (5d) – PD must c-command the possessee or its trace:
PD forms a chain with its trace in [Spec,D] within the possessee,
hence it must c-command the Merge position of the possessee.

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Dative Ex Nihilo?

Under Landau, DP is base generated,
with movement as a side-effect.

How/why does a Dative possessor come about in the first place?

(This question may well apply equally to English Nominative subjects.)

A look-ahead problem

Under Landau, V is responsible for checking Dative.

However, V must have some extra features
for this purpose, creating a look-ahead problem:

How does V "know" it has to "bring along" the extra features for a PDC derivation?

Island Asymmetry

There is an asymmetry in island effects between Wh-movement and PD raising:

(9) a. Yossi ganav le-Rina et ha-simla. (PDC)
Joe stole to-Rina ACC the-dress.
"Joe stole Rina's dress"

b. Yossi ganav et ha-simla šel mi? (echo question)
Joe stole ACC the-dress of who
"Joe stole whose dress?"

c. *šel mi Yossi ganav et ha-simla? (Illicit Wh-movement)
of who Joe stole ACC the-dress
("Whose$_i$ did Joe steal the dress t$_i$?")

d. le-mi Yossi ganav et ha-simla? (PDC, Wh-fronted)
to-who Joe stole ACC the-dress
"Whose dress did Joe steal?", (lit. "Whom did Joe steal the dress?")

(Examples mine)

Island Asymmetry, cont'd

Other islands, however, are apparently stronger, blocking both Wh-movement and PDC:

(10) a. Gil hitragez me-ha-kelev šel Rina.
Gil got-angry from-the-dog of Rina
"Gil got angry by Rina's dog"

b. *Gil hitragez le-Rina me-ha-kelev.
Gil got-angry to-Rina from-the-dog
("Gil got angry by Rina's dog")

c. *šel mi Gil hitragez me-ha-kelev?
of who Gil got-angry from-the-dog
("[By whose]$_i$ did Gil get angry t$_i$ dog?")

(ex. a, c mine)

If PD raising is island-sensitive, why do some islands fail to block it?

Earlier forms of Hebrew allowed PD in situ

(11) mizmor le-David
song to-David
"A song of David's"

According to Landau, "Possessor raising may be seen as a modern response to the loss of dative case in [Spec,DP]." (fn. 5, ibid)

In other words, a change in the DP

led to the creation of an optional feature-changing pre-syntactic operation on V heads.

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The plot

- PD is generated due to a violable economy constraint which may optionally omit a Case feature, creating a Dative instead of a Genitive
- PD moves upwards from specifier to specifier as the derivation progresses because of a constraint forbidding Datives in [Spec,D]
- PD stops moving once it reaches [Spec,V] or [Spec,v], whichever is the first position where it is tolerated

Advantages over Landau's approach

- The derivation is based only on *local* operations and optimizations
- The *look-ahead problem* disappears
- PD generation is explained as the result of *economy conditions*
- The change from PD in situ to PD movement is minimal and requires only a minor constraint reranking

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Movement: Repel vs. Attract

Usual assumption: Movement is **Attract-based**, motivated by the needs of the landing spot.

Alternative claim: Movement is **Repel-based**, motivated by incompatibility with the source XP. (cf. Stroik, 2009)

Repel-based movement

The moved object is displaced (Remerged) upwards repeatedly, moving up one phrase at a time up to a position where it is tolerated.

Clear advantage:
no look-ahead problem for raising
when raising is independent of its landing site.

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Local Optimization before every derivational step

Claim: Derivations are optimized cyclically, extremely locally

A constraint hierarchy evaluates structure after each derivational step, determining the next step of derivation. (cf. Heck and Müller, 2007)

For PDCs, this will mean that:

- Merging the possessor with "defective" case is the immediate result of local optimization (for economy of features)
- PD Raising happens via cyclic, local Repel, motivated by the incompatibility of Dative with [Spec,D]

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The Structure of Case and Thematic Roles

Assumption: Case on a DP is a sequence of functional heads (category K) that Merge with it. (cf. Caha, 2009)

Assumption: Thematic roles are decomposed into binary features [±m(ental state involved), ±c(ause change)] (Reinhart, 2003):

(12) a. [+c+m] = agent
b. [+c–m] = instrument (in certain contexts)
c. [–c+m] = experiencer
d. [–c–m] = theme/patient
e. ...
f. [–c] = "Internal roles like **goal**, **benefactor**, typically dative (or PP)."

Extending Reinhart's Theta System to DP-internal roles

(13) *Proposal:* Revise (13) to accommodate DP-internal roles.

a. **New feature: [±o(wner)]**

b. [+c+m] = agent, **creator** ((13-a) revised)

c. [–c+m+o] = prototypical possessor

Marking and merging DP-internal arguments

Assumption:
The Merge order of arguments is determined by linking principles.
(Reinhart, 2003)

(14) **Argument marking**
Given an *n*-place head, $n > 1$,

a. Mark a [–] cluster with index 2.
b. Mark a [+] cluster [=two Theta features positive] with index 1.
c. If the entry includes both a [+] cluster and a fully specified cluster including [–c], mark the head with the ACC feature.

Merging instructions

a. When nothing rules this out, merge externally.
b. An argument realizing a cluster marked 2 merges internally;
c. An argument with a cluster marked 1 merges externally.

(Adapted from Reinhart.)

Harmonic Alignment

A technique for aligning scales to produce OT constraints, introduced by Prince and Smolensky (1993, p. 136) originally for syllable structure and sonority.

Given two **dimensions**, one of them binary:
D_1: $\{X > Y\}$
D_2: $\{a > b \ldots > z\}$

Harmonic alignment produces a pair of Harmony scales:
H_x : $X/a \succ X/b \succ \ldots \succ X/z$
H_y : $Y/z \succ \ldots \succ Y/b \succ Y/a$

Constraint alignment produces a pair of constraint hierarchies:
C_x : $*X/z \gg \ldots \gg *X/b \gg *X/a$
C_y : $*Y/a \gg *Y/b \gg \ldots \gg *Y/z$

Case and Role in Harmonic Alignment

Taking the Theta features to each be a binary dimension (a-c)
and the Case hierarchy (d) to be a non-binary dimension,
we can apply Harmonic Alignment:

(15) *Scales* → *Harmonic Alignment* → *constraint subhierarchies*:

a. {[+c] > [–c]}
b. {[+m] > [–m]}
c. {[–o] > [+o]}
d. {Nom > Acc > Dat > Gen}
e. *+C/GEN ≫ *+C/DAT ≫ *+C/ACC ≫ *+C/NOM
f. *–C/NOM ≫ *–C/ACC ≫ *–C/DAT ≫ *–C/GEN
g. *+M/GEN ≫ *+M/DAT ≫ *+M/ACC ≫ *+M/NOM
h. *–M/NOM ≫ *–M/ACC ≫ *–M/DAT ≫ *–M/GEN
i. *–O/GEN ≫ *–O/DAT ≫ *–O/ACC ≫ *–O/NOM
j. *+O/NOM ≫ *+O/ACC ≫ *+O/DAT ≫ *+O/GEN

The structure of Hebrew oblique Case

Key Assumption:

Hebrew Genitive DPs have the structure [G [F ... [DP]]],
whereas Datives have the structure [F ... DP]].

Note the structure of Dative (16) and Genitive (17) pronouns:

(16)

li	lanu	lexa	lax	laxem	laxen	lo	la	lahem	lahen
1S	1P	2S.M	2S.F	2P.M	2P.F	3S.M	3S.F	3P.M	3P.F

(17)

šeli	šelanu	šelxa	šelax	šelaxem	šelaxen	šelo	šela	šelahem	šelahen
1S	1P	2S.M	2S.F	2P.M	2P.F	3S.M	3S.F	3P.M	3P.F

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Constraints: Star-Case vs. Max-Case

Assumption:
For each Case feature, there is an economy constraint (i.e. a markedness constraint) forbidding it (Keine and Müller, 2008).

(18) *Proposed Case feature composition*:
"Dative" = [Dat]
"Genitive" = [Gen [Dat]]

The corresponding economy constraints are simply *Dat and *Gen.

These conflict with Max-Case. In Hebrew, the ranking holds:

(19) $[\![*\textsc{Gen} \circ \textsc{Max-Case} \gg *\textsc{Dat}]\!]$

(Dative is never deleted, but Genitive can optionally become Dative.)

Generating PD

During the derivation of a nominal,
a series of functional heads are available to Merge with DP.

(20) *(Partial) Functional Sequence of Case*
Nom, Acc, Dat, Gen

Possible Merger is triggered with these heads one at a time;
MAX-CASE penalizes non-Merger (deletion),
while *CASE and ROLE/CASE may penalize Merger.

Case optimization

After the KP has Merged with Dat, two candidate structures may win:

(21) a. [[[**DP** Nom]$_{KP}$ Acc]$_{KP}$ Dat]$_{KP}$ Gen]$_{KP}$ (Genitive possessor)
b. [[[**DP** Nom]$_{KP}$ Acc]$_{KP}$ Dat]$_{KP}$ (PD)

The result depends on the reranking of $[\![$*Gen ∘ Max-Case$]\!]$:

(22)

I: Gen + [[[DP Nom]$_{KP}$ Acc]$_{KP}$ Dat]	*Gen	Max-Case	*Dat
a. [[[[DP Nom]$_{KP}$ Acc]$_{KP}$ Dat]$_{KP}$ Gen]$_{KP}$	*		*
b. [[[DP Nom]$_{KP}$ Acc]$_{KP}$ Dat]$_{KP}$		*	*
c. [[[DP Nom]$_{KP}$ Acc]$_{KP}$ ~~Dat~~]$_{KP}$		**	

Motivating movement: Repel Constraints

(23) REPEL(κ,π):
Count a violation for each Remerge chain <XP_n ... XP_1 >
in output such that:

(i) XP includes a functional head κ, and
(ii) XP_n (highest copy) is directly dominated by a label π

(24) *Some* REPEL *subhierarchies:*

a. $[\![$*DAT/DP $\gg$ *DAT/NP, *DAT/VP, *DAT/vP$]\!]$
b. $[\![$*GEN/VP, *GEN/vP $\gg$ *GEN/DP$]\!]$

These conflict with a constraint against Remerge, which we may call STAY.

Constraint ranking: PDC vs. PD in situ

(25) *Ranking for Modern Hebrew:*

$$[\![*\textsc{Gen}/\textsc{VP}, *\textsc{Gen}/\textsc{vP} \gg *\textsc{Dat}/\textsc{DP} \gg \textsc{Stay} \gg *\textsc{Dat}/\textsc{NP}, *\textsc{Dat}/\textsc{VP}, *\textsc{Dat}/\textsc{vP}, *\textsc{Gen}/\textsc{DP}]\!]$$

(26) *Possible rankings for earlier, PD–in situ Hebrews:*

$[\![\textsc{Stay} \gg *\textsc{Dat}/\textsc{DP}]\!]$ or $[\![\textsc{Stay} \circ *\textsc{Dat}/\textsc{DP}]\!]$

Raising PD

In the derivation of (1a), "the girl ruined to-Dan the radio",
after the Merge of "the radio to Dan" with the V head,
the derivation may proceed by:

(a) Merging the next head;
(b) Remerging an object that was previously Merged;
or (c) marking an object for ellipsis:

(27)

I: v + [*ruin*$_{V}$ [$_{AccP}$ *the-radio*$_{DP}$ DatP]]		RECOV	*GEN/VP	*GEN/vP	*DAT/DP	STAY	...
a.	[v [$_{VP}$ V [$_{KP}$ DP DatP]]]				*!		
b. ☞	[DatP [$_{V'}$ V [$_{KP}$ DP <DatP>]]]					*	*
c.	[$_{V'}$ V [$_{KP}$ DP ~~DatP~~]]	*!					

Raising PD

DP is not, ceteris paribus, licensed to raise any further:

(28)

I: v + [$_{VP}$ DatP [$_{V'}$ V [$_{KP}$ DP <DatP>]]]		…	*DAT/DP	STAY	*DAT/VP	*DAT/VP	*DAT/VP	…
a. ☞	[v [$_{VP}$ DatP [$_{V'}$ V [$_{KP}$ DP <DatP>]]]]				*			
b.	[DatP [$_{v'}$ v [$_{VP}$ <DatP> [$_{V'}$ V [$_{KP}$ DP <DatP>]]]]]			*!		*		

Trivially, the look-ahead problem of Landau's analysis is gone.
Minimality and locality, as well, are given.

Deriving the Island Asymmetry

Recall the island asymmetry in (8-9):

Wh-raising a possessor is *impossible* if it's a **GenP**
but *possible* if it's a **DatP**

Raising **any Wh-element or DatP** *out of a Cause PP* is *ruled out*.

Barriers and Islands under Repel/Remerge movement

(29) $\textsc{Unique}(\rho)$
Count a violation for each Remerge chain $<XP_n$ ... YP ... XP_{n-1} ... $>$ crossing a YP of type ρ in output which it does not cross in input.

(30) *Uniqueness/Island subhierarchy (tentative version)*:
$[\![\textsc{Unique}(\neg\textsc{Comp}) \gg \textsc{Unique}(\neg\text{H-}\textsc{marked}) \gg \textsc{Unique}(\rho)]\!]$

I now revise the ranking proposed in (24), to replace $\textsc{Stay}$ with the more fine-grained constraints of (30):

(31) $[\![\textsc{Unique}(\neg\textsc{Comp}) \gg *\textsc{Dat}/\text{DP} \gg \textsc{Unique}(\neg\text{H-}\textsc{marked}) \gg \textsc{Unique}(\rho) \gg *\textsc{Dat}/\text{NP}, *\textsc{Dat}/\text{VP}, *\textsc{Dat}/\text{vP}]\!]$

Deriving Wh-movement

(32) *Repel constraints over Wh*:
$[\![$*Wh/DP, *Wh/NP, *Wh/VP, *Wh/vP, *Wh/TP $\gg$ *Wh/CP$]\!]$.
Abbreviated: $[\![$*Wh/¬CP $\gg$ *Wh/CP$]\!]$.

The ranking for Wh-fronting languages (including Hebrew) is then:
$[\![$*Wh/¬CP $\gg$ Unique(ρ) $\gg$ *Wh/CP$]\!]$

This causes Wh-elements to Remerge at every step, until reaching [Spec,C] – unless higher constraints intervene. (33) combines (32) with (31):

(33) $[\![$Unique(¬Comp) $\gg$ ***Dat/DP** $\gg$ Unique(¬H-marked) $\gg$ ***Wh/¬CP** $\gg$ Unique(ρ) $\gg$ *Wh/CP, *Dat/¬DP$]\!]$

Island asymmetry

(34) $[\![\textsc{Unique}(\neg\textsc{Comp}) \gg *\textsc{Gen}/\textsc{VP} \gg *\textsc{Dat}/\textsc{DP}$
$\gg \textsc{Unique}(\neg\text{H-}\textsc{marked}) \gg *\textsc{Wh}/\neg\textsc{CP}$
$\gg \textsc{Unique}(\rho) \gg *\textsc{Wh}/\textsc{CP}, *\textsc{Dat}/\neg\textsc{DP}, *\textsc{Gen}/\textsc{DP}]\!]$

(35) *Illicit: Raising a GenP*

I: [V [AccP … [DP (Wh-)GenP]]]		*Gen/VP	*Dat/DP	U(¬Hm)	*Wh/¬CP	Unique	*Wh/CP	*Dat/¬DP	*Gen/DP
a. ☞	[v [VP V [AccP … (Wh-)GenP]]]		*	*	(*)				*
b.	[(Wh-)GenP [V′ V [AccP … <(Wh-)GenP>]]]	*!		*	(*)	*		*	

In the same context, with a DatP possessor instead of a GenP, raising is licit:

(36) *Licit: Raising a DatP*

I: [V [$_{AccP}$ … [$_{DP}$ (Wh-)DatP]]]		*Gen/VP	*Dat/DP	U(¬Hm)	*Wh/¬CP	Unique	*Wh/CP	*Dat/¬DP	*Gen/DP
a.	[v [$_{VP}$ V [$_{AccP}$ … (Wh-)DatP]]]		*!	*	(*)				
b. ☞	[(Wh-)DatP [$_{V'}$ V [$_{AccP}$ … <(Wh-)DatP>]]]			*	(*)	*		*	

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The properties of PDC under Repel movement

Recall the properties listed by Landau, repeated here from (5):

(37) a. PD must be interpreted as possessor/creator, not object/theme.
b. Possession (or creation) interpretation is obligatory.
c. The possessed DP cannot be an external argument.
d. PD must c-command the possessed DP (or its trace).
e. Possessive interpretation is constrained by locality.

As in Landau (1999),
(a,b,d) follow from assumptions about the base positions of arguments combined with a movement analysis.

Different to Landau is the explanation for (c).

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Different to Landau is the explanation for (c).

The possessed DP cannot be an external argument

This property follows simply from the high ranking of UNIQUE(¬COMP), which forbids raising DatP's and GenP's alike out of a specifier XP:

(38) *Illicit: Raising PD out of [Spec,v]*

I: [T [$_{vP}$[$_{NomP}$ DatP ...] [$_{v'}$ v VP]]]		U(¬C)	*GEN/VP	*DAT/DP	U(¬HM)	UNIQUE	*DAT/¬DP
a.	☞ [C [$_{TP}$ T [$_{vP}$[$_{NomP}$ DatP ...] [$_{v'}$ v VP]]]]			*			
b.	[DatP [$_{T'}$ T [$_{vP}$[$_{NomP}$ <DatP> ...] [$_{v'}$ v VP]]]]	*!			*	*	*

(39) *Also illicit for GenP's:*

I: [T [$_{vP}$[$_{NomP}$ GenP ...] [$_{v'}$ v VP]]]		U(¬C)	*GEN/VP	*DAT/DP	U(¬HM)	UNIQUE	*DAT/¬DP	*GEN/DP
a.	☞ [C [$_{TP}$ T [$_{vP}$[$_{NomP}$ GenP ...] [$_{v'}$ v VP]]]]			*				*
b.	[GenP [$_{T'}$ T [$_{vP}$[$_{NomP}$ <GenP> ...] [$_{v'}$ v VP]]]]	*!			*	*	*	

Open questions addressed

Recall the issues I raised regarding Landau's analysis:

(40) a. **Generating DP:** How/why does a Dative possessor come about?

b. **Look-ahead problem:** How does V "know" it has to "bring along" the checking features for a PDC derivation?

c. **Island asymmetry:** How come PD is restricted by some islands (e.g. non-argument PPs) but not others?

d. **Diachrony:** The difference between early, DP–in situ Hebrews and modern, obligatory-raising PD Hebrew.

(a,c) receive an explicit account as optimization effects.

(b) ceases to be an issue as V need not carry any checking features.

(d) can be seen as a matter of minor re-ranking.

Thank you for listening

(41) ani mode **laxem** al ha-hakšava. (not PDC)
I thank 2pl.DAT on the-listening
"I thank you for listening." *Not* "I thank for your listening"

This example mine.

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