Recurring Patterns

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1. Shape Conservation and Poetically Dependent CPs

1.1. An Asymmetry in the Distribution of Poetically Dependent CPs

Observation (Waßner (2001)):
There are restrictions on the shape of phase (CP) edges in adjacent CPs with idiomatic connectives in poetic use. ("↪" signals poetic dependence.)

(1) *Variations on a line in Goethe's "Der Fischer" (see Appendix)*:

a. $[_{CP_2}$ Halb$_i$ zog sie ihn t_i $]$ ↪ $[_{CP_1}$ halb$_i$ sank er t_i hin $]$
half pulled she him half sank he down

b. $[_{CP_2}$ Sie zog ihn halb$_i$ $]$ ↪ $[_{CP_1}$ er sank halb$_i$ hin $]$
she pulled him half he sank half down

c. $[_{CP_2}$ Sie zog ihn halb$_i$ $]$ ↪ $[_{CP_1}$ halb$_i$ sank er t_i hin $]$
she pulled him half half sank he down

d. *$[_{CP_2}$ Halb$_i$ zog sie ihn t_i $]$ ↪ $[_{CP_1}$ er sank halb$_i$ hin $]$
half pulled she him he sank half down

Note:
The phenomenon is more general. It is not a simple parallelism effect (given the (c)-examples).

(2) *More poetically dependent CPs*:

a. $[_{CP_2}$ Bald$_i$ bin ich t_i hier $]$ ↪ $[_{CP_1}$ bald$_i$ bin ich t_i dort $]$
soon am I here soon am I there

b. $[_{CP_2}$ Ich bin bald hier $]$ ↪ $[_{CP_1}$ ich bin bald dort $]$
I am soon here I am soon there

c. $[_{CP_2}$ Ich bin bald hier $]$ ↪ $[_{CP_1}$ bald$_i$ bin ich t_i dort $]$
I am soon here soon am I there

d. *$[_{CP_2}$ Bald$_i$ bin ich t_i hier $]$ ↪ $[_{CP_1}$ ich bin bald$_i$ dort $]$
soon am I here I am soon there

Generalization:
If CP_1 is poetically dependent on CP_2, the edge of CP_1 must be affected by non-subject topicalization if the edge of CP_2 is affected by non-subject topicalization (but not vice versa).

1.2. Proposal

The basic constraint:
Williams (1999), Williams (2002) argues for an economy/faithfulness constraint called Shape

Conservation. Versions of this constraint are adopted within an optimality-theoretic approach in Müller (1997*a*), Müller (2001) (for co-argument NPs) and in Müller (2000) (for vPs).

Claim:
Shape Conservation with CP (phase) edges accounts for the restriction on non-subject topicalization in poetically dependent CPs in German.

(3) SCP (Shape Conservation for Phase Edges):
Phase edges have an identical shape throughout the derivation.

(4) *Edge* (Chomsky (2000), Chomsky (2001)):
The edge of an XP contains SpecX and X.

Computation of SCP violations:
Given the edge of CP_α, SCP violations for CP_β are computed as follows:
(i) Compare the n-th edge constituent of CP_α with the n-th edge constituent of CP_β and assign a * if the two items do not have an identical shape (relevant: categorial and movement-related features).
(ii) For each edge constituent of one CP that does not correspond to an edge constituent of the other CP, assign a *.

Background:
Throughout, the local optimization approach developed in Heck and Müller (2000), Fischer (2002) will be adopted. This derivational approach combines assumptions of the minimalist program (Chomsky (1995), Chomsky (2000), Chomsky (2001)) and optimality theory (Prince and Smolensky (1993)).

(5) *Assumptions*:
   a. Sentences are incrementally derived by alternations of Merge and Move.
   b. Movement is triggered by certain types of features on the probe (target head) that must be matched by appropriate features on the goal (moved item); following Sternefeld (2000), the features that trigger movement are referred to as [*F*] features, with matching [F] features on the goal (cf. the classic concept of 'strong' features).
   c. Each XP is subject to optimization; only an optimal XP can serve as the input for a subsequent optimization procedure. (Thus, whereas a global optimization approach may involve harmonic parallelism or harmonic serialism, a local optimization approach is necessarily an instance of harmonic serialism, in the terminology of Prince and Smolensky (1993), McCarthy (2000).)
   d. The Strict Cycle Condition (SCC) and the Phase Impenetrability Condition (PIC) are inviolable (Gen) constraints that restrict derivational search space for the probe (SCC) and the goal (PIC).
   e. Phases are special derivational units. Only CP is a phase.

Arguments for local optimization in syntax:

(i) Conceptual argument: Compared with standard (global) optimization procedures, complexity is significantly reduced in a local optimization approach.
(ii) Empirical arguments: Other things being equal, global optimization can be shown to make wrong predictions. Since look-ahead is in principle available, violations in lower domains that are locally unmotivated can pay off because they help avoiding more severe violations in higher domains of the sentence.

Two constraints in Heck and Müller (2000):
FC ensures that [*F*] triggers movement; LR requires that movement must result in feature checking. Given a ranking FC $\gg$ X $\gg$ LR, movement can also apply without feature checking if this is the only way to satisfy constraint X (repair-driven movement).

(6) FC (Feature Condition):
An [*F*] feature requires movement of an item bearing [F] to its edge domain.

(7) LR (Last Resort):
Movement requires matching of [F] and [*F*].

Topicalization and V/2:
Topicalization in German is triggered by features on C; so is V/2 movement in German (see Grewendorf (2002) and references given there).

(8) *Features of declarative C in German*:
   a. C_d = [$_{\mathrm{C}}$ dass]
   C_d does not trigger movement.
   b. C_e = [$_{\mathrm{C}}$ Ø$_{[*\mathrm{EPP}*],[*\mathrm{fin}*]}$]
   C_e triggers V/2 movement of the finite verb and movement of some XP to SpecC; given the MLC, this will then normally be the subject.
   c. C_t = [$_{\mathrm{C}}$ Ø$_{[*\mathrm{EPP}*],[*\mathrm{top}*],[*\mathrm{fin}*]}$]
   C_t triggers V/2 movement of the finite verb and movement of some [top]-marked XP.

(9) MLC (Minimal Link Condition):
Movement to an XP position applies to the closest XP.

1.3. Analysis

Assumption:
With two poetically dependent CPs as in (1) and (2), CP_2 is optimized before CP_1, and generation and optimization of CP_1 takes place on the basis of CP_2, whose properties are still accessible. (Poetic dependence implies pseudo-subordination.)

Note:
In an account of the data in, e.g., (1), two options must be considered for each C. First, C can be C_e or C_t in CP_2. Second, C can be C_e or C_t in CP_1.

1.3.1. CP_2 is Subject-Initial

First option:
C of CP_2 is C_e.
T_1: Poetic dependence: Subject-initial CP_2

Input: [$_{C_e}$ Ø$_{[*EPP*],[*fin*]}$], [$_{TP}$ sie ihn halb zog$_{[fin]}$]]	FC	SCP	MLC	LR
O_1: [$_{CP_2}$ [$_{C_e}$ Ø] [$_{TP}$ sie ihn halb zog]]	*!*			
O_2: [$_{CP_2}$ sie$_i$ [$_{C_e}$ Ø] [$_{TP}$ t$_i$ ihn halb zog$_j$]]	*!			
☞O_3: [$_{CP_2}$ sie$_i$ [$_{C_e}$ zog$_j$-Ø] [$_{TP}$ t$_i$ ihn halb t$_j$]]				
O_4: [$_{CP_2}$ halb$_k$ [$_{C_e}$ Ø] [$_{TP}$ sie ihn t$_k$ zog]]	*!		*	
O_5: [$_{CP_2}$ halb$_k$ [$_{C_e}$ zog$_j$-Ø] [$_{TP}$ sie ihn t$_k$ t$_j$]]			*!	

Note:
Based on the optimal output O_3 in T_1, there are two possible continuations: CP_1 may have C_e, as in T_2, or C_t, as in T_3.
T_2: Poetic dependence: Subject-initial CP_2 ↪ subject-initial CP_1

Input: [$_{CP_2}$ sie$_i$ [$_{C_e}$ zog$_j$-Ø] [$_{TP}$ t$_i$ ihn halb t$_j$]] ↪ [$_{TP}$ er halb hin sank$_{[fin]}$], [$_{C_e}$ Ø$_{[*EPP*],[*fin*]}$]	FC	SCP	MLC	LR
O_{31}: CP_2 ↪ [$_{CP_1}$ [$_{C_e}$ Ø] [$_{TP}$ er halb hin sank]]	*!*	**		
O_{32}: CP_2 ↪ [$_{CP_1}$ er$_i$ [$_{C_e}$ Ø] [$_{TP}$ t$_i$ halb hin sank]]	*!	*		
☞O_{33}: CP_2 ↪ [$_{CP_1}$ er$_i$ [$_{C_e}$ sank$_j$-Ø] [$_{TP}$ t$_i$ halb hin t$_j$]]				
O_{34}: CP_2 ↪ [$_{CP_1}$ halb$_k$ [$_{C_e}$ Ø] [$_{TP}$ er t$_k$ hin sank]]	*!	*	*	
O_{35}: CP_2 ↪ [$_{CP_1}$ halb$_k$ [$_{C_e}$ sank$_j$-Ø] [$_{TP}$ er t$_k$ hin t$_j$]]		*!	*	

T_3: Poetic dependence: Subject-initial CP_2 ↪ connective-initial CP_1

Input: [$_{CP_2}$ sie$_i$ [$_{C_e}$ zog$_j$-Ø] [$_{TP}$ t$_i$ ihn halb t$_j$]] ↪ [$_{TP}$ er halb$_{[top]}$ hin sank$_{[fin]}$], [$_{C_t}$ Ø$_{[*EPP*],[*top*],[*fin*]}$]	FC	SCP	MLC	LR
O_{31}: CP_2 ↪ [$_{CP_1}$ [$_{C_t}$ Ø] [$_{TP}$ er halb hin sank]]	*!**	**		
O_{32}: CP_2 ↪ [$_{CP_1}$ er$_i$ [$_{C_t}$ Ø] [$_{TP}$ t$_i$ halb hin sank]]	*!*	*		
O_{33}: CP_2 ↪ [$_{CP_1}$ er$_i$ [$_{C_t}$ sank$_j$-Ø] [$_{TP}$ t$_i$ halb hin t$_j$]]	*!			
O_{34}: CP_2 ↪ [$_{CP_1}$ halb$_k$ [$_{C_t}$ Ø] [$_{TP}$ er t$_k$ hin sank]]	*!	*	*	
☞O_{35}: CP_2 ↪ [$_{CP_1}$ halb$_k$ [$_{C_t}$ sank$_j$-Ø] [$_{TP}$ er t$_k$ hin t$_j$]]		*	*	

Conclusion:
(1-b) and (1-c) (repeated in (10)) are both optimal outputs.

(10) *Subject-initial CP_2*:

a. [$_{CP_2}$ Sie zog ihn halb$_i$] ↪ [$_{CP_1}$ er sank halb$_i$ hin]
she pulled him half he sank half down

b. [$_{CP_2}$ Sie zog ihn halb$_i$] ↪ [$_{CP_1}$ halb$_i$ sank er t$_i$ hin]
she pulled him half half sank he down

1.3.2. CP_2 is Connective-Initial

Second option:
C of CP_2 is C_t.
T_4: Poetic dependence: Connective-initial CP_2

Input: $[_{C_t}$ Ø$_{[*EPP*],[*top*],[*fin*]}]$, $[_{TP}$ sie ihn halb$_{[top]}$ zog$_{[fin]}$]]	FC	SCP	MLC	LR
O_1: $[_{CP_2}$ $[_{C_t}$ Ø] $[_{TP}$ sie ihn halb zog]]	*!**			
O_2: $[_{CP_2}$ sie$_i$ $[_{C_t}$ Ø] $[_{TP}$ t$_i$ ihn halb zog$_j$]]	*!*			
O_3: $[_{CP_2}$ sie$_i$ $[_{C_t}$ zog$_j$-Ø] $[_{TP}$ t$_i$ ihn halb t$_j$]]	*!			
O_4: $[_{CP_2}$ halb$_k$ $[_{C_t}$ Ø] $[_{TP}$ sie ihn t$_k$ zog]]	*!		*	
☞O_5: $[_{CP_2}$ halb$_k$ $[_{C_t}$ zog$_j$-Ø] $[_{TP}$ sie ihn t$_k$ t$_j$]]			*	

Note:
Based on the optimal output O_5 in T_4, there are two possible continuations: CP_1 may have C_t, as in T_5, or C_e, as in T_6.
T_5: Poetic dependence: Connective-initial $CP_2 \hookrightarrow$ connective-initial CP_1

Input: $[_{CP_2}$ halb$_k$ $[_{C_t}$ zog$_j$-Ø] $[_{TP}$ sie ihn t$_k$ t$_j$]] ↪ $[_{TP}$ er halb$_{[top]}$ hin sank$_{[fin]}$], $[_{C_t}$ Ø$_{[*EPP*],[*top*],[*fin*]}]$	FC	SCP	MLC	LR
O_{51}: $CP_2 \hookrightarrow [_{CP_1}$ $[_{C_t}$ Ø] $[_{TP}$ er halb hin sank]]	*!**	**		
O_{52}: $CP_2 \hookrightarrow [_{CP_1}$ er$_i$ $[_{C_t}$ Ø] $[_{TP}$ t$_i$ halb hin sank]]	*!*	**		
O_{53}: $CP_2 \hookrightarrow [_{CP_1}$ er$_i$ $[_{C_t}$ sank$_j$-Ø] $[_{TP}$ t$_i$ halb hin t$_j$]]	*!	*		
O_{54}: $CP_2 \hookrightarrow [_{CP_1}$ halb$_k$ $[_{C_t}$ Ø] $[_{TP}$ er t$_k$ hin sank]]	*!	*	*	
☞O_{55}: $CP_2 \hookrightarrow [_{CP_1}$ halb$_k$ $[_{C_t}$ sank$_j$-Ø] $[_{TP}$ er t$_k$ hin t$_j$]]			*	

*T_6: Poetic dependence: *Connective-initial $CP_2 \hookrightarrow$ subject-initial CP_1*

Input: $[_{CP_2}$ halb$_k$ $[_{C_t}$ zog$_j$-Ø] $[_{TP}$ sie ihn t$_k$ t$_j$]] ↪ $[_{TP}$ er halb hin sank$_{[fin]}$], $[_{C_e}$ Ø$_{[*EPP*],[*fin*]}]$	FC	SCP	MLC	LR
O_{51}: $CP_2 \hookrightarrow [_{CP_1}$ $[_{C_e}$ Ø] $[_{TP}$ er halb hin sank]]	*!*	**		
O_{52}: $CP_2 \hookrightarrow [_{CP_1}$ er$_i$ $[_{C_e}$ Ø] $[_{TP}$ t$_i$ halb hin sank]]	*!	**		
O_{53}: $CP_2 \hookrightarrow [_{CP_1}$ er$_i$ $[_{C_e}$ sank$_j$-Ø] $[_{TP}$ t$_i$ halb hin t$_j$]]		*!		
O_{54}: $CP_2 \hookrightarrow [_{CP_1}$ halb$_k$ $[_{C_e}$ Ø] $[_{TP}$ er t$_k$ hin sank]]	*!	*	*	
☞O_{55}: $CP_2 \hookrightarrow [_{CP_1}$ halb$_k$ $[_{C_e}$ sank$_j$-Ø] $[_{TP}$ er t$_k$ hin t$_j$]]			*	*

Conclusion:
(1-a) (repeated in (11-a)) is an optimal output, but (1-d) (repeated in (11-b)) is not: SCP triggers input neutralization by forcing movement which is not feature-driven.

(11) *Connective-initial CP_2*:

a. $[_{CP_2}$ Halb$_i$ zog sie ihn t$_i$] ↪ $[_{CP_1}$ halb$_i$ sank er t$_i$ hin]
half pulled she him half sank he down

b. *$[_{CP_2}$ Halb$_i$ zog sie ihn t$_i$] ↪ $[_{CP_1}$ er sank halb$_i$ hin]
half pulled she him he sank half down

General Conclusion:

SCP can be violated so as to fulfill FR, but not in order to respect LR.

1.4. Local vs. Global Optimization

Note:
The MLC must be ranked lower than SCP (see T_6); the MLC must also be ranked lower than FC (see T_4).

Argument against global optimization:
Suppose that CP_2 and CP_1 were optimized in parallel. Then, it would wrongly be predicted that O_{35} of T_3 could not be optimal (i.e., that (1-c) is ill formed): O_{35} violates SCP and the MLC, but a competing candidate like O_{55} that has repair-driven movement in CP_2 would only incur two violations of the MLC. Consequently, the wrong prediction under a global optimization approach is that, ceteris paribus, poetic dependence implies strict parallelism in the two CPs. (In the local approach, this problem does not arise because O_5 in T_1 cannot possibly be a source for further optimization in T_3.) This is shown in T_7, which combines T_1 and T_3; the wrong winner is indicated by ★.
*T_7: Global optimization: *Subject-initial CP_2 ↪ connective-initial CP_1*

Input: [$_{\mathrm{TP}}$ sie ihn halb zog$_{[*\mathrm{fin}*]}$], [$_{\mathrm{C_e}}$ Ø$_{[*\mathrm{EPP}*],[*\mathrm{fin}*]}$] ↪ [$_{\mathrm{TP}}$ er halb$_{[\mathrm{top}]}$ hin sank$_{[\mathrm{fin}]}$], [$_{\mathrm{C_t}}$ Ø$_{[*\mathrm{EPP}*],[*\mathrm{top}*],[*\mathrm{fin}*]}$]	FC	SCP	MLC	LR
O_{35}: [$_{\mathrm{CP_2}}$ sie$_i$ [$_{\mathrm{C_e}}$ zog$_j$-Ø] [$_{\mathrm{TP}}$ t$_i$ ihn halb t$_j$]] ↪ [$_{\mathrm{CP_1}}$ halb$_k$ [$_{\mathrm{C_t}}$ sank$_j$-Ø] [$_{\mathrm{TP}}$ er t$_k$ hin t$_j$]]		*!	*	
★O_{55}: [$_{\mathrm{CP_2}}$ halb$_k$ [$_{\mathrm{C_e}}$ zog$_j$-Ø] [$_{\mathrm{TP}}$ sie ihn t$_k$ t$_j$]] ↪ [$_{\mathrm{CP_1}}$ halb$_k$ [$_{\mathrm{C_t}}$ sank$_j$-Ø] [$_{\mathrm{TP}}$ er t$_k$ hin t$_j$]]			**	

2. Shape Conservation and Successive-Cyclic Wh-Movement

A problem for derivational approaches:
There is evidence that unbounded dependencies involve successive-cyclic movement (morphological reflexes in languages like Irish, Ewe, Pasamaquoddy, etc.). What is the trigger for successive-cyclic movement to intermediate SpecC positions? In representational approaches, intermediate traces can be forced by locality constraints, but this is not an option in derivational approaches without look-ahead.

A standard solution (Collins (1997), Sabel (1998), Chomsky (2000), Chomsky (2001), Fanselow and Mahajan (2000), McCloskey (2001), and many others):
Such movement is triggered by pseudo-*wh* features.
Problems: Little independent motivation, complexity.

Another solution (Heck and Müller (2000)):
Such movement is not feature-driven; it is triggered by a constraint PB (Phase Balance) that

requires for each unmatched [*wh*] feature in the numeration a *wh*-phrase that is accessible in the derivation.
Problem: Crucial use of numerations, complexity.

A new solution:
Such movement is neither feature-driven nor triggered by PB; it is triggered by SCP.

Note:
Unbounded dependencies have a bottom, a middle, and a top (Gazdar et al. (1985)).

(12) *The structure of unbounded dependencies*:

$[_{CP_1}$ What$_i$ did you say $[_{CP_2}$ t_i'' that John thinks $[_{CP_3}$ t_i' that Bill should read t_i]]] ?
$\rightarrow$ top $\leftarrow$ $\rightarrow$ middle $\leftarrow$ $\rightarrow$ bottom $\leftarrow$

Observation:
(i) FC triggers movement at the top.
(ii) SCP triggers movement in the middle.
(iii) Some unknown constraint triggers movement at the bottom.

Proposal:
The first movement step that establishes the shape of the CP edge which must then be kept identical in subsequent phases is triggered by a version of OPSPEC, viz., OP.

(13) OP (Operators in Phase Edges):
An operator must occupy a phase edge specifier.

Remark:
An operator is an XP that bears a feature like [wh] or [top].

Question:
Doesn't (a version of) OPSPEC suffice to account for bottom, middle, and top in other optimality-theoretic analyses of unbounded dependencies (like Grimshaw (1997), Baković (1998), and Vikner (2001))?

Answer:
Not really, it must either be accompanied by a constraint that has the same effects as FC in the present approach (see Müller (1997*b*), Ackema and Neeleman (1998)), or it must be reformulated in a way that ensures that the *wh*-phrase moves to its scope position (not just some specifier position); cf. in particular PARSESCOPE in Legendre et al. (1998), Fanselow and Ćavar (2001). (The second solution presupposes that syntactic inputs are richly structured; they must contain a full representation of *wh*-scope.) Furthermore, it is unclear how OP-SPEC could trigger movement steps in the middle of an unbounded dependency.
Note:
O_{21} in T_9 violates SCP twice: The first edge constituent of CP_2 (*what*) and the first edge con-

T_8: Successive-cyclic wh-movement, bottom

Input: [$_{\mathrm{C}}$ that], [$_{\mathrm{TP}}$ ... wh$_i$ ...]]	FC	OP	SCP	LR
O$_1$: [$_{\mathrm{CP}_3}$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... wh$_i$ ...]]		*!		
☞O$_2$: [$_{\mathrm{CP}_3}$ wh$_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... t$_i$ ...]]				*

T_9: Successive-cyclic wh-movement, middle

Input: [$_{\mathrm{C}}$ that], [$_{\mathrm{TP}}$ ... [$_{\mathrm{CP}_3}$ wh$_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... t$_i$ ...]]]	FC	OP	SCP	LR
O$_{21}$: [$_{\mathrm{CP}_2}$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... [$_{\mathrm{CP}_3}$ wh$_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... t$_i$ ...]]]]			*!*	
☞O$_{22}$: [$_{\mathrm{CP}_2}$ wh$_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... [$_{\mathrm{CP}_3}$ t$'_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... t$_i$ ...]]]]				*

stituent of CP_2 (*that*) do not have an identical shape; and the second edge constituent of CP_2 (*that*) is not matched at all.

T_{10}: Successive-cyclic wh-movement, top

Input: [$_{\mathrm{C}_{[*\mathrm{wh}*],[*\mathrm{fin}*]}}$ Ø], [$_{\mathrm{TP}}$ ... [$_{\mathrm{CP}_2}$ wh$_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... [$_{\mathrm{CP}_3}$ t$'_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... t$_i$ ...]]]]]	FC	OP	SCP	LR
O$_{221}$: [$_{\mathrm{CP}_1}$ [$_{\mathrm{C}}$ did-Ø] [$_{\mathrm{TP}}$ ... [$_{\mathrm{CP}_2}$ wh$_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... [$_{\mathrm{CP}_3}$ t$'_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... t$_i$ ...]]]]]]	*!		**	
☞O$_{222}$: [$_{\mathrm{CP}_1}$ wh$_i$ [$_{\mathrm{C}}$ did-Ø] [$_{\mathrm{TP}}$ ... [$_{\mathrm{CP}_2}$ t$''_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... [$_{\mathrm{CP}_3}$ t$'_i$ [$_{\mathrm{C}}$ that] [$_{\mathrm{TP}}$ ... t$_i$ ...]]]]]]			*	

Note:
O_{222} in T_{10} must violate SCP once because the root C's [*fin*] feature needs to be checked via *do*-support.

Remark:
This analysis is in many respects a simplification, and more would eventually have to be said:
(i) *Do*-insertion in T_{10} is costly and violates some (low-ranked) constraint; see Grimshaw (1997).
(ii) *Wh*-movement that ends in an embedded clause is predicted to involve a doubly-filled Comp configuration; i.e., (something like the) Doubly-filled Comp Filter (DFCF, see Pesetsky (1998)) must be active here; see (14-a).
(iii) English can have empty complementizers in bridge environments. It must be ensured that the co-occurrence of empty complementizers and *that* either does not violate SCP, or is in each case forced by a higher-ranked constraint (possibilities: high-ranked faithfulness, empty complementizers as complementizers targetted by covert verb movement, in analogy to V/2 in German); see (14-bc).

(14) *Sentences about which more must be said*:
   a. I wonder [$_{\mathrm{CP}_1}$ what$_i$ (*that) Ø she said [$_{\mathrm{CP}_2}$ t$''_i$ that John thinks [$_{\mathrm{CP}}$ t$'_i$ that Bill should read t$_i$]]]
   b. [$_{\mathrm{CP}_1}$ What$_i$ did she say [$_{\mathrm{CP}_2}$ t$''_i$ Ø John thinks [$_{\mathrm{CP}}$ t$'_i$ that Bill should read t$_i$]]] ?

c. [$_{CP_1}$ Ø I believe [$_{CP_2}$ that he thinks [$_{CP_3}$ Ø he is right]]]

3. Shape Conservation and Extraction from V/2 Sentences in German

3.1. An Asymmetry in Extraction from Embedded Clauses

Observation (Tappe (1981), Haider (1984), Reis (1985)):
Embedded declarative CPs in German can be *dass* clauses or (if they are embedded under bridge predicates) V/2 clauses. Both types of complements appear to be transparent for *wh*-movement as such; however, whereas *wh*-movement from a *dass* clause may go to a *dass* clause or a V/2 clause, *wh*-movement from a V/2 clause may only end up in a V/2 clause again.

(15) *Wh-Movement from 'dass' and V/2 clauses in German*:

a. Ich weiß nicht [$_{CP_1}$ wen$_i$ (dass) du meinst [$_{CP_2}$ t$'_i$ dass sie t$_i$ getroffen hat]]
I know not whom that you think that she met has

b. [$_{CP_1}$ Wen$_i$ meinst du [$_{CP_2}$ t$'_i$ hat sie t$_i$ getroffen]] ?
whom think you has she met

c. [$_{CP_1}$ Wen$_i$ meinst du [$_{CP_2}$ t$'_i$ dass sie t$_i$ getroffen hat]] ?
whom think you that she met has

d. *Ich weiß nicht [$_{CP_1}$ wen$_i$ (dass) du meinst [$_{CP_2}$ t$'_i$ hat sie t$_i$ getroffen]]
I know not whom that you think has she met

Previous approaches:
(i) Islands (Staudacher (1990), Sternefeld (1989), Reis (1996), Müller (2002)):
V/2 clauses in German are islands for extraction (at least into *dass* clauses), as they are in other Germanic languages (Vikner (1995)).
(ii) Directionality (Müller (1989), Haider (1993)):
V/2 and V in a TP-final position do not govern in the same direction, which would be required for extraction (see, e.g., Koster (1987)'s Global Harmony).
(iii) Improper movement (Haider (1984), Müller and Sternefeld (1990), Müller and Sternefeld (1993), Sternefeld (1992)):
Specifiers in successive-cyclic movement must be of the same type, which SpecV/2 and Spec*dass* are not.
(iv) Data denial (Ćavar (1996), Fanselow and Mahajan (1996)):
Extraction from V/2 clauses into *dass* clauses is possible after all.

Claims:
(i) None of these approaches is fully convincing, and the data are real.
(ii) The ban on movement from V/2 clauses into *dass* clauses follows without further ado from SCP, given straightforward assumptions about declarative and interrogative C nodes in German.

(16) *Features of declarative C in German*:

a. C_d = [$_C$ dass]
b. C_e = [$_C$ Ø$_{[*EPP*],[*fin*]}$]

c. C_t = [$_{\mathrm{C}}$ Ø$_{[*\mathrm{EPP}*],[*\mathrm{top}*],[*\mathrm{fin}*]}$]

(17) *Features of interrogative C in German*:

a. C_{dw} = [$_{\mathrm{C}}$ dass$_{[*\mathrm{wh}*]}$] (colloquial German)

b. $C_{dw'}$ = [$_{\mathrm{C}}$ Ø$_{[*\mathrm{wh}*]}$] (standard German)

c. C_{ew} = [$_{\mathrm{C}}$ Ø$_{[*\mathrm{EPP}*],[*\mathrm{wh}*],[*\mathrm{fin}*]}$]

3.2. Analysis

Note:
As before, two options must be considered for each C in CP_2 and CP_1 of the examples in (15).

3.2.1. CP_2 is a 'dass'-Clause

First option:
C of CP_2 is C_d.
T_{11}: Successive-cyclic wh-movement from 'dass' clauses: CP_2 headed by C_d

Input: [$_{\mathrm{C_d}}$ dass], [$_{\mathrm{TP}}$ sie wen getroffen hat]	FC	OP	SCP	MLC	LR
O_1: [$_{\mathrm{CP_2}}$ [$_{\mathrm{C}}$ dass] [$_{\mathrm{TP}}$ sie wen getroffen hat]]		*!			
☞O_2: [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C}}$ dass] [$_{\mathrm{TP}}$ sie t$_i$ getroffen hat]]				*	*
O_3: [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C}}$ hat$_j$ (dass)] [$_{\mathrm{TP}}$ sie t$_i$ getroffen t$_j$]]				*	**!

Note:
Based on the optimal output O_2 in T_{11}, there are two possible continuations in (15): CP_1 may have C_{dw}, as in T_{12}, or C_{ew}, as in T_{13}.
T_{12}: Successive-cyclic wh-movement from 'dass' clauses into 'dass' clauses

Input: [$_{\mathrm{C_{dw}}}$ dass$_{[*\mathrm{wh}*]}$], [$_{\mathrm{TP}}$ du meinst [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C}}$ dass] [$_{\mathrm{TP}}$ sie t$_i$ getroffen hat]]]	FC	OP	SCP	MLC	LR
O_{21}: [$_{\mathrm{CP_1}}$ [$_{\mathrm{C_{dw}}}$ dass] [$_{\mathrm{TP}}$ du meinst [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C}}$ dass] [$_{\mathrm{TP}}$ sie t$_i$ getroffen hat]]]]	*!		**		
☞O_{22}: [$_{\mathrm{CP_1}}$ wen$_i$ [$_{\mathrm{C_{dw}}}$ dass] [$_{\mathrm{TP}}$ du meinst [$_{\mathrm{CP_2}}$ t$'_i$ [$_{\mathrm{C}}$ dass] [$_{\mathrm{TP}}$ sie t$_i$ getroffen hat]]]]				*	
O_{23}: [$_{\mathrm{CP_1}}$ wen$_i$ [$_{\mathrm{C_{dw}}}$ meinst$_j$ (dass)] [$_{\mathrm{TP}}$ du t$_j$ [$_{\mathrm{CP_2}}$ t$'_i$ [$_{\mathrm{C}}$ dass] [$_{\mathrm{TP}}$ sie t$_i$ getroffen hat]]]]			*!(*)	*	*

Note:
In standard German, C_{dw} is empty. This implies that O_{22} in T_{12} incurs a single violation of SCP. Still, the candidate remains optimal.
Conclusion:
(15-a) and (15-b) (repeated in (18)) are both optimal outputs.

(18) *Wh-movement from 'dass' clauses in German*:

a. Ich weiß nicht [$_{\mathrm{CP_1}}$ wen$_i$ (dass) du meinst [$_{\mathrm{CP_2}}$ t$'_i$ dass sie t$_i$ getroffen hat]]
I know not whom that you think that she met has

T_{13}: Successive-cyclic wh-movement from 'dass' clauses into V/2 clauses

Input: [$_{C_{ew}}$ Ø$_{[*EPP*],[*wh*],[*fin*]}$], [$_{TP}$ du meinst [$_{CP_2}$ wen$_i$ [$_C$ dass] [$_{TP}$ sie t$_i$ getroffen hat]]]	FC	OP	SCP	MLC	LR
O_{21}: [$_{CP_1}$ [$_{C_{ew}}$ Ø] [$_{TP}$ du meinst [$_{CP_2}$ wen$_i$ [$_C$ dass] [$_{TP}$ sie t$_i$ getroffen hat]]]]	*!**		**		
O_{22}: [$_{CP_1}$ wen$_i$ [$_{C_{ew}}$ Ø] [$_{TP}$ du meinst [$_{CP_2}$ t$'_i$ [$_C$ dass] [$_{TP}$ sie t$_i$ getroffen hat]]]]	*!		*	*	
O_{23}: [$_{CP_1}$ [$_{C_{ew}}$ meinst$_j$ Ø] [$_{TP}$ du t$_j$ [$_{CP_2}$ wen$_i$ [$_C$ dass] [$_{TP}$ sie t$_i$ getroffen hat]]]]	*!*		**		
☞O_{24}: [$_{CP_1}$ wen$_i$ [$_{C_{ew}}$ meinst$_j$ Ø] [$_{TP}$ du t$_j$ [$_{CP_2}$ t$'_i$ [$_C$ dass] [$_{TP}$ sie t$_i$ getroffen hat]]]]			*	*	

b. [$_{CP_1}$ Wen$_i$ meinst du [$_{CP_2}$ t$'_i$ dass sie t$_i$ getroffen hat]] ?
whom think you that she met has

Problem:
Why does SCP not force further *wh*-movement in (18-a), as in (19-a)? (Note, however, that the phenomenon of *wh*-imperatives in (19-b) that is discussed in Reis and Rosengren (1992) is extremely suggestive in this context, and might indicate an SCP effect.)

(19) *Wh-movement that is too long*:

a. *Wen$_i$ weiß ich nicht [$_{CP_1}$ t$''_i$ dass du meinst [$_{CP_2}$ t$'_i$ dass sie t$_i$ getroffen hat]]
whom know I not that you think that she met has

b. ?Wen$_i$ sag mal [$_{CP_1}$ t$'_i$ dass du t$_i$ getroffen hast] !
whom tell me that you met have

Solution:
(19-a) is blocked by (18-a) because of a high-ranked constraint that dominates SCP. This constraint implies that checking of an operator feature like [*top*] or [*wh*] freezes the moved item (see Epstein (1992) for an overview of constraints that have this effect). Note that this constraint must not hold for non-operator features like [*EPP*], so as to permit cases where, e.g., passive feeds *wh*-movement, as in (20). (Another case where this constraint must not hold involves extraction from SpecC positions in which (only) [*EPP*] has been checked; see T_{15}, T_{16} below.)

(20) *Passive feeds wh-movement*:
[$_{CP}$ Who$_i$ [$_C$ do$_{[*wh*]}$] you think [$_{CP}$ t$''_i$ [$_{TP}$ t$'_i$ [$_T$ was$_{[*EPP*]}$ kissed t$_i$]]]] ?

3.2.2. CP is a V/2 Clause

Second option:
C of CP_2 is C_e.
Note:
Based on the optimal output O_5 in T_{14}, there are two possible continuations: CP_1 may C_{ew}, as in T_{15}, or C_{dw} as in T_{16}.
Note:
O_{43} is optimal, but will lead to ungrammaticality in subsequent parts of a derivation. The reason

T_{14}: Successive-cyclic wh-movement from V/2 clauses: CP_2 headed by C_e

Input: [$_{\mathrm{C_e}}$ Ø$_{[*\mathrm{EPP}*],[*\mathrm{fin}*]}$], [$_{\mathrm{TP}}$ sie wen getroffen hat]	FC	OP	SCP	MLC	LR
O_1: [$_{\mathrm{CP_2}}$ [$_{\mathrm{C_e}}$ Ø] [$_{\mathrm{TP}}$ sie wen getroffen hat]]	*!*	*			
O_2: [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C_e}}$ Ø] [$_{\mathrm{TP}}$ sie t$_i$ getroffen hat]]	*!			*	
O_3: [$_{\mathrm{CP_2}}$ [$_{\mathrm{C}}$ hat$_j$ Ø] [$_{\mathrm{TP}}$ sie wen$_i$ getroffen t$_j$]]	*!	*			
☞O_4: [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C_e}}$ hat Ø] [$_{\mathrm{TP}}$ sie t$_i$ getroffen t$_j$]]				*	
O_5: [$_{\mathrm{CP_2}}$ sie$_k$ [$_{\mathrm{C}}$ hat$_j$ Ø] [$_{\mathrm{TP}}$ t$_k$ wen$_i$ getroffen t$_j$]]		*!			

T_{15}: Successive-cyclic wh-movement from V/2 clauses into V/2 clauses

Input: [$_{\mathrm{C_{ew}}}$ Ø$_{[*\mathrm{EPP}*],[*\mathrm{wh}*],[*\mathrm{fin}*]}$], [$_{\mathrm{TP}}$ du meinst [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C_e}}$ hat Ø] [$_{\mathrm{TP}}$ sie t$_i$ getroffen t$_j$]]	FC	OP	SCP	MLC	LR
O_{41}: [$_{\mathrm{CP_1}}$ [$_{\mathrm{C_{ew}}}$ Ø] [$_{\mathrm{TP}}$ du meinst [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C_e}}$ hat Ø] [$_{\mathrm{TP}}$ sie t$_i$ getroffen t$_j$]]	*!**		**		
O_{42}: [$_{\mathrm{CP_1}}$ wen$_i$ [$_{\mathrm{C_{ew}}}$ Ø] [$_{\mathrm{TP}}$ du meinst [$_{\mathrm{CP_2}}$ t$'_i$ [$_{\mathrm{C_e}}$ hat Ø] [$_{\mathrm{TP}}$ sie t$_i$ getroffen t$_j$]]	*!		*	*	
O_{43}: [$_{\mathrm{CP_1}}$ [$_{\mathrm{C_{ew}}}$ meinst$_j$ Ø] [$_{\mathrm{TP}}$ du t$_j$ [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C_e}}$ hat Ø] [$_{\mathrm{TP}}$ sie t$_i$ getroffen t$_j$]]	*!*		**		
☞O_{44}: [$_{\mathrm{CP_1}}$ wen$_i$ [$_{\mathrm{C_{ew}}}$ meinst$_j$ Ø] [$_{\mathrm{TP}}$ du t$_j$ [$_{\mathrm{CP_2}}$ t$'_i$ [$_{\mathrm{C_e}}$ hat Ø] [$_{\mathrm{TP}}$ sie t$_i$ getroffen t$_j$]]				*	
O_{45}: [$_{\mathrm{CP_1}}$ du$_k$ [$_{\mathrm{C_{ew}}}$ meinst$_j$ Ø] [$_{\mathrm{TP}}$ t$_k$ t$_j$ [$_{\mathrm{CP_2}}$ wen$_i$ [$_{\mathrm{C_e}}$ hat Ø] [$_{\mathrm{TP}}$ sie t$_i$ getroffen t$_j$]]	*!		*		

is that there is an independent, high-ranked constraint against embedding *wh*-V/2 clauses which can never be violated by an optimal candidate; see (21-a). (Suggestion, based on the EOC (Empty Output Constraint) in Heck and Müller (2000) (also see Ackema and Neeleman (1998), Wunderlich (2000)): (21-a) is blocked as suboptimal by the empty output Ø in (21-b), given that the EOC is ranked lower.)

(21) *The prohibition against embedded wh-V/2 clauses in German*:

a. *Sie sagt [$_{\mathrm{CP}}$ wen$_i$ hat sie t$_i$ getroffen] (→ violates V-WH-V/2)
she says whom has she met

b. Ø (→ violates EOC)

Conclusion:
(15-b) (repeated in (22-a)) is an optimal output, but (15-d) (repeated in (22-b)) is not: SCP triggers input neutralization by forcing verb movement which is not feature-driven.

(22) *Wh-Movement from V/2 clauses in German*:

a. [$_{\mathrm{CP_1}}$ Wen$_i$ meinst du [$_{\mathrm{CP_2}}$ t$'_i$ hat sie t$_i$ getroffen]] ?
whom think you has she met

b. *Ich weiß nicht [$_{\mathrm{CP_1}}$ wen$_i$ (dass) du meinst [$_{\mathrm{CP_2}}$ t$'_i$ hat sie t$_i$ getroffen]]
I know not whom that you think has she met

General Conclusion:
As before, SCP can be violated so as to fulfill FR, but not in order to respect LR.

*T_{16}: *Successive-cyclic wh-movement from V/2 clauses into 'dass' clauses*

Input: [$_{C_{dw}}$ dass$_{[*wh*]}$], [$_{TP}$ du meinst [$_{CP_2}$ wen$_i$ [$_{C_e}$ hat Ø] [$_{TP}$ sie t$_i$ getroffen t$_j$]]	FC	OP	SCP	MLC	LR
O_{41}: [$_{CP_1}$ [$_{C_{dw}}$ dass] [$_{TP}$ du meinst [$_{CP_2}$ wen$_i$ [$_{C_e}$ hat Ø] [$_{TP}$ sie t$_i$ getroffen t$_j$]]	*!		**		
O_{42}: [$_{CP_1}$ wen$_i$ [$_{C_{ew}}$ dass] [$_{TP}$ du meinst [$_{CP_2}$ t$'_i$ [$_{C_e}$ hat Ø] [$_{TP}$ sie t$_i$ getroffen t$_j$]]			*!	*	
☞O_{43}: [$_{CP_1}$ wen$_i$ [$_{C_{ew}}$ meinst$_j$ Ø] [$_{TP}$ du t$_j$ [$_{CP_2}$ t$'_i$ [$_{C_e}$ hat Ø] [$_{TP}$ sie t$_i$ getroffen t$_j$]]				*	*
O_{44}: [$_{CP_1}$ wen$_i$ [$_{C_{ew}}$ meinst$_j$ dass] [$_{TP}$ du t$_j$ [$_{CP_2}$ t$'_i$ [$_{C_e}$ hat Ø] [$_{TP}$ sie t$_i$ getroffen t$_j$]]			*!	*	*

3.3. Local vs. Global Optimization

Note:
A global optimization approach would, ceteris paribus, wrongly predict SCP to require parallelism in the shape of CP edges more generally, and could not account for the asymmetry observed in (15). In particular, (15-c) should also be excluded: CP_1 in O_{24} of T_{13} violates SCP once and MLC once; its predecessor CP_2 in O_2 of T_{11} violates MLC once and LR once. However, if both CPs could be optimized in parallel, the optimal output would combine CP_1 in O_{24} of T_{13} and CP_1 in O_3 of T_{11}, which would incur two violations of the MLC and two violations of LR, but *no violation of SCP*. This is shown in T_{17}.

*T_{17}: Global optimization: *Successive-cyclic wh-movement from 'dass' clauses into V/2 clauses*

Input: [$_C$ dass], [$_{TP}$ sie wen getroffen hat] [$_{C_{ew}}$ Ø$_{[*EPP*],[*wh*],[*fin*]}$], [$_{TP}$ du meinst]	FC	OP	SCP	MLC	LR
[$_{CP_1}$ wen$_i$ [$_{C_{ew}}$ meinst$_j$ Ø] [$_{TP}$ du t$_j$ [$_{CP_2}$ t$'_i$ [$_C$ dass] [$_{TP}$ sie t$_i$ getroffen hat]]]]			*!	**	*
★O_{34}: [$_{CP_1}$ wen$_i$ [$_{C_{ew}}$ meinst$_j$ Ø] [$_{TP}$ du t$_j$ [$_{CP_2}$ t$'_i$ [$_C$ hat$_j$ Ø] [$_{TP}$ sie t$_i$ getroffen t$_j$]]]]				**	**

3.4. Extensions

Note:
The same account can be given for cases in which the ultimate landing site is higher up in the tree. These cases show exactly the same asymmetry as the examples in (15):

(23) *Wh-Movement from 'dass' and V/2 clauses to an intermediate SpecC*:

a. Wen$_i$ denkst du [$_{CP_1}$ t$''_i$ dass sie meint [$_{CP_2}$ t$'_i$ dass sie t$_i$ getroffen hat]] ?
who think you that she believes that she met has

b. Wen$_i$ denkst du [$_{CP_1}$ t$''_i$ meint sie [$_{CP_2}$ t$'_i$ hat sie t$_i$ getroffen]]
who think you believes she has she met ?

c. Wen$_i$ denkst du [$_{CP_1}$ t$''_i$ meint sie [$_{CP_2}$ t$'_i$ dass sie t$_i$ getroffen hat]] ?
who think you believes she that she met has

d. *Wen$_i$ denkst du [$_{CP_1}$ t$''_i$ dass sie meint [$_{CP_2}$ t$'_i$ hat sie t$_i$ getroffen]]
who think you that she believes has she met ?

Analysis:
The analysis carries over essentially unchanged. CP_1 has C_d or C_e instead of C_{dw} or C_{ew}, but this does not affect the outcome: As before, movement from a *dass* clause into a V/2 clause may (minimally) violate SCP in order to respect higher-ranked FC, whereas movement from a V/2 clause into a *dass* clause can and must respect SCP by violating lower-ranked LR.

Note:
The same asymmetry shows up with topicalization; see (24):

(24) a. Den Karl$_i$ denke ich [$_{CP_1}$ t$''_i$ dass sie meint [$_{CP_2}$ t$'_i$ dass sie t$_i$ getroffen hat]]
the Karl think I that she believes that she met has

b. Den Karl$_i$ denke ich [$_{CP_1}$ t$''_i$ meint sie [$_{CP_2}$ t$'_i$ hat sie t$_i$ getroffen]]
the Karl think I believes she has she met

c. Den Karl$_i$ denke ich [$_{CP_1}$ t$''_i$ meint sie [$_{CP_2}$ t$'_i$ dass sie t$_i$ getroffen hat]]
the Karl think I believes she that she met has

d. *Den Karl$_i$ denke ich [$_{CP_1}$ t$''_i$ dass sie meint [$_{CP_2}$ t$'_i$ hat sie t$_i$ getroffen]]
the Karl think I that she believes has she met

Analysis:
The account is basically the same as that given for *wh*-movement, with [*wh*] (on C) and [wh] (on the *wh*-phrase) replaced by [*top*] (on C) and [top] (on the moved topic).

3.5. Islands

(25) *Wh-islands and topic islands in German*:

a. *Was$_i$ weißt du nicht [$_{CP_1}$ wem$_k$ Karl t$_k$ gesagt hat [$_{CP_2}$ t$'_i$ dass sie t$_i$ mag]] ?
what know you not whom Karl said has that she likes

b. *Was$_i$ denkst du [$_{CP_1}$ der Frau$_k$ hat Karl t$_k$ gesagt [$_{CP_2}$ t$'_i$ dass sie t$_i$ mag]] ?
what think you the woman has Karl said that she likes

Observation:
It follows from the ranking FC $\gg$ SCP that the phase edge of CP_2 cannot be replicated in CP_1. Hence, the *wh*-phrase in (25-ab) has to stay in SpecC_2 during CP_1 optimization, and is subsequently inaccessible for further movement because of the PIC; thus, (25-ab) can never be generated. This implies that [*wh*] of the matrix C will have to remain unchecked, in violation of FC. FC, however, is a constraint that outranks the EOC, i.e., it can never be violated in an optimal candidate (Heck and Müller (2000)), so (26-ab) are blocked by Ø.

(26) *Wh-islands and topic islands in German, best suboptimal candidates*:

a. *Du weißt$_{[*wh*]}$ nicht [$_{CP_1}$ wem$_k$ Karl t$_k$ gesagt hat [$_{CP_2}$ was$_i$ (dass) sie t$_i$ mag]] ?
you know not whom Karl said has what that she likes

b. *Du denkst$_{[*wh*]}$ [$_{CP_1}$ der Frau$_k$ hat Karl t$_k$ gesagt [$_{CP_2}$ was (dass) sie t$_i$ mag]] ?
you think the woman has Karl said what that she likes

3.6. Embedding Without Movement

Observation:
A *dass* clause–V/2 clause asymmetry does not show up when the phase edge of a higher *dass* clause is not targetted by movement.

(27) a. Ich denke [$_{CP_1}$ dass er sagte [$_{CP_2}$ dass sie schlafen möchte]]
I think that he said that she slepp wants to

b. Ich denke [$_{CP_1}$ er sagte [$_{CP_2}$ sie möchte schlafen]]
I think he said she wants to sleep

c. Ich denke [$_{CP_1}$ er sagte [$_{CP_2}$ dass sie schlafen möchte]]
I think he said that she sleep wants to

d. Ich denke [$_{CP_1}$ dass er sagte [$_{CP_2}$ sie möchte schlafen]]
I think that he said she wants to sleep

Problem:
(27-d) is initially surprising: Why is the shape edge of CP_1 not made identical to that of CP_2 by applying XP movement to SpecC and V/2 movement to C? As it stands, these movment operations, not being feature-driven, would only violate LR twice.

Solution:
There is a constraint that is ranked higher than SCP which ensures that only a C bearing the feature [*EPP*] permits non-operators (i.e., XPs that do not have a [top] or [wh] feature) in its specifier; this constraint can for present purposes be referred to as EPP/O.

T_{18}: Mixed embedding without movement

Input: [$_{C_d}$ dass], [$_{TP}$ er sagte [$_{CP_2}$ sie$_i$ [$_{C_e}$ möchte Ø t$_i$ schlafen t$_j$]]]	FC	OP	EPP/O	SCP	MLC	LR
☞O$_1$: [$_{CP_1}$ [$_{C_d}$ dass] [$_{TP}$ er sagte [$_{CP_2}$ sie$_i$ [$_{C_e}$ möchte Ø t$_i$ schlafen t$_j$]]]]				**		
O$_2$: [$_{CP_1}$ er$_k$ [$_{C_d}$ dass] [$_{TP}$ t$_k$ sagte [$_{CP_2}$ sie$_i$ [$_{C_e}$ möchte Ø t$_i$ schlafen t$_j$]]]]			*!	*		*
O$_3$: [$_{CP_1}$ sie$_i$ [$_{C_d}$ dass] [$_{TP}$ er sagte [$_{CP_2}$ t$'_i$ [$_{C_e}$ möchte Ø t$_i$ schlafen t$_j$]]]]			*!	*	*	*
O$_4$: [$_{CP_1}$ er$_k$ [$_{C_d}$ sagte Ø] [$_{TP}$ t$_k$ t$_l$ [$_{CP_2}$ sie [$_{C_e}$ möchte Ø t$_i$ schlafen t$_j$]]]]			*!			*
O$_5$: [$_{CP_1}$ [$_{C_d}$ sagte Ø] [$_{TP}$ er$_k$ t$_l$ [$_{CP_2}$ sie [$_{C_e}$ möchte Ø t$_i$ schlafen t$_j$]]]]				**		*!

Appendix: Der Fischer

Der Fischer (Goethe)	*The Fisherman*
Das Wasser rauscht', das Wasser schwoll,	*The water roared, the water swelled;*
Ein Fischer saß daran,	*a fisherman sat beside,*
Sah nach dem Angel ruhevoll,	*gazing calmly at his fishing line,*
Kühl bis ans Herz hinan.	*cool to his very heart.*
Und wie er sitzt und wie er lauscht,	*And as he sits there and as he listens,*
Teilt sich die Flut empor:	*the waves split*
Aus dem bewegten Wasser rauscht	*and from the turbulent water*
Ein feuchtes Weib hervor.	*a watery woman bursts up.*
Sie sang zu ihm, sie sprach zu ihm:	*She sang to him, and spoke to him:*
"Was lockst du meine Brut	*"Why do you lure my children*
Mit Menschenwitz und Menschenlist	*with your human wit and cunning,*
Hinauf in Todesglut?	*up here to this deadly glow?*
Ach wüsstest du, wie's Fischlein ist	*Ah, if you only knew how pleasant the tiny fish*
So wohlig auf dem Grund,	*find it below the surface,*
Du stiegst herunter, wie du bist,	*you would come down, just as you are,*
Und würdest erst gesund.	*and you would be well for the first time.*
Labt sich die liebe Sonne nicht,	*Does not the dear sun refresh itself*
Der Mond sich nicht im Meer?	*and the moon as well, in the sea?*
Kehrt wellenatmend ihr Gesicht	*Do they not turn their faces, breathing the waves*
Nicht doppelt schöner her?	*and thus becoming doubly fair?*
Lockt dich der tiefe Himmel nicht,	*Aren't you tempted by the deep sky,*
Das feuchtverklärte Blau?	*the moist and transfiguring blue?*
Lockt dich dein eigen Angesicht	*Aren't you tempted by your own face*
Nicht her in ew'gen Tau?"	*shining in the eternal dew?"*
Das Wasser rauscht', das Wasser schwoll,	*The water roared, the water swelled,*
Netzt' ihm den nackten Fuß;	*and moistened his naked foot;*
Sein Herz wuchs ihm so sehnsuchtsvoll	*and his heart filled with the longing*
Wie bei der Liebsten Gruß.	*that he felt at the greeting of his beloved.*
Sie sprach zu ihm, sie sang zu ihm;	*She spoke to him, and sang to him;*
Da war's um ihn geschehn;	*then all was done for him;*
Halb zog sie ihn, halb sank er hin	*half pulled by her and half sinking himself,*
Und ward nicht mehr gesehn.	*he went down and was never seen again.*

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