External Pair Merge of *v* and T – the Verb Cluster

Andreas Blümel
University of Göttingen

1. The Syntactic Side of the Proposal

A long tradition of research smoulders about the question whether or not German has a TP-projection (e.g. Haider 1993; Sabel 2000; Sternefeld 2007). The current analysis ties together several strands of research by recasting the verbal domain in German as follows: T is a syntactic affix – not a free standing head like English T –, as is the verbal categorizer *v*. The crucial syntactic claim of this paper is that together, they form an amalgam ⟨*v*, T⟩ by External Pair Merge (EKS 2016). Let us refer to ⟨*v*, T⟩ as INFL. INFL Set Merges with the structure {(DP), R}, where R=Root, giving {{(DP), R}, ⟨*v*, T⟩}, the DP being the internal argument IA. Since within INFL, T is affixed to *v*, θ-marking of the external argument EA can proceed in the standard fashion by *v*. Being affixal, INFL forces raising of R (cf. Chomsky 2015:9 on *v*), resulting in the structure {EA, {{(IA), ~~R~~}, ⟨R, INFL⟩}}, where ⟨*v*, T⟩ is affixed to the host R. Thus German has a syntactically synthetic verbal complex, unlike English with its syntactically analytical verbal region [$_{TP}$ T [$_{vP}$ *v* [R …]]]. This naturally captures (a) the elusive absence of VP-ellipsis in German in that T is not a free standing morpheme to license it and (b) *all finite verbs* raise to C in root contexts in German, whereas *only finite auxiliary verbs* raise to C in English. Last, problems dissolve of accounting for why extraposed CPs in German adjoin to VP, forming [$_{VP}$ [$_{VP}$ …t_{CP}… V] CP], as evidenced by VP-fronting, but cannot surface between sentence-final V and the head of a (putative) TP-projection (cf. Haider 2010:61-63/67-68; *pace* Wurmbrand & Bobaljik 2005).

uφ-features are borne by C (Chomsky 2008) undergo AGREE and are valued there (Chomsky 2017), and, I claim, syntactically remain there in German. This is arguably the cause for a dependent Case pattern in German and for the possibility of impersonal passives (default 3SG inflection on the verb under failure of AGREE). [uφ] is lowered to the verbal amalgam in the morphological component in verb-final clauses, yielding the affix order V-T-φ ((*Du*) *schau-te-st* – (you) look-PST-2SG). The labeling algorithm LA (Chomsky 2013) finds the amalgam ⟨R, INFL⟩ and determines it to be the label in {{(IA), ~~R~~}, ⟨R, INFL⟩}, i.e. that set is a ⟨R, INFL⟩P. A suggestive hypothesis is that the richness of the verbal inflection renders ⟨R, INFL⟩ a projection inducer in the sense of Miyagawa et al (2019: 2): "When one member, say XP, bears a projection inducer as in {XP-inducer, YP}, X(P) projects." Consequently, the LA finds ⟨R, INFL⟩ in a full argument structure set {EA, {{(IA), ~~R~~}, ⟨R, INFL⟩}}, i.e. no labeling problem arises for EA-⟨R, INFL⟩P and no EPP-raising of the EA is forced, cf. (1). This is unlike E, in which EA-*v*P gives rise to a labeling problem, forcing the EA to vacate the *v*P as in (2) (cf. Chomsky 2013):

(1) [**⟨R, INFL⟩P** [DP *Kinder*] [⟨R, INFL⟩ *gespielt*]] *haben hier noch nie*.
children$_{NOM}$ played have here yet never
'Children have never played here before.' *Haider (1990)*

(2) *that* (*John*) *will* (*[DP *John*]) [$_{vP}$ *read the book*]]

(VP-fronting like in (1) will be understood as [$_{CP}$ ⟨R, INFL⟩P [C ~~⟨R, INFL⟩P~~]], plausibly with phonological conditions dictating the pronunciation of low-VP-copy material, cf. Ott 2010, violating anti-locality, in line with a free Merge approach, cf. EKS 2016: fn. 6; *pace* Abels 2003 *i.a.*.) Two additional related consequences flow from this. First, scrambling does not induce a labeling problem, as the LA invariably finds the projection inducer ⟨R, INFL⟩ as in (3):

(3) *weil* [**⟨R, INFL⟩P** [*Eisbären*]$_i$ *natürlich alle* t_i *mögen*]
since polar bears$_{ACC}$ naturally all like
'Since everybody likes polar bears, naturally.' *Lenerz (2001)*

A conception within which scrambling is a free, untriggered option – *modulo* interface conditions – (cf. Struckmeier 2014, 2016, and the discussion in Haider 2010: 169 ff.) squares well with the current analysis. Secondly, assume that *that*-trace effects in English are deducible to a labeling failure due to the "weakness of [uφ]" on T in [C=*that* [$\underline{\alpha}$ t_{DP} TP]] (Chomsky 2015). If so, we do not expect category-specific (though maybe information-structure specific, cf. Bayer & Salzmann 2013) *that*-trace effects in German. The reason: Given that T in German is not a [uφ]-bearing head in the syntax to begin with, no labeling failure can be obtained.

2. The Morphological Side of the Proposal

German periphrastic verbs are morphological realizations of the syntactically synthetic verbal complex ⟨R, INFL⟩. I.e. this paper adopts the view that "periphrastic forms occupy cells in morphological paradigms" (Zwart 2017: 29), while denying that this argues against a syntactic nature of verb movement (*pace* op. cit.). Thus part of the amalgam must be featural specifications for [Point of View, POV: unmarked/anteriority] ("aspect," cf. Wiltschko 2014: 7; in Zwart 2017: 34) and the like. The combinatorial options between morphological and syntactic periphrasis and synthesis are summarized in Table 1 with instantiated examples.

Morphology \ Syntax	**Periphrasis**	**Synthesis**
Periphrasis	English auxiliary verbs	**?** → German verb cluster
Synthesis	English affix hopping	German simple verbs

Table 1: Combinatorics of periphrastic and synthetic syntax and morphology

It also highlights the problematic gap of combining syntactic synthesis with morphological periphrasis in the typology if Zwart's adumbration were not realized.

A verb-final clause is shown in (4), where (4-a) is the underlying syntax, (4-b) the

morphological component, and (4-c) the example ((4-c): '…since everybody liked polar bears'):

(4) a. {$C_{[u\varphi]}$, {EA, {{IA, ~~R~~}, ⟨R, ⟨$v_{[POV: anterior]}$, $T_{[Tense: present]}$⟩⟩}}}
b. {C, {EA, {{IA, ~~R~~}, ⟨⟨R, ⟨$v_{[POV: anterior]}$, $T_{[Tense: present]}$⟩⟩, **[uφ]**⟩}}}
c. *weil alle Eisbären gemocht haben*
since everybody polar bears liked has-3pl

⟨R, INFL⟩ can undergo Internal Pair Merge to C in syntax (as *i.a.* recently argued by Blümel & Goto 2019), delivering the amalgam ⟨⟨R, INFL⟩, C⟩. I.e. a V1-structure is syntactically:

(5) {⟨⟨R, INFL⟩, C⟩, {EA, {{(IA), ~~R~~}, ~~⟨R, INFL⟩~~}}}

With morphologically simplex verbs, the analysis is straightforward in that the finite verb spells out ⟨⟨R, INFL⟩, C⟩. The crucial morphological claim of this paper is that periphrastic verb forms under syntactic V-to-C are distributed realizations of auxiliaries in the C-complex on the one hand, and the residual verbal material in the ⟨R, INFL⟩-complex on the other, very much in the spirit of distributed deletion (Fanselow & Çavar 2002) of copies. Compare the analysis of a V1/V2-clause (6) with the verb final counterpart in (4) ((6-c): 'Did everyone like polar bears?'):

(6) a. {⟨⟨R, ⟨$v_{[POV: ant]}$, $T_{[T: pres]}$⟩⟩, $C_{[u\varphi]}$⟩, {EA, {{IA, ~~R~~}, ~~⟨R, ⟨$v_{[POV: ant]}$, $T_{[T: pres]}$⟩⟩~~}}}}}
b. {⟨⟨R, ⟨$v_{[POV: ant]}$, $T_{[T: pres]}$⟩⟩, $C_{[u\varphi]}$⟩, {EA, {{IA, ~~R~~}, ~~⟨R, ⟨$v_{[POV: ant]}$, $T_{[T: pres]}$⟩⟩~~}}}}}
c. ~~*gemocht*~~ *haben alle Eisbären gemocht* ~~*haben*~~

[uφ] remains on C in the morphological component in (6-b), but not in (4-b). [uφ]-bearing C contextually forces only the amalgam's finite part to be the morphological spell-out of the C-complex. A principle is at work, dictating that just as much morphological word material is pronounced in the upper copy so that movement is evidenced: the morphological part of the verb indicating finiteness (associated with [uφ]). The in-situ amalgam bears no [uφ]-set which is why the non-finite verbal material spells it out.

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