Prosody and Separable/Inseparable Verbs in German

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ABSTRACT. This paper claims that word orders in German sentences with separable/inseparable verbs are due to the word/phrase prosody of the language. It is argued that German has main stress in the initial position of prosodic categories such as phonological phrase, which may be preceded by an optional weak element. According to this prosody, separable and inseparable verbs are placed in different positions in a sentence.[*]

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1. Separable/inseparable verbs in German

German has two kinds of complex verbs, separable and inseparable verbs. The examples in (1a) and (1b) show that the prefix of separable verbs (e.g. *ab-* in *abfahren* 'leave') must be separated from the stem in the clause-second position; (2) shows that the prefix of separable verbs attaches to the stem in clause-final position when the clause-second position is occupied with a finite auxiliary verb.

(1)   a.   *Anna fährt heute Abend   ab*.
            Anna go   today evening off
            'Anna leaves this evening.'

        b. * *Anna abfährt heute Abend*.
            Anna leaves   today evening

(2)   *Anna mag heute Abend   abfahren*.
            Anna may today evening leave
            'Anna may leave today.'

Note here that the prefix in separable verbs has stress (*ábfahren*). The prefix in inseparable verbs (e.g. *be-* in *bestellen*) cannot be separated from the stem even when they occur in the clause-second position, as shown in (3a) and (3b); they are also attached to the stem in clause-

final position when the clause-second position is occupied with a finite auxiliary verb, as shown in (4).

(3)   a.   *Anna bestéllt Tee.*
             Anna   orders   tea
             'Anna orders tea.'
       b. **Anna stéllt Tee be.*
(4)   *Anna mag Tee   bestellen.*
             Anna may tea   order
             'Anna may order tea.'

Inseparable verbs have word-stress on the stem rather than on the prefix (e.g. bestéllen). Below, I argue that the different behavior of separable/inseparable verbs is due to their prosodic difference, namely prefix-stress and stem-stress, and the weak-initial stress in German.[1]

In section 2, I discuss German prosody and argue that it may have an initial-weak pattern in prosodic categories.   In section 3, I argue that the separation of a prefix from its stem occurs in order to keep the initial-weak pattern in the second phonological phrase.   Section 4 illustrates how the predicate containing separable/inseparable verbs is formed in syntax and how it is linearized at Externalization.   Section 5 concludes the discussion.

2. German prosody
2.1 Initial-weak prosody

In Tokizaki (2020), I argue that German has stem-initial stress (and unstressed prefixes) in a word, and that the word-prosodic pattern projects up to phrasal categories such as phonological phrase.   That is, German has a prosodic system that allows a weak element in prosodic categories, as shown in (5).

(5)   a. $[_\omega \, (\sigma_{(W)}) \, \sigma_{(S)} \, ...]$
       b. $[_\Phi \, (\omega_{(W)}) \, \omega_{(S)} \, ...]$
       c. $[_\iota \, (\Phi_{(W)}) \, \Phi_{(S)} \, ...]$

(5a) shows that a German prosodic word (ω) starts either with a strong syllable ($\sigma_{(S)}$) or with a weak syllable ($\sigma_{(W)}$) preceding a strong syllable. In other words, German allows a weak syllable in front of the initial strong syllable in a prosodic word. Similarly, (5b) shows that a

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[1] See Larsen (2014) and the references therein for various approaches to separable/inseparable verbs in German.   Oku (2021) proposes a label-based approach for the data discussed in this article.

phonological phrase (Φ) starts either with a strong prosodic word ($\omega_{(S)}$) or with a weak prosodic word ($\omega_{(W)}$) preceding a strong prosodic word. (5c) shows that an intonational phrase (ι) may have a weak phonological phrase ($\Phi_{(W)}$) preceding the initial strong phonological phrase ($\Phi_{(S)}$).

Here I assume that the prosodic pattern [(weak) strong …] in a prosodic word projects up to higher prosodic categories, namely a phonological phrase and an intonational phrase. This seems to be a natural assumption.[2]

Note that the prosodic pattern in (5) in German is different from other languages such as Japanese. I argue that Japanese has some kind of stress in the initial position of prosodic categories as shown in (6).

(6) a. $[_\omega \, \sigma_{(S)} \, ...]$

b. $[_\Phi \, \omega_{(S)} \, ...]$

c. $[_\iota \, \Phi_{(S)} \, ...]$

Japanese is different from German in that it does not allow any weak category (σ, ω and Φ) in the initial position of the dominating category (ω, Φ and ι). This difference makes different word orders in Japanese and German, as I argue in Tokizaki (2020).

2.2 German prosody and verb second

Next, let us consider the prosody of German clauses. In Tokizaki (2020), I discussed how the example sentences in (7) are derived by Merge and Externalization.

(7) a. *Anna hat gestern   den Film gesehen.*
Anna has yesterday the film   seen
'Anna saw the film yesterday.'

b. *Den Film hat Anna gestern   gesehen.*
the   film   has Anna yesterday seen
'The film, Anna saw yesterday'

c. *Gestern   hat Anna den Film gesehen.*
yesterday has Anna the   film seen
'Yesterday, Anna saw the film'

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[2] Wiese (1996: 311, 2000) argues that stress in German alternates between left and right: foot (left), word (right), compound (left), phrase (right). However, his examples of words and phrases are not typical in German: the words are loan words and the phrases are mostly head-initial VP s, PPs and NPs.

These sentences have the same words, but the clause-initial position is occupied by the subject in (7b), by the object in (7b) and by the adverb in (7c). Merge iteratively applies to words and phrases to build up the set in (8).

(8) $\{_{T'}$ T $\{_{vP}$ Subj $\{_{v'}$ v $\{_{VP}$ Adv $\{_{V'}$ V Obj$\}\}\}\}\}\}$

Note that the set in (8) has no linear order. I assume that the order is decided at Externalization. As the next step of derivation, a copy of the subject, the object or the adverb moves to the specifier position of T to derive the sets in (9), where the original copy is italicized.

(9)   a. $\{_{TP}$ Subj $\{_{T'}$ T $\{_{vP}$ *Subj* $\{_{v'}$ v $\{_{VP}$ Adv $\{_{V'}$ V Obj$\}\}\}\}\}\}\}$
       b. $\{_{TP}$ Obj $\{_{T'}$ T $\{_{vP}$ Subj $\{_{v'}$ v $\{_{VP}$ Adv $\{_{V'}$ V *Obj*$\}\}\}\}\}\}\}$
       c. $\{_{TP}$ Adv $\{_{T'}$ T $\{_{vP}$ Subj $\{_{v'}$ v $\{_{VP}$ *Adv* $\{_{V'}$ V Obj$\}\}\}\}\}\}\}$

These sets are Externalized to give the sequences in (10).

(10)   a. $[_{TP}$ Subj $[_{T'}$ T $[_{vP}$ *Subj* $[_{VP}$ Adv $[_{V'}$ Obj V$]]]]]$
       b. $[_{TP}$ Obj $[_{T'}$ T $[_{vP}$ Subj $[_{VP}$ Adv $[_{V'}$ *Obj* V$]]]]]$
       c. $[_{TP}$ Adv $[_{T'}$ T $[_{vP}$ Subj $[_{VP}$ *Adv* $[_{V'}$ Obj V$]]]]]$

Here the original copy in italics is not pronounced. (10a), (10b) and (10c) correspond to the sentences in (7a), (7b) and (7c), respectively, as shown in (11).

(11)   a. $[_{TP}$ Anna $[_{T'}$ hat $[_{vP}$ *Anna* $[_{VP}$ gestern $[_{V'}$ den Film gesehen$]]]]]$
       b. $[_{TP}$ Den Film $[_{T'}$ hat $[_{vP}$ Anna $[_{VP}$ gestern $[_{V'}$ *den Film* gesehen$]]]]]$
       c. $[_{TP}$ Gestern $[_{T'}$ hat $[_{vP}$ Anna $[_{VP}$ *gestern* $[_{V'}$ den Film gesehen$]]]]]$

The sentences in (11) show that German has the verb-second order (V2): the finite (auxiliary) verb (*hat*) occurs in the second position in a clause following the clause-initial constituent. In Tokizaki (2020), I argued that V2 in German is due to the prosody of the language: the prosodic pattern [(weak) strong …] in prosodic categories matches the verb-second order, as shown in (12) and (13) (cf. Wackernagel 1892, 2020, Bošković 2020).

(12)   a.   (Φ Subj) (Φ T̲ Adv) (Φ Obj V)
       b.   (Φ Obj) (Φ T̲ Subj) (Φ Adv V)
       c.   (Φ Adv) (Φ T̲ Subj) (Φ Obj V)

(13) a. (ɸ *Anna*) (ɸ *<u>hat</u> gestern*) (ɸ *den Film gesehen*)

       Anna   has yesterday the film seen

       'Anna saw the film yesterday.'

    b. (ɸ *Den Film*) (ɸ *<u>hat</u> Anna*) (ɸ *gestern   gesehen*)

        the film   has Anna   yesterday seen

       'The film, Anna saw yesterday'

    c. (ɸ *Gestern*) (ɸ *<u>hat</u> Anna*) (ɸ *den Film gesehen*)

       yesterday   has Anna   the film seen

       'Yesterday, Anna saw the film'

The tensed auxiliary *hat*, which is weak, is the first word in the second phonological phrase in each example. This is allowed in German because the language allows a weak constituent in a prosodic phrase [(weak) strong …]. Languages with initial-strong prosody such as Japanese do not allow V2 order in (13); they have the order with T as the last word in T' as shown in (14).

(14) a. (ɸ1 *Marie-wa*) (ɸ2 *kinoo*) (ɸ3 *sono eiga-o   mita*)

       Marie-Top   yesterday the film-Acc saw

       'Marie saw the film yesterday.'

    b. (ɸ1 *Sono-eiga-o*) (ɸ2 *Marie-wa*) (ɸ3 *kinoo   mita*)

        the film-Acc Marie-Top   yesterday saw

       'The film, Marie saw yesterday.'

    c. (ɸ1 *Kinoo*) (ɸ2 *Marie-wa*) (ɸ3 *sono eiga-o   mita*)

        yesterday Marie-Top   the film-Acc saw

       'Yesterday, Marie saw the film.'

Here, tensed verbs occur at the end of the last phonological phrase.

3. "Separation" for initial-weak prosody

    Now let us consider how complex verbs are linearized in German. As I pointed out above, the prefix of separable verbs has word-stress (e.g. *ábfahren* 'leave') while the prefix of inseparable verbs does not (e.g. *bestéllen* 'order'). This difference in stress can be attributed to the meaning of prefixes: the prefix of a separable verb is parallel to an adverb in its semantics. For example, *ab-* means 'off' and *ábfahren* means 'go off'. Adverbs receive stress rather than verbs in verb + adverb constructions in English as well.

(15) a. The plane took óff.

    b. The stars come óut at night.

Thus, it is natural that the prefix of separable verbs in German have stress.

As we saw in (12) and (13), the initial position of the second phonological phrase is occupied by a weak word in German. The examples of separable verbs in (1) and (2) are pronounced in phonological phrases as shown in (16) and (17).

(16)   a.   (Φ_1 *Anna*) (Φ_2 *fährt heute Abend áb*)
                 Anna   go   today off
             'Anna leaves today.'
       b. * (Φ_1 *Anna*) (Φ_2 *ábfährt heute Abend*)
                 Anna   leaves   today

(17)   (Φ_1 *Anna*) (Φ_2 *mag heute Abend ábfahren*)
                 Anna   may today leave
             'Anna may leave today.'

The stressed prefix *ab-* is placed at the end of the second phonological phrase in (16a) while it is placed at the initial position of Φ_2 in (16b). I argue that the unacceptability of (16b) is due to the fact that the stressed prefix is attached to the stem and is placed in the initial position of the second phonological phrase. One might argue that the second phonological phrase in (16b), as well as that in (16a), matches the prosodic pattern in (5b) $[_\Phi (\omega_W) \omega_S ...]$, which allows the initial word to be stressed. Thus, we need to assume that the second phonological phrase should start with a weak prosodic word. This can be formulated as in (18), which can be dubbed Weak Start.

(18)   The second phonological phrase starts with a weak element.

(16b) does not fulfill this requirement because its Φ_2 starts with a stressed prefix *ab-*. As shown in (16a), the stressed prefix *ab-*, whose origin is an adverb, can well be Externalized as an independent adverb *ab* at the end of Φ_2. This phonological phrase starts with a verb *fährt*, whose stress is weaker than the adverb/prefix *ab*.

Now let us turn to inseparable verbs in German.

(19)   a.   (Φ_1 *Anna*) (Φ_2 *bestéllt Tee*)
                 Anna   orders tea
             'Anna orders tea.'
       b. * (Φ_1 *Anna*) (Φ_2 *stéllt Tee be*)

(20)   (Φ_1 *Anna*) (Φ_2 <u>*mag*</u> *Tee* <u>*bestéllen*</u>)

       Anna   may tea order

      'Anna may order tea.'

(19a) is acceptable because the second phonological phrase starts with a prefix without stress: the prosody of Φ_2 matches the initial-weak prosody in German. To be more precise, one might argue that the inseparable verb *bestellt* is a prosodic word and is not a combination of two prosodic words *be-* and *stellt*. Then, the second phonological phrase in (19a) starts with a strong prosodic word *bestellt*. However, this is also an acceptable phonological phrase in German, whose prosody is $[_\Phi (\omega_{(W)}) \omega_{(S)} ...]$ as in (5b): the first prosodic word can be strong. Moreover, a prosodic word can start with a weak syllable as described as $[_\omega (\sigma_{(W)}) \sigma_{(S)} ...]$ in (5a). The prosodic pattern with an initial weak syllable matches inseparable verbs such as $[_\omega$ *be*$_{(W)}$-*stél*$_{(S)}$-*len*$_{(W)}]$. In other words, the second phonological phrase in (19a) observes the initial-weak prosody at the level of prosodic word even if it does not at the level of phonological phrase. (20) is also acceptable because the first prosodic word in the second phonological phrase (*mag*) is an auxiliary without stress, which observes the initial-weak prosody in German. We can attribute the unacceptability of (19b) to the fact that a prefix without stress (*be-*) is a bounded form but is separated from its stem (*stellt*). Moreover, the second phonological phrase in (19b) starts with a verb with initial stress (<u>*stéllt*</u>), violating the constraint Weak Start in Φ_2 as formulated in (18).

      Thus, we can explain the behavior of separable/inseparable verbs in German in terms of the prosodic pattern [(weak) strong …] in (5) and Weak Start Φ_2 in (18).

4. Externalization of the predicate

      Now let us consider in detail how the predicate containing separable/inseparable verbs is formed in syntax and how it is linearized at Externalization. First, let us reconsider the sentences in (3) and (4) containing an inseparable verb. They have phonological phrasing shown in (21) and (22).

(21) a.   (Φ_1 *Anna*) (Φ_2 <u>*bestéllt*</u> *Tee*)

          Anna   orders tea

       'Anna orders tea.'

      b. *(Φ_1 *Anna*) (Φ_2 <u>*stéllt*</u> *Tee* <u>*be*</u>)

(22)   (Φ_1 *Anna*) (Φ_2 <u>*mag*</u> *Tee* <u>*bestéllen*</u>)

         Anna   may tea order

      'Anna may order tea.'

These sentences have the syntactic structures shown in (23) and (24), where curly brackets show a set of syntactic objects without linear order.

(23)   *{Anna {Tee be̲stéllt}}*

(24)   *{Anna {{Tee be̲stéllen} mag}}*

At the point of Externalization of the predicate *{Tee be̲stéllt}* and *{{Tee be̲stéllen} mag}*, Weak Start chooses the linearization in (21a) and (22) where the inseparable verb with unstressed prefix *be-* and the auxiliary *mag*, which are generally unstressed, occupy the initial position, and not the linearization in (21b) violating Weak Start. I assume that sister constituents can rotate like a mobile in the air to give two word orders at Externalization (cf. Uriagereka 1999). In (23) and (24), the object *Tee* and the verb *be̲stéllt* can rotate to give the orders in (25).

(25) a.   *be̲stéllt Tee*

      b.   *Tee be̲stéllt*

German chooses (25a) that fits its prosody Weak Start, which is violated in (25b) where the object *Tee* receives the phrasal stress. Thus, (21a) is acceptable in German. Similarly, the order in (26a) fits German prosody Weak Start because the auxiliary is a weak element, while that in (26b) does not.

(26) a.   *mag Tee be̲stéllen*

      b.   *Tee bestéllen mag*

Thus, the verb-second order in (22) is chosen in German.

The derivation of separable verbs is more complex than that of inseparable verbs. I argue that syntax builds up the structures in (27) and (28) for the sentences in (1) and (2).

(27)   *{Anna {{heute Abend} {áb fä̲hrt}}}*

(28)   *{Anna {{{heute Abend} {áb fä̲hren}} mag}}*

Here I assume that the prefix of separable verbs (*ab*) is an adverb, which can be cliticized to the following verb stem (*fähren*) when Externalized in a sequence. Then, the adverb/prefix (*ab*) is the complement of the verb stem and the time adverbial *heute Abend* is the specifier of the verb stem. At the phase when the predicate in (27) is Externalized, linearization has some options as shown in (29).

(29)   a.   áb-fährt heute Abend

       b.   heute Abend áb-fährt

       c.   fährt heute Abend áb

As I argued in section 3, (29a) violates Weak Start because the prefix has stress. The verb-final order in (29b) also violates Weak Start because the adverbial *heute (Abend)* has stress. The order in (29c) observes Weak Start. However, this order cannot be obtained by just rotating the sister constituents, i.e. the adverb *heute Abend* and the complex verb *ab-fährt*. I argued in Tokizaki (2021) that there is no movement in PF. If we want to keep this idea, it is not possible to move the verb stem to the initial position in PF to derive (29c).

This problem can be solved in terms of Transfer. I argued in Tokizaki (2018) that the complement of a head is Transferred to PF when the specifier is merged with the constituent consisting of a head and its complement. In (27), the adverb (*ab*) is Transferred to PF to make the structure in (30), where the adverb without phonetic form is shown in italic.

(30)   {{heute Abend} {*ab* fährt}}}   PF: ab

Externalization applies to this syntactic structure, rotating the sister constituents, i.e. the adverb *heute Abend* and the complex verb ab-*fährt* to give (31), where the phonetic form of the adverb *ab* is already in PF and pronounced at last.

(31)   *ab* fährt heute Abend ab

Thus, we can derive the order in (29c), which observes Weak Start, by Transferring the adverb and rotating the sister constituents at Externalization. One might argue that we can alternatively avoid a symmetric branching structure in (27), which violates OCP (Obligatory Contour Principle) in PF (cf. Tokizaki 2018), by combining the adverb *ab* and the verb *fährt* to make a complex verb *abfährt*. However, if this complex-verb formation applies, the predicate violates Weak Start as shown in (29a) and (29b). Again, (29c) is the only option available in German.

Externalization of (28), which contains an auxiliary verb and a separable verb, is more straightforward than that of (27) containing no auxiliary verb. The predicate of (28) is built up in syntax as in (32).

(32)   {{*heute Abend*} {*áb fähren*}} *mag*}}

This structure can be Externalized in a number of orders as shown in auxiliary-final (33) and auxiliary-initial (34).

(33) a.   ($_{\Phi 2}$ abfähren heute Abend mag)

       b.   ($_{\Phi 2}$ heute Abend abfähren mag)

       c.   ($_{\Phi 2}$ fähren heute Abend ab mag)

(34) a.   ($_{\Phi 2}$ mag abfähren heute Abend)

       b.   ($_{\Phi 2}$ mag heute Abend abfähren)

       c.   ($_{\Phi 2}$ mag fähren heute Abend ab)

However, (33a) and (33b) violate Weak Start. (33c) is not possible because the auxiliary *mag* follows the adverb *ab*, which has been Transferred to PF. (34a) and (34c) do not fit the prosody of German, where the main stress immediately follows the initial weak stress. In this example, the most deeply embedded constituent is *heute Abend*, which receives the main stress (cf. Cinque 1993). (34b) matches this German prosody.

Thus, we can explain the word order in sentences with separable/inseparable verbs in German in terms of German prosody.

5. Conclusion

So far, I have argued that the word order of separable/inseparable verbs in a clause can be attributed to the prosody of German. Firstly, I illustrated how separable/inseparable verbs behave in clauses as the main verb with tense and as the infinitive verb with an auxiliary bearing tense. Secondly, I argued that the prosodic categories in German have the rhythmic pattern [(weak) strong …] in (5), which allows an optional weak constituent in the initial position. Thirdly, it was argued that the second phonological phrase should start with a weak prosodic word. I argued that the initial weak prosody in German places the stem of separable verbs in the initial position of the second phonological phrase and their stressed prefix at the end of the clause. German prosody allows an inseparable verb to be placed at the initial position of the second phonological phrase because its prefix does not have word stress.

This explanation is based on the idea that the morphosyntactic order is constrained by the prosody of the language. I assume the generative architecture of grammar, where syntax feeds phonology. One might argue that the idea developed here is problematic because it needs "lookahead" in the sense that the output at phonology chooses some syntactic derivation in the input. However, I assume that syntax builds a hierarchical structure, which can be Externalized in a number of word orders. For example, a set {X Y} can be Externalized as the sequence X Y or as Y X. Each language chooses the one that fits its phonology. In other words, phonology works just as a filter; it does not command syntax. Thus, I believe that the "look ahead" problem does not occur in this explanation.

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