Rethinking Complex Verb Formation
Three Levels of Derivation and Their Effects[1]

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褒めちぎる ひん曲げる verachten submit aufgeben übersetzen 食べ歩く auffallen hold on 写完 run out give in 冻着 erarbeiten megír go on 打破 看错 zerlegen 悲切 bejár 哭湿 redo 替代 想起 bedazzle 遍寻 kipihen 想好 mislead attain eat up 背过 outreach 代替 演讲 uprise felismer 吃上 befolgen overrun empfangen 讲演 complete losfahren 燃え盛る ausschlafen take over

- Cross-linguistically common, e.g. Indo-European, East Asian, Uralic.

ENG *out-run, eat up*	GER *aus-schlafen* "sleep to one's fill"
GER *ver-achten* "despise"	HUN *meg-ír* "complete writing"
JAP *home-chigiru* "highly praise"	CHI *bei-guo* "successfully memorize"

- Shared properties: ①single verbal unit, ②complex internal make-up, ③quite productive, ④sometimes separable.

Why Complex Verbs?

Theoretically interesting:

- Locus of formation: Lexicon or Syntax?
- Interaction with clausal syntax.
- Systematic patterns and variation: is a unified theory possible?

Goal: A Minimalist theory that can model the cross-linguistic patterns and variation in complex verb formation.

Data: English, German, Hungarian, Chinese, Japanese

Data: Verbal Prefixes and Separability

Prefixed verbs show inconsistent separability across languages.

- Separable:
  HUN (all), GER (some)
- Inseparable:
  ENG (all), JAP (all), GER (some).

Separable prefixes can be stranded (a-b) or moved up (c-d). ▸

a) János tegnap   olvasta <u>fel</u> a verseit. (HUN)
   John yesterday read   up his poems
   "John read out his poems yesterday (not today)."   (É. Kiss 2002: 56)

b) Peter steigt in den Bus <u>ein</u>. (GER)
   Peter climbs in the bus in
   "Peter gets on the bus."   (Zeller 2001: 55)

c) János <u>fel</u> szeretné   olvasni   a verseit. (HUN)
   John up would love read.INF his poems
   "John would love to read out his poems."   (É. Kiss 2002: 57)

d) <u>Zu</u>   hat er die Tür gemacht. (GER)
   closed has he the door made
   "He locked the door."   (Zeller 2001: 89)

Data: Verbal Prefixes and Separability

Inseparable prefixes are always tied to the base verbs.

  a) We will <u>re</u>work the schedule. (ENG)

  b) aite-o   <u>but</u>taosu. (JAP)
     opponent-ACC strike-topple
     "Violently topple the opponent."

  c) Peter <u>ver</u>schießt   die Munition. (GER)
     Peter PFV-shoots the ammunition
     "Peter runs out of ammunition."   (Zeller 2001: 56–57)

- Verbal prefixes are not "verbal", but verb modifiers (cf. É. Kiss 2002).
- Actually they often do not have a clear syntactic category.

Data: Loosely Structured Complex Verbs

Some non-prefixal complex verbs are more loosely structured, e.g. ENG phrasal verbs and some CHI V-V compounds (e.g. resultatives).

- a) He <u>picked up</u> the book. (ENG)   [*picked the book up*]

- b) Xiaohong <u>ku shi</u> le   shou-pa. (CHI)
  Xiaohong cry wet PFV handkerchief
  "Xiaohong cried the handkerchief wet."   [*ku bu shi* "cry not wet"]

  - They are not "separable" but rather "separate".
  - They do not have verb modifiers, but have V complements (often analyzed as Small Clauses, cf. Hoekstra 1988, Sybesma & Shen 2006).

Data: Loosely Structured Complex Verbs

Both ENG phrasal verbs and CHI V-V compounds have a special subclass:

a) He ate <u>up</u> the meal. (ENG)   [*ate the meal up*]

b) Xiaohong dong <u>zhe</u>   le. (CHI)
   Xiaohong freeze touch PFV
   "Xiaohong got frozen (and sick)."   [*dong bu zhao* "freeze not touch"]

Such complements

- resemble prefixal verb modifiers, e.g. HUN *meg-eszik* "PFV-eat".
  meg-fázik "PFV-freeze",

- but are categorically independent.

☞ Two structures with similar semantic function.

Data: Semantic Status of Secondary Components

In both prefixal and V-Comp complex verbs there is variation in the semantic status of the secondary component.

	Prefix	Comp
Only literal meaning	?	CHI *shi* "wet"
Literal + modifier meaning	HUN *fel-* "up; INCHOATIVE"	ENG *pick/eat up*
Bleached in complex verbs	HUN *meg-* PFV (*megé* "back-to")	CHI *zhe* PFV$^{\text{NEG}}$
Bleached in the language	GER *ver-* PFV (no literal use)	-

These correspond to four stages of grammaticalization:

lexical ➜ lexical^{+} ➜ semi-grammatical ➜ grammatical

This largely corresponds to the separability variation: only "grammatical" (i.e. bleached in the language) morphemes are inseparable. Exception:

- ENG non-bleached prefixes, e.g. <u>over</u>turn, <u>out</u>run, <u>under</u>score.

Data: Aspect? More Than Time!

Modifier meanings of secondary components have been related with Lexical/Situation Aspect (temporal organization of event situation), but

Event modification in complex verbs is more than temporal dimension.

- "Aspectual" modifiers often mark more than temporal PFV/INCH etc., e.g. HUN *meg-eszik*/ENG *eat up* (total consumption), CHI *dong-zhe* "get frozen (and sick)" (negative result).
- For some modifiers (e.g. spatial ones), temporal contribution is more like a "side effect", e.g. HUN *be-megy* "go in".
- Some modifiers are not temporal at all, e.g. HUN *agyon-tanul* "study to exhaustion", JAP *home-chigiru* "highly praise" (both modify degree).

Data: Pure-Coordination Compounds and Flexible Ordering

Chinese has a group of pure-coordination compounds consisting of two synonymous components whose order can be reversed without clear influence on the global meaning, e.g.

- *dai-ti/ti-dai* "replace~replace→replace"
- *yan-jiang/jiang-yan* "perform~speak→deliver a speech"
- *ji-du/du-ji* "envy~envy→envy"

Some pure-coordination compound verbs have a predominant order, but the reversed order is also acceptable (and attested), e.g.

- *yong-bao/bao-yong* "embrace~hug→hug"
- *qiao-da/da-qiao* "knock~hit→knock; warn"
- *ti-ba/ba-ti* "raise~pluck→promote"

This is theoretically interesting, because no other type complex verb in our data allows such order change (not even marginally).

1. Prefixed verbs are either separable or inseparable.
2. V-Comp complex verbs are more loosely structured ("separate").
3. The semantic status of component morphemes corresponds to the separability variation (with an exception).
4. Many secondary components serve as verb/event modifiers.
5. Event modification in complex verbs resembles "aspect" but is more than the temporal dimension.
6. One specific type of complex verb allows flexible component ordering.

Single Engine and Bare Root

I adopt a Distributed Morphology (Halle & Marantz 1993 et seq) oriented Minimalist framework, in particular two assumptions:

Single Engine Hypothesis (Marantz 2001: 8)

There is only one mechanism in grammar for combining atomic units of structure and meaning, i.e. the Syntax.

Bare Root View (cf. Gallego 2014, Alexiadou 2014, Acquaviva 2008)

Roots are totally bare, having no grammatically relevant information whatsoever. They are categoryless and cannot head or project.

☞ Root by itself is not an eligible syntactic object, as it "does not qualify as a label" (Chomsky 2013: 47). Rather, it is an event modifier adjoined to the verbalizer (Marantz 2013: 157).

Redefining Aktionsart I

Many complex verb components are called "morphological Aktionsarten" (cf. É. Kiss 2010 Hungarian, Kageyama 2016 Japanese). They contribute fixed abstract event modifications different from their literal meanings, e.g.

- **Hungarian verbal prefix**
  be- "in"→TOTAL
  be-jár "go all over"

- **Japanese "auxiliary" V2**
  -chigiru "tear to pieces"→INTENSIVE
  home-chigiru "highly praise"

  (JAP also has verbal prefixes, e.g. *but-taosu* "INTE-topple")

More Aktionsarten (ibid.):   ●

COMPLETIVE/PFV	HUN *meg-eszik* "eat up", JAP *arai-ageru* "wash up"
INCOMPLETIVE	JAP *ii-sasu* "speak and stop"
EXHAUSTIVE	HUN *agyon-tanul* "study to exhaustion"
CONTINUATIVE	JAP *naki-kurasu* "cry all day long"
SATURATIVE	HUN *ki-pihen* "rest to one's fill"

☞ Morphological Aktionsart can but does not have to be temporal.

Redefining Aktionsart II

Morphological Aktionsart is not limited to the temporal dimension.

≠ traditionally defined lexical/situation aspect (Vendler 1957 et seq)

| Situation Aspect	(Morphological) Aktionsart
Temporal dimension	Multiple dimensions
Entire VoiceP	Only in lexical verb
Syntactically decomposable	Non-decomposable
May be covert	Always overt

(For the calculation of situation aspect in VoiceP see i.a. Verkuyl 1996; for the syntactic decomposition of situation aspect see i.a. Ramchand 2008.)

Aktionsart (redefined)

Lexically fixed (often abstract) extension or modification to intrinsic properties of event situations (mainly used to form complex verbs).

Three dimensions of Aktionsart:
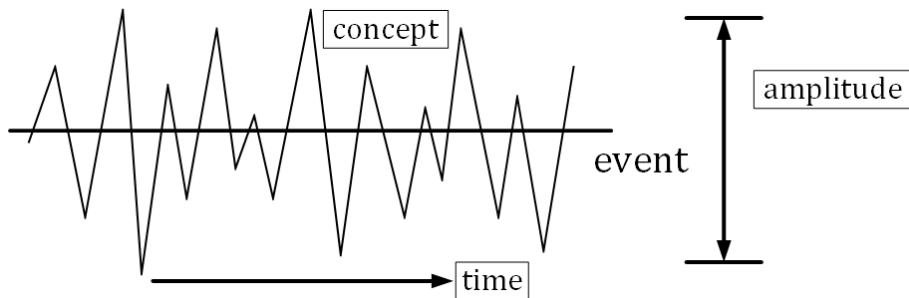
Formalizing Aktionsart I

Aktionsart is a semantic category with more than one realization, e.g.

Verbal prefix (some)	Hungarian, German, English, Japanese	[?]
"Auxiliary" V2	Japanese, Chinese	[+V]
Prepositional particle (some)	English (e.g. *eat up*)	[+P]

Heuristics:

1. Verbal prefixes have various origins (e.g. [+P], [+V]), but when used as Aktionsart morphemes they "suppress" their original categories.
2. Non-prefixal Aktionsart morphemes do not suppress original categories.
3. The category of Comp may be "weak", but is still clearer than that of prefix, e.g. *run out* vs. *outrun*.
4. Regardless of the language type (OV/VO), the category-suppressing Aktionsart morphemes are always preverbal.

Separable Aktionsart prefixes are merged as Roots.

They do not "suppress" category, but have no preassembled category.

NB categoryless things are syntactically "invisible". This is the case of verbal Roots — they are adjuncts on a "separate plane" (Chomsky 2004). So can separable prefixes be "separate-plane" *v* adjuncts?

No! Because

- adjuncts cannot be input to further Merge, which is not true for separable prefixes;
- presumably one categorizer can only categorize one Root, and the verbalizer's "quota" is already occupied by the verbal Root.

☞ We need a mediator to join a secondary Root to the verbalizer.

Formalizing Aktionsart III

I propose a functional head Akt immediately next to v:

$$\sqrt{}-\textbf{Akt}$$
$$|$$
$$\textbf{\textit{v}}-\sqrt{}$$
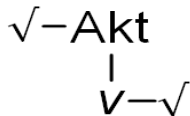
> Akt: extending the categorizing room of v.

Properties:

- Akt extends the room for v modifiers (crucial to complex verbs).
- As such, Akt must be in a local configuration with v, i.e. the two form a "complex categorizer" as the initial "skeleton" of the complex verb.
- Akt is on the primary plane, so is the Root it adds ("visible").
- Akt has an interpretable formal feature [AKT] and an uninterpretable categorial feature [uV].

> Akt's default featural make-up: {[uV], [AKT:___]}.

Feature Linking I

The Lexicon is not generative, but it can store links among primitives.

Feature linking of Root

A Root is normally linked to two types of interface features: phonological (Π) and semantic (Σ). I assume it can also be linked to a specific value of some interpretable formal feature.

Feature Linking ≠ Feature Bundling

"Pre-linked" features (of Roots) are only activated at the interfaces (i.e. phase level); "pre-bundled" features (of f-morphemes) enter derivation.

Feature linking allows two types of Root:

- Complete Root ($\sqrt{}$):
  $[+\Pi]$, $[+\Sigma]$, $[\pm i\mathrm{F}^{\mathrm{VAL}}]$
  e.g. HUN $\sqrt{FEL}$ "up"$^{\mathrm{INCH}}$

- Deficient Root ($\sqrt{}_{\mathrm{DEF}}$):
  $[+\Pi]$, $[-\Sigma]$, $[\pm i\mathrm{F}^{\mathrm{VAL}}]$
  e.g. HUN $\sqrt{MEG}$ $[-\Sigma]^{\mathrm{PFV}}$

Feature Linking II

Feature linking corresponds to four stages of grammaticalization, which is manifested in prefixal Aktionsart morphemes (henceforth Akt-items):

Complete $\sqrt{}$	Π, Σ	Lexical	?
Complete $\sqrt{}^+$	$\Pi, \Sigma, i\text{AKT}^{\text{VAL}}$	Lexical$^+$	Most Akt-items
Deficient $\sqrt{}$	$\Pi, i\text{AKT}^{\text{VAL}}$	Semi-grammatical	Few Akt-items, e.g. HUN *meg-*
No $\sqrt{}$	$\{i\text{AKT}^{\text{VAL}}\}$	Grammatical	Some Akt-items, e.g. GER *ver-*

$\sqrt{}$ and $\sqrt{}_{\text{DEF}}$ only differ at the C-I interface. As long as $\sqrt{}$ exists, an Akt-item must be merged as the specifier of a default (null) Akt-head.

When $\sqrt{}$ is gone, $i\text{AKT}^{\text{VAL}}$ becomes part of Akt's feature bundle. A grammaticalized Akt-item directly merges as a (non-default) Akt-head.
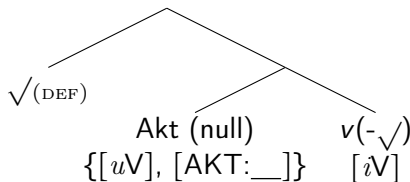
Being at the lowest part of the tree (*v*-domain), [AKT]-markers are not purely inflectional morphemes (I-domain).

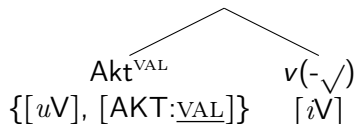☞ Akt-Spec is by default separable from v(-$\sqrt{}$); Akt-head is not.

Root-Akt AGREE

Via AGREE, Akt categorizes $\sqrt{}$, and $\sqrt{}$ passes its [AKT] value to Akt. Grammaticalized (Root-less) Akt-items directly merge with v.

- Root Akt-item:

```
        ╱╲
       ╱  ╲
      ╱    ╲
 √(DEF)    ╱╲
         ╱   ╲
      Akt (null)    v(-√)
      {[uV], [AKT:__]}  [iV]
```

- Root-less Akt-item:

```
        ╱╲
       ╱  ╲
    Akt^VAL         v(-√)
 {[uV], [AKT:VAL]}   [iV]
```

☞After AGREE, Akt-Root finishes its modifying mission and becomes "visible" to syntactic operations. ▶ [uV] is undeletable during the derivation, which is reminiscent of Edge Feature (EF).

Edge Feature (Chomsky 2007: 11, fn16)

As an uninterpretable feature, EF cannot reach the interface, so presumably deletion of EF is an automatic part of the operations of transfer.
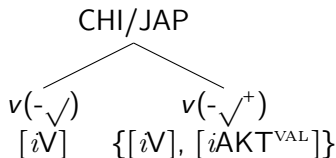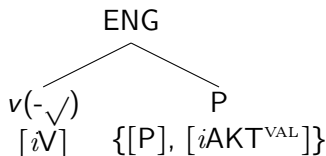
[AKT] in Comp

V-Comp complex verbs with [AKT] function:

- ENG aspectual phrasal verbs (*eat up*)
- CHI event-phasal compounds (*dong-zhe* "freeze-touch→get frozen and sick")
- JAP aspectual compounds (*arai-ageru* "wash-raise→wash up")

These secondary components are Roots prelinked to [AKT] values, but they are categorized by a separate categorizer (*p* or *v*).

ENG

$v(\text{-}\sqrt{})$ P
$[i\text{V}]$ $\{[\text{P}], [i\text{AKT}^{\text{VAL}}]\}$

CHI/JAP

$v(\text{-}\sqrt{})$ $v(\text{-}\sqrt{}^+)$
$[i\text{V}]$ $\{[i\text{V}], [i\text{AKT}^{\text{VAL}}]\}$

(P may involve more functional layers, cf. i.a. Koopman 2010)

## Flexible Ordering: Complex Root

Akt and Comp complex verbs either involve complex categorizer or complex categories, which become complex labels at Spell-Out and must be somehow linearized. But if two Roots are merged before categorization, the complex verb only involves one simple category, which does not dictate inter-Root linearization.

This is the scenario for CHI pure-coordination compounds, whose ordering is a purely phonological issue. ▶

dai-ti/ti-dai "replace"   Syntax

$v(-\sqrt{})$ Complex Root   PF   LF

$\{\Pi_1 \sim \Pi_2\}$ $\{\Sigma\}$
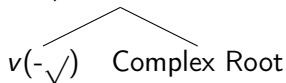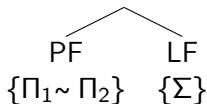
Root Merger yields a single "mass" Root for Syntax, whose $\{\Pi, \Sigma\}$ features are only activated at the interfaces. Therefore PF/LF changes do not affect each other.

A syntactic object can be assembled in one workspace and be "atomized" into a single node of another workspace (cf. Fowlie 2013). This can be done via a phase head—a verbalizer in the case of complex verbs.

Recategorization makes otherwise separable verbs inseparable, e.g. ENG Akt-Root prefixed verbs (in comparison with Akt-head ones).
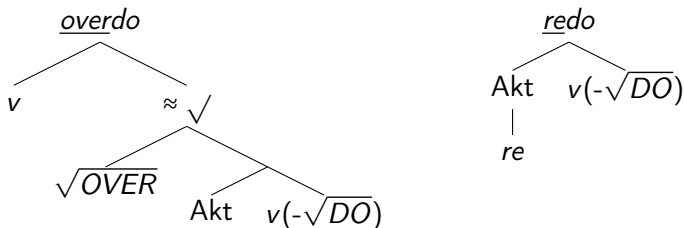
This is like a syntactic reformulation of the Lexical Integrity Hypothesis (Di Sciullo & Williams 1987).

Summary

This study has

- examined complex verbs in five languages,
- redefined (morphological) Aktionsart in multiple dimensions,
- proposed Akt as a categorial extension of the verbalizer,
- analyzed complex verb formation with three syntactic levels.

Summary: Three Levels of Complex Verb Formation

- Root level: Complex Root (flexible ordering), e.g. CHI *dai-ti/ti-dai* "replace".
- *v* level: Akt-licensing (separability variation).

Akt-Root	Separable prefix	GER *einnehmen* "take in"
		HUN *felolvas* "read out"
Akt-Root$_{\text{DEF}}$	Separable prefix	HUN *megír* "finish writing"
Akt-head	Inseparable prefix	ENG *redo*, GER *verachten* "despise"
		JAP *buttaosu* "violently topple"

- Beyond *v* level (loose), e.g. Comp.

	[+P]	[+V]
[−AKT]	ENG *pick up*	CHI *ku-shi* "cry wet"
[+AKT]	ENG *eat up*	CHI *dong-zhe* "get frozen and sick"
		JAP *home-chigiru* "highly praise"

- Recategorization (inseparable by force), e.g. Akt-Root, ENG *overdo*.

Theoretical Implication and Remaining Issues

✑Complex verbs: ▶

- Locus of formation: can be handled by a single engine (Syntax).
- Interaction with clausal syntax:
  - via the categorizer *v* and its Edge extension Akt, or
  - via some independent category (e.g. [P], [V]).
- Is a unified theory possible? Yes, at least for our data.

✑Remaining issues:

- the relation between Akt and Edge Feature;
- the linearization of Akt and *v*;
- the relation between Akt and Comp in OV languages;
- the phonological pattern (e.g. stress) of Akt-items;
- . . .

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