

Phonological Idiomaticity

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Outline

- 1 Introduction
- 2 Data on Phonological Idiomaticity
 - Segmental Phenomena
 - Routine Formulae
 - Word order idiosyncrasy
- 3 Head-Driven Phrase Structure Grammar
 - Phonology in HPSG
 - Idiomaticity in HPSG
- 4 Analysis of the Data
- 5 Summary

Typology of idiomaticity in Fillmore et al. (1988)

- idioms of encoding/ decoding: regular syntax and semantics possible/ at least irregular semantics
collocations: *answer the phone*; idioms: *saw logs*
- substantive/ formal idioms: fixed lexical material/ open slots
by and large; *the X-er the Y-er*
- grammatical/ extragrammatical idioms:
regular/ irregular syntactic form
saw logs; *kingdom come*, *by and large*
- idioms without/with pragmatic point:
the X-er the Y-er; greeting formulae

Research questions

- Typology of idiomaticity in Fillmore et al. (1988):
 - ▶ idioms of encoding/decoding: regular syntax and semantics possible/ at least irregular **semantics**
 - ▶ substantive/ formal idioms: fixed lexical material/ open slots
 - ▶ grammatical/ extragrammatical idioms: regular/ irregular **syntactic** form
 - ▶ idioms without/with **pragmatic** point
- Generalization: semantically non-idiomatic expressions are always grammatical
- Constructions also include phonology, so:
Is there phonological idiomaticity?
- In constructional Head-driven Phrase Structure Grammar (HPSG): focus on syntax and semantics.
What about pragmatics and phonology?

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Phonotactics

- Which sounds can (co-)occur in which positions in words?
- universal constraints: sonority hierarchy
- language-specific constraints:
[kn-] possible onset in German, excluded in English
- word-class specific constraints:
In English, only function words may start with [ð]

Words are constructions, but phonemes are not. Is there a place for phonotactics in a construction grammar?

Idiosyncratic phonotactics: German examples

- (1) Non-native phonemes:
Thriller ('thriller') [θrɪlɐ]
 - (2) Usual sounds in unusual places:
 - a. Rule: no words start with [sV]
 - b. Softeis ('soft/whipped ice cream') [sɔft.âis]
 - (3) Usual sounds in unusual combinations:
 - a. pt-, mn- cannot occur in the onset in native words
 - b. Greek loan words: Pterosaurier ('pterosaur') [ptero...],
Mnemotechnik ('mnemonic device') [mnemo...]
- Constructions? Well-formedness conditions on phonological combinations are not form-meaning pairs
 - But: phonotactic constraints operate on meaningful units only!

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Phonological idiomat�icity in word combinations

- (very) simple phonological compositionality:
The phonology of a complex expression is the concatenation of the phonology of its constituent parts.
- Idiom: *saw logs*
parts: *saw* [saw]; *logs* [lɔgz]
resulting phonology: [saw] \oplus [lɔgz]
- Instances of phonological idiomat�icity: routine formulae.

Gut- N: General properties

- Form: good N: [*gut*- N]_{acc}
- Examples:
 - ▶ greetings: Guten Morgen, Guten Tag, Guten Abend ('good morning/ day/ evening')
 - ▶ others: Gute Nacht ('good night'); Guten Appetit ('bon appetit'), Guten Flug ('good flight'), ...
- parameters according to Coulmas (1979)
 - ▶ Participants: unmarked
 - ▶ setting: if N is a time expression, N specifies the time
 - ▶ why and wherefore:
 - time: adjacent to the event specified by N
 - reason:
 - ★ greeting: add addressee to discourse participants
 - ★ other: conventionalized performative act connected to N
 - ▶ contextual restrictions: underspecified
 - ▶ concomitant activity: underspecified (optional nodding, hand shaking or waving, ...)

Special reduced forms

- Reduction: *guten* → /n/ or ∅
- Guten Morgen → ('n) Morgen Guten Tag → ('n) Tag
Guten Abend → 'n Abend Gute Nacht → Nacht
- Coulmas's parameters: Participants: familiar, informal, non-hierarchical
- Restriction to highly conventionalized instantiations:
guten Aufenthalt → * 'n Aufenthalt ('pleasant stay')
- Restriction to unembedded usage:

(4) Sie traten ein, ohne guten Abend/ *'n Abend zu sagen.
they came in without good evening/ say
'They entered without saying good evening.'

(5) Ich wünsche (einen) guten Abend/ *'n Abend!
I wish (a) good evening

Other idiosyncratic reduced forms

- Grüß Gott → 's Gott
(‘hello’, ‘Greet God’)
- (einen) guten Appetit → 'n guten
(‘(A) good appetite’)
- auf Wiedersehen → Wiedersehen
(‘Goodbye’, ‘On meeting again’)
- *Grüß Gott* is also syntactically irregular.
- The same restrictions apply to formality and unembeddedness.

Phonological idiosyncrasy in routine formulae

- ‘good N’ formulae are constructions with a pragmatic point.
- Some are semantically idiosyncratic (*Grüß Gott*, *Guten Tag*), some aren’t (*Gute Reise* (‘good trip’))
- Some may have additional syntactic idiosyncrasy (*Grüß Gott*).
- Some may have additional phonological idiosyncrasy.

- Type of phonological idiosyncrasy: The phonological contribution of a component is idiosyncratically reduced.

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Phonological idiomatity alone

- Are there idioms with phonological but no syntactic, semantic or pragmatic idiomatity?
- violation of phonological compositionality by using wrong word order

Example

- (6) Behüt dich Gott, es hat nicht **sollen sein**.
May God protect you it has not should be
(‘... it wasn’t meant to be’)
(traditional song by Joseph Viktor von Scheffel, 1853)
- (7) Normal word order: es hat nicht **sein sollen**.
- (8) other verbs:
- *es hat nicht sollen geschehen (should happen)
 - *es hat nicht dürfen sein (may be)
- (9) a. Tja, es hat halt mal wieder nicht **sollen sein**.
(interjection) it has (particles) again not should be
(‘Well, again, it wasn’t meant to be.’)
- b. synonymous regular word order:
Tja, es hat halt mal wieder nicht **sein sollen**.

- no idiosyncratic semantics, no idiosyncratic inflection
- word order is ungrammatical with other verbs

Summary

- Phonotactics: phonological idiosyncrasy exists below the constructional level
- Routine formulae: special reductions that seem to be non-syntactic
- Word order: ??

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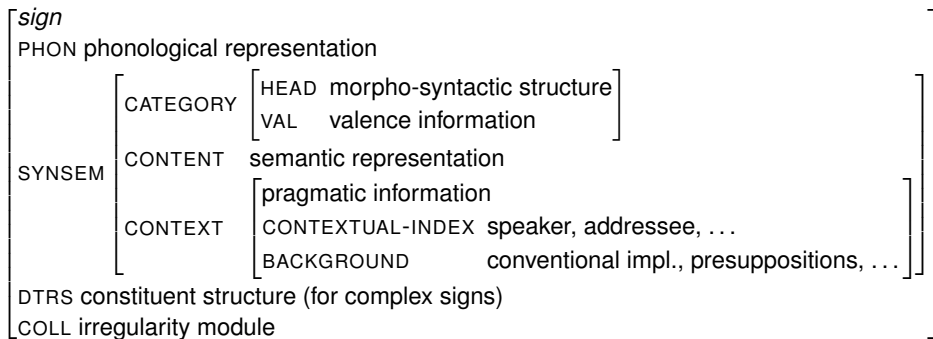
Central Assumptions in HPSG in Pollard and Sag (1994)

- Linguistic objects are modelled as typed feature structures,
- ... organized in a type hierarchy with multiple inheritance.
- Local licensing: Every word, phrase, ... must be licensed by the grammar.
- words (non-recursive signs): $word \rightarrow (LE_1 \vee \dots \vee LE_n)$
- phrases (combinatorics)
 - ▶ Phonological principles:
phonotactic constraints, Constituent Order Principle
 - ▶ Syntactic principles:
 $phrase \rightarrow (\text{Head-Subj-Schema} \vee \text{Head-Compl-Schema} \vee \dots)$
Head Feature Principle, Subcategorization Principle, ...
 - ▶ Semantic principles: Semantics Principle
 - ▶ Pragmatic principles: Principle of Contextual Consistency, ...

HPSG and Construction Grammar (CxG)

- Pollard and Sag (1994): sign-based (*sign*): linguistic objects have syntactic, semantic, phonological and pragmatic structure.
- Since Sag (1997): growing affinity to Berkely-style CxG (Fillmore et al., 1988; Kay and Fillmore, 1999)
- Kay (2002): attempt of a CxG formalization, partly influenced by HPSG.
- Sag (1997), Ginzburg and Sag (2000): constructions as subtypes of *phrase*.
- Sag (2007a,b), *Sign-Based Construction Grammar*
- Richter and Sailer (2003, 2009), . . . : Constructions as phrasal lexical entries and module for irregular combinatorics.

The structure of the type *sign*



Signs: Lexicality, complexity, embeddedness

- Lexical signs are dealt with in morphology, non-lexical signs are syntactic combinations.
- Complexity: simple-lexemes are the only non-complex signs.
- Unembedded signs can occur as independent utterances, i.e. they have illocutionary force and their phonology is realized (Richter, 1997; Höhle, 1999; Sag, 1997).

sign

lexicality

complexity

embeddedness

lexeme non-lexical

simple

complex

embedded

unembedded

simple-lxm

derived-lxm

word

phrase

e-word

u-word

e-phrase

u-phrase

Outline

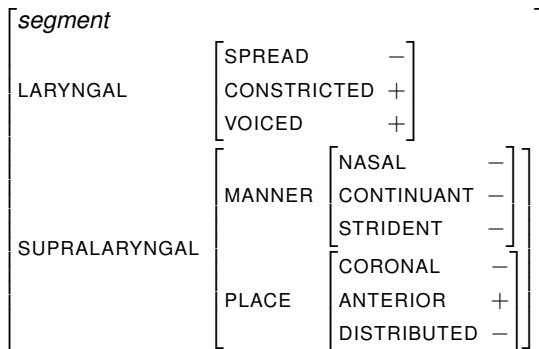
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Structure of PHON I

Bird and Klein (1994), Höhle (1999): internal structure of PHON

- autosegmental phonology: different attributes for different tiers.
- phonological segments as feature trees

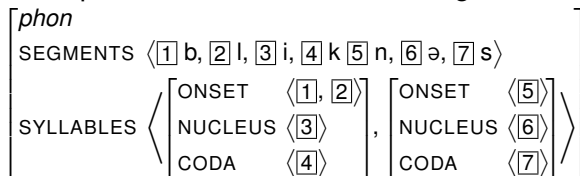
(10) Example segment [b], according to Bird and Klein (1994):



Structure of PHON II

- phonological structure: sequence of segments, syllables, ...
- Bird and Klein (1994): phonotactic constraints as constraints on *phon* objects

(11) Example word *bleakness*, according to Bird and Klein (1994):



Phonological combinatorics

- Pollard and Sag (1987): the PHON value of a phrase is the concatenation of the PHON values of the daughters as determined by linear precedence statements.
- Linearization-based HPSG (Reape, 1994; Kathol and Pollard, 1995; Penn, 1999; Kathol, 2000): linear ordering constraints on non-sisters
- Construction-specific phonological combinatorics in Orgun (1996):

$$\begin{bmatrix} \text{SYNSEM} & \iota(\boxed{2}, \boxed{4}) \\ \text{PHON} & \phi(\boxed{1}, \boxed{3}) \end{bmatrix}$$

$$\begin{bmatrix} \text{SYNSEM} & \boxed{1} \\ \text{PHON} & \boxed{2} \end{bmatrix} \quad \begin{bmatrix} \text{SYNSEM} & \boxed{3} \\ \text{PHON} & \boxed{4} \end{bmatrix}$$

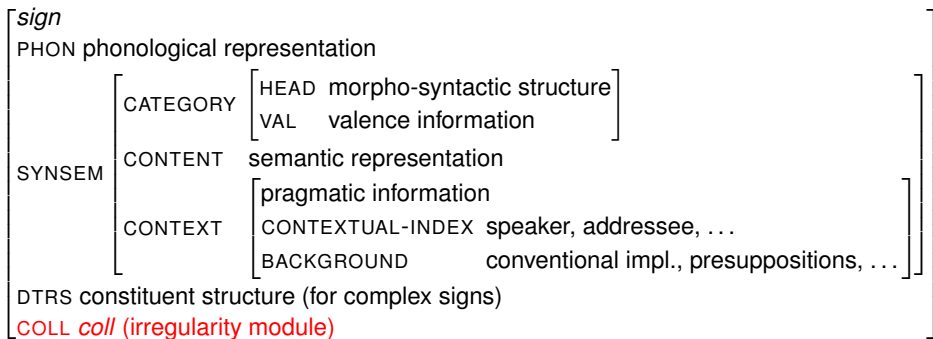
, where the choice of ι and ϕ depends on the construction.

- But: no phonotactic constraints on simple lexemes in Orgun (1996)

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Irregularity module in Richter and Sailer (2009)



Irregularity module in Richter and Sailer (2009)

coll

regular

reg-sem

reg-syntax

reg-phon

irregular

all-regular

read books

ring the bell

gramm-idiom

extra-gramm-idiom

basic-word

saw logs

kingdom come

book

Lexicon with Phrasal Lexical Entries

Lexicon/Constructicon:

$$\left[\begin{array}{l} \textit{sign} \\ \text{COLL } \textit{irregular} \end{array} \right] \rightarrow (LE_1 \vee \dots \vee LE_n \vee PLE_1 \vee \dots \vee PLE_{n'})$$

- Lexical entries for non-recursive basic signs and constructions

Irregularity module

Cross-classification of the dimensions of (ir)regularity:

- *irregular*: all signs with some exceptional behavior. In particular all basic morphemes and constructions.
- *sem-reg*: all signs with compositional semantics
- *syn-reg*: all signs with regular syntactic combinatorics
- *phon-reg*: all signs with regular phonological combinatorics

Relativization of grammatical principles

Relativized Semantics Principle:

[*COLL reg-sem*] → Semantics Principle

- regular semantic combinatorics for free combinations and for idioms of encoding but not decoding.
- irregular semantic combinatorics for idioms of decoding and extra-grammatical idioms

analogously for syntactic principles.

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Overview

- Extension of the irregularity module with pragmatic and phonological (ir)regularity
- Phonotactics: phonotactic constraints and exempt cases
- Routine formulae: pragmatic and phonological idiomatity
- ‘sollen sein’

Overview over the cases

expression	irreg	prag-reg	sem-reg	syn-reg	phon-reg
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Pollard and Sag (1994):

read books	-	+	+	+	+
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Richter and Sailer (2009):

saw logs ('snore')	+	+	-	+	+
trip the light fantastic ('dance')	+	+	-	-	+

Gute Reise	+	-	+	+	+
Guten Tag	+	-	-	+	+
'n Tag	+	-	-	+	-
Grüß Gott	+	-	-	-	+
's Gott/Thriller	+	-	-	-	-
sollen sein	+	+	+	+	-
??	+	+	-	-	-
??	+	+	-	+	-
??	+	-	+	+	-

Extension of the irregularity module

- semantically regular expressions are always syntactically regular
- idioms with pragmatic idiomaticity (greetings, ...)
- idioms with phonological idiomaticity
- simple lexemes: are necessarily syntactically, semantically and pragmatically irregular, but may be phonologically regular.
- missing examples for: *prag-syn* and *sem-syn*

coll

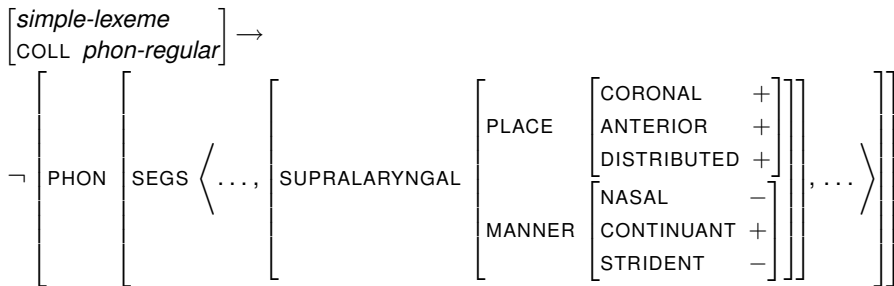
regular

reg-prag *reg-sem* *reg-syn* *reg-phon* *irregular*

all-regular *prag-syn-phon* *prag-phon* *sems-phon* *syn-phon* *only-syn* *only-phon* *prag-sems* *only-prag* *prag-syn* *sems* *all-irr*

Phonotactic constraints I

- (12) native German roots don't have a θ (coronal non-strident fricative):



- (13) native German roots may not begin with a [sV] sequence:



Phonotactic constraints II

- (14) in native German roots, the onset of a syllable may not contain two sounds with the same manner specification:

$\left[\begin{array}{l} \textit{simple-lexeme} \\ \text{COLL phon-regular} \end{array} \right] \rightarrow$

$\neg \exists \boxed{1} \exists \boxed{2}$

$\left(\left[\text{PHON} \left[\text{SYLLABLES} \left\langle \dots, \left[\text{ONSET} \left\langle \dots, \left[\text{MANNER} \boxed{1} \right], \dots \left[\text{MANNER} \boxed{2} \right], \dots \right\rangle, \dots \right\rangle \right] \right] \right) \right)$
 $\wedge \boxed{1}$ and $\boxed{2}$ are of the same type

Phonotactic exceptions: *Thriller*

(15) Lexical entry:

$$\left[\begin{array}{l} \textit{lexeme} \\ \text{PHON} \quad \left[\text{SEGS} \langle \theta, r, i, l, \partial \rangle \right] \\ \text{SYNSEM} \quad \dots \\ \text{COLL} \quad \textit{all-irregular} \end{array} \right]$$

(16) Thrillerautor ('thriller author'):

N

$$\left[\begin{array}{l} \textit{derived-lexeme} \\ \text{COLL} \quad \textit{all-reg} \end{array} \right]$$

N

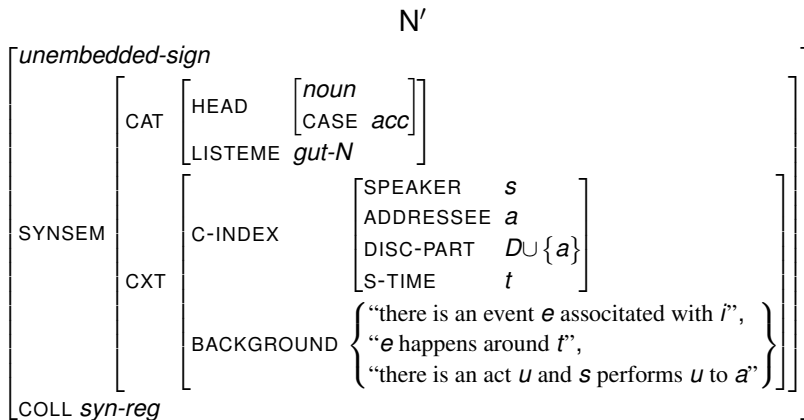
$$\left[\begin{array}{l} \textit{lexeme} \\ \text{COLL} \quad \textit{all-irregular} \end{array} \right]$$

thriller

N

$$\left[\begin{array}{l} \textit{lexeme} \\ \text{autor} \end{array} \right]$$

Modelling Greeting “Gut- N”



AP

[SYNSEM CAT LISTEME *gut*]

N

[SYNSEM CONT INDEX *i*]

Long and Reduced Form I

- Subtypes of *listeme*:

listeme

...

gut-N

reduced-greet

...

long-gut-N

red-gut-N

red-gut-Tag *red-gut-Morgen* *red-gut-Abend* ...

- Constraint on *long-gut-N*:

[SYNSEM [CAT LISTEME *long-gut-N*]
COLL *syn-phon-reg*]

Long and Reduced Form II

- Constraint on *reduced-greet*:

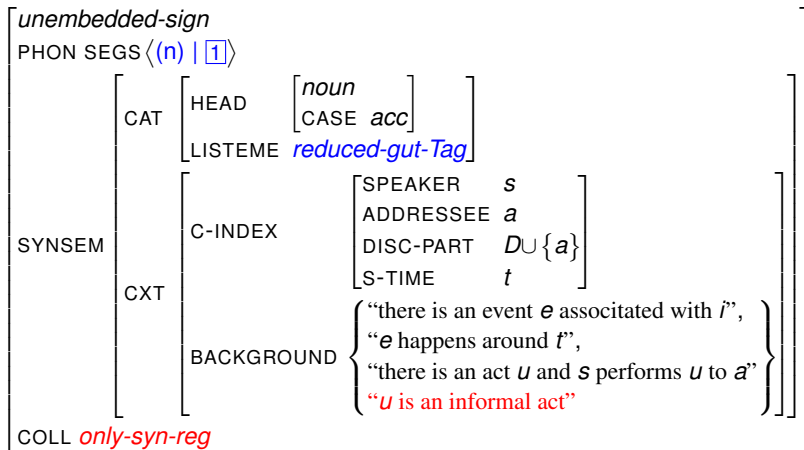
$$\left[\begin{array}{l} \text{SYNSEM} \left[\begin{array}{l} \text{CAT LISTEME } \textit{reduced-greet} \\ \text{CXT BG } \{ \dots, \textit{“}u \textit{ is an informal act”} \} \end{array} \right] \\ \text{COLL } \textit{only-syn-reg} \end{array} \right]$$

- Constraint on *reduced-gut-N*:

$$\left[\begin{array}{l} \text{PHON SEGS} \langle \langle \boxed{1} \rangle \mid \langle \boxed{2} \rangle \rangle \\ \text{SYNSEM} \left[\text{CAT LISTEME } \textit{reduced-gut-N} \right] \\ \text{DTRS} \langle \left[\text{PHON SEGS} \langle \dots, \boxed{1} \rangle \right], \left[\text{PHON SEGS} \langle \boxed{2} \rangle \right] \rangle \end{array} \right]$$

Constraint inheritance for ('n) Tag

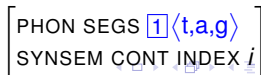
N'



AP



N



The construction ‘sollen sein’

[PHON SEGS $\boxed{2} \oplus \boxed{1}$]
[COLL *prag-sem-syn*]

[PHON SEGS $\boxed{1}$]
[... LISTEME *sein*]
sein

[PHON SEGS $\boxed{2}$]
[... LISTEME *sollen*]
sollen

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Summary

- Phonotactic constraints are constraints on form-meaning units. Therefore they have a place in a construction grammar.
- Instances of phonological idiomatity
→ extension of the typology of idiomatity
- Extension of constructional HPSG à la Richter and Sailer (2009) to pragmatic and phonological idiomatity
- Are there examples of idioms with:
 - (a) regular prag.; irregular sem., syntax, and phon.
 - (b) regular prag. and syntax; idiomatic sem. and phon.
 - (c) regular sem. and syntax; idiomatic prag. and phon.?
- Separation of word order and constituency in construction grammar in general?

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