Featural Linking Elements

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CLLE UMR 5263 COGNITION, LANGUES, LANGAGE, ERGONOMIE

Main word compounding devices in languages:

A. Full phonological sequences	(Fr) pomme de terre
B. Stem suppletion	(Fr) franco-anglais
C. 0 mark	(Fr) papier toilette
D. Supra-segmental	(Eng) bláck-mailer
E. Sub-segmental	(Jp) ori-gami

A. Fully segmental: one phoneme or more

language	*example*	*translation*	*device*	*reference*
French	**pomme-de- terre**	potato	*de*	
Japanese	**otoko-no-ko**	boy	*no*	
Movima	**maropa-n-di**	papaya seed	*-n-*	Haude (2006)
Dutch	**pann-en-koek**	pancake	*-en-*	
Russian	**hleb-o-zavod**	bread factory	*-o-*	Ralli (2008)

B. Stem suppletion: allomorphy or subtractive process

language	*example*	*translation*		*reference*
French	**franco-anglais**	Franco-English	< *français*	
German	**Schlitt-schuh**	skid shoe	< *schlittern*	p. c. by reviewer
Basque	**itsas-gizon**	sailor (sea-man)	< *itsaso*	
Japanese	**ama-kaze**	rainy wind (rain-wind)	< *ame*	Labrune & Irwin (2021)

C. No overt marking: but element order relevant

language	*example*	*translation*	*structure*
French	**papier-toilette**	toilet paper	*head-modifier*
Japanese	**niwa-tori**	rooster	*modifier-head*
Mandarin	**chōŋ-diànqì**	electric charger	*modifier-head*
Basque	**txori-buru**	bird head	*modifier-head*

D. Supra-segmental : a) tonal

language	*example*	*translation*	*Tonal / accent pattern*	*reference*
Etsako (Ekpheli dialect)	**uno-efa** **H H –L L**	father's mouth	*Associative H tone*	Akinlabi (1996, 2011)
Tibetan	**see-yöö** **H - H**	intellectual	*Elimination of tonal contour in 1st syllable and change from L to H in 2nd syllable*	Meredith (1990), cited by Kenstowicz (1994)

D. Supra-segmental : b) new stress / accent pattern

language	*example*	*translation*	*comment*
English	**blá**ck-mail	fraudulous mail	/blák/ + /mɛ́jl/ Compare with: black máil
Japanese	**kawa-á**sobi	river game	/kawá/ + /asobi°/

E. Sub-segmental: one phonological feature (or two)

language	*example*	*translation*	*feature*	*reference*
Slave	**tsá-dhéh** < theh	beaver skin	[+voice]	Rice (1989)
Japanese	**kawa-gishi** < kishi	river side	[+voice]	Labrune (1999)
Korean	**p'allɛ-p'inu** < pinu	laundry soap	[+tense]	Labrune (1999)
Nivkh	**cʰo-xerqo** < kʰerqo	catch fish	[+cont]	Shiraishi (2006)
Basque	**su-pazter** < bazter	fire corner	[-voice] [-cont]	Labrune (2014)

#Featural Linking Elements

notes:

1) in the above tables, the hyphen denotes the boundary between the constituents of the compound, regardless of the orthographic conventions of the language under consideration.

2) different types of linking elements may co-exist in one language (Japanese uses all 5 devices…)

3) two (or more) of these devices may be combined in one compound, as in *franco-anglais* (linking vowel *-o* + shortened allomorph *franc-*), or *kawa-gishi* (sub-segmental feature + new accent pattern).

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Korean		soap	[+tense]	Labrune (1999)
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Featural Linking Elements / FLEs

#Featural Linking Elements

Linking elements:

a) Kürschner & Szczepeniak (2013): “meaningless phonological or graphematic material that appear at the boundary between the immediate constituents of word-formation products

b) Bussman (1996): “morphological elements, usually single vowels or consonants, that occur between the two immediate constituents and thereby create compounds and derivations.”

c) Štekauer et al. (2012:79): “mainly single-phoneme elements, either vowels or consonants.”

etc. etc.

#Featural Linking Elements

Featural affixes:

a) Akinlabi (2011, 1996): « phonological features that function as grammatical morphemes. » « Always realized as part of some other segment or segments of the stem ».

b) Trommer (2014): « subsegmental and suprasegmental affixes which surface (partially or completely) as (a) phonological feature(s) of (a) segment(s) of the base word. In procedural terms, this refers to any every morphological construction which involves the partial phonological modification of base segments. Featural affixation is attested for virtually all phonological dimensions (prosodic length, suprasegmental tone, and primary/secondary features of vowels and consonants. »

(Labrune 2016)

A **Featural Linking Element** is a sub-segmental morphological element which occurs at the boundary between two constituents of a compound, which lacks referential value, and whose function is to signal composition.

It is inherently defective, and prototypically involves a consonant alternation that can be characterized phonologically as one or two floating feature(s).

In some less prototypical cases it involves a modification in segmental quantity (for instance gemination), or the realization of a full segment resulting from default filling of an empty position.

#Featural Linking Elements

Aims of research:

- to describe and document FLEs across languages
- to assert their relevance as morphological objects alongside the other types of linking elements
- to provide a general characterization of the properties of FLEs, comparing them with the other types of compounding devices.
- to cast a fresh eye on some morphological and phonological issues

Case studies

#Featural Linking Elements

languages

- Japanese
- Basque
- Slavey
- Senufo
- Nêlêmwa
- Korean
- Nivkh
- Malagasy

+ Borderline cases: Zoque, Kanamari, Malayalam

Japanese rendaku

#Featural Linking Elements

Japanese

Japanese rendaku ('sequential voicing'):

ike + **h**ana → ike-**b**ana

'alive' + 'flower' → 'flower arrangement'

maki + **s**usi → maki-**z**usi

'roll' + 'sushi' → 'rolled sushi'

yama + **t**era → yama-**d**era

'mountain' + 'temple' → 'mountain temple'

ori + **k**ami → ori-**g**ami

'fold' + 'paper' → 'folding paper'

#Featural Linking Elements

Japanese

- Exponence : voicing of voiceless obstruent

- Phonological representation:

  [+ voice]

☞ +voiced autosegment (Ito & Mester 1986, 2003)

- Also [+nasal] when the 2nd element begins with /g/

#Featural Linking Elements *Japanese*

Japanese *rendaku* : main properties

- [-voiced] → [+voiced]
- Unpredictable
- Favouring factors

  - targets the native stratum
  - after /N/
  - lexical
  - length of the elements
  - 'right branch condition'
  - reduplications with plural value

etc.

#Featural Linking Elements

- Blocking factors:

  - Lyman's law
  - coordinate compounds
  - reduplicated mimetics
  - loanwords
  - 'rendaku immune nous’ and 'rendaku resisters'
  - Object + Verb compound etc.

- NB: When 2nd element starts with something other than a voiceless obstruent or /g/, the rendaku mark cannot be realized.

☞ Minimal morphological pairs:

yama ‘mountain’ + **kawa** ‘river’

1) **yama-kawa** (coordinate): ‘montains and rivers’

2) **yama-gawa** (determinative) : ‘mountain river’

Basque

#Featural Linking Elements

(Labrune, 1994)

« Lotura » exponence:

- Devoicing (of voiced plosives)
- Affrication (of fricatives)
- [t] insertion (when 2nd element starts with a vowel or *h*)

Devoicing:

a) ele + **b**ide → ele-**p**ide
speech + road → topic of conversation

b) ikus- + **b**egi → ikus-**p**egi
to see + eye → point of view

c) begi + **b**azter → be-**p**azter
eye + corner → eye corner

#Featural Linking Elements

Basque

<u>-t- insertion:</u>

d) begi + azal → be-**t**azal

eye + skin → eyelid

e) ezkon- + egun → ezkon-**t**egun

to marry + day → wedding day

<u>Affrication:</u>

f) ardi + zain → ar-**tz**ain

sheep + keeper → sheep herder

g) kaska + **x**uri → kaska-**tx**uri [ʃ] → [tʃ]

head + white → white haired head / person

Phonological representation:

[- voice
- continuant]

☞ t-insertion results from default filling of an empty prosodic position created during the process of FLE insertion.

Labrune (2014)

#Featural Linking Elements

Basque

Minimal morphological pair:

argi ‘light’ + **ilun** ‘dark(ness)’

1) **argi-ilun** (coordinate): ‘light and shade’

2) **ar-t-ilun** (determinative) : ‘eclipse’

#Featural Linking Elements

- Lotura insertion is unpredictable, variation is common
- if the second element begins with an already voiceless plosive, a sonorant or with an affricate, Lotura receives no surface realization
- various lexical, morphological, semantic, syntactic, prosodic factors constrain the appearance of Lotura.

Slavey

Exponence: voicing

(In type 1 compounds), « if the second noun begins with a continuant, it must be voiced »

(Rice, 1989:189, also Rice 1998, 2009)

Phonological representation: [+voice]

NB: the voiceless / voiced phonemic opposition exists only for fricatives in Slavey

#Featural Linking Elements

a) fí + **x**a → fí-**gh**a
‘head’ + ‘hair’ → ‘hair’

b) sah + **sh**ĩ → sah-**zh**in-ɛ́
‘bear’ + ‘song’ → ‘bear's song’ + possessive

c) tsá + **th**eh → tsá-**dh**éh
‘beaver’ + skin’ → ‘fur’ + possessive

Also:

h insertion: when the first noun ends in a vowel (optional in some words) (not an FLE… or is it?)

c) ta + ɬõ → ta-**h**- ɬõ
'water' + 'much' → 'deep water'

d) ledí + tene → ledí-**h**-tene / ledí-tene
'tea' + 'pot' → 'tea pot'

Senufo
(Kafiire and Kadile dialects)

Exponence: voicing of voiceless obstruents

Phonological representation: [+voiced]

(or possibly a [+nasal] autosegment, Silue & Balle 2018)

#Featural Linking Elements

Senufo

(Silue & Ballo 2018)

a) lòlō + **c**ígē → lò-**ɟ**ígē

‘karité’ + ‘arbre’ → ‘karité’

b) bɛ́rɛ́ + **p**ílē → bɛ́rɛ́-**b**lē

‘carpe’ + ‘petit’ → ‘petite carpe’

c) pjèʔè + **kp**ɔ́ʔɔ́ → pjè-**gb**ɔ́ʔɔ́

‘lapin’ + ‘gros’ → ‘gros lapin’

d) brōʔō + **f**ìgē → brō-**v**ìgē

‘chemise’ + ‘blanc’ → ‘chemise blanche’

NB: in Senufo, N+A are morphological compounds.

☞ The Senufo FLE is not consistently inserted

Compare:

a) brōʔō + fìgē → brō-**v**ìgē

‘chemise’ + ‘blanc’ → ‘chemise blanche’

Vs.

b) gòlò + fìgē → gò-**f**ìgē

‘poulet’ + ‘blanc’ → ‘poulet blanc’

Nêlêmwa

Exponence: ˜ (Vowel nasalization: V → Ṽ)

(Bril 2004)

a) /pwat/ + /jam/ → /pw**ã**-jam/

‘fruit’ + ‘candlenut tree’ → ‘candlenut tree nut’

b) /cii-t/ + /idaama-t/ → /c**ĩĩ**-idaama-t/

‘skin’ + eye’ → ‘eyelid’

Phonological representation: [+nasal]

Korean

#Featural Linking Elements *some case studies*

Cook (1987, 1991), Labrune (1999, 2016)

<u>« Sai-sios » (« linking ‘s’) exponence:</u>

- [+tense] (plain obstruants)
- gemination (nasal sonorants)
- 0 → /t/ ([d]) (before V-beginning second member)

#Featural Linking Elements *some case studies*

- **Tensing:**

a) son + tŭng → son-**t'**ŭng [son**t'**ɨŋ]
'hand' + 'back' → 'back of hand'

b) p'allĕ + pinu → p'allĕ-**p'**inu [p'allɛ**p'**inu]
'laundry' + 'soap' → 'laundry soap'

c) kho + kumang → kho-k'umang [k^{h}ok'umaŋ]
'nose' + 'hole' → 'nostril'

#Featural Linking Elements *some case studies*

- **Gemination:**

c) pata + mul → pata-**mm**ul [pada**mm**ul]
'sea' + 'water' → 'sea water'

d) pě + nolě → pě-**nn**orě [pɛ**nn**orɛ]
'boat' + 'song' → 'sailors' songs'

- **/t/ insertion:**

e) u + os → u**t-**os [u**d**ot˥]
'over' + 'cloth' → 'jacket'

#Featural Linking Elements

Minimal morphological pair:

namu ‘wood, tree’ + **pɛ** ‘boat’

a) **namu-pɛ** : ‘boat made of wood’

b) **namu-p’ɛ** : ‘boat to transport wood’

#Featural Linking Elements

- Sai-sios cannot be realized when the 2nd element begins with an already [+tense] consonant, or a [+aspirated] consonant, a liquid, a nasal velar, etc.
- huge variation
- unpredictability
- complex conditioning

#Featural Linking Elements

- ***sai-sios* = can also be analyzed as the insertion of x** (empty skeletal slot with no root node)

(Kim 1990, Labrune 1999)

Cf. Malayalam

Nivkh

(Shiraishi 2000, 2006)

Exponence:

- Plosive → spirant
  - Non-aspirated plosives (lenis):

    p > v, t > r, c [tʃ] > z, k > ɣ, q > ʁ
  - Aspirated plosives (fortis):

    p^h > f, t^h > r̥, c^h [$tʃ^h$] > s, k^h > x, q^h > χ

Phonological representation:

[+continuant], [±voice] (?)

#Featural Linking Elements

- this phenomenon in Nivkh is usually categorized as a mutation process, but the analysis developped by Shiraishi (2000, 2006) allows for its **recategorization** as a FLE.
- In particular, Shiraishi convincingly argues against the existence of a hardening process in Nivkh, which renders the categorization of Nivkh as a mutation language irrelevant.

a) /pʰeq/ + /**c**us/ → /pʰeq-**z**us/
chicken + meat → chicken meat

b) /pulk/ + /**p**ulk/ → /pulk-**v**ulk-u-/
round + round → very round

c) /cʰo/ + / **tʰ**om/ → /cʰo-**r̥**om/
fish + fat → fish fat

d) /cʰo/ + /**kʰ**erqo/ → /cʰo-**x**erqo-/
fish + catch → catch fish

#Featural Linking Elements

- Spirantization occurs in [modifier-head] compounds
- it is blocked after a fricative or a sonorant
- Plosives spirantize even when adjacent to a plosive
- Variation and apparent exceptions are reported

Malagasy

#Featural Linking Elements

Malagasy: hardening (f > p, s > ts, h > k, r > dr, v > b, etc.) **and / or nasal insertion, and /or final V or CV deletion**

(Keenan and Polinsky, 1998)

a) orona + **s**aka → oron-**ts**aka

nose » + « car » → a cat's nose

b) soroka + **z**aza → soro-**j**aza

shoulder » + « child » → a child's shoulder

c) fantatra + **f**antatra → fanta-**p**antatra

known » + known → known a little

d) trano + andriana → trano-**n**-andriana

house » + « noble » → a noble's house

e) paiso + **v**azaha → paiso-**m-b**azaha

peach + foreigner → plum

Formal properties of FLEs

#Featural Linking Elements

a) LOCATION:

FLEs are anchored at the left edge of the 2nd constituant

but: Nêlêmwa

#Featural Linking Elements

b) SIZE AND PHONOLOGICAL NATURE:

- inferior to a full phoneme in size in its underlying representation.
- inherently incomplete, consisting of one (or sometimes two interrelated) feature/s, or of a prosodic position.
- behaves like an autosegment (in the sense of Zoll 1998).

#Featural Linking Elements

c) LICENSOR:

FLEs need a phonological licensor to be realized. The phonological host or licensor can be a full segment or, in some cases, an empty structural position.

#Featural Linking Elements

d) CONDITIONS ON FLE REALIZATION:

In the absence of a proper phonological licensor, the FLE **fails to be realized**.

#Featural Linking Elements

e) PREDICTABILITY:

- FLEs may receive different surface realizations, depending on their host/licensor, but the final surface realization is always **predictable from the host.**
- In contrast, what is *not* predictable is whether the marker will be inserted or not (see property *h* below).

#Featural Linking Elements

f) OPACITY: The result of FLE insertion often resembles the result of the application of certain post-lexical rules or constraints.

Cf. Japanese: it is sometimes impossible to decide whether one is dealing with *rendaku* or post-nasal voicing.

A tentative explanation would be that some (or all?) FLEs developed out of the **morphologization** of a phonological process.

#Featural Linking Elements

g) MULTI-DIMENSIONALITY:

FLE occurrence is constrained by a variety of morphological, phonological (prosodic and segmental), lexical, etymological, semantic, syntactic and sociolinguistic factors.

#Featural Linking Elements

h) VARIABILITY:

FLEs appear as fundamentally irregular and variable. This is explicable by their conditions of realization (see property d), i.e. FLEs are morphological elements whose realization is heavily dependent on phonology and largely determined by the phonological nature of the host. It is also an indirect consequence of the opacity phenomenon in f).

Borderline cases

(= gemination, lengthening, etc. / insertion of empty prosodic slot or mora)

- Zoque
- Kanamari
- Dravidian languages

#Featural Linking Elements

Zoque

#Featural Linking Elements

(Herrera Zendejas 1995)

a) k**a**ŋ + kačus → k**a**ŋ**a**-kačus

‘tigre’ + ‘uña’ → ‘uña del tigre’

b) m**o**hk + hɨyɨ → m**o**hk**o**-hɨyɨ

‘maíz’ + ‘flor’ → ‘espiga de maíz’

c) k**u**y + ahy → k**u**y**u**-’ahy

‘árbol’ + ‘hoja’ → ‘hoja del árbol’

#Featural Linking Elements

Malayalam

#Featural Linking Elements

- Exponence = gemination
- « Stem final and stem initial gemination of obstruents in Dravidian stems occurs in compounds with a modifier-modifiee structure ('subcompounds') but not in coordinate compounds ». (Fabb, 1998:81)
- A default vowel [ə] is sometimes inserted
- Phonological representation : x or μ
  |

#Featural Linking Elements

(Mohanan 1981)

a) kuṯiṟa + **k**uṯṯi → kuṯiṟa-**kk**uṯṯi

‘horse’ + ‘child’ → ‘foal’

b) kaa**ṯ** + maṟam → kaa**ṯṯə**-maṟam

‘forest’ + ‘tree’ → ‘forest tree’

Kanamari

- Exponence: aspiration (segmental?)

(« Insertion of aspiration at compound juncture in certain contexts » Silva et al. 1989, Ishy de Magalhães 2013)

- Phonological representation:

x
|
[+aspirated]

a) [hõŋ] + [tõŋ] → [hõŋ^{h}ˈtõŋ]

terra + em cima → chão

b) [dõŋ] + [dak] → [dõŋ^{h}ˈdak]

peixe + casca → escama de peixe

c) [waɪ] + [tsekə] → [waɪ**h**tseʼkə]

caba, marimbondo + morrer → a caba morreu

#Featural Linking Elements

Do we need a new category ?

→ **Prosodic Linking Elements**

- SLE → full segment(s)
- FLE → phonological feature(s)
- PLE → empty (or incomplete) prosodic position(s)

#Featural Linking Elements

Type of linking element	**Phonological nature**	**Example**	**Language**	**Locus**
Segmental (SLE)	1 or several full segments	Tag**e**-werk maropa**n**-di hleb**o**-zavod	German Movima Russian Tagalog	(End of) **1st constituant**
Featural (FLE)	1 or 2 phonological features	ori-**g**ami su-**p**azter tsa-**dh**eh oron-**ts**aka	Japanese Basque Slavey Malagasy	(Beginning of) **2nd constituant** Exception: Nêlêmwa
Prosodic / moraic (PLE)	1 or 2 empty (or incomplete) prosodic positions	kuṯiṟa- -**k**-kuṯṯi kaaṯ-**ṯə**- -maṟam kore- -**k**-kiri pada- -**m**-mul Hõŋ-^{h}'- -tõŋ	Malayalam Malayalam Japanese Korean Kanamari	**Boundary** between the constituants (+ language dependent association mechanism to fill the empty position)

#Featural Linking Elements

***Uncommon (non-existent?) types of compounds

Type of LE	**Phonological nature**	**Example**	**Locus**
Segmental (SLE)	1 or several full segments	*? tag-**e**werk *? maropa-**n**di *? hleb-**o**zavod	(Beginning of) **2nd constituant**
Featural (FLE)	1 or 2 phonological features	*? or**u**-kami (< ori) *? itsa**z**-bazter (< itsas) *? tsa**p**-theh (< tsa) *? orot-saka (< orona)	(End of) **1st constituant** Exception: Nêlêmwa

- FLEs are morphological objects
- They possess specific properties
- Although FLEs seem to be absent from Indo-European languages, they are not rare in the languages of the world.
- Segmental Linking Elements are preferably licenced by / attached to the end of the 1st Constituant, Featural Linking Elements to the beginning of the 2nd constituant of compounds.
- FLEs should be recognized in their own right and they deserve further research attention.

#Featural Linking Elements

Thank you for your attention

#Featural Linking Elements

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