Suffix counterposition as rule aggregation

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Outline

1. What does a rule of inflectional affixation do?
   - Fill a slot in a word form's predefined skeletal structure
     or
   - Define an operation on an operand ?
2. What is suffix counterposition?
3. Examples of suffix counterposition in three languages
4. How does suffix counterposition arise historically?
5. The synchronic status of a counterposed suffix
   - in a word-skeletal theory
   - in an operand theory
6. Swahili suffix counterposition in an operand theory:
   analysis and advantages
7. Conclusion

1. What does a rule of inflectional affixation do?

An important metatheoretical issue in morphology is: What do rules of inflectional affixation do? Two different possibilities:

- Rules of inflectional affixation fill slots in a word form's predefined skeletal structure (**word-skeletal theories**). "Slots" might be positions in a predefined word-structure template or positions in a syntactically defined configuration of nodes.
- Rules of inflectional affixation are operations in a system of operator/operand relations (**operand theories**). By default, operands are stems.

2. What is suffix counterposition?

Among the phenomena relevant to deciding this issue is that of SUFFIX COUNTERPOSITION, a morphotactic pattern in which

- affix *Y* is suffixal in the default case,
- affix *X* is invariably prefixal, and
- affix *X* serves as a kind of 'carrier' for affix *Y*, in that *Y* immediately follows *X* when both appear in the same word form; here, affix *Y* is counterposed to affix *X*.

In short, suffix counterposition is the striking configuration

prefix – suffix.

(?!)

3. Examples of suffix counterposition in three languages

This pattern is exempflied in Table 1.

Table 1. Examples of suffix counterposition in three languages

	Affix is suffixed by default.	**Affix** is counterposed to a particular **prefix**.
Fula	**’o-warii-no** SBJ.AGR-come-**PRETERITE** ‘s/he had come’	**’o-ɗon-no-wara’** SBJ.AGR-**ASP-PRETERITE**-come ‘s/he was coming’
Lithuanian	**lenki-uo-si** bend-SBJ.AGR-**REFLEXIVE** ‘I bow’	**ne-si-lenki-u** **NEG-REFLEXIVE**-bend-SBJ.AGR ‘I don’t bow’
Swahili	**a-soma-ye** SBJ.AGR-read-**RELATIVE** ‘who reads’	**a-taka-ye-soma** SBJ.AGR-**FUT-RELATIVE**-read ‘who will read’

3. Examples of suffix counterposition in three languages

In preterite verb forms in Fula, the preterite affix ***-no*** is ordinarily suffixal, but is counterposed to the aspectual prefix ***ɗon-*** when this is present.

Table 1. Examples of suffix counterposition in three languages

	Affix is suffixed by default.	**Affix** is counterposed to a particular **prefix**.
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3. Examples of suffix counterposition in three languages

In reflexive verb forms in Lithuanian, the reflexive affix ***-si*** is ordinarily suffixal, but is counterposed to any sort of verb prefix that may be present, e.g. the negative prefix ***ne-***.

Table 1. Examples of suffix counterposition in three languages

	Affix is suffixed by default.	**Affix** is counterposed to a particular **prefix**.
Fula	'o-warii-no SBJ.AGR-come-PRETERITE 's/he had come'	'o-don-no-wara' SBJ.AGR-ASP-PRETERITE-come 's/he was coming'
Lithuanian	**lenki-uo-si** bend-SBJ.AGR-**REFLEXIVE** 'I bow'	**ne-si-lenki-u** **NEG-REFLEXIVE**-bend-SBJ.AGR 'I don't bow'
Swahili	a-soma-ye SBJ.AGR-READ-RELATIVE 'who reads'	a-taka-ye-soma SBJ.AGR-FUT-RELATIVE-read 'who will read'

3. Examples of suffix counterposition in three languages

In relative verb forms in Swahili, the relative affix for a particular noun class, e.g. the affix ***-ye*** for noun class 1, is suffixal in verb forms that are tenseless and positive, but is counterposed to any prefix of tense/negation that may be present, e.g. the tense prefix ***taka-***.

Table 1. Examples of suffix counterposition in three languages

	Affix is suffixed by default.	**Affix** is counterposed to a particular **prefix**.
Fula	'o-wanii-no SBJ.AGR-come-PRETERITE 's/he had come'	'o-don-no-wara' SBJ.AGR-ASP-PRETERITE-come 's/he was coming'
Lithuanian	lenki-uo-si bend-SBJ.AGR-REFLEXIVE 'I bow'	ne-si-lenki-u NEG-REFLEXIVE-bend-SBJ.AGR 'I don't bow'
Swahili	**a-soma-ye** SBJ.AGR-read-**RELATIVE** 'who reads'	**a-taka-ye-soma** SBJ.AGR-**FUT-RELATIVE**-read 'who will read'

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How does suffix counterposition arise historically?

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4. How does suffix counterposition arise historically?

Counterposition patterns are likely the result of diachronic developments such as (1).

(1) Suffix counterposition may arise through the diachronic reanalysis of an **auxiliary element** as a **carrier prefix** :

Stage I:
Affix ***Y*** has two morphosyntactic patterns: [V-***Y***] and [**Aux-*Y***] [V]

Stage II:
Affix ***Y*** has two morphosyntactic patterns: [V-***Y***] and [**prefix-*Y***-V]

Y is uniformly suffixal in **Stage I**; in **Stage II**, ***Y*** is suffixed to V but is counterposed to the **carrier prefix** when this is present.

5. The synchronic status of a counterposed suffix

What is the synchronic status of the counterposed affix ***Y***?

5. The status of a counterposed suffix – in a word-skeletal theory

In a **word-skeletal theory**, a counterposed suffix is an affix with both a default allomorph Y_{suff} occupying a suffixal slot and a special allomorph Y_{pref} occupying a prefixal slot in forms expressing a particular conditioning content.

5. The status of a counterposed suffix – in a word-skeletal theory

In a **word-skeletal theory**, a counterposed suffix is an affix with both a default allomorph ***Y*$_{suff}$** occupying a suffixal slot and a special allomorph ***Y*$_{pref}$** occupying a prefixal slot in forms expressing a particular conditioning content.

Example: Swahili rules of verb inflection fill slots in a template.

Template for Swahili relative verb forms

	Slot 1	Slot 2	Slot 3	Stem	Slot 4
	subject agreement	tense/ negation	Y_{pref}		Y_{suff}
a-soma-ye 'who reads':	**a-**			**soma**	**-ye**
a-taka-ye-soma 'who will read':	**a-**	**taka-**	**ye-**	**soma**	

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Three problems with the **word-skeletal account**:

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	subject agreement	tense/ negation	Y_{pref}		Y_{suff}
a-soma-ye ‘who reads’:	**a-**			**soma**	**-ye**
a-taka-ye-soma ‘who will read’:	**a-**	**taka-**	**ye-**	**soma**	

5. The status of a counterposed suffix – in a word-skeletal theory

Three problems with the **word-skeletal account**:

- First, this account treats it as a coincidence that the slot into which the prefixal allomorph ***Y***$_{pref}$ is inserted is adjacent to the slot into which the prefix expressing the conditioning content is inserted.

Template for Swahili relative verb forms

	Slot 1	Slot 2	Slot 3		Slot 4
	subject agreement	tense/ negation	Y_{pref}	Stem	Y_{suff}
a-soma-ye ‘who reads’:	a-			soma	**-ye**
a-taka-ye-soma ‘who will read’:	a-	**taka-**	**ye-**	soma	

5. The status of a counterposed suffix – in a word-skeletal theory

Three problems with the **word-skeletal account**:

- Second, this account treats it as a coincidence that the slot housing the prefixal allomorph ***Y***$_{pref}$ has the same directionality with respect to the slot where the conditioning content is inserted as the suffixal allomorph ***Y***$_{suff}$ has with respect to the form's stem.

Template for Swahili relative verb forms

	Slot 1	Slot 2	Slot 3	Stem	Slot 4
	subject agreement	tense/ negation	Y_{pref}	Stem	Y_{suff}
a-soma-ye 'who reads':	a-			**soma**	**-ye**
a-taka-ye-soma 'who will read':	a-	**taka-**	**ye-**	**soma**	

5. The status of a counterposed suffix – in a word-skeletal theory

Three problems with the **word-skeletal account**:

- Third, this account portrays the cross-linguistic recurrence of the same two coincidences as an accidental similarity among the different templates of three different languages.

Table 1. Examples of suffix counterposition in three languages

	Affix is suffixed by default.	**Affix** is counterposed to a particular **prefix**.
Fula	**'o-warii-no** SBJ.AGR-come-**PRETERITE** 's/he had come'	**'o-don-no-wara'** SBJ.AGR-**ASP**-**PRETERITE**-come 's/he was coming'
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5. The status of a counterposed suffix – in an operand theory

An **operand theory** avoids these problems. In an operand theory, the rule introducing ***-Y*** is invariably suffixational, and has, as its **operand**, either a stem (as in the default cases in the first column of Table 1) or the carrier prefix ***X-*** (as in the second column).

Table 1. Examples of suffix counterposition in three languages

	Suffix is suffixed to a **stem** by default.	**Suffix** is counterposed to a particular **carrier prefix**.
Fula	**'o-warii-no** SBJ.AGR-**come-PRETERITE** 's/he had come'	**'o-don-no-wara'** SBJ.AGR-**ASP-PRETERITE**-come 's/he was coming'
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5. The status of a counterposed suffix – in an operand theory

At the center of an operand analysis of suffix counterposition is a pattern of **rule aggregation** with the following properties.

a. Rule ⟦**X-**⟧: realizes property set A by prefixing *X-*.
Default operand: stem.

b. Rule ⟦**-Y**⟧: realizes property set B by suffixing *-Y*.
Default operand: stem.

c. The **aggregation** of rule ⟦**-Y**⟧ with rule ⟦**X-**⟧ is the rule in (2).

(2) (⟦**-Y**⟧ Ⓐ ⟦**X-**⟧): realizes property set A+B by prefixing *XY-* (= the result of suffixing *-Y* to *X-*). Default operand: stem.

Note that in the formulation of rule (2), rule ⟦**-Y**⟧ has the carrier prefix *X-* as its operand. As a whole, however, rule (2) has a stem as its operand in the default case.

6. Swahili suffix counterposition in an operand theory – analysis

This approach furnishes a streamlined account of suffix counterpositions such as those in Table 1; thus, the Swahili case may be represented in the manner sketched in (3).

Swahili	**a-soma-ye**	**a-taka-ye-soma**
	SBJ.AGR-**read**-**RELATIVE**	SBJ.AGR-**FUT**-**RELATIVE**-read
	'who reads'	'who will read'

(3) a. Rule ⟦**-ye**⟧ realizes {class 1 relative concord} through the suffixation of *-ye*. **Rule's default operand:** stem.

b. Rule ⟦**taka-**⟧ realizes {future tense} through the prefixation of *taka-*. **Rule's default operand:** stem.

c. The aggregated rule (⟦**-ye**⟧ Ⓐ ⟦**taka-**⟧) realizes the property set {future tense, class 1 relative concord} through the prefixation of *takaye-* (= the result of suffixing *-ye* to *taka-*). **Rule's default operand:** stem.

But: In the formulation of rule (3c), ⟦**-ye**⟧ has the carrier prefix *taka-* as its operand.

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(3)a. Rule ⟦**-ye**⟧ realizes {class 1 relative concord} through the suffixation of *-ye*. **Rule's default operand:** stem.

b. Rule ⟦**taka-**⟧ realizes {future tense} through the prefixation of *taka-*. **Rule's default operand:** stem.

c. The aggregated rule (⟦**-ye**⟧ Ⓐ ⟦**taka-**⟧) realizes the property set {future tense, class 1 relative concord} through the prefixation of *takaye-* (= the result of suffixing *-ye* to *taka-*). **Rule's default operand:** stem.

But: In the formulation of rule (3c), ⟦**-ye**⟧ has the carrier prefix *taka-* as its operand.

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(3) a. Rule ⟦**-ye**⟧ realizes {class 1 relative concord} through the suffixation of *-ye*. **Rule's default operand:** stem.

b. Rule ⟦**taka-**⟧ realizes {future tense} through the prefixation of *taka-*. **Rule's default operand:** stem.

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But: In the formulation of rule (3c), ⟦**-ye**⟧ has the carrier prefix *taka-* as its operand.

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	'who reads'	'who will read'

(3) a. Rule ⟦-**ye**⟧ realizes {class 1 relative concord} through the suffixation of *-ye*. **Rule's default operand:** stem.

b. Rule ⟦**taka-**⟧ realizes {future tense} through the prefixation of *taka-*. **Rule's default operand:** stem.

c. The aggregated rule (⟦**-ye**⟧ Ⓐ ⟦**taka-**⟧) realizes the property set {future tense, class 1 relative concord} through the prefixation of *takaye-* (= the result of suffixing *-ye* to *taka-*). **Rule's default operand:** stem.

But: In the formulation of rule (3c), ⟦**-ye**⟧ has the carrier prefix *taka-* as its operand.

6. Swahili suffix counterposition in an operand theory – advantages

This approach avoids the difficulties encountered by the word-skeletal approach.

Swahili

a-taka-ye-soma

SBJ.AGR-**FUT**-**RELATIVE**-read

'who will read'

First, in **a-taka-ye-soma**, **-ye** is adjacent to **taka-** because ⟦**taka-**⟧ is the carrier rule of ⟦**-ye**⟧ (i.e. because *taka-* is the operand of ⟦**-ye**⟧).

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	'who reads'	'who will read'

Second, the fact that **-ye**

- follows **soma** in **a-soma-ye** and
- follows **taka-** in **a-taka-ye-soma**

is a simple consequence of the fact that in both cases, ⟦**-ye**⟧ is a rule of suffixation with respect to its operand.

6. Swahili suffix counterposition in an operand theory – analysis

This approach avoids the difficulties encountered by the word-skeletal approach.

Third, the similarity among the languages in Table 1 is not an accident, but follows from the fact that in all three cases, a suffixation rule is aggregated to a carrier rule of prefixation.

Table 1. Examples of suffix counterposition in three languages

	Suffix is suffixed to a **stem** by default.	**Suffix** is counterposed to a particular **carrier prefix**.
Fula	**'o-warii-no** SBJ.AGR-**come-PRETERITE** 's/he had come'	**'o-don-no-wara'** SBJ.AGR-**ASP-PRETERITE**-come 's/he was coming'
Lithuanian	**lenki-uo-si** **bend-SBJ.AGR-REFLEXIVE** 'I bow'	**ne-si-lenki-u** **NEG-REFLEXIVE**-bend-SBJ.AGR 'I don't bow'
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6. Swahili suffix counterposition in an operand theory – analysis

This account further affords a straightforward model of the dimensions of morphotactic variation in Table 2.

Table 2. Two dimensions of variation among instances of suffix counterposition

Dimensions of morphotactic variation	Fula	Lithuanian	Swahili
a. Number & identity of suffixes that may be counterposed	only the preterite suffix **-no**	only the reflexive suffix **-si**	all twelve relative concord suffixes (**-ye**, etc.)
b. Number & identity of prefixes to which a suffix may be counterposed	only the aspectual prefix **ɗon-**	negative, modal, aspectual, & Aktionsart prefixes, alone or in combination (**ne-**, etc.)	individual tense & negation prefixes (**taka-**, etc.)

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Dimensions of morphotactic variation	Fula	Lithuanian	Swahili
a. Number & identity of rules that may be aggregated to a carrier rule	only the preterite rule ⟦**-no**⟧	only the reflexive rule ⟦**-si**⟧	all twelve relative concord rules (⟦**-ye**⟧, etc.)
b. Number & identity of carrier rules	only the aspectual rule ⟦ɗon-⟧	negative, modal, aspectual, & Aktionsart rules, alone or in combination (⟦ne-⟧, etc.)	individual tense & negation rules (⟦taka-⟧, etc.)

7. Conclusion

This approach to suffix counterposition provides important support for an operand theory of morphology in which a language's morphotactics consists of the systematic combinations into which its rules of exponence enter.

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For details, see Stump (2022), where a theory of this sort is argued to involve four main modes of rule combination:

- composition (Rule1 ◦ Rule2),
- aggregation (Rule1 Ⓐ Rule2),
- holistic combination $Ⓢ_{\xi}$(Rule1 ◦ Rule2),
- counterpotentiation (Rule1 CP Rule2).

Rules of exponence may enter into these modes of combination in a systematically nested fashion.

Thank you! Kiitos!

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