

Sonority and reduplication of branching onsets

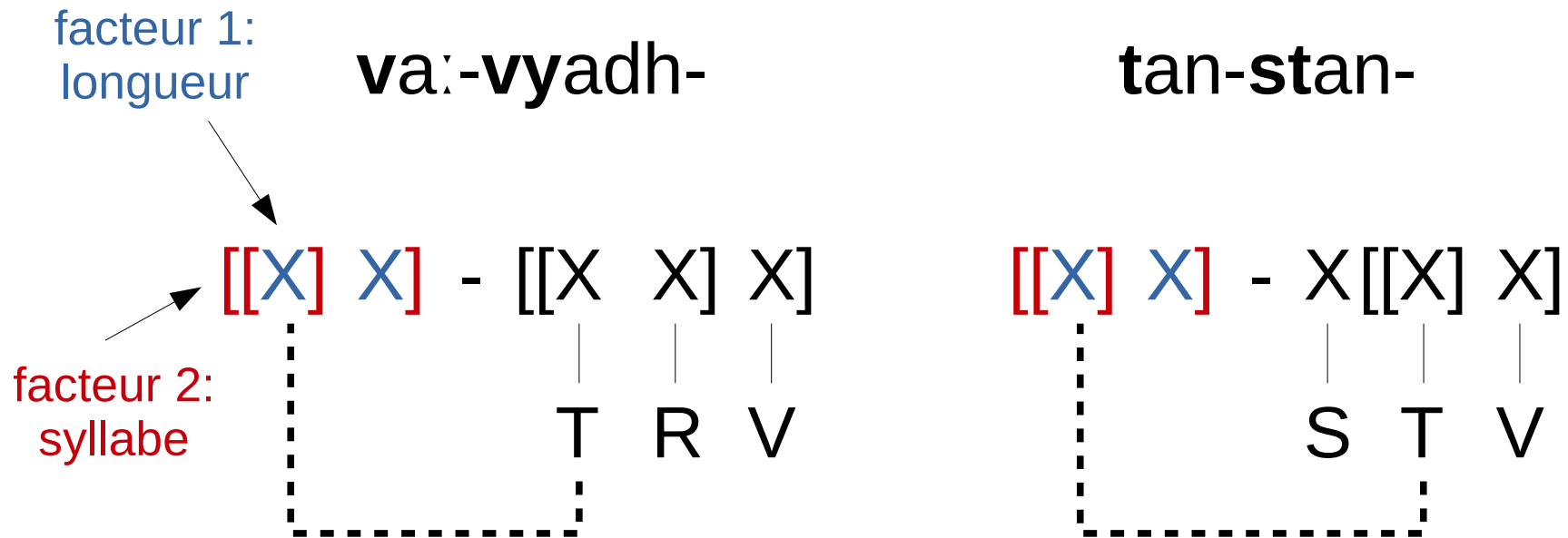
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Introduction

- **Context:** CVCV without lateral relations
- **Hypothesis:** strength is derived from sonority
- **Case study:** reduplication of branching onsets

- **Outline:**
 - 1 Theory
 - 2 Data
 - 3 Analysis
 - 4 Additional cases

Introduction



Theory

Data

Analysis

Additional cases

1.

Theory

Background

- CVCV (Lowenstamm, 1996)
 - Coda Mirror (Ségéral & Scheer, 2001)
 - strength is not derived from melody
 - ...but from positional context
 - ...via lateral relations (Government & Licensing)

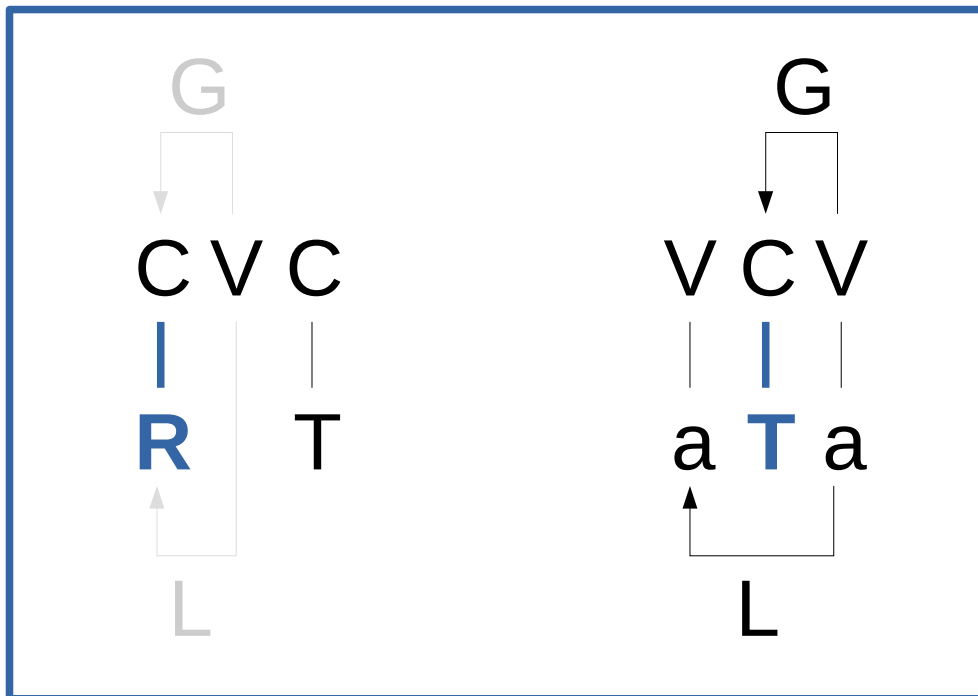
Background

- Lenition from Latin to French
 - Source : Ségéral & Scheer (2008)

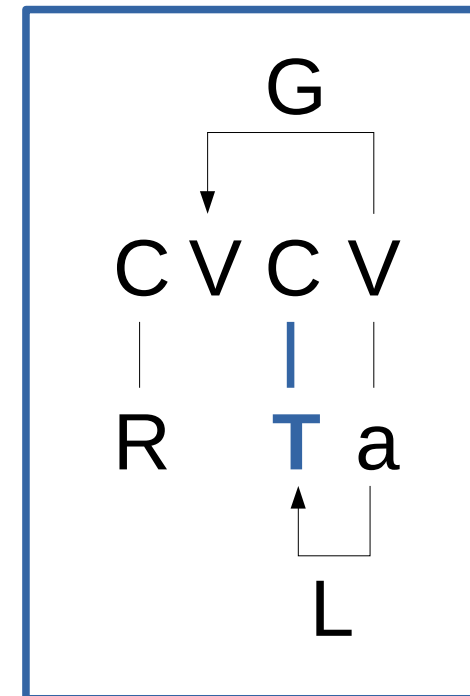
	Post-coda onset		Intervocalic		Coda	
p	tal <u>p</u> a	taupe	ri <u>p</u> a	rive	ru <u>p</u> ta	route
b	he <u>r</u> ba	herbe	fa <u>b</u> a	fève	cu <u>b</u> (i)tu	coude
t	can <u>t</u> are	chanter	vi <u>t</u> a	vie	pl <u>a</u> t(a)nu	plane
d	ar <u>d</u> ore	ardeur	co <u>d</u> a	queue	adven <u>i</u> re	avenir
k	ran <u>c</u> ore	rancœur	latu <u>c</u> a	laitue	fa <u>c</u> ta	faite
g	an <u>g</u> ustia	angoisse	*agu <u>s</u> tu	août	ri <u>g</u> (i)du	raide
f	in <u>f</u> ernu	enfer	de <u>f</u> oris	dehors	ste <u>p</u> h(a)nu	Étienne
s	ver <u>s</u> are	verser	ca <u>s</u> a	chose [z]	mu <u>s</u> ca	mouche

Background

- Coda Mirror (Séguéral & Scheer, 2001)
 - Government inhibits
 - Licensing strenghtens



WEAK



STRONG

Issue

- Branching prevents lenition
 - Lowenstamm (1991)

C V C V C V C V C V
 | | | \ | | |
 m u b a r a k

classical arabic
mubaarak



C V C V C V C V C V
 | ≠ | \ | ≠ |
 m u b a r a k

moroccan arabic
mbark

Issue

- Branching prevents lenition
 - Scheer's (2000) analysis of Verner's Law

C V C V C V
 | | | | |
 h a r θ u-

[harðu-]

C V C V C V
 | | | | |
e r θ ō-

[erθō-]

Issue

- Branching prevents lenition
 - Scheer's (2000) analysis of Verner's Law

C V C V C V
 | | | | |
 h a r θ u-

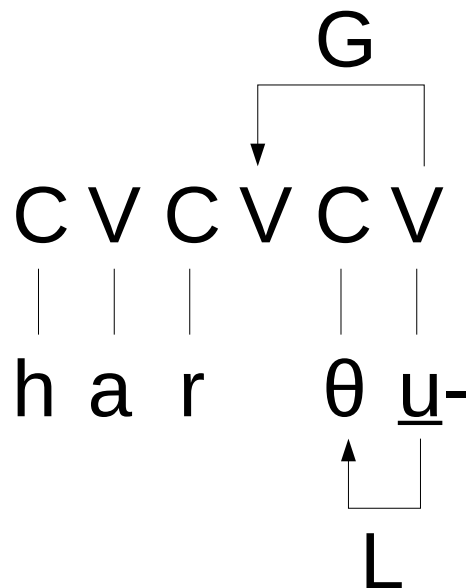
[harθu-]

stress
 ↓
 C V C V [C V] C V
 | | | | |
e r θ ō-

[erθō-]

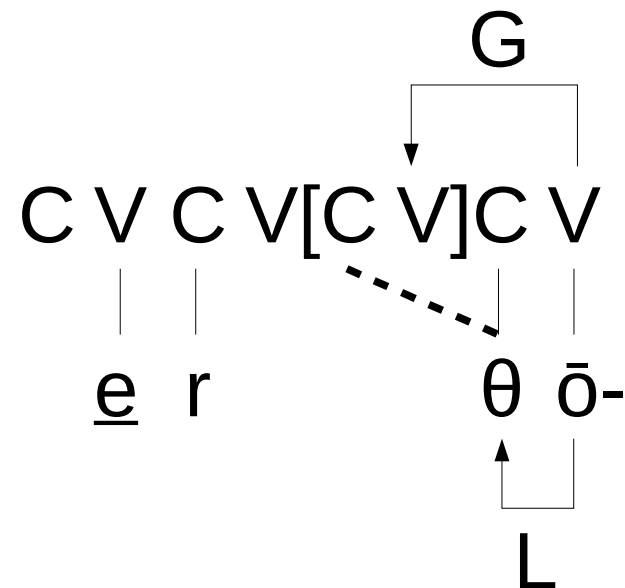
Issue

- Branching prevents lenition
 - Scheer's (2000) analysis of Verner's Law



[harðu-]

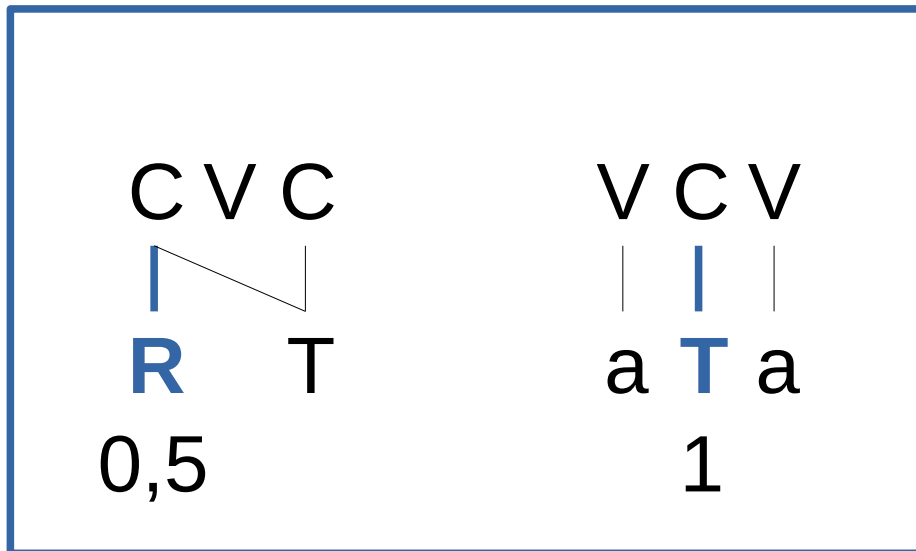
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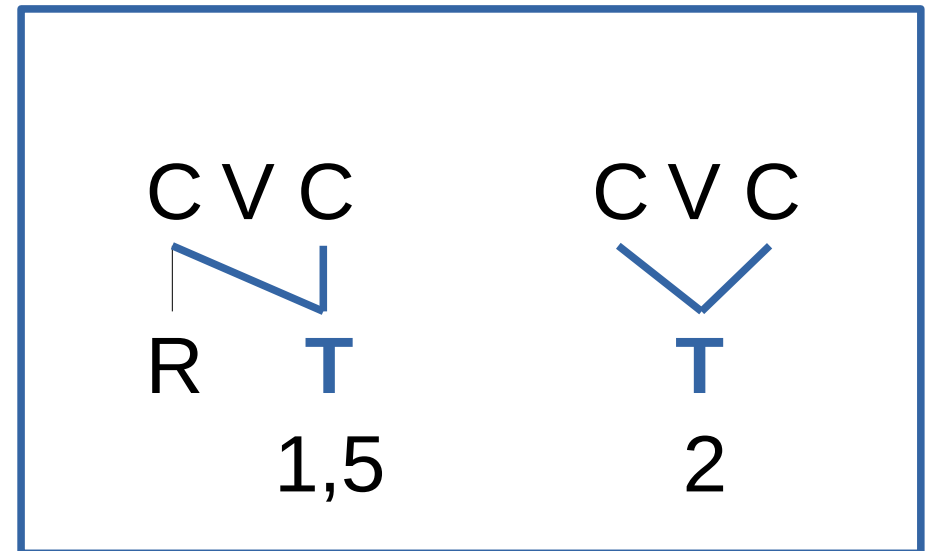
[erθō-]

Alternative

- Strength is length (Luo, 2016)



WEAK



STRONG

Alternative

- Strength is length (Luo, 2016)
 - Geminates are stronger than post-coda onsets

C V C V C V
 | | / | |
 h a r θ u-
1,5

[harðu-]

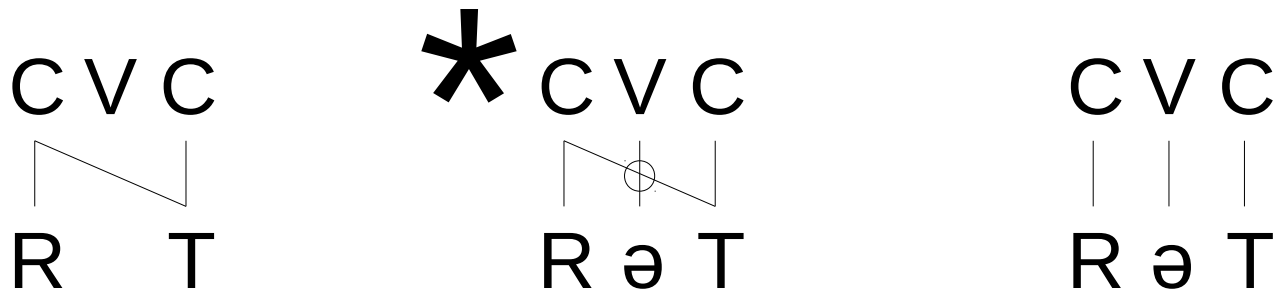
≠

C V C V [C V] C V
 | | / | |
e r θ ō-
2

[erθō-]

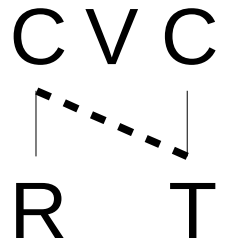
Alternative

- « Resyllabification » is due to Line Crossing

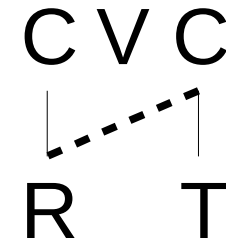


Hypothesis

- Branching direction?



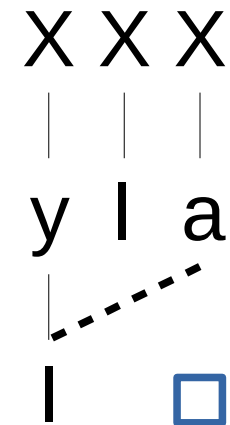
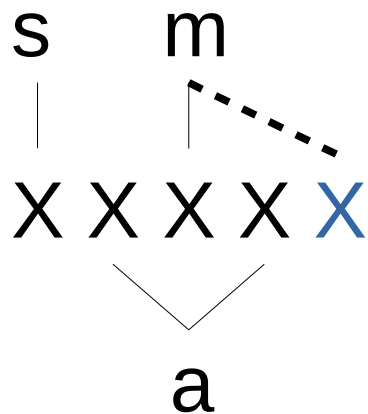
LEFTWARD



RIGHTWARD

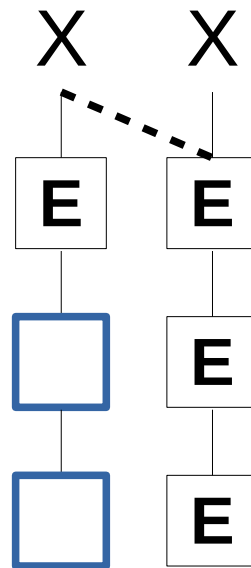
Hypothesis

- What motivates branching?
 - Emptiness
 - empty slot
 - underspecification



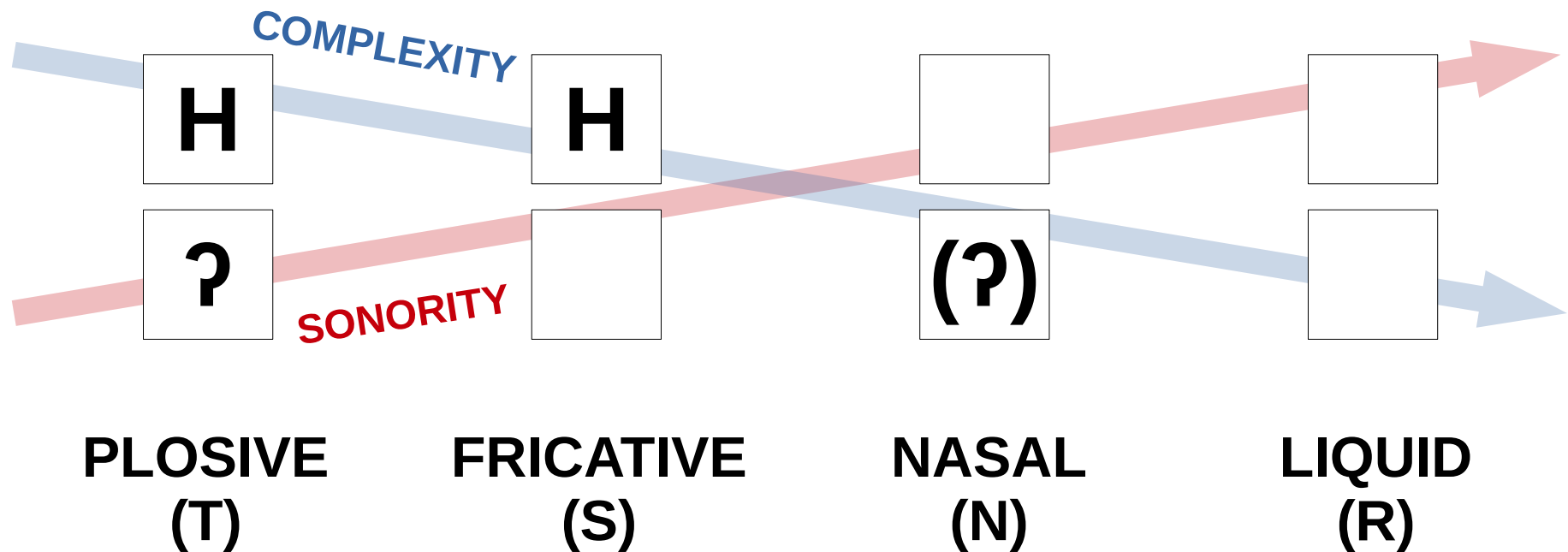
Hypothesis

- **Hypothesis:** strength (i.e. length) is conditioned by melodic complexity



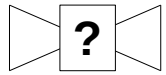
Hypothesis

- Sonority / complexity scale



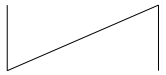
Hypothesis

CVC



T T

CVC



T S

CVC



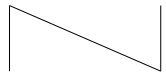
T N

CVC



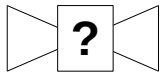
T R

CVC



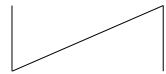
S T

CVC



S S

CVC



S N

CVC



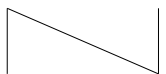
S R

CVC



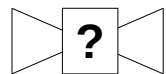
N T

CVC



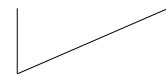
N S

CVC



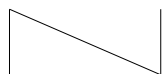
N N

CVC



N R

CVC



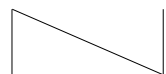
R T

CVC



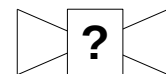
R S

CVC



R N

CVC



R R

2.

Data

Gothic

- Reduplication in Gothic
 - C₁ái-C₁V

	Infinitive	Past	Gloss
	tēkan	tái-tōk	<i>to touch</i>
	háitan	háí-háit	<i>to call</i>
	h ^w ōpan	h ^w aí-h ^w ōp	<i>to boast</i>
	saian	sái-sō	<i>to sow</i>
	máitan	mái-máit	<i>to cut</i>
	láikan	láí-láik	<i>to leap</i>
	rēdan	rái-rōþ	<i>to advise</i>
	waian	wái-wōun (pl.)	<i>to blow</i>

Gothic

- The case of empty onsets
 - ái-V

	Infinitive	Past	Gloss
	áukan	ái-áuk	<i>to add</i>
	af-áikan	af-ái-áik	<i>to deny</i>

Gothic

- The case of branching onsets
 - $C_1ái-C_1C_2V$
 - clusters with rising sonority

	Infinitive	Past-Sg	Gloss
	fráisan	faí-fráis	<i>to tempt</i>
	*flōkan	faí-flōk	<i>to bewail</i>
	grētan	gaí-grōt	<i>to weep</i>
	slēpan	saí-slēp	<i>to sleep</i>

Gothic

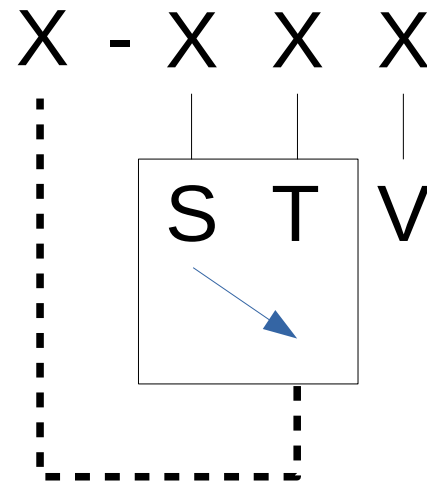
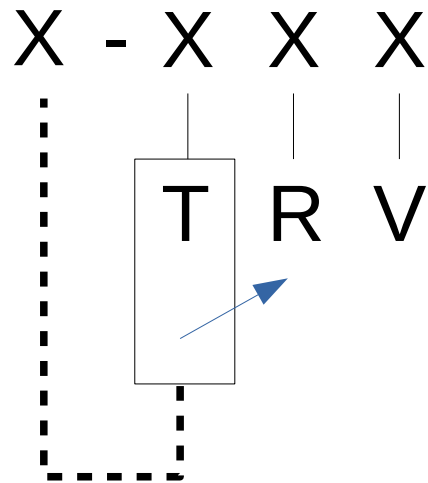
- The case of branching onsets
 - $C_1C_2ái-C_1C_2V$
 - clusters with falling sonority

	Infinitive	Past-Sg	Gloss
	skáidan	skaí-skáip	<i>to divide</i>
	ga-staldan	ga-stái-stald	<i>to possess</i>

Gothic

- Generalization

- Reduplication targets everything until the least sonorous consonant of the initial onset



Sanskrit

- Reduplication in Sanskrit
 - C_1V-C_1V

Root	Intensive	Gloss
pat	pa:-pat-	<i>fly, fall</i>
gam	gan-i-gm-	<i>go</i>
su:d	so-su:d-	<i>put in order</i>
vaiṣ	ve-veṣ-	<i>be active</i>
nau	no-nav-i:ti	<i>praise</i>
ji:v	je-ji:v-	<i>live</i>

Sanskrit

- The case of empty onsets
 - V-V

	Root	Intensive	Gloss
	aiṣ	i-iṣur	<i>seek, desire</i>
	auc	u-ucur	<i>speak</i>

Sanskrit

- The case of branching onsets
 - $C_1V-C_1C_2V$
 - clusters with rising sonority

	Root	Intensive	Gloss
	kri:d	ce-kri:d-	<i>play</i>
	krand	kan-i-krand-	<i>cry out</i>
	bhranᅇ	ban-i-bhranᅇ-	<i>fall</i>
	tvais	te-tviᅇ	<i>stir</i>
	vyadh	va:vyadh-	<i>pierce</i>
	svap	sa:svap-	<i>sleep</i>
	smr	sa:smr	<i>remember</i>

Sanskrit

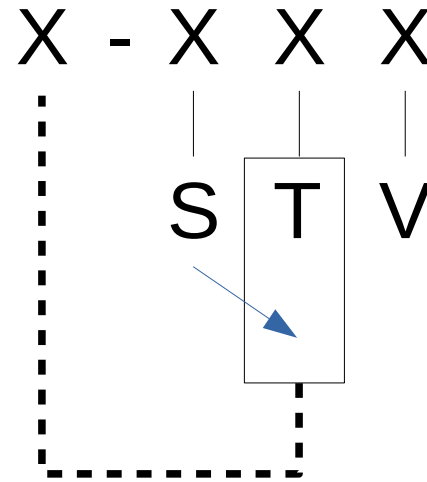
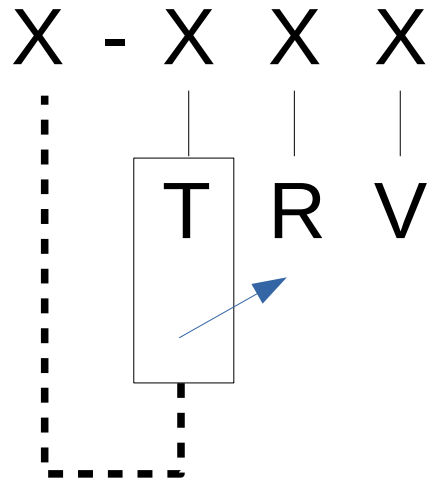
- The case of branching onsets
 - $C_2V-C_1C_2V$
 - clusters with falling sonority

	Root	Intensive	Gloss
	stan	tan-stan-	<i>thunder</i>
	ṣcaut	co-ṣcut-	<i>drip</i>
	skand	kan-i-skand	<i>leap</i>
	sparṣ	par-i-sprṣ-	<i>touch</i>
	sthi:v	te-sthi:v	<i>vomit</i>

Sanskrit

- Generalization

- Reduplication targets consonants with the lowest sonority in the initial onset



Generalization

- Generalization
 - Both Sanskrit and Gothic target the lowest sonority
 - Gothic reduplicates everything until this point
 - Sanskrit reduplicates only this point

Issue

- Sonority implies relativity
 - **Question:** how to account for relativity?
 - **Answer:** by means of relations

Previous analysis

- Extrasyllabicity (Steriade, 1988)
 - Branching onsets always have a rising sonority
 - Other constituents are extrasyllabic

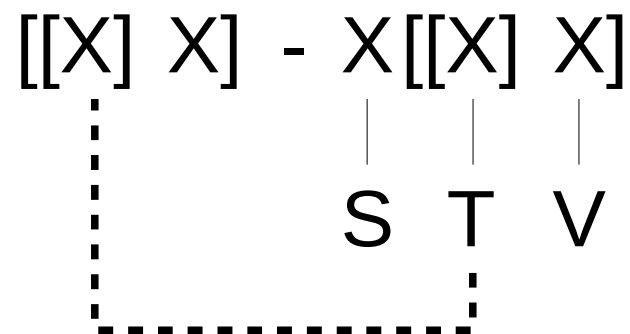
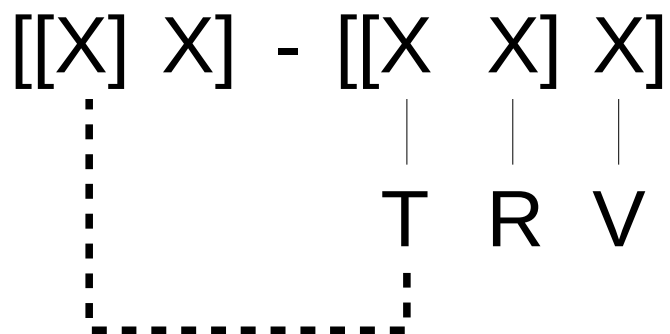
[[X X] X]
 | | |
 T R V

[[X X] X]
 | | |
 S R V

X [[X] X]
 | | |
 S T V

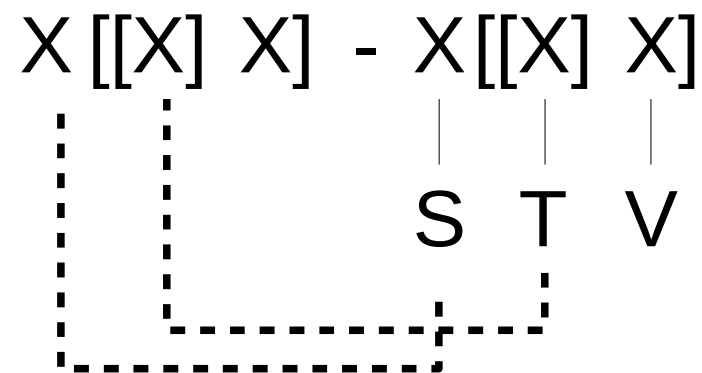
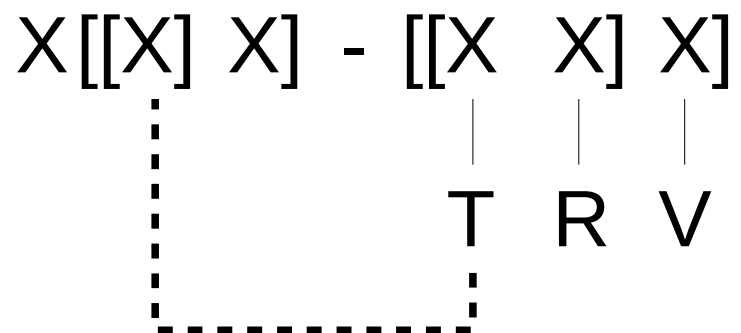
Previous analysis

- Sanskrit case
 - The prefix is a CV syllable
 - i.e. it cannot contain extrasyllabicity



Previous analysis

- Gothic case
 - The prefix is a minimal word
 - i.e. it can contain extrasyllabicity



Aim

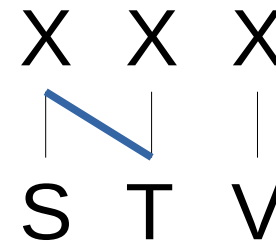
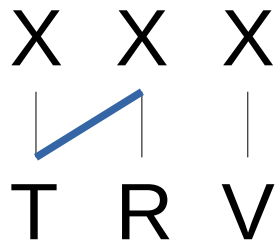
- **Aim:** analysis without extrasyllabicity

3.

Analysis

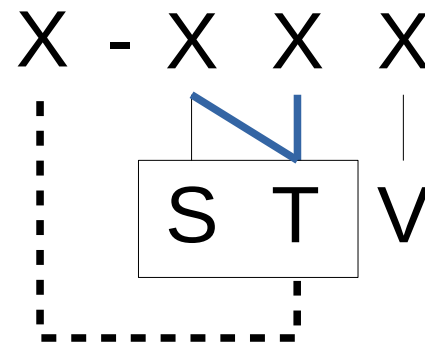
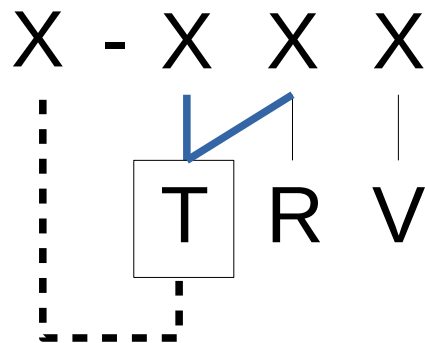
Theory

- **Recall:** « complex » branches to « simple »



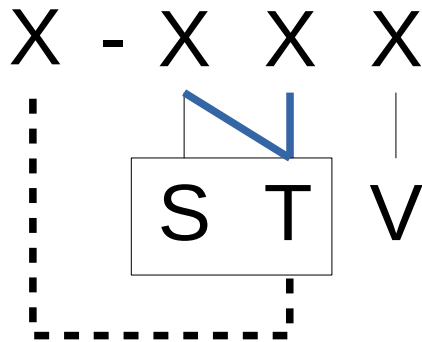
New generalization

- Generalization
 - Reduplication targets a branching segment
 - No relativity

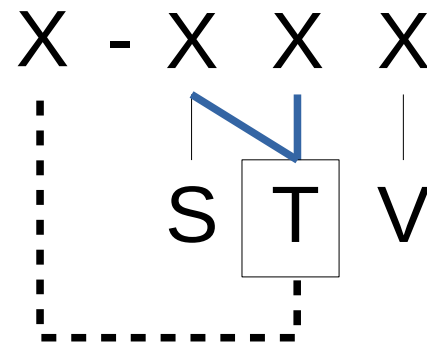


New generalization

- Variation
 - Gothic reduplicates until the branching consonant
 - Sanskrit reduplicates only the branching consonant



GOTHIC



SANSKRIT

New generalization

- Unification of sonority and length factors

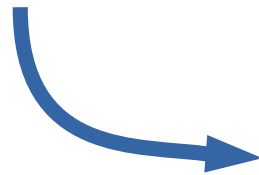
[C V]C V - C V C V C V
 | | | | |
g aí **g** r ō t

[C V]C V - C V C V C V
 | | | | |
s k aí **s** k aí θ

Gothic

- Example: TR onsets

[C V]C V - C V C V C V
 |
 a í **g** r o̅ t

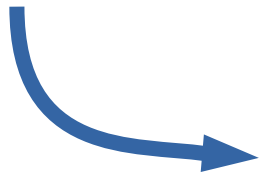


[C V]C V - C V C V C V
 | | | | |
g a í **g** r o̅ t

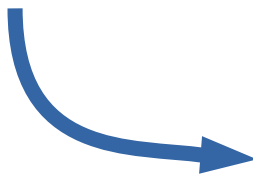
Gothic

- Example: ST onsets (in Gothic)

[C V]C V - C V C V C V
 | | | | | |
 a í s k a í þ



[C V]C V - C V C V C V
 | | | | | |
 s a í s k a í þ



[C V]C V - C V C V C V
 | | | | | |
 s k a í s k a í þ

Sanskrit

- Example: ST onsets (in Sanskrit)

[C V]C V - C V C V C V
 | | | | |
 0 ष c u t

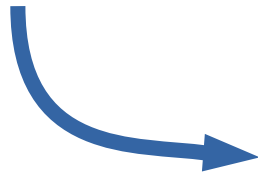
~~[C V]C V - C V C V C V
 | | | | |
 ष 0 ष c u t~~

[C V]C V - C V C V C V
 | | | | |
 c 0 ष c u t

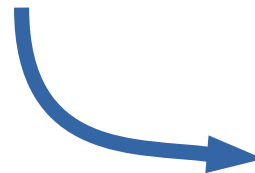
Gothic

- Example: Simple onsets

[C V]C V - C V C V
 | | | |
 a í t o k



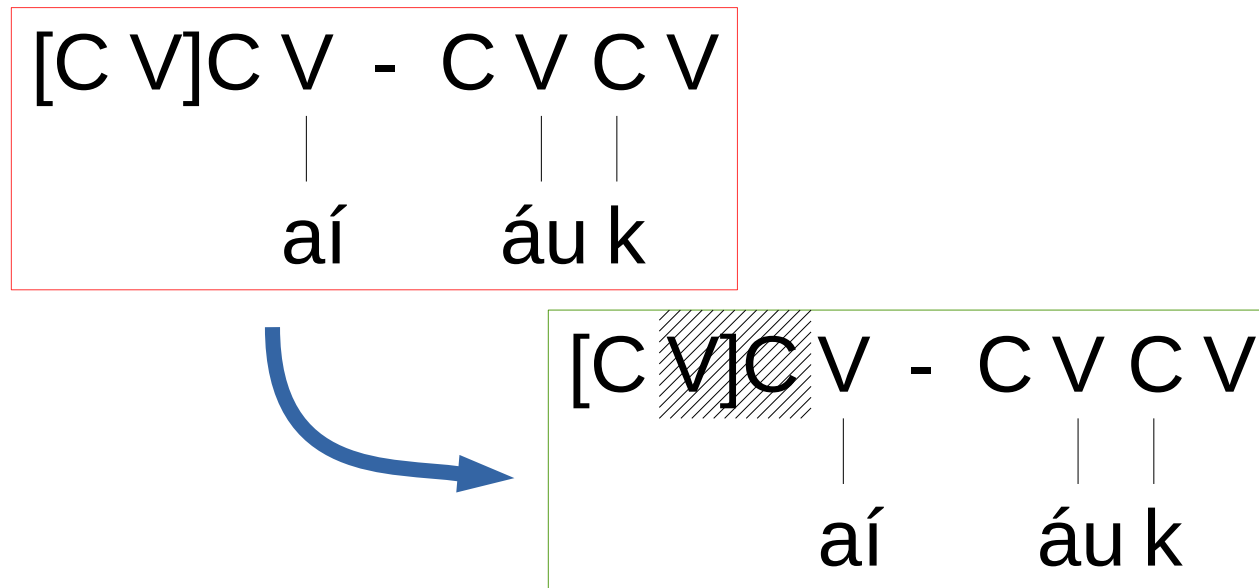
[C V]C V - C V C V
 | | | |
t a í t o k



[C V]C V - C V C V
 | | | |
t a í t o k

Gothic

- Example: Empty onsets



Summarize

- Empty slots need to be fulfilled
- Ranking of repair mechanisms:
 - Copy
 - Spreading
 - Deletion

4.

Additional cases

Ancient Greek

- Reduplication in Ancient Greek
 - C_1e-C_1V

	Present	Perfect	Gloss
	pemp-	pe-pemp-	<i>send</i>
	p ^h eug-	pe-p ^h eug-	<i>flee</i>
	k ^h air-	ke-k ^h ar-	<i>rejoice at</i>
	lu-	le-lu-	<i>loosen</i>

Ancient Greek

- The case of simple onsets
 - Reduplicated consonants spread

[C V]C V - C V
 | | | |
 l e l u-

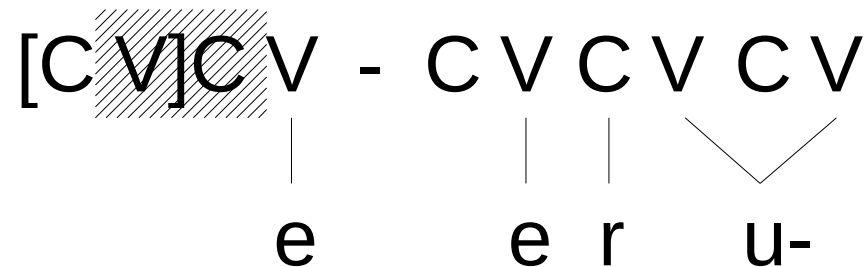
Ancient Greek

- The case of empty onsets
 - e-V

	Present	Perfect	Gloss
	erū-	e-erū-	<i>protect</i>
	^(h) elk-	^(h) e-elk-us-	<i>draw, drag</i>

Ancient Greek

- The case of empty onsets
 - There is nothing reduplicate



Ancient Greek

- The case of branching onsets
 - $C_1e-C_1C_2V$
 - clusters with rising sonority

	Present	Perfect	Gloss
	krī-n-	ke-kri-	<i>separate</i>
	tla-	te-tlē-	<i>suffer, dare</i>
	pne-	pe-pnū-	<i>breathe</i>
	t ^h nε̄-	te-t ^h nε̄-	<i>die, be killed</i>

Ancient Greek

- The case of branching onsets
 - Reduplication targets length

[C V]C V - C V C V
 | | | |
 k e k r i-

Ancient Greek

- The case of branching onsets
 - e-C₁C₂V
 - clusters with falling sonority

	Present	Perfect	Gloss
	spēr-	e-spar-	<i>sow</i>
	zdeug-	e-zdeug-	<i>yoke</i>

Ancient Greek

- The case of branching onsets
 - e-C₁C₂V
 - clusters with flat sonority

	Present	Perfect	Gloss
a.	ktēn-	e-kton	<i>kill</i>
b.	p ^h t ^h i-	e-p ^h t ^h i-	<i>decay, wane</i>
	seu-	e-sseu-	<i>chase</i>
	^h rēg-	e-rrēg-	<i>break, scatter</i>
	^h re-	e-rru-	<i>flow, stream</i>

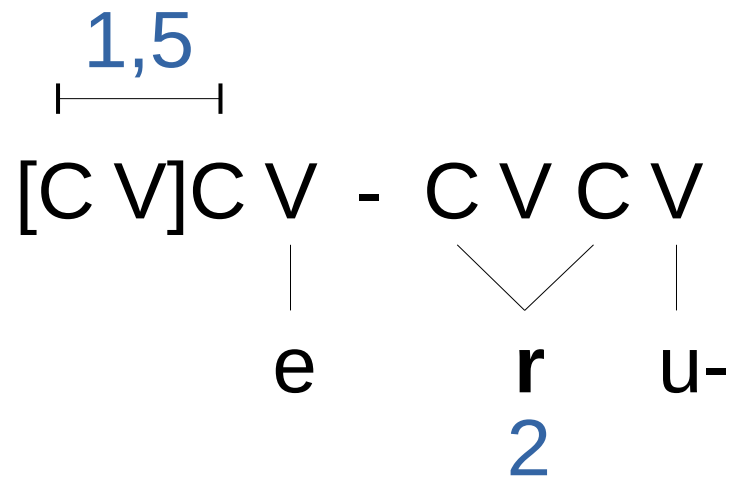
Ancient Greek

- The case of branching onsets
 - e-C₁C₂V
 - clusters with weak rising sonority

	Present	Perfect	Gloss
	pseud-	e-pseus-	<i>lie</i>

Analysis

- Why TT, RR, ST and TS do not reduplicate?
 - Geminates are too long



Analysis

- Why TT, RR, ST and TS do not reduplicate?
 - Geminates and pseudogeminates are too long

[C V]C V - C V C V
 | \ |
 e r u-

[C V]C V - C V C V C V
 | \ | |
 e kH?t o n-

[C V]C V - C V C V C V
 | \ | |
 e s H p a r-

[C V]C V - C V C V C V
 | \ | |
 e p H s e u s-

Vowels

- Sanskrit diphtongs

	Root	full grade	Gloss
a.	pan	pa-pan-a	<i>admire</i>
b.	pat	pa-pat-a	<i>fly</i>
	smai	si-smay-a	<i>smile</i>
c.	yaj	i-yaj-a	<i>offer</i>
	baudh	bu-bodh-a	<i>wake</i>
	vac	u-vac-a	<i>speak</i>

Vowels

- Do vowels behave like consonants?

[C V]C V C V - C V C V C V
s i s m a i-

Theory

Data

Analysis

Additional cases

Conclusion

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- Sonority triggers strength/length
- Reduplication involves length only
- Work in progress

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