

Universally dispreferred structures through change

The diachrony of affix ordering
in Egyptian-Coptic

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A big question

Why are cross-linguistically rare features rare?

Some sources of cross-linguistic frequency asymmetries

- Constraints on **production**?
- Constraints on **perception/processing**?
- Constraints on **learnability**?
- Genetically-determined Chomsky-style **Universal Grammar**?
- Constraints on **social interaction**?

Harris (2008)

‘... unusual or rare features are unusual or rare because they are the accidental result of many different circumstances or conditions being lined up in just the right way. [...] If a construction can only develop by passing through a relatively large number of changes, or can only develop if certain conditions exist, or some combination of these, simple probability tells us that it will be less common than a construction that develops through fewer steps or requiring fewer conditions. This explanation does not depend on one change being less common than another, or on some conditions being infrequent;

Some diachronic sources of rarity

1. **TYPE:** the type of change is rare (vs. common types of change)
2. **PATH:** few pathways to a particular situation (vs. multiple pathways of change that converge)
3. **STAGE:** many-step or complex pathways of development (vs. one-step or simple pathways)
4. **SOURCE:** rare source constructions vs. common source constructions
5. **STABILITY:** once grammaticalized, the category type tends to be instable (vs stable)
6. **DIFFUSABILITY:** a certain property is not prone to diffusing through contact

Grossman (2016)

Outline of the talk

- **Introduction**

Observation. A worldwide preference for suffixes as opposed to affixes

Argument. Rare or universally dispreferred structures can and do arise as the result of regular language change, given the right background structures as the particular ‘ecology’ in which change takes place

- **Case-study: Egyptian-Coptic (Afroasiatic)**

Long-term diachronic macro-change from mixed suffixing-prefixing to an overwhelming preference for prefixing

- **Conclusions**

- Each of the micro-changes implicated in this macro-change are better understood in terms of changes at the level of individual constructions, via grammaticalization, rather than in terms of a broad Sapirian ‘drift.’
- These micro-changes take place at different times and have different rates

Introduction

A WORLDWIDE PREFERENCE FOR SUFFIXES AS OPPOSED TO PREFIXES

Preference for suffixes

- There is a worldwide preference for suffixes as opposed to prefixes in a proportion of about 3 to 1 in the languages of the world (Bybee et al. 1990, Cysouw 2009, Greenberg 1957, Hall 1998, Hawkins & Cutler 1988, Himmelmann 2014, Sapir 1921, and more)

Preference for suffixes

- There is a worldwide preference for suffixes as opposed to prefixes in a proportion of about 3 to 1 in the languages of the world (Bybee et al. 1990, Cysouw 2009, Greenberg 1957, Hall 1998, Hawkins & Cutler 1988, Himmelmann 2014, Sapir 1921, and more)
- Two distinct universal preferences (Himmelmann 2014): grammatical morphemes have a significant tendency
 - (a) to be postposed and
 - (b) to be bound, i.e., suffixes

	PREPOSED	POSTPOSED	TOTAL
AFFIXES	426	1236	1662
FUNCTION WORDS	386	316	702
TOTAL	812	1552	2364

Table 1. The suffixing preference in verbal grammatical elements from 71 languages (Himmelmann 2014, from the database of Bybee et al. 1990: 5)

Preference for suffixes

Some possible explanations:

- a correlation with the linear order of major constituents (Jacques 2013)
- some form of Universal Grammar
- language contact (but see Seifart 2015)
- processing or some other cognitive mechanism (Cutler, Hawkins & Gillingan 1986, Caballero et al. 2008)
- a world-wide retention from Proto-World (cf. Gell-Mann & Ruhlen 2011)
- processes of language change, e.g., grammaticalization (Givón 1971, Bybee 1985, Bybee et. al 1990), perhaps due to online usage factors (Hall 1988, Himmelmann 2014)

Preference for suffixes

However:

- ‘it does not seem to be a fruitful approach to consider the suffixation preference as a monolithic observation to be explained by one overarching theory of linguistic affixation’ (Cysouw 2009: 13)

Preference for suffixes

However:

- ‘it does not seem to be a fruitful approach to consider the suffixation preference as a monolithic observation to be explained by one overarching theory of linguistic affixation’ (Cysouw 2003: chap. 3)
- Macro-characteristics of individual languages (e.g., Nichols 1986, Haspelmath et al. 2014) result from generalizations made over individual constructions

Preference for suffixes

- This is captured by Dryer's (2013) method for comparing the degree to which languages are characterized by a preference for prefixing, suffixing, or neither. He uses 10 parameters:

PARAMETERS	
1	case affixes on nouns
2	pronominal subject affixes on verbs
3	tense-aspect affixes on verbs
4	plural affixes on nouns
5	pronominal possessive affixes on nouns
6	definite or indefinite affixes on nouns
7	pronominal object affixes on verbs
8	negative affixes on verb
9	interrogative affixes on verbs
10	adverbial subordinator affixes on verbs

Table 2. Types of inflexional affixes (Dryer 2013)

Preference for suffixes

- In Dryer (2013), a language receives:
 - a single point for prefixing or suffixing if it is *predominantly* prefixing or suffixing for a given parameter,
 - half a point for each if it has both prefixing and suffixing, with *neither deemed dominant*
 - no point when there is no affixing for a given parameter
- The first three parameters (case affixes on nouns, subject and tense-aspect affixes in verbs) are deemed especially important: their score is doubled

Preference for suffixes

VALUE	DESCRIPTION	REPRESENTATION	PERCENTAGE
Little or no inflectional morphology	affixing index is 2 or less	141	14.55%
Predominantly suffixing	suffixing index which is more than 80% of its affixing index	406	41.90%
Moderate preference for suffixing	suffixing index is more than 60% of the affixing index but not more than 80%	123	12.69%
Approximately equal amounts of suffixing and prefixing	suffixing index that is greater than or equal to 40% of the affixing index and less than or equal to 60% of the affixing index	147	15.17%
Moderate preference for prefixing	prefixing index is more than 60% of the affixing index but not more than 80%	94	9.70%
Predominantly prefixing	prefixing index that is more than 80% of its affixing index	58	5.99%
TOTAL		969	100%

Table 3. Suffixing vs Prefixing in Inflectional Morphology (Dryer 2003)

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Moderate preference for suffixing	suffixing index is more than 60% of the affixing index but not more than 80%	123	12.69%
Approximately equal amounts of suffixing and prefixing	suffixing index that is greater than or equal to 40% of the affixing index and less than or equal to 60% of the affixing index	147	15.17%
Moderate preference for prefixing	prefixing index is more than 60% of the affixing index but not more than 80%	94	9.70%
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Long-term changes towards a predominantly prefixing language

ANCIENT EGYPTIAN-COPTIC

Ancient Egyptian-Coptic

- Background information
 - An independent branch of the Afroasiatic phylum
 - First attested at the end of the fourth millenium BCE, and documented continually until sometime in the 13th or 14th century CE, when all of its speakers shifted to Arabic

Ancient Egyptian-Coptic

- Background information
 - Standardly divided into five stages and two macro-phases

	STAGE	DATES (roughly)
Earlier Egyptian	Old Egyptian	3000-2000 BCE
	Middle Egyptian	2000-1350 BCE
Later Egyptian	Late Egyptian	1350-700 BCE
	Demotic	700 BCE – 450 CE
	Coptic	400 CE – 1450 CE

Table 4. Stages of Egyptian-Coptic (as discussed here)

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Ancient Egyptian-Coptic

- Background information
- Coptic is a predominantly prefixing language

Ancient Egyptian-Coptic

	PARAMETER	PREFIXING OR SUFFIXING	SUFFIXING SCORE	PREFIXING SCORE
1	case affixes on nouns	exclusively prefixing	0	2
2	pronominal subject affixes on verbs	exclusively prefixing	0	2
3	tense-aspect affixes on verbs	exclusively prefixing	0	2
4	plural affixes on nouns	predominantly prefixing	0	1
5	pronominal possessive affixes on nouns	predominantly prefixing	0	1
6	definite or indefinite affixes on nouns	exclusively prefixing	0	1
7	pronominal object affixes on verbs	exclusively suffixing	1	0
8	negative affixes on verb	exclusively prefixing	0	1
9	interrogative affixes on verbs	exclusively prefixing	0	1
10	adverbial subordinator affixes on verbs	exclusively prefixing	0	1
TOTAL			1	12
AFFIXING INDEX			100%	
Suffixing vs. prefixing strategies			7.7%	92.3%

Table 5. Calculation of the affixing index for Coptic

Ancient Egyptian-Coptic

	PARAMETER	PREFIXING OR SUFFIXING	SUFFIXING SCORE	PREFIXING SCORE
1	case affixes on nouns	exclusively prefixing	0	2
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3	tense-aspect affixes on verbs	exclusively prefixing	0	2
4	plural affixes on nouns	predominantly prefixing	0	1
5	pronominal possessive affixes on nouns	predominantly prefixing	0	1
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7	pronominal object affixes on verbs	exclusively suffixing	1	0
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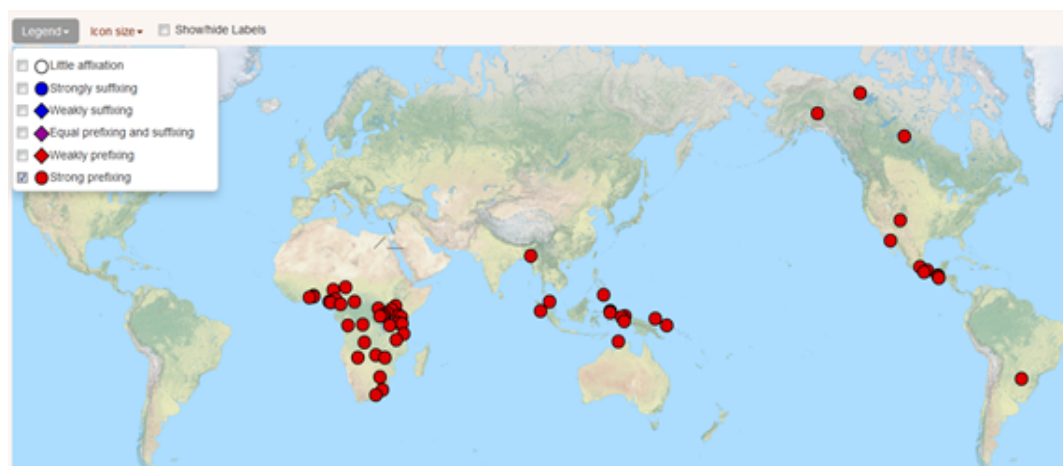
Table 5. Calculation of the affixing index for Coptic

Ancient Egyptian-Coptic

- Background information
- Coptic is a predominantly prefixing language
 - With its extremely high prefixing preference (12/13), Coptic belongs to the rare 6% or so of languages that are predominantly prefixing.
 - Moreover, it has a higher prefixing index than any other language in Dryer's 969-language sample. (The closest competitor is Hunde [Bantu; Democratic Republic of Congo; Kahombo 1992], with a prefixing index of 9.5/13.)

Ancient Egyptian-Coptic

- Background information
- Coptic is a predominantly prefixing language
 - With its extremely high prefixing preference (12/13), Coptic belongs to the rare 6% or so of languages that are predominantly prefixing.
 - Moreover, it has a higher prefixing index than any other language in Dryer’s 969-language sample. (The closest competitor is Hunde [Bantu; Democratic Republic of Congo; Kahombo 1992], with a prefixing index of 9.5/13.)
- Coptic is an areal outlier
 - While predominantly prefixing languages are relatively common in Mesoamerica and in Africa, within Africa it is only in western and southern sub-Saharan Africa that predominant prefixing is common



The diachrony of affix ordering

Methodology

- We propose that for diachronic purposes, a modified form of Dryer's typology is useful
- Rather than limiting the score to 0 for no affix, 1 for either suffixing or prefixing, and 0.5 for both prefixing and affixing, we suggest using two scales, which together admit a more fine-grained analysis

The diachrony of affix ordering

Methodology

INDEX	SYNCHRONIC	DIACHRONIC
0	No affix	No affix
.25	Construction is prefixing or suffixing, but is of limited distribution in some way	(a) An older construction, which is recessive in some way (of limited frequency or productivity), or (b) An innovative construction, which is emerging and conventionalized to some extent, but is still limited in frequency or distribution in some way.
.5	More or less equally prefixing and suffixing	Both types of affix are more or less equally productive
.75	Construction is predominantly prefixing or suffixing, but another, more restricted construction-type in the same domain is attested with the other type.	(a) A newer construction that has come to dominate a particular domain in terms of frequency or productivity, or: (b) An older construction, which still dominates a particular domain, while another, newer construction is emerging and conventionalized to some extent.
1.0	Exclusively prefixing or suffixing	Exclusively prefixing or suffixing

Table 6. A finer-grained index for affixing

The diachrony of affix ordering

Parameter 1 – Case affixes on nouns

Coptic

- Prefixed case markers (on postverbal noun phrases in S or A role)

<i>a-s-ô</i>	<i>n-ou-šêre</i>
PST-3SGF-conceive	ACC-a-son
'She conceived a son' (Luke 1:36).	

The diachrony of affix ordering

Parameter 1 – Case affixes on nouns

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	0	0
Late Egyptian	0	0.25 (ACC) 0 (NOM)
Demotic	0	1 (ACC) 0.25 (NOM)
Coptic	0	1 (ACC+NOM)

Coptic

- Prefixed case markers (on postverbal noun phrases in S/A or P role)

<i>a-s-ô</i>	<i>n-ou-šêre</i>
PST-3SGF-conceive	ACC-a-son
'She conceived a son' (Luke 1:36).	

<i>iw</i>	<i>wḏ^c-n-i</i>	<i>sb3-w</i>	<i>is-w</i>
PTCL	unlock-ANT-1SG	door-PL	tomb-PL
'Now, I have unlocked the gates of the tombs' (CT II, 113b-c)			

The diachrony of affix ordering

Parameter 1 – Case affixes on nouns

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	0	0
Late Egyptian	0	0.25 (ACC) 0 (NOM)
Demotic	0	1 (ACC) 0.25 (NOM)
Coptic	0	1 (ACC+NOM)

Coptic

- Prefixed case markers (on postverbal noun phrases in S or A role)

<i>a-s-ô</i>	<i>n-ou-šêre</i>
PST-3SGF-conceive	ACC-a-son
'She conceived a son' (Luke 1:36).	

Type of change: secondary grammaticalization (from preposition to accusative case marker, and from antitopic marker to nominative marker)

The diachrony of affix ordering

Parameter 2 – Subject affixes on verbs

Coptic

- Subject prefixes on verbs

k-na-mooše

2SGM-FUT-walk

‘You will walk’ (Luke 1:76).

The diachrony of affix ordering

Parameter 2 – Subject affixes on verbs

Previous stages

	SUFFIXING	PREPOSED	PREFIXING
Earlier Egyptian	0.5	0.5	0
Late Egyptian	0.25	0.75	0
Demotic	0.25	0.75	0
Coptic	0	0	1

Coptic

- Subject prefixes on verbs

k-na-mooše
2SGM-FUT-walk
 ‘You will walk’ (Luke 1:76).

tw-i=dy=hms *hr-dd* *n n3* *ntr-w*
PRON-1SG=here=sit:STAT **on-say:INF** **to the.PL** **god-PL**
 ‘I am presently busy (lit. ‘here sitting’) saying to the gods (‘direct speech’)’
 (oAsh.M. 269, 4-5)

The diachrony of affix ordering

Parameter 2 – Subject affixes on verbs

Previous stages

	SUFFIXING	PREPOSED	PREFIXING
Earlier Egyptian	0.5	0.5	0
Late Egyptian	0.25	0.75	0
Demotic	0.25	0.75	0
Coptic	0	0	1

Coptic

- Subject prefixes on verbs

k-na-mooše
2SGM-FUT-walk
 ‘You will walk’ (Luke 1:76).

Type of change: development of a **new pronoun paradigm** (which gradually becomes a subject prefix) and the **shift of a minor usage pattern** (a periphrastic construction involving an auxiliary) **to a major pattern**

The diachrony of affix ordering

Parameter 3 – Tense-aspect affixes on verbs

Coptic

- Tense-aspect prefixes on verbs

a-f-sôtm

PST-3SGM-hear

'He heard' (Mt 2:3)

The diachrony of affix ordering

Parameter 3 – Tense-aspect affixes on verbs

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	1	0
Late Egyptian-Demotic	0.25	0.75
Coptic	0	1

Coptic

- Tense-aspect prefixes on verbs

a-f-sôtm

PST-3SGM-hear

‘He heard’ (Mt 2:3)

ir-n-i *i3w-t-i* *iw-i* *m* *nh<n>-t-i*
do-ANT-1SG office-F-1SG SBRD-1SG in youth-F-1SG
‘I exercised my office while I was in my youth’ (stLeiden V.4,4-5)

The diachrony of affix ordering

Parameter 3 – Tense-aspect affixes on verbs

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	1	0
Late Egyptian-Demotic	0.25	0.75
Coptic	0	1

Coptic

- Tense-aspect prefixes on verbs

α-f-sôtm

PST-3SGM-hear

‘He heard’ (Mt 2:3)

Type of change: Old tense-aspect suffixes are lost, while new TAM markers are grammaticalized from auxiliary verbs in periphrastic constructions. Since the linear order of these grammaticalizing constructions follows that of basic verbal clauses, i.e., VSO/AuxSV, the result is tense-aspect prefixes.

The diachrony of affix ordering

Parameter 4 – Plural affixes on nouns

Coptic

- Productive: prefixed plural markers

n-rôme
DEF.PL-man
'the men' (Mt 5:13)

- Non-productive: plural-suffixing construction (which often involves stem-internal alternations)

tbnê 'beast'
tbnooue 'beasts'

The diachrony of affix ordering

Parameter 4 – Plural affixes on nouns

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	1	0
Late Egyptian- Demotic	.25	.75
Coptic	.25	.75

<i>rn</i>	<i>rn-w</i>
name	name-PL
'name'	'names'

Coptic

- Productive: prefixed plural markers

n-rôme
DEF.PL-man
'the men' (Mt 5:13)

- Non-productive: plural-suffixing construction (which often involves stem-internal alternations)

tbnê 'beast'
tbnooue 'beasts'

The diachrony of affix ordering

Parameter 4 – Plural affixes on nouns

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	1	0
Late Egyptian- Demotic	.25	.75
Coptic	.25	.75

Type of change: emergence of new preposed determiners that unambiguously mark number, and loss of plural suffixes.

Coptic

- Productive: prefixed plural markers

n-rôme
DEF.PL-man
'the men' (Mt 5:13)

- Non-productive: plural-suffixing construction (which often involves stem-internal alternations)

tbnê 'beast'
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The diachrony of affix ordering

Parameter 5 – Pron. possessive affixes on nouns

Coptic

- Possessor prefixes

<i>p-a-eiôt</i>	POSS.MSG- 1SG -father
<i>pe-k-eiôt</i>	POSS.MSG- 2SGM -father
<i>pe-f-eiôt</i>	POSS.MSG- 3SG -father
<i>pe-n-eiôt</i>	POSS.MSG- 1PL -father
<i>pe-tn-eiôt</i>	POSS.MSG- 2PL -father
<i>pe-u-eiôt</i>	POSS.MSG- 3PL -father

- Non-productive: suffixed possessives

<i>rnt-k</i>
name- 2SGM
'Your name' (Mk 5:9)

The diachrony of affix ordering

Parameter 5 – Pron. possessive affixes on nouns

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	1	0
Late Egyptian- Demotic	.25	.75
Coptic	.25	.75

<i>pr-tn</i>	<i>pr-w-tn</i>
house-2PL	house-PL-2PL
'your (PL) house'	'your (PL) houses'

Coptic

- Possessor prefixes

<i>p-a-eiôt</i>	POSS.MSG-1SG-father
<i>pe-k-eiôt</i>	POSS.MSG-2SGM-father
<i>pe-f-eiôt</i>	POSS.MSG-3SG-father
<i>pe-n-eiôt</i>	POSS.MSG-1PL-father
<i>pe-tn-eiôt</i>	POSS.MSG-2PL-father
<i>pe-u-eiôt</i>	POSS.MSG-3PL-father

- Non-productive: suffixed possessives

<i>rnt-k</i>
name-2SGM
'Your name' (Mk 5:9)

The diachrony of affix ordering

Parameter 5 – Pron. possessive affixes on nouns

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	1	0
Late Egyptian- Demotic	.25	.75
Coptic	.25	.75

Type of change: emergence of new possessive determiners that start out preposed and become bound to the noun

Coptic

- Possessor prefixes

<i>p-a-eiôt</i>	POSS.MSG- 1SG -father
<i>pe-k-eiôt</i>	POSS.MSG- 2SGM -father
<i>pe-f-eiôt</i>	POSS.MSG- 3SG -father
<i>pe-n-eiôt</i>	POSS.MSG- 1PL -father
<i>pe-tn-eiôt</i>	POSS.MSG- 2PL -father
<i>pe-u-eiôt</i>	POSS.MSG- 3PL -father

- Non-productive: suffixed possessives

rnt-k
name-**2SGM**
'Your name' (Mk 5:9)

The diachrony of affix ordering

Parameter 6 – (In)definite affixes on nouns

Coptic

- Definite and indefinite prefixes on nouns

p-ran

DEF.MSG-name

'the name' (Mt 28:19)

ou-ran

INDEF.SG-name

'a name' (Apoc 3:1)

The diachrony of affix ordering

Parameter 6 – (In)definite affixes on nouns

Previous stages

	SUFFIXING	PREPOSED	PREFIXING
Earlier Egyptian	0	0.25	0
Late Egyptian-Demotic	0	1	0
Coptic	0	0	1

Coptic

- Definite and indefinite prefixes on nouns

p-ran

DEF.MSG-name

‘the name’ (Mt 28:19)

ou-ran

INDEF.SG-name

‘a name’ (Apoc 3:1)

iw p3 k3wtj hr t3 k3-t
 SBRD DEF.MSG worker on DEF.FSG work-F
 ‘while the worker is at work’ (oCairo 25667, 5-6 [18th dyn.])

The diachrony of affix ordering

Parameter 6 – (In)definite affixes on nouns

Previous stages

	SUFFIXING	PREPOSED	PREFIXING
Earlier Egyptian	0	0.25	0
Late Egyptian-Demotic	0	1	0
Coptic	0	0	1

Coptic

- Definite and indefinite prefixes on nouns

p-ran
 DEF.MSG-name
 ‘the name’ (Mt 28:19)

ou-ran
 INDEF.SG-name
 ‘a name’ (Apoc 3:1)

Type of change: Grammaticalization
 (demonstrative > definite article > definite affix; ‘one’ > indefinite article > indefinite affix) ; **Independent word > affix**

The diachrony of affix ordering

Parameter 7 – Pron. object affixes on verbs

Coptic

- Suffixed pronominal object on verbs

a-f-sepsôp-t

PST-3SGM-comfort-1SG

'He comforted me'

The diachrony of affix ordering

Parameter 7 – Pron. object affixes on verbs

Previous stages

	SUFFIXING	POSTPOSED	PREFIXING
Earlier Egyptian	.25	.75	0
Later Egyptian	.5	.5	0
Coptic	1	0	0

Coptic

- Suffixed pronominal object on verbs

a-f-sepsôp-t
 PST-3SGM-comfort-1SG
 'He comforted me'

	Series I (suffixes)	Series II (clitics)
1SG	-i	=wi
2SGM	-k	=tw
2SGF	-t	=tn
3SGM	-f	=sw
3SGF	-s	=sy
1PL	-n	=n
2PL	-tn	=tn
3PL	-sn/-w	=sn

Table 7. Two series of bound person markers

The diachrony of affix ordering

Parameter 7 – Pron. object affixes on verbs

Previous stages

	SUFFIXING	POSTPOSED	PREFIXING
Earlier Egyptian	.25	.75	0
Later Egyptian	.5	.5	0
Coptic	1	0	0

Coptic

- Suffixed pronominal object on verbs

a-f-sepsôp-t
 PST-3SGM-comfort-1SG
 'He comforted me'

Type of change: shift from a minor usage pattern to a major one. The 'suffix takeover' is the result of grammaticalization of verb forms with suffixed P markers, and the loss of verb forms with clitic P markers, there is no 'clitic-to-affix' grammaticalization involved (Hopper & Traugott 2003, Himmelmann 2014).

The diachrony of affix ordering

Parameter 8 – Negative affixes on verbs

Coptic

- Portmanteau prefixes that code both TAM values and polarity

nne-k-hôtb

NEG.OPT-2SGM-kill

‘Thou shalt not kill.’ (Mt 5:21)

The diachrony of affix ordering

Parameter 8 – Negative affixes on verbs

Previous stages

	SUFFIXING	PREPOSED	PREFIXING
Earlier Egyptian	0	1	0
Late Egyptian-Demotic	0	.5	.5
Coptic	0	0	1

Coptic

- Portmanteau prefixes that code both TAM values and polarity

nne-k-hôtb
 NEG.OPT-2SGM-kill
 ‘Thou shalt not kill.’ (Mt 5:21)

hr ptr bwpw-f iy-t
 CORD look NEG.PST-3SGM come-INF
 ‘But look, he did not come’ (oDeM 10061, 20-21)

The diachrony of affix ordering

Parameter 8 – Negative affixes on verbs

Previous stages

	SUFFIXING	PREPOSED	PREFIXING
Earlier Egyptian	0	1	0
Late Egyptian-Demotic	0	.5	.5
Coptic	0	0	1

Coptic

- Portmanteau prefixes that code both TAM values and polarity

nne-k-hôtb

NEG.OPT-2SGM-kill

‘Thou shalt not kill.’ (Mt 5:21)

Type of change: from Late Egyptian onwards, negations in main verbal clauses began to be univerbated with TAM auxiliaries (**univerbation, grammaticalization of portmanteau TAM/Polarity prefixes**)

The diachrony of affix ordering

Parameter 9 – Interrogative affixes on verbs

Coptic

- Unmarked yes/no questions

<i>k-nau</i>	<i>e-tei-shime</i>
2SGM-see	ALL-DEM.FSG-woman
'Do you see this woman?' (Luke 7:44)	

- With interrogative prefixes

<i>e-k-nkotk</i>
FOC-2SGM-sleep
'Are you asleep?' (Mark 14:37)

The diachrony of affix ordering

Parameter 9 – Interrogative affixes on verbs

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	0	0
Later Egyptian	0	0
Coptic	0	.25

Type of change: secondary grammaticalization from focus morphology to interrogative morphology

Coptic

- Unmarked yes/no questions

k-nau *e-tei-shime*
 2SGM-see ALL-DEM.FSG-woman
 ‘Do you see this woman?’ (Luke 7:44)

- With interrogative prefixes

e-k-nkotk
 FOC-2SGM-sleep
 ‘Are you asleep?’ (Mark 14:37)

The diachrony of affix ordering

Parameter 10 – Adv. subordinator affixes on verbs

Coptic

- Coptic has a set of verbal prefixes that indicate subordinate-clause status

<i>šant-n-hôtb</i>	<i>m-paulos</i>
LIM-1PL-kill	ACC-Paul
‘until we kill Paul.’ (Acts 23:12)	

The diachrony of affix ordering

Parameter 10 – Adv. subordinator affixes on verbs

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	1	0
Later Egyptian	0	.75
Coptic	0	1

Coptic

- Coptic has a set of verbal prefixes that indicate subordinate-clause status

šant-n-hôtb *m-paulos*
 LIM-1PL-kill ACC-Paul
 ‘until we kill Paul.’ (Acts 23:12)

r *wbn-t* *šw* *hr* *šnb-t-k*
 until rise-LIM sun on breast-F-2SGM
 ‘Until the sun has risen over your breast’

The diachrony of affix ordering

Parameter 10 – Adv. subordinator affixes on verbs

Previous stages

	SUFFIXING	PREFIXING
Earlier Egyptian	1	0
Later Egyptian	0	.75
Coptic	0	1

Coptic

- Coptic has a set of verbal prefixes that indicate subordinate-clause status

šant-n-hôtb *m-paulos*
 LIM-1PL-kill ACC-Paul
 ‘until we kill Paul.’ (Acts 23:12)

Type of change: from Late Egyptian onwards, clause-initial conjunctions begin to be univerbated with auxiliary verbs, creating, in effect, adverbial subordinator prefixes on verbs (**grammaticalization, via periphrasis and univerbation**)

Conclusions

UNIVERSALLY DISPREFERRED STRUCTURE THROUGH CHANGE

Types of change and stages

PARAMETER	TYPE OF CHANGE	EMERGENCE	FULLY GRAMMATICALIZED
Case affixes on nouns	grammaticalization	Late Egyptian (ACC) Demotic (NOM)	Demotic (ACC) Coptic (NOM)
Pronominal subject affixes on verbs	(1) grammaticalization (2) minor-to-major pattern + entrapment	Late Egyptian	Coptic
Tense-aspect affixes	(1) loss of suffixes (2) grammaticalization of auxiliary constructions	Late Egyptian	Coptic
Plural affixes on nouns	replacement	Late Egyptian	Coptic
Pronominal possessive affixes	replacement	Late Egyptian	Coptic
Definite or indefinite affixes	grammaticalization	Late Egyptian	Late Egyptian (DEF) Coptic (INDEF)
pronominal object affixes on verbs	minor-to-major pattern	Old Egyptian	Coptic
Negative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Interrogative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Adverbial subordinator affixes on verbs	grammaticalization	Late Egyptian	Coptic

Table 8. Summary of types of changes, period of emergence and of full grammaticalization

Types of change and stages

PARAMETER	TYPE OF CHANGE	EMERGENCE	FULLY GRAMMATICALIZED
Case affixes on nouns	grammaticalization	Late Egyptian (ACC) Demotic (NOM)	Demotic (ACC) Coptic (NOM)
Pronominal subject affixes on verbs	(1) grammaticalization (2) minor-to-major pattern + entrapment	Late Egyptian	Coptic
Tense-aspect affixes	(1) loss of suffixes (2) grammaticalization of auxiliary constructions	Late Egyptian	Coptic
Plural affixes on nouns	replacement	Late Egyptian	Coptic
Pronominal possessive affixes	replacement	Late Egyptian	Coptic
Definite or indefinite affixes	grammaticalization	Late Egyptian	Late Egyptian (DEF) Coptic (INDEF)
pronominal object affixes on verbs	minor-to-major pattern	Old Egyptian	Coptic
Negative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Interrogative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Adverbial subordinator affixes on verbs	grammaticalization	Late Egyptian	Coptic

Table 8. Summary of types of changes, period of emergence and of full grammaticalization

Grammaticalization

Types of change and stages

PARAMETER	TYPE OF CHANGE	EMERGENCE	FULLY GRAMMATICALIZED
Case affixes on nouns	grammaticalization	Late Egyptian (ACC) Demotic (NOM)	Demotic (ACC) Coptic (NOM)
Pronominal subject affixes on verbs	(1) grammaticalization (2) minor-to-major pattern + entrapment	Late Egyptian	Coptic
Tense-aspect affixes	(1) loss of suffixes (2) grammaticalization of auxiliary constructions	Late Egyptian	Coptic
Plural affixes on nouns	replacement	Late Egyptian	Coptic
Pronominal possessive affixes	replacement	Late Egyptian	Coptic
Definite or indefinite affixes	grammaticalization	Late Egyptian	Late Egyptian (DEF) Coptic (INDEF)
pronominal object affixes on verbs	minor-to-major pattern	Old Egyptian	Coptic
Negative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Interrogative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Adverbial subordinator affixes on verbs	grammaticalization	Late Egyptian	Coptic

Table 8. Summary of types of changes, period of emergence and of full grammaticalization

Grammaticalization

Minor to major patterns

Types of change and stages

PARAMETER	TYPE OF CHANGE	EMERGENCE	FULLY GRAMMATICALIZED
Case affixes on nouns	grammaticalization	Late Egyptian (ACC) Demotic (NOM)	Demotic (ACC) Coptic (NOM)
Pronominal subject affixes on verbs	(1) grammaticalization (2) minor-to-major pattern + entrapment	Late Egyptian	Coptic
Tense-aspect affixes	(1) loss of suffixes (2) grammaticalization of auxiliary constructions	Late Egyptian	Coptic
Plural affixes on nouns	replacement	Late Egyptian	Coptic
Pronominal possessive affixes	replacement	Late Egyptian	Coptic
Definite or indefinite affixes	grammaticalization	Late Egyptian	Late Egyptian (DEF) Coptic (INDEF)
pronominal object affixes on verbs	minor-to-major pattern	Old Egyptian	Coptic
Negative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Interrogative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Adverbial subordinator affixes on verbs	grammaticalization	Late Egyptian	Coptic

Table 8. Summary of types of changes, period of emergence and of full grammaticalization

Grammaticalization

Minor to major patterns

Replacement

Types of change and stages

PARAMETER	TYPE OF CHANGE	EMERGENCE	FULLY GRAMMATICALIZED
Case affixes on nouns	grammaticalization	Late Egyptian (ACC) Demotic (NOM)	Demotic (ACC) Coptic (NOM)
Pronominal subject affixes on verbs	(1) grammaticalization (2) minor-to-major pattern + entrapment	Late Egyptian	Coptic
Tense-aspect affixes	(1) loss of suffixes (2) grammaticalization of auxiliary constructions	Late Egyptian	Coptic
Plural affixes on nouns	replacement	Late Egyptian	Coptic
Pronominal possessive affixes	replacement	Late Egyptian	Coptic
Definite or indefinite affixes	grammaticalization	Late Egyptian	Late Egyptian (DEF) Coptic (INDEF)
pronominal object affixes on verbs	minor-to-major pattern	Old Egyptian	Coptic
Negative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Interrogative affixes on verbs	grammaticalization	Late Egyptian	Coptic
Adverbial subordinator affixes on verbs	grammaticalization	Late Egyptian	Coptic

Table 8. Summary of types of changes, period of emergence and of full grammaticalization

Grammaticalization

Minor to major patterns

Replacement

Loss of suffixes

The diachrony of affixing preferences

		EARLIER EGYPTIAN		LATER EGYPTIAN		COPTIC	
		Suff.	Pref.	Suff.	Pref.	Suff.	Pref.
1	case affixes on nouns	0	0	0	1.5	0	2
2	pronominal subject affixes on verbs	1	1	0.5	1.5	0	2
3	tense-aspect affixes on verbs	2	0	0.5	1.5	0	2
4	plural affixes on nouns	1	0	.25	.75	.25	.75
5	pronominal possessive affixes on nouns	1	0	.25	.75	.25	.75
6	definite or indefinite affixes on nouns	0	0	0	0	0	1
7	pronominal object affixes on verbs	.25	0	.5	0	1	0
8	negative affixes on verb	0	0	0	.5	0	1
9	interrogative affixes on verbs	0	0	0	0	0	.25
10	adverbial subordinator affixes on verbs	1	0	0	.75	0	1
Total		6.25	1	2.0	7.25	1.5	10.75
Affixing index		55.8%		71.2%		94.2%	
Suffixing vs. prefixing		48.1%	7.7%	15.4%	55.8%	11.5%	82.7%

The diachrony of affixing preferences

		EARLIER EGYPTIAN		LATER EGYPTIAN		COPTIC	
		Suff.	Pref.	Suff.	Pref.	Suff.	Pref.
1	case affixes on nouns	0	0	0	1.5	0	2
2	pronominal subject affixes on verbs	1	1	0.5	1.5	0	2
3	tense-aspect affixes on verbs	2	0	0.5	1.5	0	2
4	plural affixes on nouns	1	0	.25	.75	.25	.75
5	pronominal possessive affixes on nouns	1	0	.25	.75	.25	.75
6	definite or indefinite affixes on nouns	0	0	0	0	0	1
7	pronominal object affixes on verbs	.25	0	.5	0	1	0
8	negative affixes on verb	0	0	0	.5	0	1
9	interrogative affixes on verbs	0	0	0	0	0	.25
10	adverbial subordinator affixes on verbs	1	0	0	.75	0	1
Total		6.25	1	2.0	7.25	1.5	10.75
Affixing index		55.8%		71.2%		94.2%	
Suffixing vs. prefixing		48.1%	7.7%	15.4%	55.8%	11.5%	82.7%

Contact?

PARAMETER	PREFIXING OR SUFFIXING	COPTIC		GREEK			
		SUFFIXING SCORE	PREFIXING SCORE	PREFIXING OR SUFFIXING	SUFFIXING SCORE	PREFIXING SCORE	
1	case affixes on nouns	exclusively prefixing	0	2	exclusively suffixing	2	0
2	pronominal subject affixes on verbs	exclusively prefixing	0	2	exclusively suffixing	2	0
3	tense-aspect affixes on verbs	exclusively prefixing	0	2	prefixing and suffixing	1	1
4	plural affixes on nouns	predominantly prefixing	0	1	exclusively suffixing	1	0
5	pronominal possessive affixes on nouns	predominantly prefixing	0	1	not affixing	0	0
6	definite or indefinite affixes on nouns	exclusively prefixing	0	1	not affixing	0	0
7	pronominal object affixes on verbs	exclusively suffixing	1	0	not affixing	0	0
8	negative affixes on verb	exclusively prefixing	0	1	not affixing	0	0
9	interrogative affixes on verbs	exclusively prefixing	0	1	not affixing	0	0
10	adverbial subordinator affixes on verbs	exclusively prefixing	0	1	not affixing	0	0
TOTAL			1	12		6	1
AFFIXING INDEX			100%			53.85%	
Suffixing vs. prefixing strategies			7.7%	92.3%		85.71%	14.29%

Table 9: Calculation of the affixing index and of the suffixing vs. prefixing strategies

Contact?

TOTAL	1	12	6	1
AFFIXING INDEX	100%		53.85%	
Suffixing vs. prefixing strategies	7.7%	92.3%	85.71%	14.29%

Table 9: Calculation of the affixing index and of the suffixing vs. prefixing strategies

Conclusions

- Ancient Egyptian-Coptic (Afroasiatic) shows a long-term diachronic macro-change from mixed suffixing-prefixing to an overwhelming preference for prefixing.
- Changes in affix order in Ancient Egyptian-Coptic occur at different times, at different rates, and to different degrees in different domains.
- Crucially, there is nothing unusual about the actual processes of change themselves; what may be unusual, from a cross-linguistic point of view, is the length of uninterrupted documentation of a single language, which allows us to observe long-term changes with abundant evidence.

Conclusions

As such, while Coptic-Egyptian seems to be swimming against the typological tide, it is just paddling along, construction by construction, with regular processes of language change.

Thank you!