The Role of Syntax and Morphology in Affix Order

MMM 3, September 20-22, 2001

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Overview

- The Basic Ideas
- Morphological Constraints on Affix Order
- Syntactic Constraints on Affix Order
- The Interaction of Morphological and Syntactic Constraints

The Basic Ideas

The Framework

- Combining concepts from Distributed Morphology (DM, Halle and Marantz, 1993) and Optimality Theory (OT, Prince and Smolensky, 1993)
- Morphology interprets the output of Syntax
- Agreement affixes are inserted by Morphology
- No idiosyncratic stipulations on affix order

The Problem

"The order appears crosslinguistically invariant. The limited cases of apparent variation all seem to involve agreement and negation . . ." (Cinque, 1999:127)

". . . there is one inflectional category which does not so easily fit into the . . . rigid framework that syntactic analyses provide. This category is agreement. (Julien, 2000:359)

The Approach

- Agreement Affixes are subject to morphological and syntactic constraints.
- The interaction of these constraints leads to apparent non-systematicity
- Looking at areas where only a subset of the constraints apply

Morphological Constraints on Affix Order

Affix Order in Split Agreement

Georgian (Carmack, 1997:315)

v-xedav	*v-xedav-t*	*xedav-s*	*xedav-en*
S1-see	S1-see-PL	see-S3s	see-S3p
'I see'	'we see'	'he sees'	'they see'

Amharic (Leslau, 1995:301)

yë-säbr	*yë-säbr-u*	*ë-säbër*	*ënnë-säbër*
S3-break	S3-break-SPl	S1-break	S1p-break
'he breaks'	'they break'	'I break'	'we break'

Observations

- Person agreement is leftmost
- Number agreement is rightmost
- Fused [Person+Number] agreement patterns with Number or Person according to the language.

An Alignment Analysis

1. Align Person-Agreement maximally to the left word edge (L ⇦ PER).
2. Align Number-Agreement maximally to the right word edge (NUM ⇨ R).

Split Person and Number

	L ⇦ PER	NUM ⇨ R
✌ P > V > N		
☞ P > N > V		*
☞ V > P > N	*	
☛ N > P > V	**	*
☛ V > N > P	*	**
✝ N > V > P	**	**

Fused Person and Number

Ranking1 (Amharic)

	L ⇦ PER	NUM ⇨ R
☞ PN > V		*
V > PN	*!	

Ranking2 (Georgian)

	NUM ⇨ R	L ⇦ PER
PN > V		*
☞ V > PN	*!	

Crosslinguistic Tendencies

	both prefix	both suffix	mixed	all
P > N	8 80.0%	13 68.4%	25 100%	46 85.2%
N > P	2 20.0%	6 31.6%	0 0%	8 14.8%
sum	10	19	25	54

	both prefixes	Mixed	both suffixes
P > N	Person Number V	Person V Number	V Person Number
N > P	*Number Person V	*Number V Person	*V Number Person

Syntactic Constraints on Affix Order

Restrictions on the Order of Aspect and Tense (Julien, 2000)

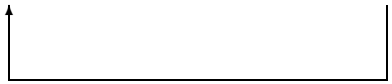
- If Aspect and Tense occur on the *same* side of a verb, Aspect is closer to the stem than Tense
- If Aspect and Tense occur on *different* sides of the verb, the order is Tense Verb Aspect

	both prefixes	Mixed	both suffixes
T > A	Tense Aspect Verb	Tense Verb Aspect	*Verb Tense Aspect
A > T	*Aspect Tense Verb	*Aspect Verb Tense	Verb Aspect Tense

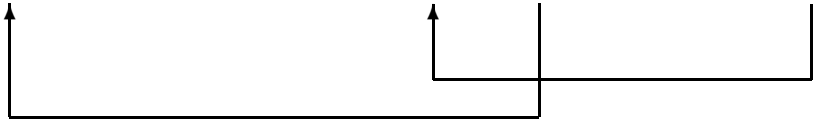
Deriving the Order of Aspect and Tense (Julien:2000)

(1) Base Order **Tense** **Aspect** **Verb**

(2) Head-Movement to Aspect **Tense** [**Verb Aspect**] ~~Verb~~



(3) Further Movement to Tense [[**Verb Aspect**] **Tense**] ~~[Verb Aspect]~~ ~~Verb~~



The Interaction of Morphological and Syntactic Constraints

Basic Ideas

- The linear position of syntactic heads influences the position of agreement affixes, but not vice versa
- Reflect(AGR) requires correspondence between agreement heads and their syntactic hosts
- Three ways of Interaction: Interleaving, Pied piping by Fusion, and Pied piping by Adjacency

Interleaving: Turkana (Dimmendaal, 1983)

(4) *ɛ- á- lós -í*
3 Past go Asp
'he went'

(5) *é- lós -e -té*
3 go Asp Pl
'they will go'

(6) *kí- los -í*
3Pl go Asp
'we will go'

Observations:

- The Order of agreement heads follows from Alignment
- The Order of tense and aspect follows from movement
- No interaction, but: tense and aspect are part of the alignment domain

Pied Piping by Fusion: Amharic

	Imperfect	Perfect
3. sg. mas	***yë-****säbër*	*säbbär****-ä***
3. sg. fem	***të-****säbër*	*säbbär****-äcc***
2. sg. mas	***të-****säbër*	*säbbär****-h***
2. sg. fem	***të-****säbr****-i***	*säbbär****-sh***
1. sg.	***ë-****säbër*	*säbbär****-hu***
3. pl.	***yë-****säbr****-u***	*säbbär****-u***
2. pl.	***të-****säbr****-u***	*säbbär****-accuh***
1. pl.	***ënnë-****säbër*	*säbbär****-n***

Observations:

- ➤ In the Imperfect all agreement affixes pattern like in Turkana
- ➤ In the Perfect all agreement markers are suffixes

Analysis:

The perfect markers express in a portmanteau fashion aspect and agreement.
⇒ Movement ranks out Alignment.

Pied Piping by Adjacency: Island Kiwai

Kiwai 1st dual forms: Present/Past

PRESENT				NEAR PAST				DEFINITE PAST			
n-	V	*-duru*	**-do**	**n-**	V	-Ø	**-do**	**n-**	V	*-ru*	**-do**
|		|	|	|		|	|	|	|	|	|	|
1		Tns_1	**Du**	**1**		Tns_1	**Du**	**1**		Tns_1	**Du**

Kiwai 1st dual forms: Future

INDEFINITE FUTURE					IMMEDIATE FUTURE				
ni-	*du-*	**do-**	V	-ri	**ni-**	Ø	**do-**	V	-ri
|	|	|		|	|	|	|	|	|	|	|	|
1	Tns_1	**Du**		Tns_2	**1**	Tns_1	**Du**		Tns_2

REFLECT(AGR):

An affix realizing an agreement category A should reflect the position of its host H by

a. being right-adjacent to an affix realizing H, or by

b. occupying the position of H, if H is not realized

The Interaction of Reflect and Alignment (I)

Input: V $[+\text{Tense}]_1$ [+1 +du] (PRESENT)

	L ⇦ PER	REFLECT	NUM ⇨ R
☞ **n-**V-*duru***-do**			
n-do-V-*duru*		*!	**
V-*duru***-n-do**	*!*		
do-V-*duru***-n**	*!**		***

The Interaction of Reflect and Alignment (II)

Input: [+Tense]$_1$ [+1 +du] V [+Tense]$_2$ (INDEF.FUT)

	L ⇦ PER	REFLECT	NUM ⇨ R
☞ **ni-***du*-**do-**V-ri			**
ni-do-*du*-V-ri		*!	***
du-**ni-do-**V-ri	*!		**
ni-*du*-V-ri-**do**		*!	**

Crosslinguistic Evidence: The Order of AgrS and Tense

	T suffix	T prefix	all
Agr conform	52 66.7%	23 74.2%	78 69.6%
Agr not conform	26 33.3%	8 25.8%	34 30.4%
sum	78	31	112

The Order of AgrS and Tense (Prefixes)

	my results	Juliens Evaluation	Juliens data
T > A	15 62.5%	9 39.1%	17 47.2%
A > T	9 37.5%	14 60.9%	19 52.8%
sum	24	23	36

- Both orders are relatively well-documented
- If Tense is a prefix, undominated REFLECT(AGR) leads to T A V, undominated L ⇦ PER to A T V.

The Order of AgrS and Tense (Suffixes)

	my results	Juliens data
T > A	44 84.6%	64 80%
A > T	8 15.4%	16 20%
sum	52	80

- V T A overwhelmingly outranks V A T
- If Tense is a suffix highranked REFLECT(AGR) or NUM ⇨ R leads to V T A
- Highranked PER L ⇦ leads to A V T.
- No constrain favors *V A T

The Order of AgrS and Tense (Mixed)

	my results	Juliens data
T > A	44 84.6%	64 80%
A > T	8 15.4%	16 20%
sum	52	80

- A V T outranks T V A
- This is unexpected since T V A should be possible with prefixal T and undominated PER ➪ R

Solution: While A V and V A are both frequent, V T is much more frequent than T V
⇒ The order of V,A,T follows from the preference for V T.

Summary and Prospects

- Apparently Idiosyncratic Ordering of Agreement Affixes results from the Interaction of Morphological and Syntactic Constraints
- If true this supports post-syntactic Morphology as in D(istributed) Morphology (Halle and Marantz, 1993)
- Syntax is prior to morphology derivationally as well as in terms of preferred affix order

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