Towards a new paradigm in historical syntax

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Introduction

A new lexicalist approach to syntactic reconstruction

- Past approaches to diachronic syntax
  - morphology = syntax
  - typologically oriented approaches
- The role of syntactic theory in reconstruction
- Categorial Grammars may hold the key:
  - What is CG
  - Connection to inflection
- Broad categories of change:
  - Univerbation (syntax $\rightarrow$ morphology)
  - (continued) Isolation (syntax $\rightarrow$ syntax)
- CG allows us to treat U and I changes the same

Historical syntax = historical morphology

Clear examples of diachronic syntax (from morphemes)

Morphemes are the “footprints of yesterday’s syntax” (Weir, 1987)

Typological approaches

By studying the range of forms present in the worlds languages, we can make some generalizations about typological tendencies.

The role of syntactic theory in reconstruction

syntactic theory and syntactic change are disconnected

Syntactic theories based on a Universal Grammar do not attempt to explain why languages differ from UG.

Categorial Grammar

What is Categorial Grammar

- CGs are syntactic theories founded on the principle that syntax is stored in the lexicon.
- They are proof-theoretic: utterances are proven through theorems.
- Each lexical entry consists of a prosodic form (π), a semantic functor (γ), and a syntactic functor (σ) in lock-step.
- A lexical entry is presented as a triple; e.g., $[\pi; \gamma; \sigma]$

(terminology based on HTLCG; see Kubota & Levine, 2020)

Ex: English adjectives

- *tall*; $\lambda P_1[\lambda x_1[tall'(x_1) \wedge P_1(x_1)]]$; N/N
- *woman*; $\lambda x_2[woman'(x_2)]$; N
- *the*; $\lambda P_2 \iota(P_2)$; NP/N

$$\dfrac{\begin{array}{c} tall; \\ \lambda P_1[\lambda x_1[tall'(x_1) \wedge P_1(x_1)]]; \\ N/N \end{array} \qquad \begin{array}{c} woman; \\ \lambda x_2[woman'(x_2)]; \\ N \end{array}}{\begin{array}{c} tall \bullet woman;\ N \end{array}} \ /E$$

$$\dfrac{\lambda P_1[\lambda x_1[tall'(x_1) \wedge P_1(x_1)]](\lambda x_2[woman'(x_2)]);}{\lambda x_1[tall'(x_1) \wedge \lambda x_2[woman'(x_2)](x_1)];} \ \lambda\text{-conv.}$$

$$\dfrac{\lambda x_1[tall'(x_1) \wedge \lambda x_2[woman'(x_2)](x_1)];}{\lambda x_1[tall'(x_1) \wedge woman'(x_1)];} \ \lambda\text{-conv.}$$

$$\dfrac{\begin{array}{c} the; \\ \lambda P_2[\iota(P_2)]; \\ NP/N \end{array} \qquad \begin{array}{c} \lambda x_1[tall'(x_1) \wedge woman'(x_1)]; \\ N \end{array}}{the \bullet tall \bullet woman;} \ /E$$

$$\dfrac{\lambda P_2[\iota(P_2)](\lambda x_1[tall'(x_1) \wedge woman'(x_1)])}{\begin{array}{c} \iota(\lambda x_1[tall'(x_1) \wedge woman'(x_1)]); \\ NP \end{array}} \ \lambda\text{-conv.}$$

Ex: Japanese adjectives

- *takakatta*; $\lambda x_1[PST(tall'(x_1))]$; $NP\backslash S$
- *tatemonowa*; $\iota(\lambda x_2[building'(x_2)])$; NP

$$\dfrac{\dfrac{\begin{array}{c}tatemonowa;\\ \iota(\lambda x_2[building'(x_2)]);\\ NP\end{array} \qquad \begin{array}{c}takakatta;\\ \lambda x_1[PST(tall'(x_1))];\\ NP\backslash S\end{array}}{\begin{array}{c}tatemonowa \bullet takakatta;\\ \lambda x_1[PST(tall'(x_1))](\iota(\lambda x_2[building'(x_2)]));\\ PST(tall'(\iota(\lambda x_2[building'(x_2)])));\\ S\end{array}}\backslash\text{E}}{}\ \lambda\text{-conv.}$$

Proposed connection with inflection

- The foundational assumptions of CG are:
  - There is a direct and transparent interface between syntax, semantics and prosodic realization.
  - This connection is stored in the lexicon
- The foundational assumptions of Realizationalism are:
  - Words are not necessarily built up of discreet units that combine their meanings to form words.
  - Rather, whole words are generated by the morphology to be inserted as indicated by syntax
  - The lexicon is paradigmatically arranged.

When syntax becomes morphology

There is little difficulty in reconstruction

- *takaku*; $^{\cap}(tall')$; *NP* (based on Martin's (1987, 805) nominalization hypothesis proposed by Ōno)
- *atta*; $\lambda x[PST(^{\cup}x)]$; $NP\backslash(NP\backslash S)$ (based on Karim's (2022) treatment)

$$\dfrac{\dfrac{\dfrac{takaku;\,^{\cap}(tall');\,NP \quad atta;\,\lambda x[PST(^{\cup}x)];\,NP\backslash(NP\backslash S)}{takaku \bullet atta;\,\lambda x[PST(^{\cup}x)](^{\cap}(tall'));}\,\lambda\text{-conv.}}{PST(^{\cup\cap}(tall'));}\,\text{cup-cap-canc.}}{PST(tall');\,NP\backslash S}$$

- Regular Sound Change: *takak*[*u*•]*atta* → *takakatta*

The new paradigm (Japanese)

Syntactic functors are stored in inflectional paradigms

- Japanese adjectives:

taka~~k~~i;	$\lambda y[^{\cap}(\lambda x[\mathit{tall}'(x) \wedge^{\cup} y(x)])]$;	NP/NP
takaku;	$^{\cap}(\lambda x[\mathit{tall}'(x)])$;	NP

- Japanese copula:

aru;	$\lambda y \lambda x[^{\cup} y(x)]$;	$NP\backslash(NP\backslash S)$
aru;	$\lambda z \lambda y[^{\cap}(\lambda x[^{\cup} z(x) \wedge^{\cup} y(x)])]$;	$NP\backslash(NP/NP)$
ari;	$\lambda y[^{\cap}(\lambda x[^{\cup} y(x)])]$;	$NP\backslash(NP)$
atta;	$\lambda y \lambda x[\mathit{PST}(^{\cup} y)(x)]$;	$NP\backslash(NP\backslash S)$
atta;	$\lambda z \lambda y[^{\cap}(\lambda x[\mathit{PST}(^{\cup} z)(x) \wedge^{\cup} y(x)])]$;	$NP\backslash(NP/NP)$
nai;	$\lambda y \lambda x[\neg(^{\cup} y)(x)]$;	$NP\backslash(NP\backslash S)$
nai;	$\lambda z \lambda y[^{\cap}(\lambda x[\neg(^{\cup} z)(x) \wedge^{\cup} y(x)])]$;	$NP\backslash(NP/NP)$

Paradigms converge (Lau, 2012)

Syntax	Old J Adj		Verb		Univerbated		J Adj
$[NP\backslash S]$			aru		takak~~u~~aru		takai
$[NP/NP]$	taka~~k~~i		aru		takak~~u~~aru		takai
$[NP\backslash S]$			atta		takak~~u~~atta		takakatta
$[NP/NP]$			atta		takak~~u~~atta		takakatta
$[NP]$	takaku		ari		takak~~u~~ari		takaku
$[NP\backslash S]$			nai		takaku nai		takakunai
$[NP/NP]$			nai		takakaku nai		takakunai

When syntax becomes syntax

Optional genitive agent → core verbal argument I

Northern Kurdish (actual)

- *min*; $\iota(1SG')$; NP_{OBL}
- *ew*; $\iota(3SG')$; NP_{DIR}
- *girt*; $\lambda x[\lambda y[hold'(x)(y)]]$; $NP_{DIR}\backslash(NP_{OBL}\backslash S)$

$$\dfrac{\textit{min};\ \iota(1SG');\ NP_{OBL} \qquad \dfrac{\textit{ew};\ \iota(3SG');\ NP_{DIR} \qquad \textit{girt};\ \lambda x[\lambda y[hold'(x)(y)]];\ NP_{DIR}\backslash(NP_{OBL}\backslash S)}{\textit{ew} \bullet \textit{girt};\ \lambda x[\lambda y[hold'(x)(y)]](\iota(3SG'));\ \cdots\ \lambda y[hold'(\iota(3SG'))(y)];\ NP_{OBL}\backslash S}\ \lambda\text{-conv.}}{\textit{min} \bullet \textit{ew} \bullet \textit{girt};\ \lambda y[hold'(\iota(3SG'))(y)](\iota(1SG'));\ \cdots\ hold'(\iota(3SG'))(\iota(1SG'));\ S}\ \lambda\text{-conv.}$$

Optional genitive agent → core verbal argument II

Hypothetical Pre-Kurdish

- *mana*; X/X
- *awah*; NP
- *gərəpta*; $NP\backslash S$

$$\dfrac{\textit{mana};\ S/S \qquad \dfrac{\textit{awah};\ NP \qquad \textit{gərəptah};\ NP\backslash S}{\textit{awah} \bullet \textit{gərəptah};\ S}}{\textit{mana} \bullet \textit{awah} \bullet \textit{gərəptah};\ S}$$

Syntactic functors are stored in inflectional paradigms

- Old Iranian Pronouns:

azəm;	$\iota 1SG'$;	NP_{NOM}
mām;	$\iota 1SG'$;	NP_{ACC}
maibyō;	$to(\iota 1SG')$;	X/X
mat;	$from(\iota 1SG')$;	X/X
mana;		X/X

- Old Iranian Verbs:

gərəβnāmi	$\lambda x[\lambda y[hold'(x)(y)]]$	$NP_{ACC}\backslash(NP_{NOM}\backslash S)$

etc.

gərəptah;	$\lambda x[hold'(x)]$;	$NP_{NOM}\backslash S$

The paradigmatic shift

mana			*min*	
	awah gərəptah			*ew girt*
S/S	(S)		(NP_{OBL})	$NP_{OBL}\backslash S$
	sara	$\rightarrow$		*li ser*
NP/NP	(NP)		(NP_{OBL})	NP_{OBL}/PP
	martiya			*mirovê*
NP/NP	(NP)		(NP_{OBL})	NP_{OBL}/NP

Paradigms Converge

- Pronouns:
  - *az*; $\iota 1SG'$; NP_{NOM}
  - *m*; $\iota 1SG'$; NP_{ACC}
  - *man*; $\iota 1SG'$; NP_{OBL}
- Denominal Adpositions:
  - *sar*; *on*$'$; PP/NP_{OBL}
  - *peš*; *before*$'$; PP/NP_{OBL}
- Verbs:
  - *gərəβnām* $\lambda x[\lambda y[hold'(x)(y)]]$ $NP_{ACC}\backslash(NP_{NOM}\backslash S)$
  - *gərəpt*; $\lambda x[\lambda y[hold'(x)(y)]]$; $NP_{NOM}\backslash(NP_{OBL}\backslash S)$

The new paradigm (Kurdish)

Paradigms Converge

Syntax	Old Ir		New Ir		
$[NP_{NOM}]$	NOM	-Ø	$[NP_{NOM}]$		
$[NP_{ACC}]$	ACC	-Ø/-e	$[NP_{ACC}]$		
$[X/X]$	GEN	-e	$[NP_{OBL}]$		
$[X/X]$	DAT			$[NP_{OBL}\backslash S]$	Ergative Vs
$[X/X]$	INS			$[(X/X)/NP_{OBL}]$	Denom. Ps
$[X/X]$	ABL			$[NP/NP_{OBL}]$	Ezafe
$[X/X]$	LOC				

Summary

Summary

- Formal Properties
  - CGs are lexicalist.
  - The interdependence of phonology, syntax, and semantics requires them to be paradigmatically organized.
- Prospects
  - The laws and tendencies of analogy that govern paradigms can be applied to syntax.
- Hurdles
  - Much of the work on CG is Anglo-centric.
  - many phenomena have not been adequately analysed in a CG framework.

Thank you much!

References I

Karim, Shuan Osman. 2021. *The synchrony and diachrony of New Western Iranian nominal morphosyntax*: the Ohio State University dissertation.

Kubota, Yusuke & Robert D. Levine. 2020. *Type-Logical Syntax*. Cambridge, Mass; London, England: The MIT Press.

Lau, Tyler. 2012. *Origins of the verbalizer affixes in the Japonic languages*: Yale dissertation. `http://ling.yale.edu/sites/default/files/files/alumnisenioressays/TylerLAuSeniorEssay.pdf`.

Weir, E. M. H. 1987. Footprints of Yesterday's Syntax: Diachronic Development of Certain Verb Prefixes in an OSV Language (Nadëb). *Lingua* 68. 291–316.

Appendix

Canonical Ezafat	Prosody	Syntax	Semantics
Possessive Construct	N-EZ;	XP/XP;	$\lambda y[\mathcal{Q}(\lambda x[P_N(x) \wedge \mathcal{R}(x)(y)])]$
Attributive Construct	N-EZ;	XP/XP;	$\lambda y[\mathcal{Q}(\lambda x[P_N(x) \wedge^{\cup} y(x)])]$
Definite Ezafat			
Definite Att. Construct	N-EZ;	XP/XP;	$\lambda y[let\langle \mathcal{Q}, P_{Adj}\rangle := y\ in\ \mathcal{Q}(\lambda x[P_N(x) \wedge P_{Adj}(x)])]$
Reverse Ezafat			
Att. Anti-construct	Adj-ATTR;	XP/XP;	$\lambda y[let\langle \mathcal{Q}, P_N\rangle := y\ in\ \mathcal{Q}(\lambda x[P_N(x) \wedge P_{Adj}(x)])]$
Possessive State (GEN)	N-GEN;	XP/XP;	$\lambda y[let\langle \mathcal{Q}, P\rangle := y\ in\ \mathcal{Q}(\lambda x[P(x) \wedge \mathcal{R}(x)(\iota(P_N))])]$
Secondary Ezafat			
Att. Floating Construct	(=)EZ;	$XP\backslash(XP/XP)$;	$\lambda y[let\langle \mathcal{Q}, P\rangle := y\ in\ \lambda z[\mathcal{Q}(\lambda x[P \wedge^{\cup} z)]]]$
Pos. Floating Construct	(=)EZ;	$XP\backslash(XP/XP)$;	$\lambda y[let\langle \mathcal{Q}, P\rangle := y\ in\ \lambda z[\mathcal{Q}(\lambda x[P \wedge \mathcal{R}(x)(z))]]]$
Not Ezafat			
Possessor Cross-indexing	N-POSS:ϕ;	$XP_{OBL}\backslash XP$	$\lambda y_{\phi}[\mathcal{Q}(\lambda x[P_N(x) \wedge \mathcal{R}(x)(y_{\phi})])]$