

Lessons from “anomalies”: Systemic motivation in grammar

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If you want to find new ideas, read old books: not only old linguistics books, but old books in comparative animal behavior and ontogenetic and phylogenetic development. Adapted from somewhere.

Where we are going?

1. Trying to resolve a difficult challenge
2. Different bets on its resolution
3. The value of “anomalies”
4. A case study: Possessive relatives
5. Hypothesized resolution

This presentation is based on collaborative work with Irina Nikolaeva. Primary research on Tundra Nenets was generously supported by a Hans Rausing Language Documentation Grant 2003-2006 with Irina Nikolaeva and Tapani Salminen, Elicitation was primarily in Russian and sometimes Nenets, since the Nenets are generally bi-lingual. We thank our primary consultants Galina Koreneva and Anna Lambdo.



1. Trying to resolve a difficult challenge

Trying to resolve a difficult challenge

*The fact about science is that everyone who has made a serious contribution to it is aware, or very strongly suspects, that the world is not only queerer than anyone has imagined, but queerer than anyone can imagine. **This is a most disturbing thought, and one flees from it by stating the exact opposite.** J. S. Haldane as cited R. G. Reid *Biological Emergences: Evolution by Natural Experiment* 2007:4311.*

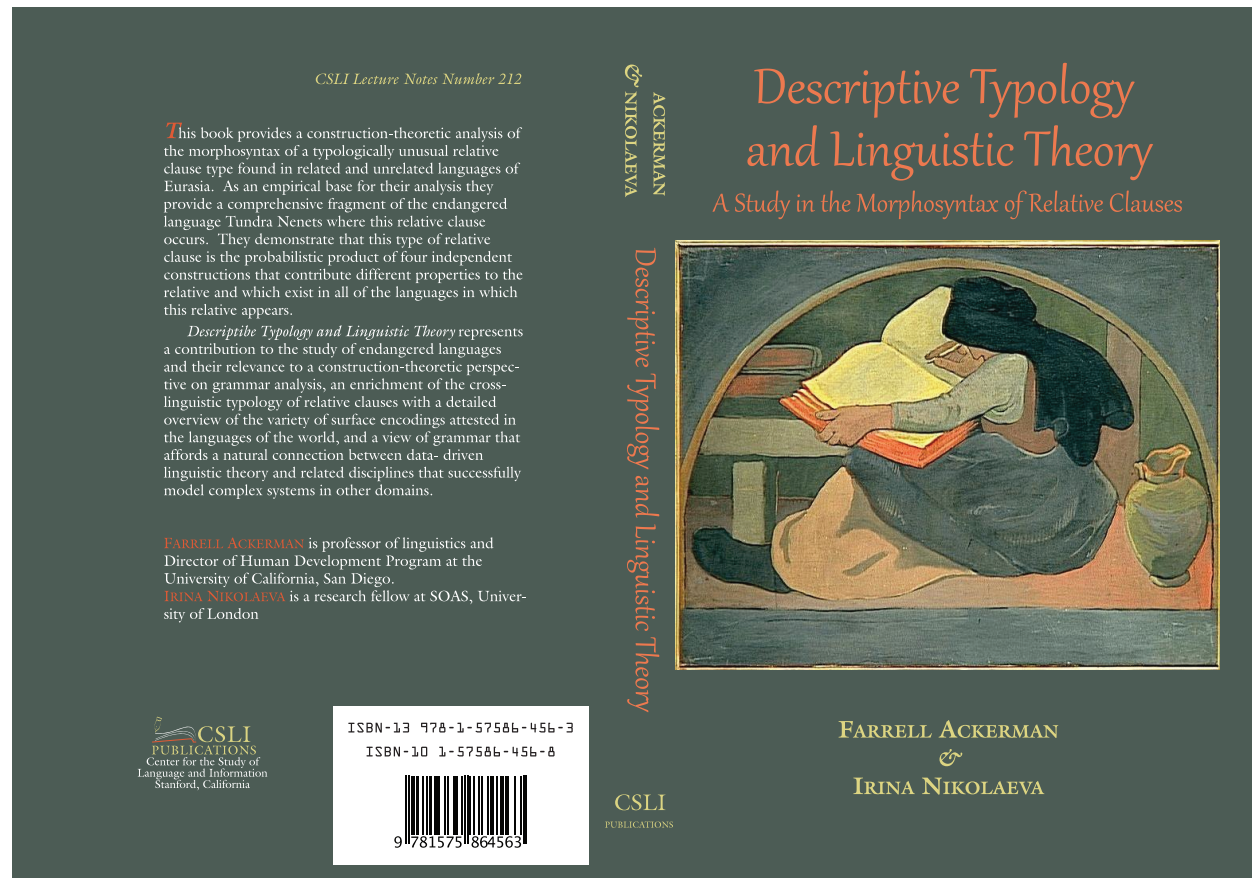
*“...individuals are quite stupid compared to the complexity of the problems we aspire to solve... **All anyone can hope to do is to make canny simplifications that do minimum damage to understanding.**” P. J. Richerson & R. Boyd *Not by genes alone: How culture transformed human evolution* 2005:248*

A question: What do you do if you constantly encounter phenomena that are unexpected or precluded by the standard canny simplifications in linguistic theory, i.e., rendered *anomalous*, which themselves appear to do more than minimum damage to understanding, but don't want to flee?

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Grammatical analysis and the developmental sciences

An answer: Look to research in *developmental systems* approaches for the analysis of complex phenomena as instructive for grammar analysis.



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Udi: Dynamics of language variation (A. Harris 2007)

Sometimes in the course of examining lesser studied languages an encoding strategy for a familiar empirical phenomenon seems surprising, even puzzling, given expectations developed on the basis of previous descriptive and theoretical research.

Harris 2007 identifies an unusual phenomena: **Udi endocclisis**, i.e., the positioning of person/number markers internal to complex verbal stems.

Consider the Udi verbal template in (5a) and its surface expression (1b):

1a. Incorporated element – person marker – light verb – tense/aspect/mood

b.	xoyš -	ne -	b -	sa
	request	3SG	do	PRES

‘He begs’

the person/number marker **ne -** appears *intermorphemically*, internal to a complex, but morphophonologically cohesive single verbal word.

Dynamics of language variation

More spectacularly, in (2), the person number marker is interposed *intramorphemically* between the two segments that comprise the root 'to drink' $u\gamma$:

Harris 2007 identifies an unusual phenomena: Udi endoclysis, i.e., the positioning of person/number markers internal to complex verbal stems.

Consider the Udi verbal template in (6a) and its surface expression (6b):

2a. ROOT1 – person marker – ROOT2 - tense/aspect/mood

b. u **ne** γ sa
 drink 3SG drink PRES

 'He drinks'

Possible explanations (A. Harris 2007)

Why are constructions such as these rare?

H1: such clitics make the host morpheme difficult to understand (to process)

H2: our innate language capacity makes intra-morphemic clitics difficult/ “expensive”

H3: this system is too complex to function well

H4: this system is too complex to be acquired easily by children.

Problems with these hypotheses

(i) no direct evidence exists to support any of these alternative views.

(ii) All four views are based on the fact that most languages lack word-internal clitics, and the reasoning would thus be circular.

(iii) This system has endured for at least 1600 years.

(iv) None of these views provides an explanation of why Udi (and presumably a few other languages) deviate from the common pattern and does in the particular way it does.

Potentiating the possible (A. Harris 2007)

Harris' Hypothesis: Udi possesses an unusual construction because its historical development presents an unusual combination of circumstances and events that **probabilistically potentiate** endocclisis.

Linguistic “anomaly” tells us what is possible in natural language and that, as in biological systems, rarity, or what appears to be anomaly, is explicable in terms of the dynamics of patterns in the system within which the phenomenon occurs;

the “anomalous” may not simply be an oddball encoding of the familiar and reducible it;

it may actually be different and instructive about how to analyze the more familiar encodings.

What's clear: Udi endocclisis is composed of cross-linguistically recurrent properties configured in a striking way: pronoun incorporation, grammaticalization of auxiliaries, variable morphotactics, syntactic focus constructions...

What's neither clear nor necessary: Udi endocclisis represents a variant of one or another of these properties, rather than a language particular encoding of them all.

“Anomaly”

What is **not** anomalous in Udi: association of SUBJ status with incorporated pro(nominal)s.

What is anomalous in Udi: patterns of distribution for the incorporated SUBJ pro.



2. Different bets on resolution

Different bets on resolution

Two questions:

Q1: Why does what recurs cross-linguistically, recur?

Q2: Why do the variations in encodings of what recurs look the specific way they do?

Two responses: (simplistically stated)

R1: Mainstream Generative Grammar (MGG) proposals focus on answering Q1 (UG) and bet that the answer to Q2 derives from this: the language faculty sets the representational constraints and constraints on basic representations and permutations to structures constrained by grammar principles to yield observed variation.

R2: Construction-theoretic proposals focus on answering Q2 by appealing to systemic motivations within particular (classes of) grammar systems for observed constructional variation and bet that systemic explanations at a broader level can be used to answer Q1.

R1: MGG bet (roughly characterized)

MGG tradition guided by the laudable hypothesis that it is may be possible for grammatical theory to identify restrictions on possible languages.

“...in part as a reaction to what was then felt as an unwarranted application of European grammatical categories and constructions to non-European languages, the common wisdom in American structuralism (epitomized in Joos 1957,96) was that “languages could differ from each other without limit and in unpredictable ways” so that each language should be studied “without any preexistent scheme of what a language must be”. The rejection of these assumptions, which are still adopted today by many functionalists, was implicit throughout the history of generative grammar, and is made explicit in **Chomsky’s (2001,) “Uniformity Principle” (“In the absence of compelling evidence to the contrary, assume languages to be uniform, with variety restricted to easily detectable properties of utterances.”)**. **The cartographic approach follows this idea in assuming that all languages share the same principles of phrase and clause composition and the same functional make-up of the clause and its phrases. Cinque & Rizzi 2008:4**

Variation enriches and confirms our favored beliefs about (universal) grammar design by requiring us to modify or create principles that make these basic assumptions more empirically responsible. (Boeckx *Bare Syntax* 2008: 63-64)

Problems with R1

(i) This strategy likely yields too narrow a view of what languages share as well as how different they can be (Evans and Levinson 2009 and Levinson and Evans 2010) and;

(ii) renders anomalous much of natural language variation, with very many languages departing from 'uniformity', often doing so dramatically;

One strategic way to avoid focusing on too much variation is to largely restrict the languages you look at and/or tightly circumscribe the set of phenomena you believe need to be explained (core), but this is known to be a seminal, strategic error.

Recall: "...one flees from it by stating the exact opposite."

"To exclude the evidence which their languages offer [Native American languages - FA] as to what the human mind can do is like expecting botanists to study nothing but food plants and hothouse roses and then tell us what the plant world is like." Whorf 1956: 215 (from Science and Linguistics)

(iii) makes linguistic research depart sharply from modern research in the developmental complexity sciences.

Comparative biology provides sophisticated ways to think about commonalities that underlie biological diversity. Bringing order to that diversity is not about identifying universal elements, but about finding order in the pattern of similarity and difference. P. Griffiths *Our plastic nature* in Gissis and Jablonka eds. *Transformations of Lamarckism*. 2011:328

What's generally wrong with instincts for X arguments?

On the basis of little more than speculation, William James described more than 20 instincts ... Subsequent writers added enthusiastically to that list until Bernard (1924) was able to catalog over 850 major classes of instincts proposed by psychologists...But in almost all cases, very little real evidence for the existence of an instinct was required for it to be proposed... Logan & Johnston 2007:763

This recalls the modern proliferation of functional categories in UG (Cinque and Rizzi 2008, Shlonsky 2010, among others)

... the nativist commitment to the idea of core knowledge and endowments that exist without relevant postnatal experience continue(s) to distract attention from the reality of developmental systems. The developmental systems approach embraces the concept of *epigenesis*, that is, the view that development emerges via cascades of interactions across multiple levels of causation, from genes to environments. Spencer et. al. 2009:79

Positing instincts for traits and behaviors is quick and easy, what's harder is to examine how systems are actually organized, develop, are maintained and change.

This is as true for language as for the complex dynamic systems analyzed in biology and psychology.

R2: Construction Theoretic bet: Distributional Typology

(Bickel 2013)

What linguistic structures are there in human languages, and how can we compare them?

Where do we find these structures, i.e. are they areally or genealogically restricted, or are they universally preferred or dispreferred?

Why do we find the structures where they are?

Construing these questions for our purposes:

These questions bear on identifying (and representing) a taxonomy of the basic units of linguistic analysis, their distributions, and exploring motivations for why they are the way they are.

This a strategy for resolving our difficult challenge and this is what I *informally* explore in the rest of the talk.

Summary

Do these specific patterns follow from,

- i) variations on innately specified syntactic representations and principles of grammar architecture or,
- ii) the dynamics of historical contingencies as constrained by principles of systemic organization?

An empirical issue:

It would be pure dogmatism to maintain, without empirical evidence, that the categorial component, or the lexicon, or the transformational component must be narrowly constrained by universal conditions, the variety and complexity of language being attributed to other components. N. Chomsky 1970:131, in Katamba ed. 2004.

In (i) words and paradigms (constructions, more generally) are epiphenomenal, while in (ii) they are fundamental objects of analysis, i.e., they are the objects that define systemic organization and they are the resources for explaining systemic (re)organization.

General Task

What is the relevance of the developmental sciences for language analysis?

What I am suggesting:

1. Developmental sciences (both psychological and biological) offer conceptual insights about how to approach and explain objects within complex adaptive systems.
2. Developmental sciences offer toolkits (computational simulations, quantitative analysis (probability, statistics, information theory) for analyzing such objects.
3. When grammar is conceptualized as a complex adaptive system, then the relevance of the developmental sciences in their focus on systemic organization and its multi-causal explanations becomes evident.

Grammatical analysis and the developmental sciences

*What I am **not** suggesting:*

1. Grammar derives from biologically pre-specified representations reflecting domain-specific and species-specific properties only relevant for human language, i.e. the Biolinguistic gambit on Universal Grammar.



Everything that will be, is there in more schematic at the beginning.

The adult steady-state grammar is there in inchoate form in the infant startstate.



Grammatical analysis and the developmental sciences

*What I am **not** suggesting:*

2. I don't know whether this is so, but I do know that it is a common and successful strategy in the developmental sciences to recognize that looking for **instincts for X**, e.g., a language instinct, is more often an obstacle to understanding traits and behaviors than it is a help:

The use of “explanatory” categories such as “innate” and “genetically fixed” obscures the necessity of investigating developmental processes in order to gain insight into the actual mechanisms of behavior and their inter-relations. The problem of development is the problem of the development of new structures and activity patterns from the resolution of the interaction of existing structures and patterns, within the organism and its internal environment, and between the organism and its outer environment.” In Oyama et. al. 2001:31

Positing instincts and innate representations forecloses asking important questions about why what occurs where it occurs and in way that it does over ontogenetic and phylogenetic time;

instead it focus on modifying what it prematurely assumes are the right answers whenever the empirical need arises. (Y-Z Kuo 1932; Schneirla 1966; Lehrman 1953, 1960, 1970; Gottlieb 1997; Amundson 2005; Blumberg 2009; Jablonka & Lamb 2005; Gilbert and Epel 2009, Hood et. al. 2010, among others.)

“The instinct psychologist ends his investigation where the non-instinct psychologist begins.” Y-Z Kuo 1922

3. The value of “anomalies”

The value of “anomalies” in biology

Despite their characterization as errors of nature, the anomalous, when properly considered, force us to confront and correct those errors in our thinking that often impede scientific insight and progress.” M. Blumberg *Freaks of Nature: What anomalies tell us about development and evolution*. Oxford University Press 2009:13

“We do not treasure our exceptions, as William Bateson urged us to do, we autoclave [sterilize FA] them.
S.Gilbert *The decline of soft inheritance* in Gisis and Jablonka eds. *Transformations of Lamarkism*. 2011:123

“Anomalies” extend our notions of what is possible, and hence, natural.

Guiding intuition: Recombinant potential in biological forms



Platypus (monotreme): A furry, egg-laying, duck-billed, echolocating venomous (when masculine) creature.

Two silly questions:

1. ***Is the platypus more or less natural than the duck or the beaver?***
2. ***Is the platypus a departure from a canonical duck or beaver, or is it the other way around?***

While all of the basic platypus properties are familiar, their alignments produce novel, historically contingent, and ecologically viable patterns.

The pattern is new, not the pieces (though, of course, the pieces themselves show variation).

Animal watchers, not butterfly collectors

Concerning the crucial role of naturalists in development of animal behavior studies:

Rejecting the dissectors bench, the morguelike character of natural history museums, and academic zoology in general, these fieldworkers thrived outdoors. Furthermore, unlike most field naturalist before them, they went out into nature *not as specimen collectors, but rather as animal watchers*. Burkhardt, *Patterns of Behavior* 2005:69

Charles Otis Whitman: **What is your beast?**

Q: What did they study?

A: All aspects of traits and behaviors and how they develop and emerge from the dynamic interaction of multiple interdependent dimensions.

The studies of field naturalists transformed the study of animal behavior into the science of comparative animal behavior and psychology.

The value of “anomalies” in language

“Anomaly” doesn’t exist in language, rather, lurking behind it are anomalous presuppositions and convictions that obtain in linguistic theory. A. Kibrik 2003:304

Linguistic anomaly tells us what is possible in natural language and that, as in biological systems, anomaly, or what appears to be anomaly, is explicable in terms of the system in which the phenomenon occurs.

Linguistics has its own *grammar watchers*, i.e., descriptive field linguists and typologists with their own beasts.

Grammatical platypuses: reuses of old pieces in new configurations for new purposes constrained by the pathways defined by interdependencies among many factors (= systemic motivation).

Construction-theoretic (pattern-theoretic) approach

Basic General Strategy: Provide detailed descriptions of cross-linguistically recurrent grammatical phenomena in all of their variety (without arbitrarily privileging any particular encoding).

Constant Large Question: What are the bounds of variability and what constrains it?

Recombination of individual elements and ensembles of elements found in independent constructions are systemic redeployments of old elements within new configurations constrained by contingent factors and shaped by the uniquely pattern creating capacities, as well as cognitive and perceptual capacities of humans.

Note: Uniquely human pattern forming capacities does not entail that any particular pattern is entitled to privileged or universal status.

This alternative perspective turns apparently unruly rarity in grammar into instructive guidance about the nature of adequate linguistic architectures.

4. A case study: Prenominal Possessive relatives

Systemic explanation of the possible: Potentiating the possible

(Ackerman & Nikolaeva *Descriptive Typology and Grammatical Theory* To appear)

Explore the hypothesis that grammar is a complex adaptive system in which interactions between its many dimensions and their ingredients produce a canalizing or directing influence concerning what sorts of grammar properties and constructions may arise over time.

Interpreted as a potentiating influence rather than a deterministic one since in many instances structures permitted by particular interactions simply do not occur, though they could have, given different contingent conditions.

Certain structures possess an exceedingly low probability of arising, since systemic interactions are unlikely to produce them.

Recalls Harris' main line of inquiry and her argument that systemic properties of the grammars license 'odd' constructions.

In our case the ante is raised: rather than looking at a single construction in a lone language, we analyze an 'odd' construction type that appears in numerous related and unrelated languages in Eurasia.

Moreover, relative clauses are undoubtedly a core linguistic construction according to any criteria, given that they are so pervasive in the languages of the world and that they have been analyzed in every linguistic theory.

What's not anomalous: Prenominal relative clauses

Many languages have externally headed prenominal NON-SUBJECT relatives:

$$\left[\left[\emptyset_{\text{GAP}} \dots V_{\text{MC}} \right]_{\text{LOCAL DOMAIN}} \text{NP}_{\text{HN}} \right]_{\text{EXTERNAL DOMAIN}}$$

NON-SUBJ

NON-SUBJ

built house

`the built house'

Diagram 1

1. The relative functions as the modifier of the relativized head nominal (HN)
2. The local domain headed by the verbal mixed category (MC) is a full clause
3. The relativized nominal bears a NON-SUBJECT, (OBJ, ADJUNCT...) relation to the gap
4. Gap simply a convention for indicating that something is missing in the local domain that bears a syntactic & semantic relation to the V_{MC} .

Q: How is a pronominal SUBJ expressed?

What's not anomalous: Construction Type 1

M(ixed)C(ategory)-inflected relative: person-number marker (**PNM**) expresses SUBJ pronominal on the $V_{\text{MIXED CATEGORY}}$

3. [[\emptyset_{GAP} ... $V_{\text{MC-PNM}_{\text{SUBJ}}}$]_{LOCAL DOMAIN} **HN**]_{EXTERNAL DOMAIN}

Diagram 2

Eastern Armenian (IE):

4. [[(ma) \emptyset_{GAP} ... gnac'-əs-]_{LOCAL DOMAIN} **hovanocə**]_{EXTERNAL DOMAIN}
1SG.GEN buy.PERF.PART-1SG.SUBJ umbrella-DEF
'the umbrella I bought'

Diagram 3

Observation: The **PNM** is *local* to the domain defined by the verbal modifier.

What is anomalous: Construction Type 2

Possessive relative - person-number marking (**PNM**) expresses SUBJ pronominal on the **HN**:

$[[\emptyset_{\text{GAP}} \dots V_{\text{MC}}]_{\text{LOCAL DOMAIN}} \text{HN-PNM}_{\text{SUBJ}}]_{\text{EXTERNAL DOMAIN}}$

Western Armenian (IE):

5. $[[(\text{im}) \emptyset_{\text{GAP}} \dots \text{ko}\check{\text{v}}\text{tsadz}]_{\text{LOCAL DOMAIN}} \text{t}\check{\text{a}}\text{ram}\check{\text{a}}\text{s-}\check{\text{a}}\text{s}]_{\text{EXTERNAL DOMAIN}}$
1SG.GEN stole-PERF.PART money-1SG
'the money I stole'

Observation 1: The **PNM** seems to be in the wrong place, i.e., it bears a SUBJ relation to the V_{MC} heading the modifying clause. (runs afoul of the *locality* evident in Pattern 1)

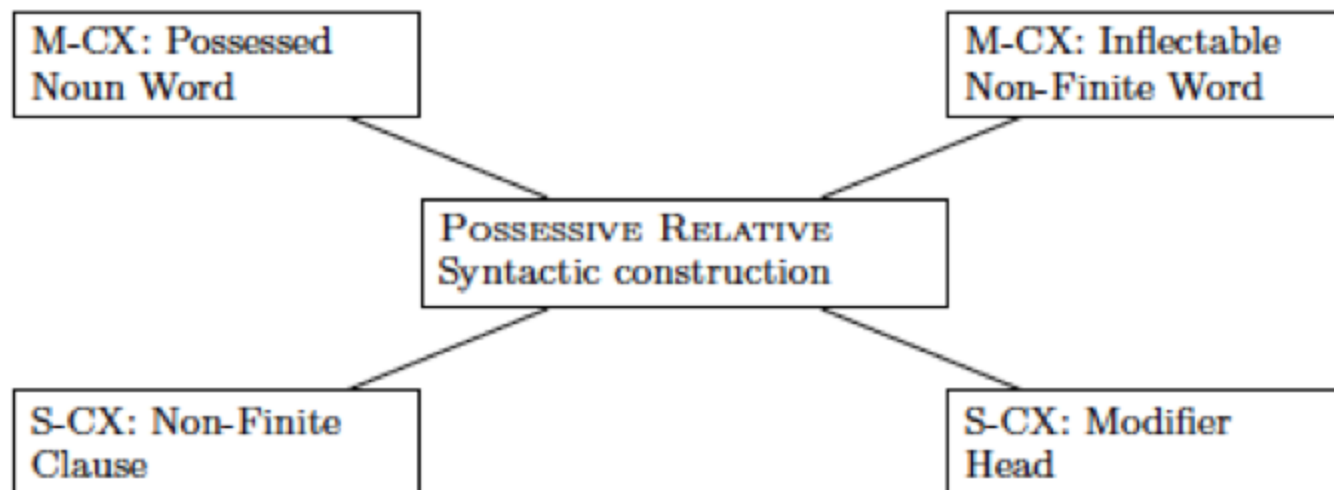
Nominal Possessive Constructions: Head-marking strategy

6. $(\text{im}) \text{hin} \text{n}\check{\text{a}}\text{v}\check{\text{e}}\text{r-}\check{\text{a}}\text{s}$
1SG.GEN old letter-1SG
'my old letter'

Q: Is the resemblance between these independent constructions fortuitous?

Construction-theoretic gambit

Guiding intuition: Cross-linguistically, languages with Possessive Relatives (PRC) contain the same four independent contributing constructions with language specific encodings.



Possessive relative clauses (Ackerman & Nikolaeva *Descriptive Typology and Linguistic Theory*

2013)

In diverse languages considered separately, each for itself and in its own functioning, the analysis of the relative clause shows a formal structure ordered by a certain function that is not always visible. The problem is to uncover that function. This can be arrived at by observing that the relative clause often has, in a given linguistic system, the same formal marks as another syntagm of a denomination so entirely different that no one would think that they could be related. Guided by this formal analogy, the interpretation of the relative clause becomes possible in terms of function. It is the internal relationship which we propose to bring to light first. Emile Benveniste 1971

What's not anomalous: prenominal relatives (and relative clauses as a nominal modification type more generally).

What seems anomalous: a prenominal relative where an incorporated pronoun evinces a non-local relation to its verbal modifier.

Summary

1. PRCs are externally headed prenominal clauses
2. Their subjects are expressed by (either lexical NPs) or incorporated pronominals on their modified head.
3. As subject pronominals the PNM should be local, like incorporated pros or grammatical agreement, but they are external to the V_{MC} which heads the relative.

Possessive relative clauses

Hypothesis: Possessive relatives are instructive about the nature of grammar organization, and hence, the nature of grammatical architecture more broadly construed.

Question 1: Where do these relatives occur?

Observation 1: They seem to appear only in genetically related and unrelated languages in Eurasia. (note: E. Armenian has MC-inflected relative, but W. Armenian has Possessive relative.)

Uralic	Ob-Ugric (W. Ostyak, Vogul) Samoyed (Tundra Nenets, Enets, Nganasan), Udmurt, Komi, Mari
Mongolic	Buryat, Dagur, Kalmyk, Khalkha Mongolian
Turkic	Southwestern (Azerbaijani, Turkmen, Gagau, Southeastern (Uzbek, Uighur), Northeastern (Sakha, Shor, Tuva, Khakas, Altai), Northwestern (Kazakh, Kirghiz, Tatar, Bashkir, Karakalpak), Chuvash
Tungus	Evenki, Even, Orok
Palaeosiberian isolate	Kolyma Yukaghir, Tundra Yukaghir
Indo-European	Western Armenian

Possessive relative clauses

Question 2: Do these distributions follow from any theory, i.e., are they predicted?

Observation 2: Every theory can deploy its tools to redescribe these distributions: this is a minimal condition of adequacy for analysis.

Basic Challenge: Is there a way to motivate/explain why the Possessive Relative looks the way it does and is reliably identical to nominal possessive constructions wherever it occurs?

Tundra Nenets: Possessive relatives



FINNO-UGRIC				~SAMOYEDIC~		~YUKAGHIR~	
FINNIC				UGRIC			
A. Baltic-Finnic:	Veps 3	Udmurt		A. Hungarian		Enets 5	Tundra
Estonian	Votic 4	D. Mari		B. Ob-Ugric:		Nenets	Kolyma
Finnish	B. Sami	E. Mordvin		Mansi		Nganasan	
Ingrian 1	C. Permic:			Khanty		Selkup	
Karelian	Permyak						
Livonian 2	Komi						

Diagonal lines indicate sparsely populated areas

Relevant grammatical features

Morphological:

1. Largely agglutinative with some cumulative markers
2. Polyfunctional set of PERSON NUMBER MARKERS (PNMs) signaling two-place relations: SUBJ/OBJ, POSS-OR/POSS-ED, LOCATION/LOCATUM
3. Morphotactics: N-CM-PX
4. 3 PERS; 3 NUM (SG, DU, PL)
5. 7 nominal CASES

Syntactic:

1. SOP
2. Numerous non-finite clauses

Construction Type 2

Possessive relative - person-number marking (**PNM**) expresses SUBJ pronominal on the **HN**:

$[[\emptyset_{\text{GAP}} \dots V_{\text{MC}}]_{\text{LOCAL DOMAIN}} \text{HN-PNM}_{\text{SUBJ}}]_{\text{EXTERNAL DOMAIN}}$

Tundra Nenets (Uralic):

$[[\emptyset_{\text{GAP}} \dots \text{ta-wi}^{\circ}]_{\text{LOCAL DOMAIN}} \text{te-da}]_{\text{EXTERNAL DOMAIN}}$
give_{MC} reindeer-3sg
'the reindeer he/she gave'

Observation 1: The **PNM** seems to be in the wrong place, i.e., it bears a SUBJ relation to the V_{MC} heading the modifying clause. (runs afoul of *locality*)

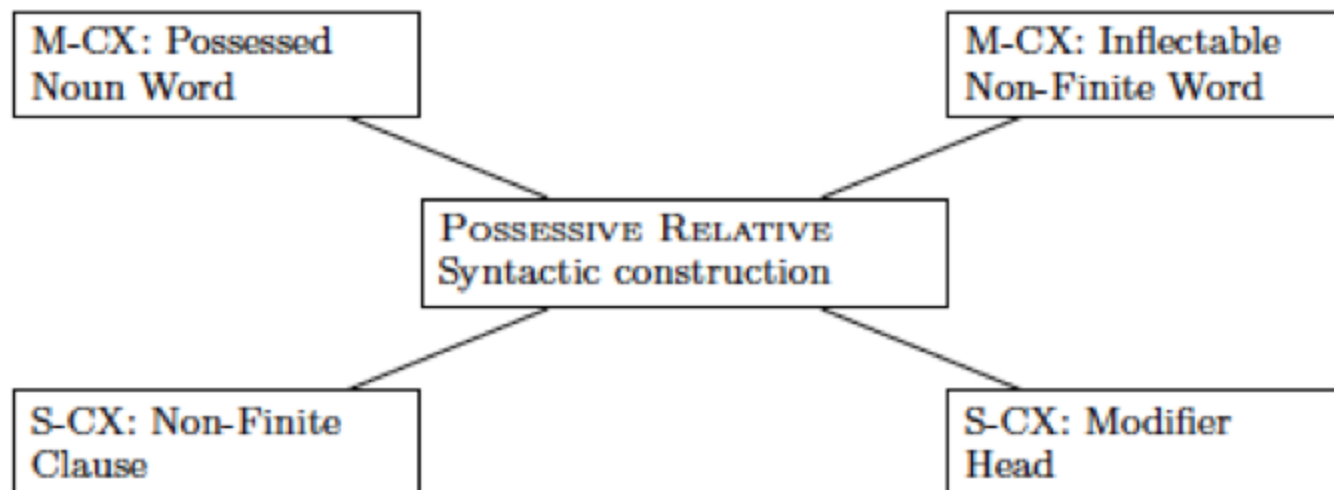
Nominal Possessive Constructions: Head-marking strategy

serako te-da
white reindeer-3sg
'his/her reindeer'

Q: Is the resemblance between these independent constructions fortuitous?

Construction-theoretic gambit

Guiding intuition: Cross-linguistically, languages with Possessive Relatives (PRC) contain the same four independent contributing constructions with language specific encodings.



M-CXs: Possessed Noun Word & Inflectable Non-Finite Word

	<i>verb-an-perf</i> (accusative)	<i>verb-an-perf</i> (ablative)	<i>noun-possessed</i> (accusative)	<i>noun-possessed</i> (ablative)
	nú- `stand'	nú- `stand'	tí- `reindeer'	tí- `reindeer'
1SG	núqma-w°	núqma-x°dән°	te-w°	te-x°dән°
2SG	núqma-mt°	núqma-x°dәnt°	te-mt°	te-x°dәnt°
3SG	núqma-mta	núqma-x°dәnta	te-mta	te-x°dәnta
1DU	núqma-m'ih	núqma-x°dән'ih	te-m'ih	te-x°dән'ih
2DU	núqma-mt'ih	núqma-x°dәt'ih	te-mt'ih	te-x°dәt'ih
3DU	núqma-mt'ih	núqma-x°dәt'ih	te-mt'ih	te-x°dәt'ih
1PL	núqma-waq	núqma-x°dәnaq	te-waq	te-x°dәnaq
2PL	núqma-mtaq	núqma-x°dәntaq	te-mtaq	te-x°dәntaq
3PL	núqma-mtoq	núqma-x°dәntoh	te-mtoq	te-x°dәntoh

Verbal action nominal inflected word: `I am standing'...

Person/Number Marker:
functions as incorporated SUBJ
pro on all inflectable non-finite
verbs

Possessed noun word:
`my reindeer'...

Person/Number Marker:
functions as incorporated
possessor on all possessed
nouns.

Formal parallelism: M-CX possessed noun word and possessive relative non-finite word

Nominal possessive construction		POSSESSIVE RELATIVE construction	
(mən'°)te-w°	'my reindeer'	[(mən'°)ta-wi°] te-w°	'the reindeer I gave'
(pidər°) te-r°	'your (SG) reindeer'	[(pidər°) ta-wi°] te-r°	'the reindeer you gave'
(pida) te-da	'his/her reindeer'	[(pida) ta-wi°] te-da	'the reindeer he/she gave'
(mən'ih) te-m'ih	'our (DU) reindeer'	[(mən'ih) ta-wi°] te-m'ih	'the reindeer we (DU) gave'
(pid'r'ih) te-r'ih	'your (DU) reindeer'	[(pid'r'ih) ta-wi°]te-r'ih	'the reindeer you (DU) gave'
(pid'ih) te-d'ih	'their (DU) reindeer'	[(pid'ih) ta-wi°] te-d'ih	'the reindeer they (DU) gave'
(mən'aq) te-waq	'our (PL) reindeer'	[(mən'aq) ta-wi°]te-waq	'the reindeer we (PL) gave'
(pid°raq) te-raq	'your (PL) reindeer'	[(pid°raq) ta-wi°] te-raq	'the reindeer you (PL) gave'
(pidoh) te-doh	'their (PL) reindeer'	[(pidoh) ta-wi°] te-doh	'the reindeer they (PL) gave'

	POSSESSIVE	POSSESSIVE RELATIVE
Case marking of lexical NP	GEN	GEN
Case marking of <i>pro</i>	NOM	NOM
Head marking with lexical NP	no / yes (discourse-marked)	no / yes (discourse-marked)
Head marking with <i>pro</i>	yes	yes

How do nominal possessive constructions work?

In Tundra Nenets, as elsewhere in Eurasia, “possessive” constructions, are used to express a wide range of relations between two nominals.

“. . . a nominal in the genitive case used in the expression of adnominal determination designates not only possession in the substantive sense of this word, but also a relation (relevance), concerning a characteristic of one entity with respect to another entity. - Tereshchenko 1956:64

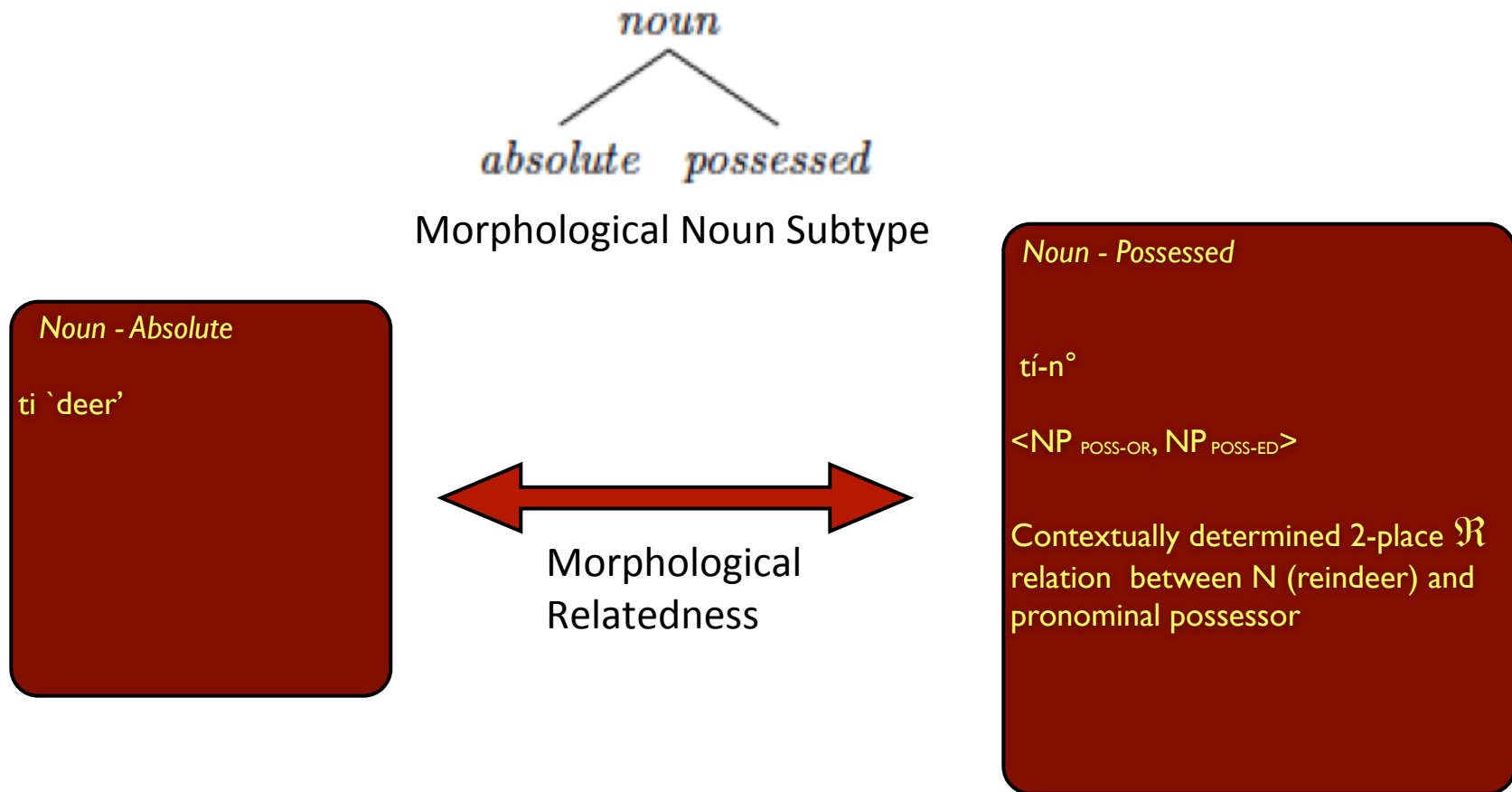
- 7a. te-w°
reindeer-1SG
'my (one) reindeer'
- b. tí-n°
reindeer-Pl.1SG)
'my (many) reindeer' (the one(s) I own, sit on..)
8. ti-h ya
reindeer-GEN soup
'deer soup' (for the reindeer, made of reindeer...)
9. Wata-h ya
Wata-gen soup
'Wata's soup' (the soup he cooked/eats/like...)

“Possessive constructions” represent a vague two place associative relation \mathfrak{R} between a ‘possessor’ and a ‘possessed’ arg(ument).

The semantics of possession

In **EXTRINSIC POSSESSION** (Barker, 1995; Jackendoff, 1977; Partee, 1997; Partee and Borschev, 2003) the precise nature of the associative relation is determined pragmatically or contextually:

Possessive inflected word provides a relation designated by \mathfrak{R} which is contextually specified, while the related absolute form of the word does not:



Putting words together: Modifier-head syntactic construction

Modifiers obligatorily agree with the head for number (singular/dual/plural)

Modifiers optionally agree with the case of the head and the person/number of the possessor (see Nikolaeva 2008).

(10) (pidər^o) serako(r^o) te-r^o
you.SG white-2sg reindeer-2sg
'your (sg) white reindeer'

(11) (pidər^o) serako-q/serako-d^o tí-d^o
you.sg white-pl/white-pl.2sg reindeer-pl.2sg.
'your (sg) white deer (pl)'

Optional concord (agreement) suggests that words need to be provided with information concerning CONCORD and the relevant values for this feature.

yəda-we-(m'i) ŋaqŋo-m'i
shoot-PERF.PART-1SG duck-1SG
'the duck I shot'

Non-finite modifiers show optional concord, just like simple adjectival modifiers.

Specifying the associative relation

The POSSESSIVE RELATIVE strategy exploits the vagueness of the \mathfrak{R} relation of possessives, restricting its semantics and syntax to the semantics and syntax of the non-finite verbal modifier.

[[\emptyset_{GAP} ... ta-wi^o]_{LOCAL DOMAIN} te-da]_{EXTERNAL DOMAIN}
give_{MC} reindeer-3SG
'the reindeer he/she gave'

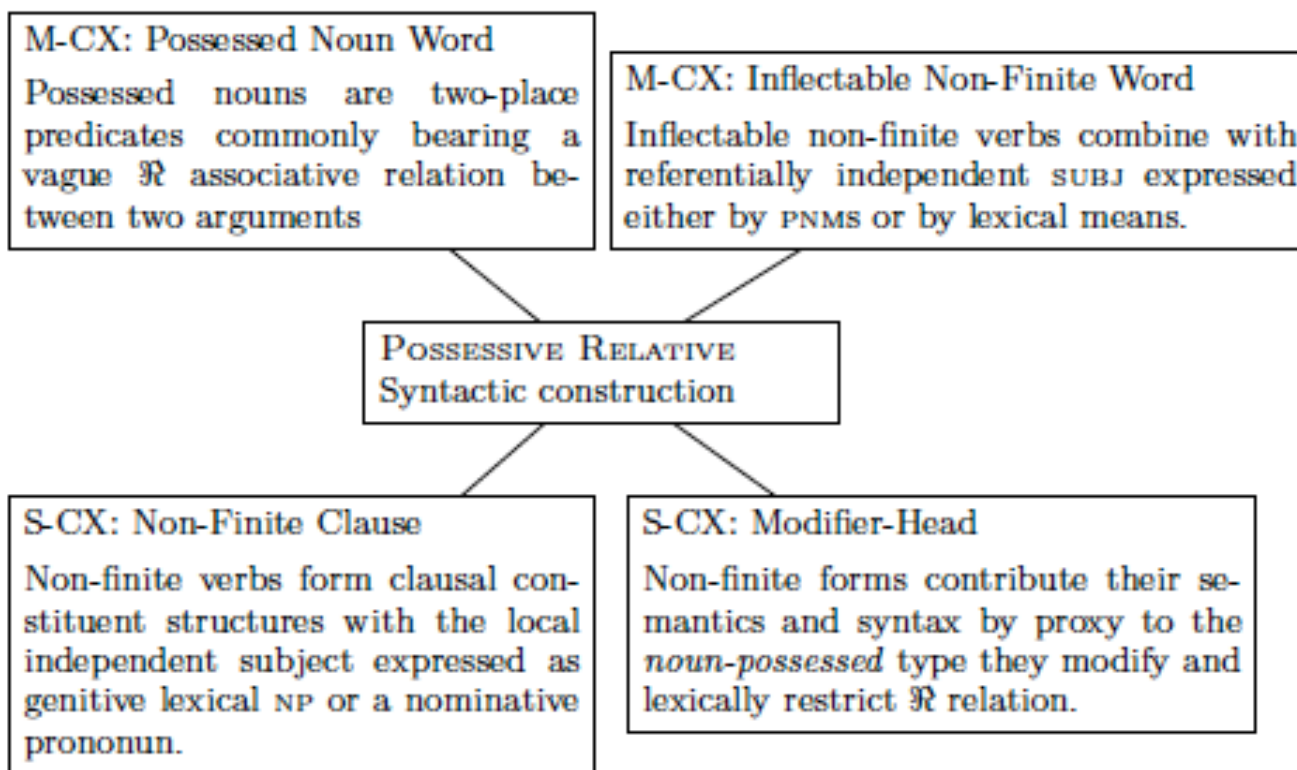
The possessed nominal 'deer' is associated with a relation \mathfrak{R} whose value is determined by the meaning of the non-finite verbform 'give', i.e., \mathfrak{R} is lexically restricted within the possessive relative construction.

PNM interpreted as bearing the semantic role "giver" and the grammatical relation SUBJ. (*often an implicature that the modified N is "possessed" by the SUBJ.*)

The vague semantics of the possessive nominal provides the opportunity for the relative construction to specify a meaning supplied by the non-finite verb.

Construction-theoretic gambit

Guiding intuition: Cross-linguistically, languages with Possessive Relatives (PRC) contain the same four independent contributing constructions with language specific encodings.



Construction-theoretic gambit

Recombination of various elements found in independent morphological and syntactic constructions cooperate to probabilistically yield a systemic redeployment of a new configuration, the prenominal Possessive Relative.

$P(c1, c2, c3, c4 \mid \text{PRC}) \approx 1$ If a language has PRC, it is potentiated by c1-c4.

$P(\text{PRC} \mid c1, c2, c3, c4) = ?$ If a language has c1-c4, can't predict presence of PRC, since there are numerous languages that have many or all of c1-c4, but don't have prenominal *Possessive* relative.

The challenge for the generalization: Try to locate data that **disconfirm** an explanation in terms of contributing constructions, since more confirming data doesn't help to establish it's viability.

Hypothesize resolution of the difficult challenge

A question: What do you do if you constantly encounter phenomena that are unexpected or precluded by the standard canny simplifications in linguistic theory, i.e., rendered *anomalous*, which themselves appear to do more than minimum damage to understanding, but don't want to flee?

An answer: Look to how independent construction types redeploy their pieces in new combinations within particular (classes of) grammatical systems,

borrowing ideas and tools from developmental sciences in which complex objects are interpretable as the dynamic reuse of old pieces for new purposes.



Thanks for listening