SLE 2018 | WS Comparative corpus linguistics

Is intransitive subject the preferred role for introducing new referents?

Evidence from corpus-based typology

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DFG

ARC CENTRE OF EXCELLENCE FOR
THE DYNAMICS OF LANGUAGE

THE UNIVERSITY OF
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Overview

1. Introduction:
   Argument structure as architecture for referent introduction
2. Language corpora, annotations, and methods
3. Findings:
   P arguments as the predominant entry point for new referents
4. Conclusions and outlook

Once upon a time...

(1) Grimm's *Fairy tales*, "The wolf and the seven young kids"

a. *There was once upon a time [an old goat]$_{S}$*

b. *[who]$_{A}$ had [seven little kids]$_{P}$*

c. *and Ø$_{A}$ loved [them]$_{P}$ . . .*

(2) *Once upon a time [an old goat]$_{A}$ had [seven kids]$_{P}$ . . .*

S and P, vs. A

… most lexical mentions occur in absolutive argument positions (S or O [= P]), but are avoided in the ergative (A) slot, which is mostly restricted to reduced forms (pronoun, agreement, zero). Correspondingly, most new mentions occur in S or O [= P], with few occurring in A.

– Du Bois 2017: 29, emph. added

Preferred argument structure

- Du Bois' (1987, 2003, 2017) '**preferred argument structure**':
  - certain syntactic roles are systematically associated with particular information status
  - due to assumed constraints on information processing

    Chafe's (1987) 'one new concept at a time constraint'

    Lambrecht's (1994) 'separation of role and reference'

- cf. 'pragmatic linking' (Durie 2003):

  S + P provide "a predictable locus for unpredictable work"

  (Du Bois 2003a: 47)

S and P as vectors of new information

Among the things that a speaker may know about the verb come in, *for example, is that its S role provides a reliably usable slot for introducing a new human protagonist into a discourse. Likewise, the O [= P] of the verb* meet *may serve a similar function.*

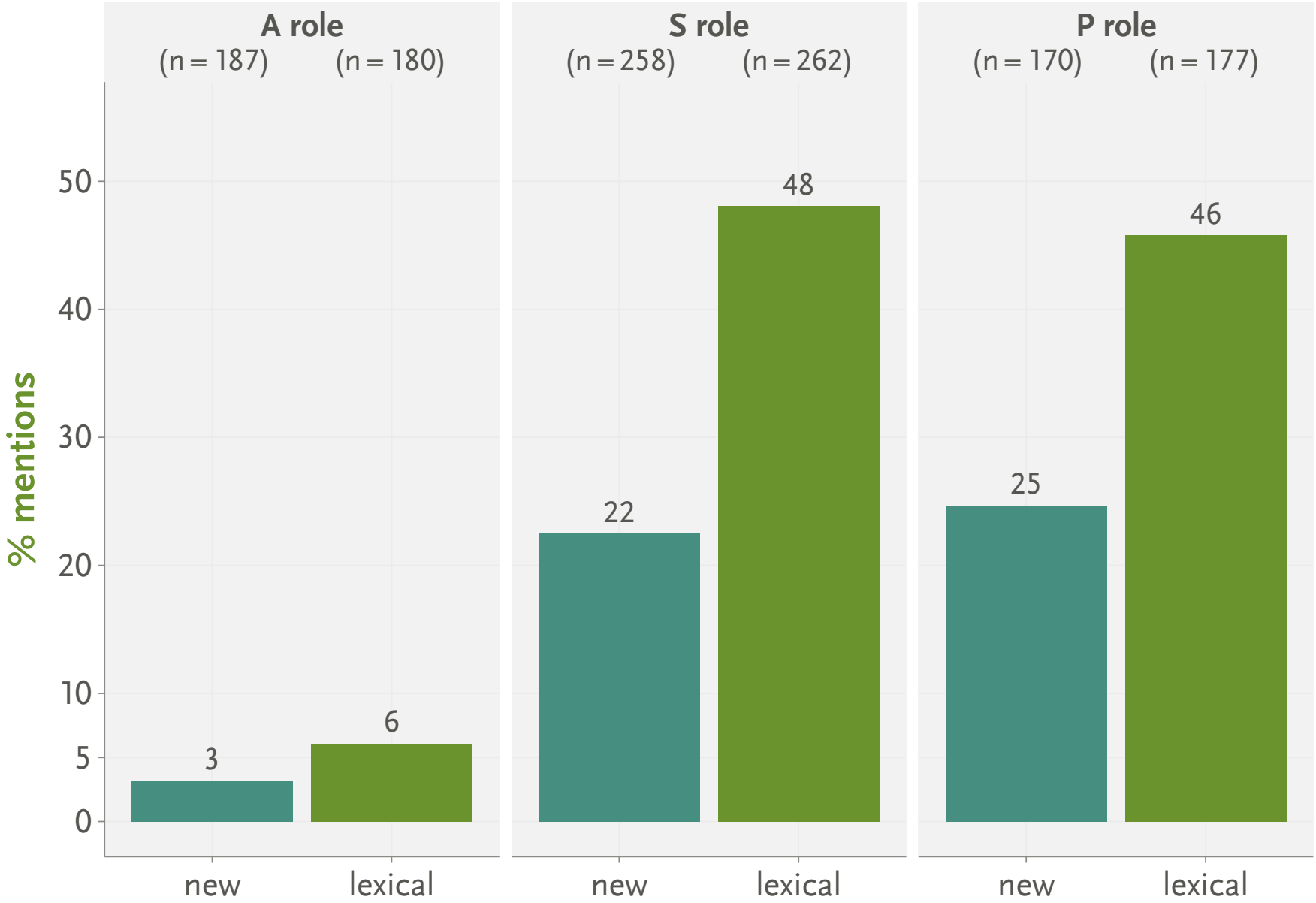
– Du Bois 2003a: 40, emph. added

Cognitive constraints

The way to fulfilment [i.e. to abiding by the constraints on argument structure in discourse processing] is via a simple principle of discourse: Speakers need not say everything in one clause. Facing cognitive constraints that could frustrate their expressive goals, speakers can simply mobilize their planning capacity to organize a series of successive clauses.

– Du Bois 2003b: 76, emph. added

Sakapultek (Mayan, Du Bois 1987: 822; 828)



Intransitive introduction

- **but,**
  it is **intransitive clauses** that are added
  for the sake of information flow

  rather than for their "conceptual content
  or semantic one-placeness" (Du Bois 1987: 831)
- e.g. predicates like *arrive, appear, come in*

- hence '**intransitive introduction, transitive narration**':
  speakers prefer the S role for introducing new referents
  to minimize processing costs

Intransitive introduction

(3) *Pear stories* (Chafe 1980)

a. *a man was picking pears* (p. 316, speaker 16)

b. *there was a man, who was picking pears* (p. 306, speaker 7)

- both options are grammatical,
- but the second is **preferred**

Research questions

1. Is the **S role**, as claimed, cross-linguistically "specialized" for the **introduction of new referents**, regardless of language type?

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2. In what ways can this be meaningfully evaluated from a **statistical perspective**?
3. Are the **S and P roles** comparable in this respect?
4. What is the role of non-core arguments in managing new information?

The sample

- non-elicited, monologic spoken narratives
  from the freely accessible **Multi-CAST collection**
  (Haig & Schnell 2015)

corpus	affil.	n(clauses)	citation
Cypriot Greek	I.-E.	1 071	Vollmer & Hadjidas 2015
English	I.-E.	1 244	Schiborr 2015
North. Kurdish	I.-E.	1 389	Haig & Thiele 2015 *
Sanzhi Dargwa	Nakh-Dagh.	1 702	Forker & Schiborr in prog.
Teop	Oceanic	1 272	Mosel & Schnell 2015
Vera'a	Oceanic	2 377	Schnell 2015
totals		**8 971**	

* with additional contributions by Maria Vollmer

Methodology: annotations

- the corpora have been manually annotated for
  - the form and **role** of referring expressions,
    (with GRAID, Haig & Schnell 2014)
  - the **identity** of each mention of a referent, and
    (with RefIND, Schiborr et al. 2018)
  - the **information status** of new referents
    (with RefLex, Riester & Baumann 2017)

Examples

(4) **Sanzhi Dargwa** [sanzhi_devil_034]

xun-ne-b		*suk*	*b-ič-ib*	*k:urt:a*
road-SPR-N	Ø	meet	N-occur.PFV-PRET	fox
np:l	0.h:s	other	v:pred	np.d:p
	0002			0031
				new

'On the road (he) met a fox.'

GRAID: grammatical relations

- defined as per Andrews (2007, 1985) as
  '**generalizations of semantics prototype roles across encoding properties**'
  - **S** = subjects of intransitive clauses
  - **A** = function coded like prototypical agents
  - **P** = function coded like prototypical patients

GRAID: grammatical relations

- additionally, we distinguish
  - goals, recipients, and addressees,
  - static locations,
  - other oblique arguments, and
  - others (possessors, predicates, direct address, etc.)

RefIND: identifying discourse referents

- **discourse referents**
  - are linguistic representations of construed entities,
  - time-stable within the universe of discourse and
  - trackable across states-of-affairs throughout a discourse (Du Bois 1980); but which
  - exclude various instances of nominal expressions,
    - e.g. those under scope of negation,
      predicates of classificatory clauses,
      conflated objects, etc.

RefIND: new vs. given

- at the first mention in linear order of a particular referent, that referent is considered **newly introduced**;
- all subsequent mentions of the same referent are assumed to be **given**

RefLex: new, unused, and bridging

bridging

- **a.** referent inferable from frame semantics or
- **b.** a previously mentioned situation, or
- **c.** anchored to an already given referent

unused

a globally known entity,
via encyclopædic or cultural knowledge

(brand) new

referent not otherwise inferable or known

Examples

(5) **Sanzhi Dargwa** [sanzhi_devil_038]

kːurtːa-l	*b-ičː-ib*	*hel-i-j*	*cin-na*	*ʁez*
fox-ERG	N-give.PFV-PRET	that-OBL-DAT	REFL.SG-GEN	hair
np.d:a	v:pred	pro.h:g	ln_refl.d:poss	np:p
0031		0002	0031	0032
				bridging

‘The fox gave him one of its hairs.’

Methodology: automation

- based on the annotations, we can algorithmically determine
  - the **frequency** of each unique referent,
  - the **position** of each mention relative to others
    (e.g. for newness, lookback distance, etc.), and
  - the **relative proportions** of each group
    (i.e. `corpus | role | information status`)

Methodology: procedure

1. the texts are annotated in ELAN,* stored as XML files
2. a custom R script reads these XML files,
   and transforms them into a table
   (data and scripts are available in the `multicastR` package**)
3. each row of the table represents one 'grammatical word',
   i.e. the smallest GRAID annotation unit
4. the table is filtered for the heads of referring expressions,
   thereby excluding all non-referring material,

   so that one data point = one referring expression

* https://tla.mpi.nl/tools/tla-tools/elan/
** https://CRAN.R-project.org/package=multicastR

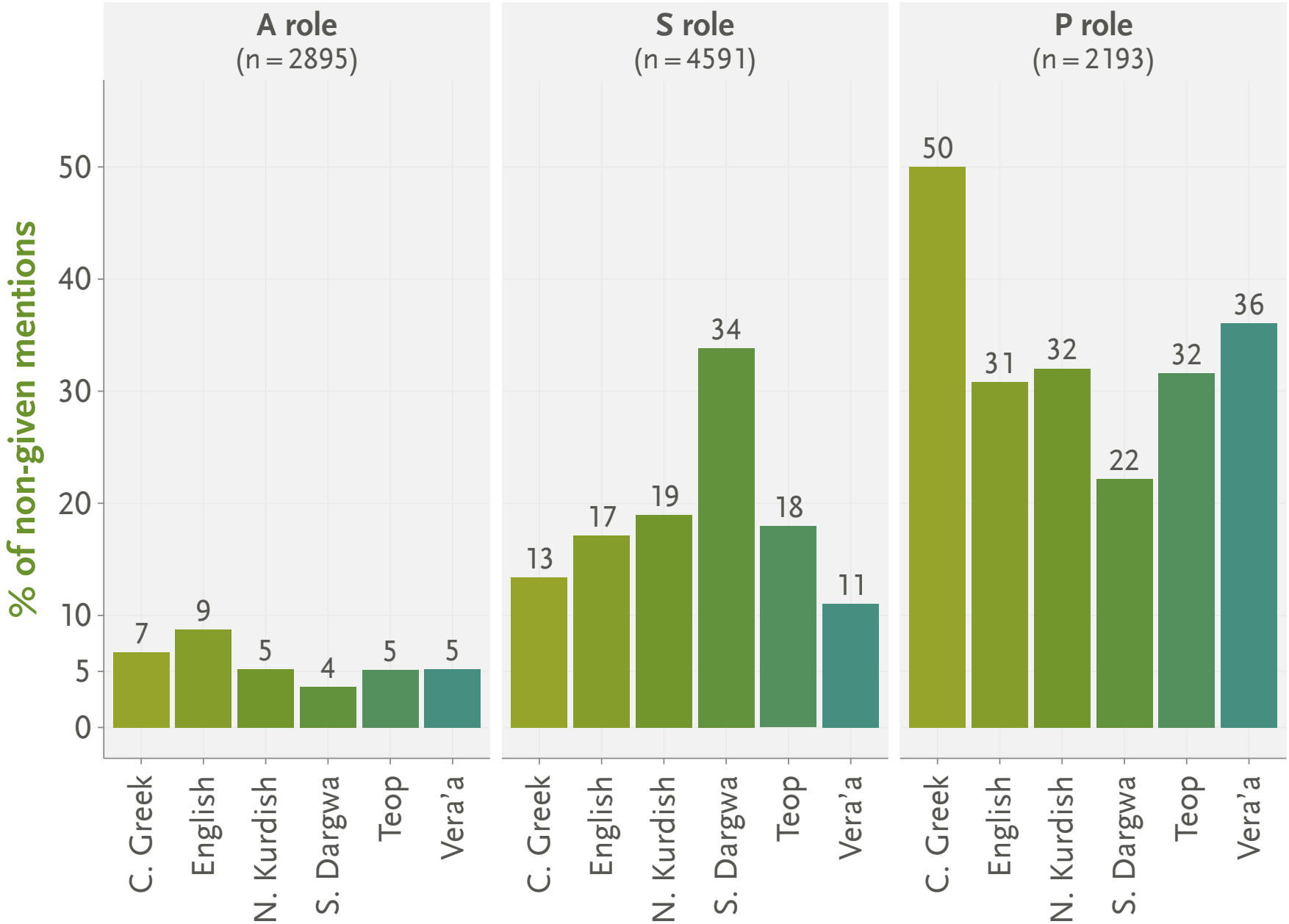
Given and new: proportions

- tracked referents 1 273 across 29 texts
- **total mentions** **13 677**
  - brand new 531 (4 %)
  - bridging 565 (4 %)
  - given 12 533 (92 %)

- ‘tracked’ referent
  = unique referent with at least two mentions
  (excluding 1104 referents mentioned only once)

New mentions (A)

given a newly introduced referent,
what is the probability of it being in a particular role?


A role
(n = 2895)
S role
(n = 4591)
P role
(n = 2193)
% of non-given mentions
0
5
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30
40
50
7
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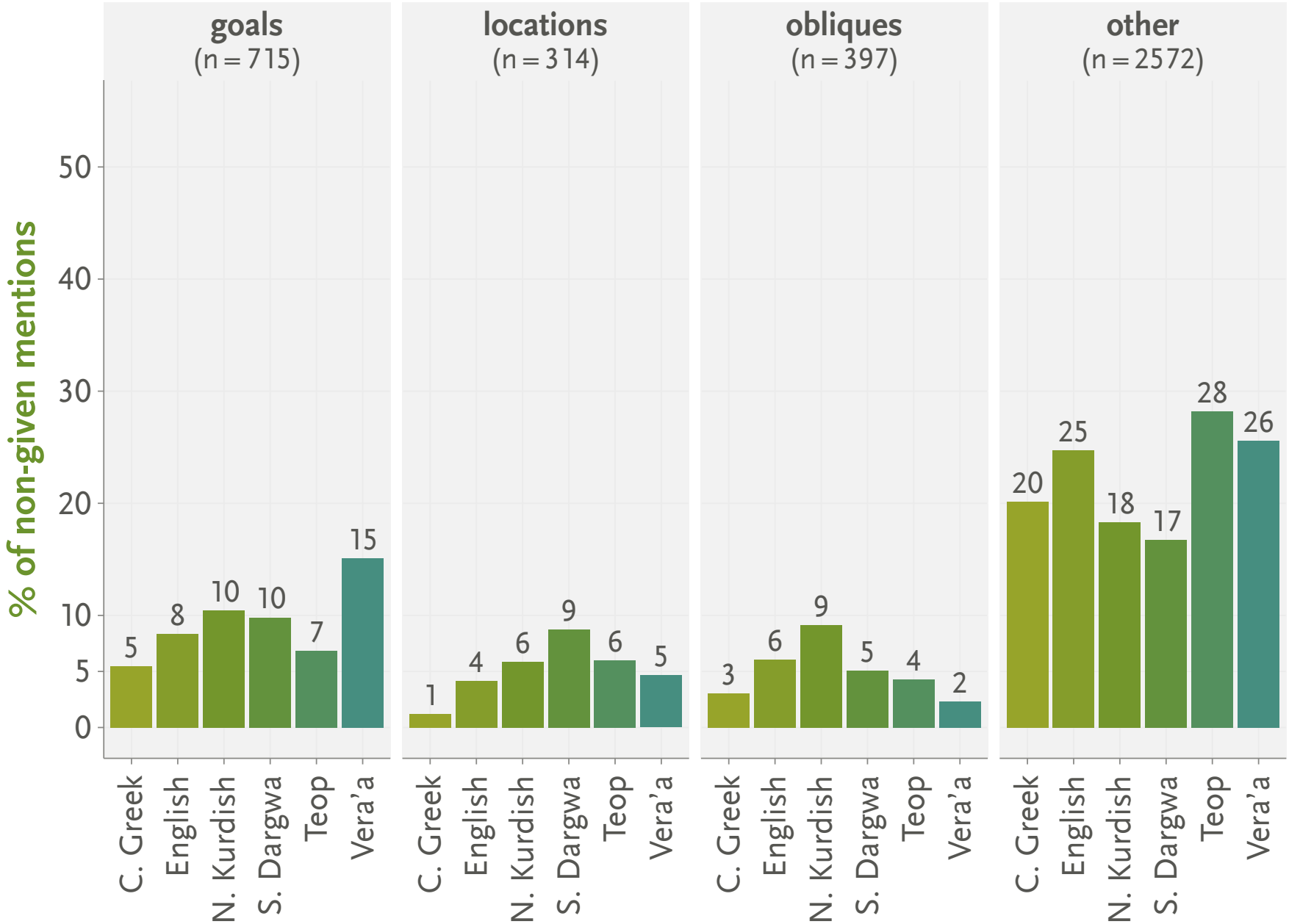
C. Greek
English
N. Kurdish
S. Dargwa
Teop
Vera'a


goals
(n = 715)
locations
(n = 314)
obliques
(n = 397)
other
(n = 2572)
% of non-given mentions
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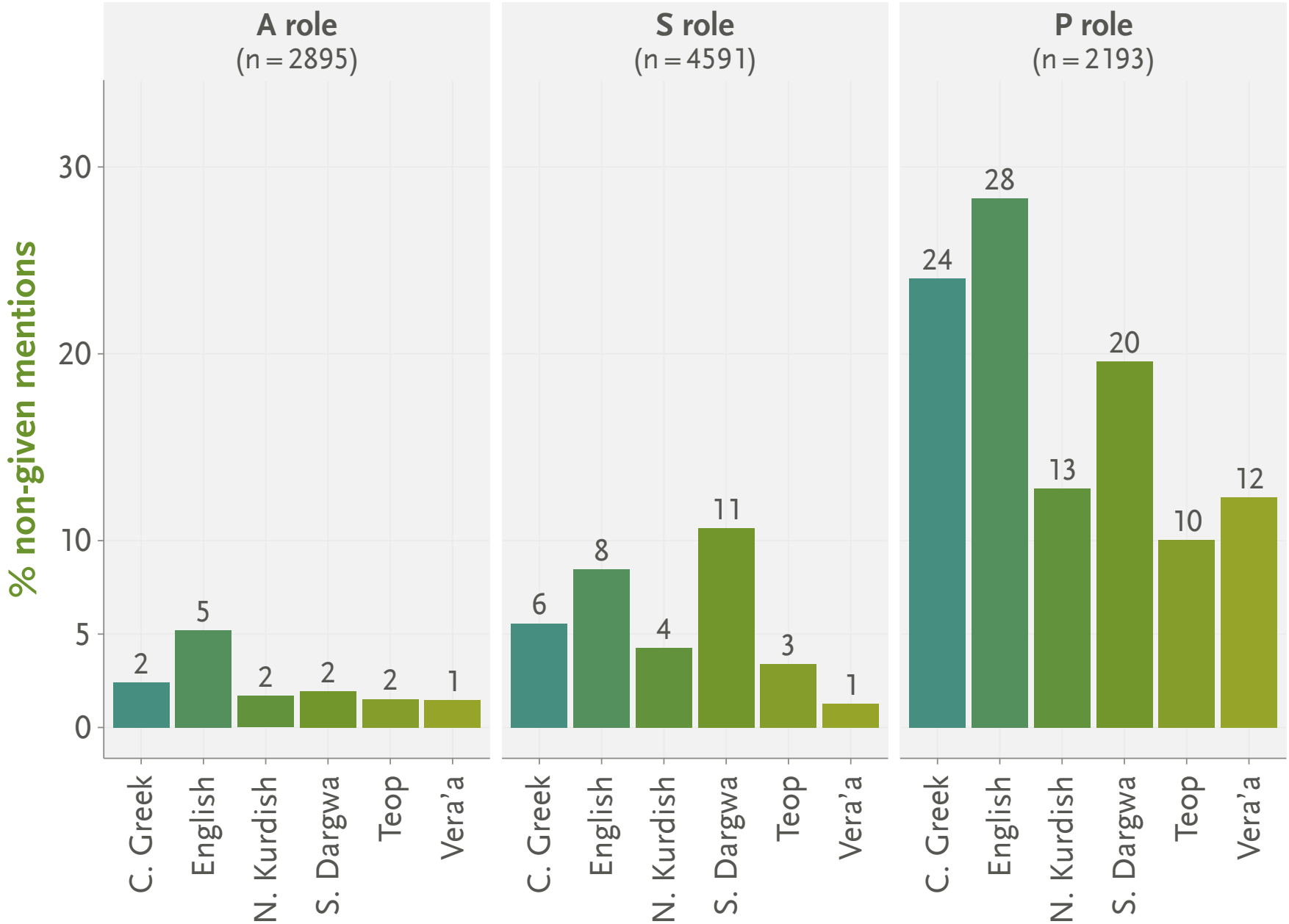
C. Greek
English
N. Kurdish
S. Dargwa
Teop
Vera'a

New mentions (B)

what proportion of each role is dedicated to newly introduced referents?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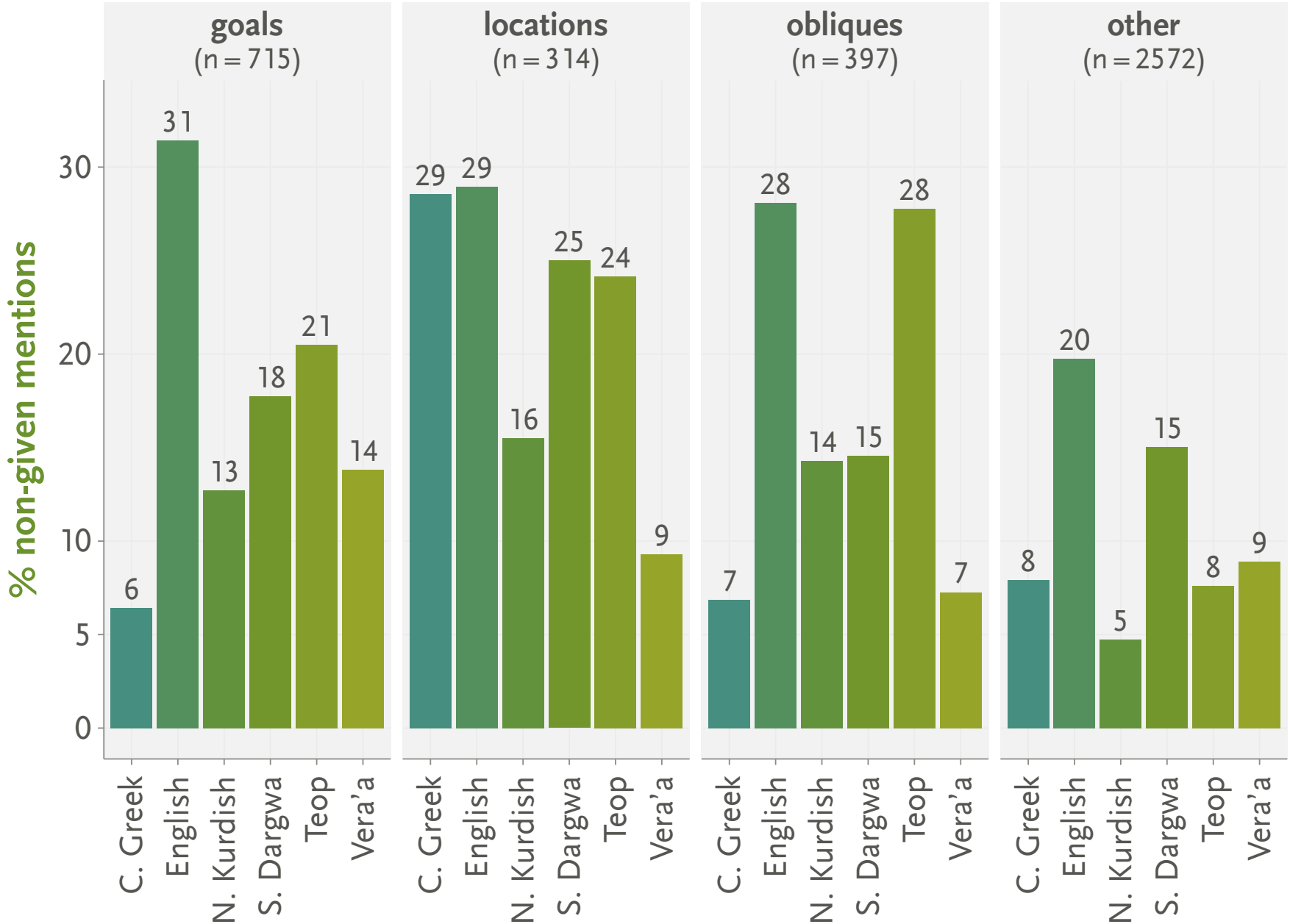
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The prominence of P

- consistently across all corpora,

  $p(\mathbf{P}_{\mathbf{new}}) > p(\mathbf{S}_{\mathbf{new}}) > p(\mathbf{A}_{\mathbf{new}})$

  (Fisher's exact tests for S and P yield $p < 0.0001$ for all corpora)

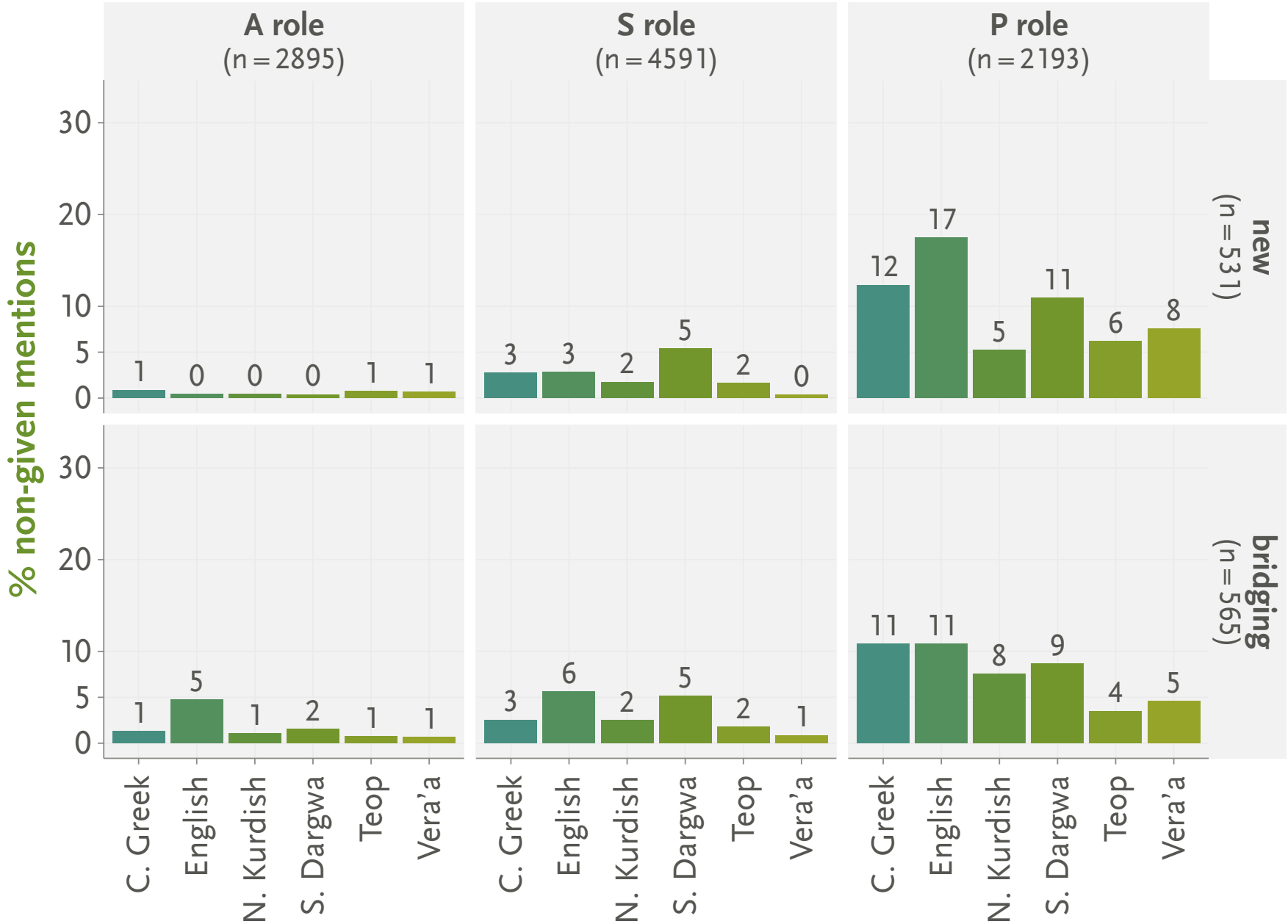
- in general, **the P role**
  tends to have the largest fraction of mentions of
  any core argument dedicated to new introductions

New vs. bridging

- discourse-new referents that are **evoked/inferable (bridging)**
  should be easier to process, hence
  require less effort to place into predictable loci
- generally, **bridging** should thus
  - be more freely associated with the constraint role of A,
  - and likely less frequently in P and
    the processing-aiding position S,
  - than (brand) new referents

New vs. bridging

what proportion of each role is dedicated to brand new and bridging introductions?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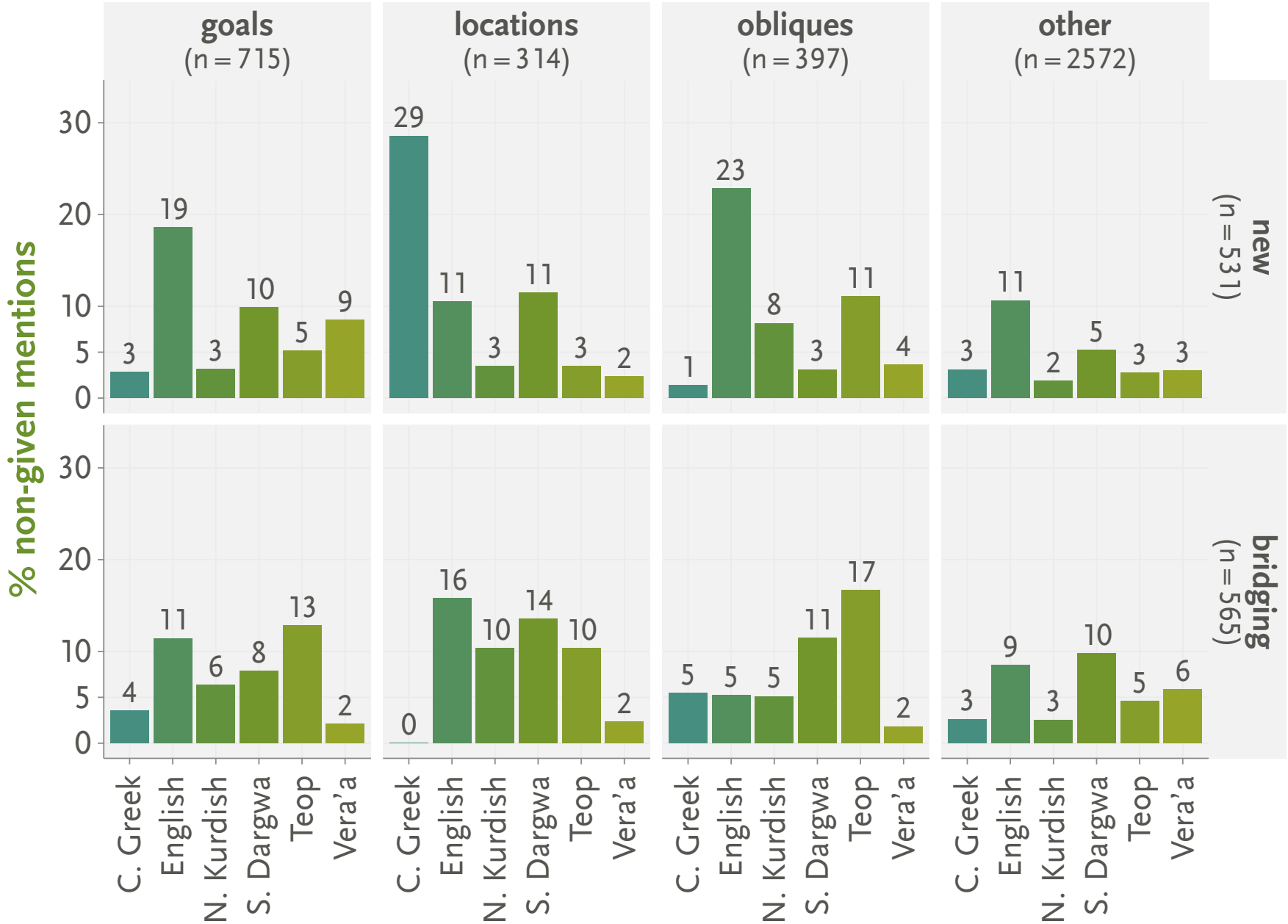
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Conclusion: S and new information

- the S role appears "specialized" for new introductions
  only by the **proportion** of S among all new introductions

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- **but,**
  S arguments are overall highly frequent,
  hence offering more potential 'landing sites'
  for new information

- from **an intra-role perspective**,
  new mentions make up only a small fraction
  of the S arguments in a text

Conclusion: P and new information

- **instead,**
  the **P role** (and certain non-core arguments)
  harbour much **larger proportions of new mentions**

- for the **P role** especially,
  we might hypothesize a genuine cross-linguistic association with new information

Conclusion: P and new information

- this association may in turn be motivated
  by **the association of new mentions with certain semantic roles**
  (rather than by pragmatic linking to a syntactic position)

- **also:**
  linking of a new referent **to an already established one** in a transitive construction

Conclusion: non-core functions

- **non-core functions** generally harbour
  high proportions of new mentions
- goals/recipients/addressees tend to bear fewer
  new mentions (especially when human)
- than locations and other oblique arguments
  (in particular when non-human)

- **however,**
  large inter-corpus variability within these roles
  (possibly more content-sensitive?)

Conclusions: new vs. bridging

- **no clear effect**
- **but again,**
  it is **P**, but not S, that is most
  inclined to host brand-new mentions!

Corpus-based typology

- **challenges**:
  - size of data sets and representativeness
  - comparability of data sets
  - inter-annotator differences
  - open availability of data and methods
  - also: annotation workload

Going forward

- **with our established methods,**
  we can readily determine anaphoric relations
  (e.g. lookback distances, role continuity)
  as well as related anaphoric forms
  and their syntactic functions,
  and more

Going forward

- furthermore, a **notion of 'topic'** can be secondarily derived,
- e.g. as **expressions** that
  - **a.** occur above a certain frequency threshold;
  - **b.** occur in S or A role in strings of consecutive clauses;
  - **c.** are most frequently realized via reduced forms (pronouns, zero);

    etc.

all data will (in the near future) be freely accessible online at

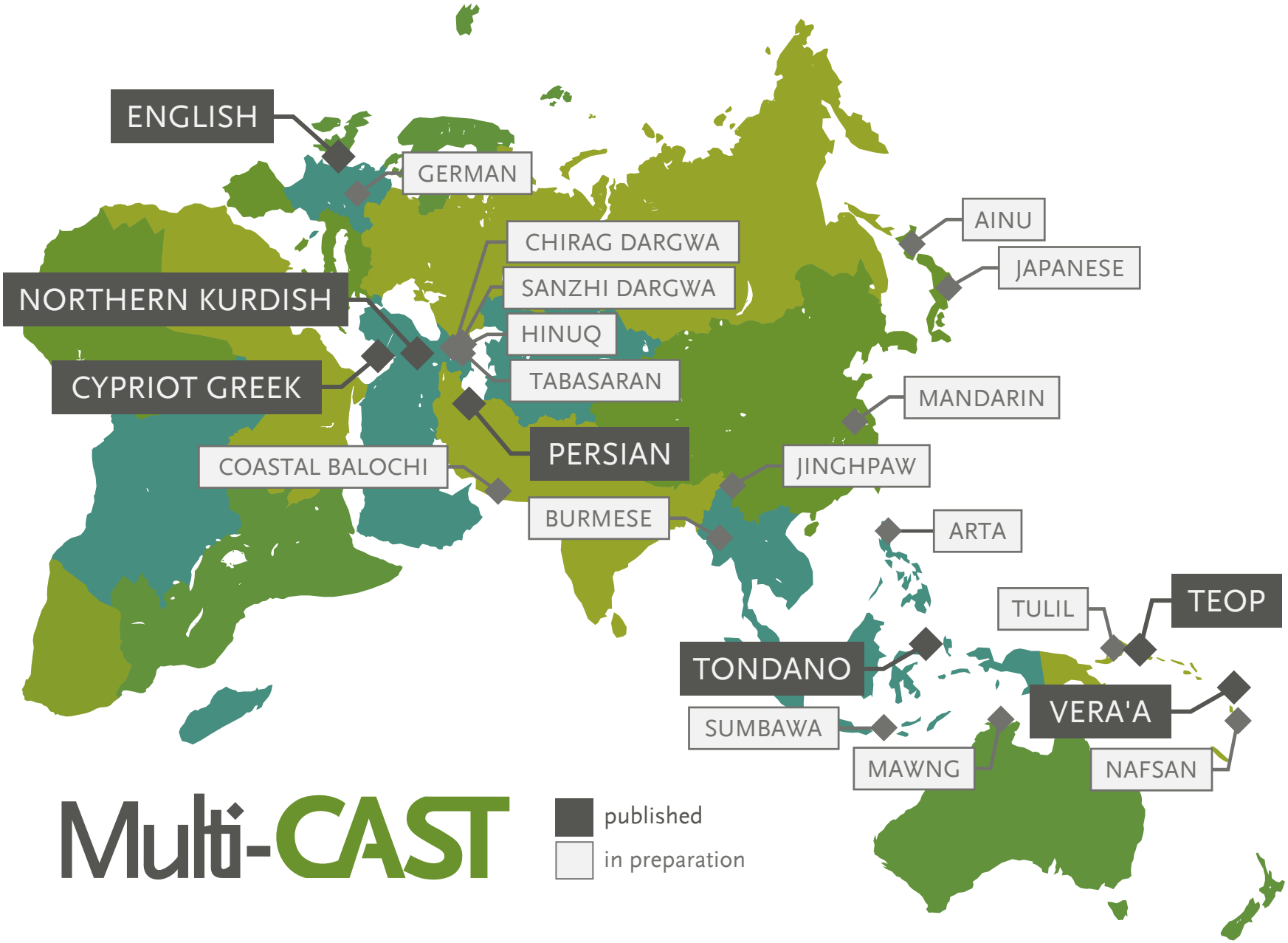
Multi-CAST

Multilingual Corpus of Annotated Spoken Texts

https://lac2.uni-koeln.de/multicast/

— *normally at* —

https://lac.uni-koeln.de/multicast/


ENGLISH
GERMAN
NORTHERN KURDISH
CHIRAG DARGWA
SANZHI DARGWA
HINUQ
TABASARAN
CYPRIOT GREEK
PERSIAN
COASTAL BALOCHI
BURMESE
AINU
JAPANESE
MANDARIN
JINGHPAW
ARTA
TULIL
TEOP
TONDANO
VERA'A
SUMBAWA
MAWNG
NAFSAN
Multi-CAST
published
in preparation

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