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Predictability of bivalent argument encoding patterns

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Introductory examples

(1) *Karl wartet auf Marie* NOM; auf+ACC
'Karl is waiting for Marie.'

(2) *Mir fehlt ein Euro* DAT; NOM
'I am one Euro short.'

- both are conventional for native speakers
- both are (?) semantically motivated
- to the same degree?
- can this be measured and explained?

Structure of the talk

- Valency research: an overview
- The database: BivalTyp
- Why not semantic roles as predictors?
- Predictability: introducing π
- Results
  - verbs
  - languages
- Conclusions and implications

Valency research: an overview

Typology is mainly focused on major clause types

- monovalent: ‘sleep’, ‘run’, …
- transitive: ‘kill’, ‘break’, …
- ditransitive: ‘give’, …

Valency research: an overview

The semantic basis of transitivity is relatively well understood

	HIGH	LOW
A. PARTICIPANTS	2 or more participants, A and O.[1]	1 participant
B. KINESIS	action	non-action
C. ASPECT	telic	atelic
D. PUNCTUALITY	punctual	non-punctual
E. VOLITIONALITY	volitional	non-volitional
F. AFFIRMATION	affirmative	negative
G. MODE	realis	irrealis
H. AGENCY	A high in potency	A low in potency
I. AFFECTEDNESS OF O	O totally affected	O not affected
J. INDIVIDUATION OF O	O highly individuated	O non-individuated

[Hopper, Thompson 1980: 252], see also [Tsunoda 1985, Dowty 1991, Lehmann 1991, Lazard 1994, Malchukov 2005]

Valency research: an overview

- All (?) languages have minor (a.k.a. non-canonical) valency patterns

- (Until recently) underrepresented in typological research

  «The selection principles apparently only govern argument selection for two-place predicates having a subject and a true direct object» [Dowty 1991: 576]

- Goal: to fill this gap for bivalent verbs

Valency research: an overview

- Why bivalent verbs?
  - they are especially prone to show deviant valency behaviour [Bickel et al. 2014]

(3) *The boy looked **at the clouds***

(4) *Das Heu duftet **nach** Pferd*

Estonian

(5) *Peetri-le* *meeldi-b* *see* *särk*
PN-ALL appeal_to-PRS.3SG this shirt.SG.NOM
'Peter likes this shirt.'

  - they often form relatively large classes, unlike non-canonical trivalent verbs

Project: goals

- Which factors determine valency class assignment in individual languages?
- To what extent are valency classes similar across languages? To what extent are they variable?
- What is the role of genealogical and areal factors?

Bivaltyp

Sergey Say (ed.). 2020–... BivalTyp: Typological database of bivalent verbs and their encoding frames.
St. Petersburg: Institute for Linguistic Studies, RAS.
(Available online at https://www.bivaltyp.info)*

*All credit for building the web-page goes to Dmitry Nikolaev

BivalTyp

TYPOLOGY LAB ЛТИЯ

Институт Лингвистических Исследований Российской академии наук

Home Project ↓ How to read the data Languages ↓ Predicates Data overview ↓ Maps Download

Welcome to BivalTyp

BivalTyp is a typological database of bivalent verbs and their encoding frames. As of 2023, the database presents data for 92 languages, mainly spoken in Northern Eurasia. The database is based on a questionnaire containing 130 predicates given in context. Language-particular encoding frames are identified based on the devices (such as cases, adpositions, and verbal indices) involved in encoding two predefined arguments of each predicate (e.g. 'Peter' and 'the dog' in 'Peter is afraid of the dog'). In each language, one class of verbs is identified as transitive. The goal of the project is to explore the ways in which bivalent verbs can be split between the transitive and different intransitive valency classes.

How to use BivalTyp

You can browse BivalTyp by predicate (e.g., in case you are interested in how the arguments of the verb 'to fear' are encoded in different languages) or by language (e.g., in case you want to explore the behaviour of 130 predicates in a specific language). Besides, you can take an overview of the data in your browser, build customizable maps, or search the database as an extended spreadsheet form. Finally, you can download the spreadsheet with data for further use offline.

The web-site built by Dmitry Nikolaev.

Bivaltyp: major design features

- First-hand data provided by language experts
  - St. Petersburg-style typology

- Questionnaire with 130 verbs given in context
  - Wordlist-based approach [Nedjalkov 1969, Bossong 1998, Nichols et al. 2004, Nichols 2008, Malchukov & Comrie (eds.) 2015, etc.]

Bivaltyp: major design features

#21 (Peter was crossing the river in a boat)

‘Peter	**reached**	the bank’
X		Y

#22 (The wall was covered with fresh paint)

‘Peter	**touched**	the wall’ (and got dirty)
X		Y

=> Two pre-defined arguments (X, Y) for each predicate

Bivaltyp: major design features

- The valency of a verb = “the list of its arguments with their coding properties”

- Coding properties
  - flagging (cases & adpositions)
  - indexing (agreement, cross-referencing)
  - word order (rarely)

Malchukov and the Leipzig Valency Classes Project team, 2015: 30

Bivaltyp: major design features

Abaza (< Northwest Caucasian)

(6) *fatíma murád jə-z-qá-l-ç-əj-t*

PN PN [3SG.M.IO-BEN]-LOC-[3SG.F.ERG]-believe-PRS-DCL

Y X

'Fatima trusts Murad.'

Valency pattern = [ERG; BEN]

Bivaltyp: major design features

- «A verb is considered transitive if [its two core arguments] are coded like the ‘breaker’ and the ‘broken thing’ micro-roles of the ‘break’ verb» [Haspelmath 2015: 136]

Bivaltyp: major design features

- The sample: currently 92 languages, mainly spoken in Northern Eurasia

Bivaltyp: major design features

- A big **THANK YOU** to language experts

Anna Alexandrova, Daria Alfimova, Ekaterina Aplonova, Peter Arkadiev, David Avellan-Hultman, Aleksandra Azargaeva, Mislav Benić, Sandra Birzer, Alena Blinova, Nadezhda Bulatova, Denis Creissels, Michael Daniel, Varvara Diveeva, Sergey Dmitrenko, Vladimir Fedorov, Timothy Feist, Dmitry Gerasimov, Elena Gorbova, Olga Gorickaja, Ingunn Hreinberg Indriðadóttir, Ildar Ibragimov, Emil Ingelsten, Vasilisa Kagirova, Maxim Kloczenko, Maria Khazhomia, Maria Kholodilova, Mikhail Knyazev, Elena Kolpachkova, Daria (Suetina) Konior, Yukari Konuma, Elena Kordi, Richard Kowalik, Kirill Kozhanov, Irina Külmoja, Olga Kuznecova, Timur Maisak, Anastasia (Borisovna) Makarova, Anastasia (Leonidovna) Makarova, Ramazan Mamedshaxov, Solmaz Merdanova, Stepan Mikhajlov, Daria Mischenko, Zarina Molochieva, George Moroz, Rasul Mutalov, Galina Nekrasova, Johanna Nichols, Dmitry Nikolaev, Ajtalina Nogovitsyna, Sofia Oskolskaya, Maria Ovsjannikova, Anastasia Panova, Elena Perekhvalskaja, Natalia Perkova, Krasimira Petrova, Inna Popova, Maria Pupynina, Tatiana Repnina, Neige Rochant, Alexander Rostovtsev-Popiel, Daria Ryzhova, Sergey Say, Ekaterina Sergeeva, Ksenia Shagal, Mayya Shlyakhter, Natalia Stoynova, Ksenia Studenikina, Evgenija Teplukhina, Mladen Uhlik, Anastasia Vasilisina, Arseniy Vydrin, Natalia Zaika, Andreja Žele, Ekaterina Zheltova, Vasilisa Zhigulskaja, Anastasia Zhuk

Bivaltyp: major design features

- 10694 entries (130 predicates in 92 lgs – 1266 gaps):
  - language ID
  - predicate ID
  - verb
  - valency pattern
  - (for 30 languages: interlinearized examples)
- The database is searchable, sortable and mappable by predicates, languages, valency patterns, etc.

- **Further contributions are very welcome!**

Why not semantic roles?

- An old idea: semantic roles are linked to argument positions
- Variations on this theme [Fillmore 1968, Dowty 1991, Levin & Rappaport Hovav 2005, Van Valin 1999]
- Possible semantic (thematic) roles
  - Agent
  - Patient
  - Experiencer
  - Stimulus
  - Instrument
  - Recipient
  - …

Why not semantic roles?

- Possible linking rules:
  - Agent => Nominative
  - Patient => Accusative
  - Recipient => Dative
  - …
- Problem: can we really identify discrete argument roles for every verb?

Why not semantic roles?

- Theoretical studies mainly focus on salient cases, such as
  - ‘kill’: Agent & Patient
  - ‘see’: Experiencer & Stimulus
  - …

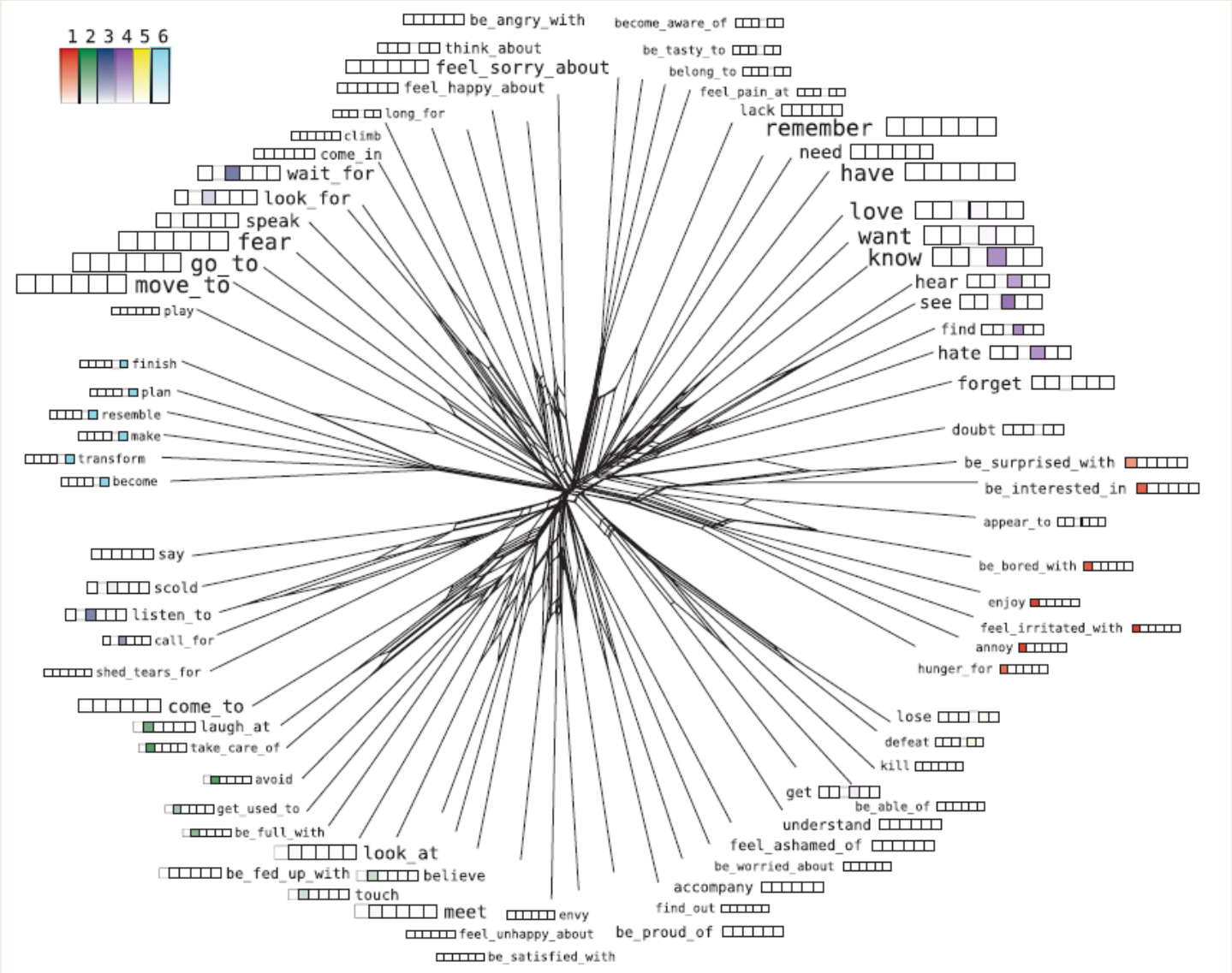
- Empirical studies based on large wordlists arrive at **fuzzy** roles

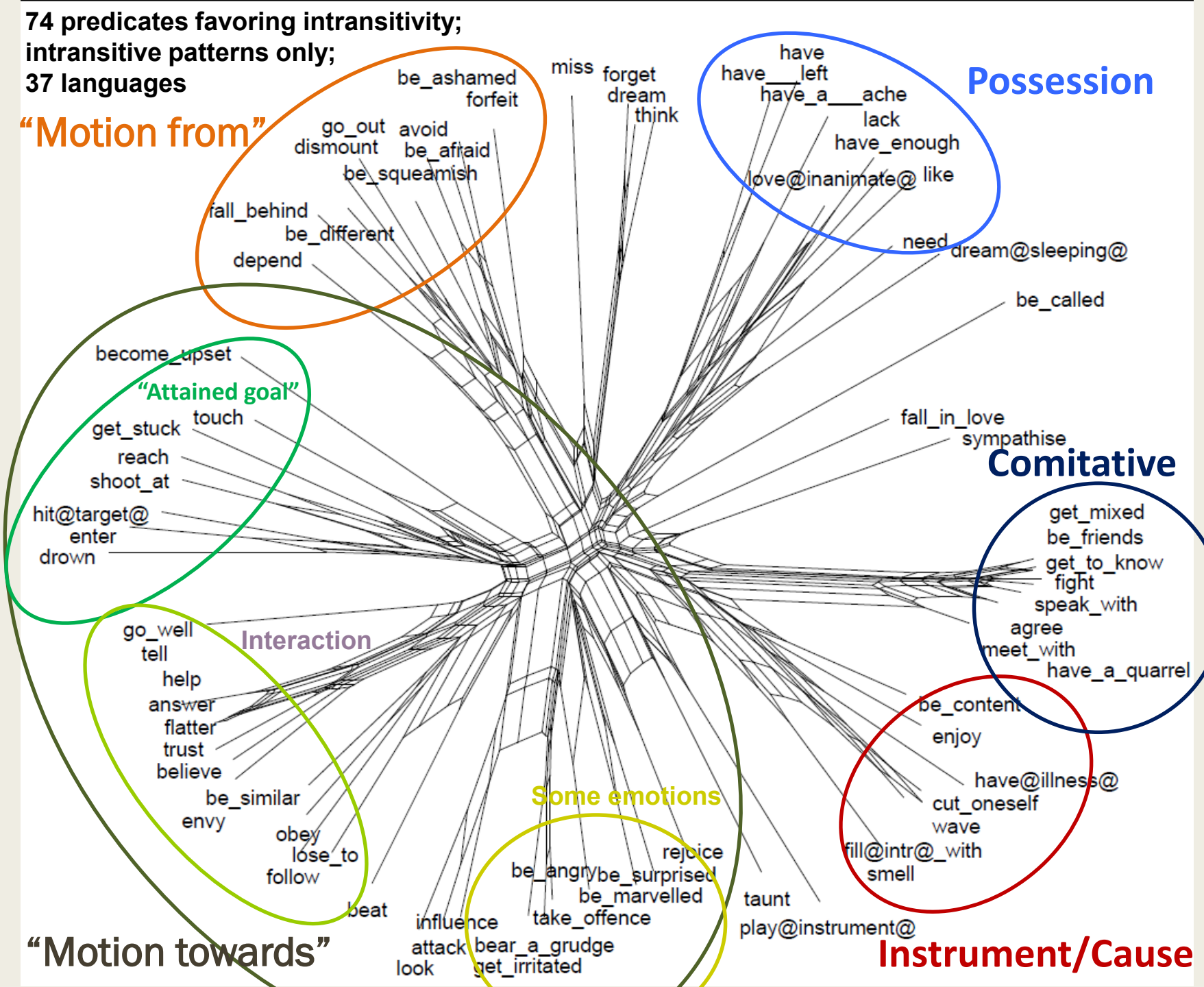
Why not semantic roles?

- Bickel et al. (2014)
- “For the P class, the fuzzy cluster algorithm was unable to converge” (p. 500)
- See the clustering for the A class (next slide)
- See the results based on BivalTyp, two further slides

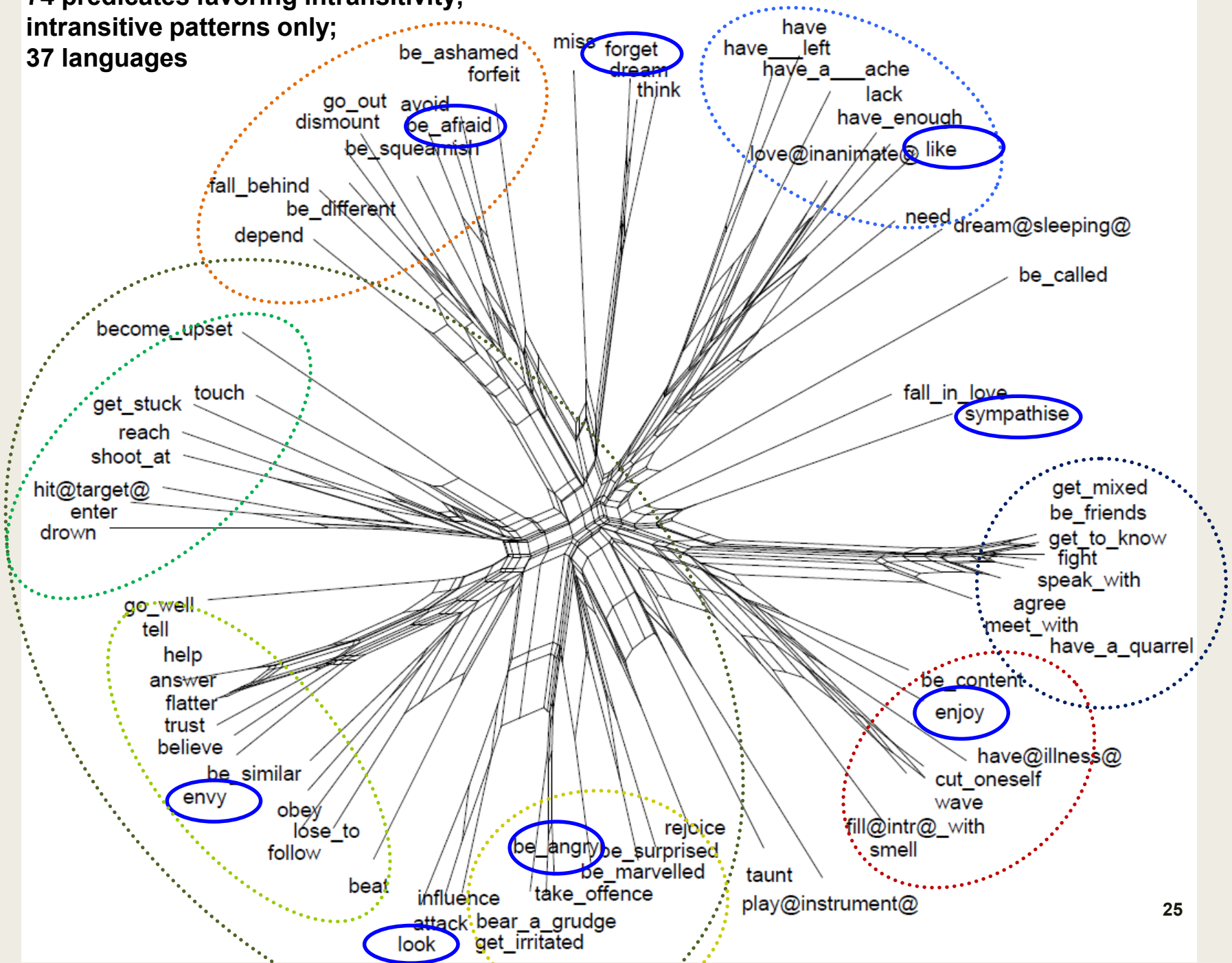
See also [Hartmann et al. 2014; Widmer et al. 2019]

Why not semantic roles?




74 predicates favoring intransitivity;
intransitive patterns only;
37 languages
"Motion from"
be_ashamed
forfeit
go_out
dismount
avoid
be_afraid
be_squeamish
fall_behind
be_different
depend
miss
forget
dream
think
have
have___left
have_a___ache
lack
have_enough
love@inanimate@
like
Possession
need
dream@sleeping@
be_called
become_upset
"Attained goal"
touch
get_stuck
reach
shoot_at
hit@target@
enter
drown
fall_in_love
sympathise
Comitative
get_mixed
be_friends
get_to_know
fight
speak_with
agree
meet_with
have_a_quarrel
go_well
tell
help
answer
flatter
trust
believe
be_similar
envy
obey
lose_to
follow
Interaction
be_content
enjoy
have@illness@
cut_oneself
wave
fill@intr@_with
smell
Some emotions
rejoice
be_angry
be_surprised
be_marvelled
take_offence
beat
influence
attack
look
bear_a_grudge
get_irritated
taunt
play@instrument@
"Motion towards"
Instrument/Cause

74 predicates favoring intransitivity;
intransitive patterns only;
37 languages



Why not semantic roles?

- Interim summary

Discrete semantic roles defined on *a priori* grounds are not suitable for the empirical study of argument encoding predictability

- An alternative?

Predictability: introducing π

- How to measure “predictability”?
  - ~~In terms of semantic roles~~
  - Use other languages as predictors, that is, as proxies for the meaning of arguments

Predictability: introducing π

- Assume there are only 4 verbs that belong to a certain class A in a given L1:

	L1
V_i	A
V_j	A
V_k	A
V_l	A
…	

Predictability: introducing *π*

- Explore the encoding of the corresponding verbs in L2:

	L1	L2
V_i	A	W
V_j	A	W
V_k	A	W
V_l	A	W

…

- The valency patterns of these 4 verbs in L2 seem to be predictable given the system of L1

Predictability: introducing *π*

- Explore the encoding of the corresponding verbs in L2:

	L1	L2
V_i	A	X
V_j	A	Y
V_k	A	Z
V_l	A	W

…

- The valency patterns of these 4 verbs in L2 seem to be totally unpredictable given the system of L1

Predictability: introducing π

- Real-data example

	Russian	Kalmyk
‘be afraid’	NOM_GEN	NOM_ABL
‘reach’	NOM_GEN	NOM_DAT
‘avoid’	NOM_GEN	NOM_ACC
‘forfeit’	NOM_GEN	NOM_ABL
‘be ashamed’	NOM_GEN	NOM_ABL

- From the perspective of Russian, the encoding of the Kalmyk equivalents of ‘be afraid’, ‘forfeit’ and ‘be ashamed’ is more predictable than that of the other two verbs (‘reach’, ‘avoid’)

Predictability: introducing π

- Individual predicate, two languages:

$$\pi\,(V_i)(L_j \rightarrow L_k) = p\,(Class(V_i, L_k)|Class(V_i, L_j))$$

e.g.

$$\pi\,(\text{'reach'})(\text{Russian} \rightarrow \text{Kalmyk}) = 1/5 = 0.2$$

$$\pi\,(\text{'be\_afraid'})(\text{Russian} \rightarrow \text{Kalmyk}) = 3/5 = 0.6$$

Predictability: introducing π

- Individual predicate, one language: explore its behaviour from the perspective of as many other languages as there are available

$$\pi(V_i)(L_k) = \frac{\sum_{j=1}^{n} \pi(V_i)(L_j \rightarrow L_k)}{n}$$

e.g. π ('be_afraid') (Kalmyk) = 0.53

Predictability: introducing π

- Individual predicate, many languages: average predictability

$$\pi(V_i) = \frac{\sum_{j=1}^{n} \pi(V_i)(L_j)}{n}$$

e.g. π ('be_afraid') = 0.42

Results

(1) *Karl wartet auf Marie* NOM; auf+ACC

'Karl is waiting for Marie.'

$\pi = 0.12$

(2) *Mir fehlt ein Euro* DAT; NOM

'I am one Euro short.'

$\pi = 0.46$

Results

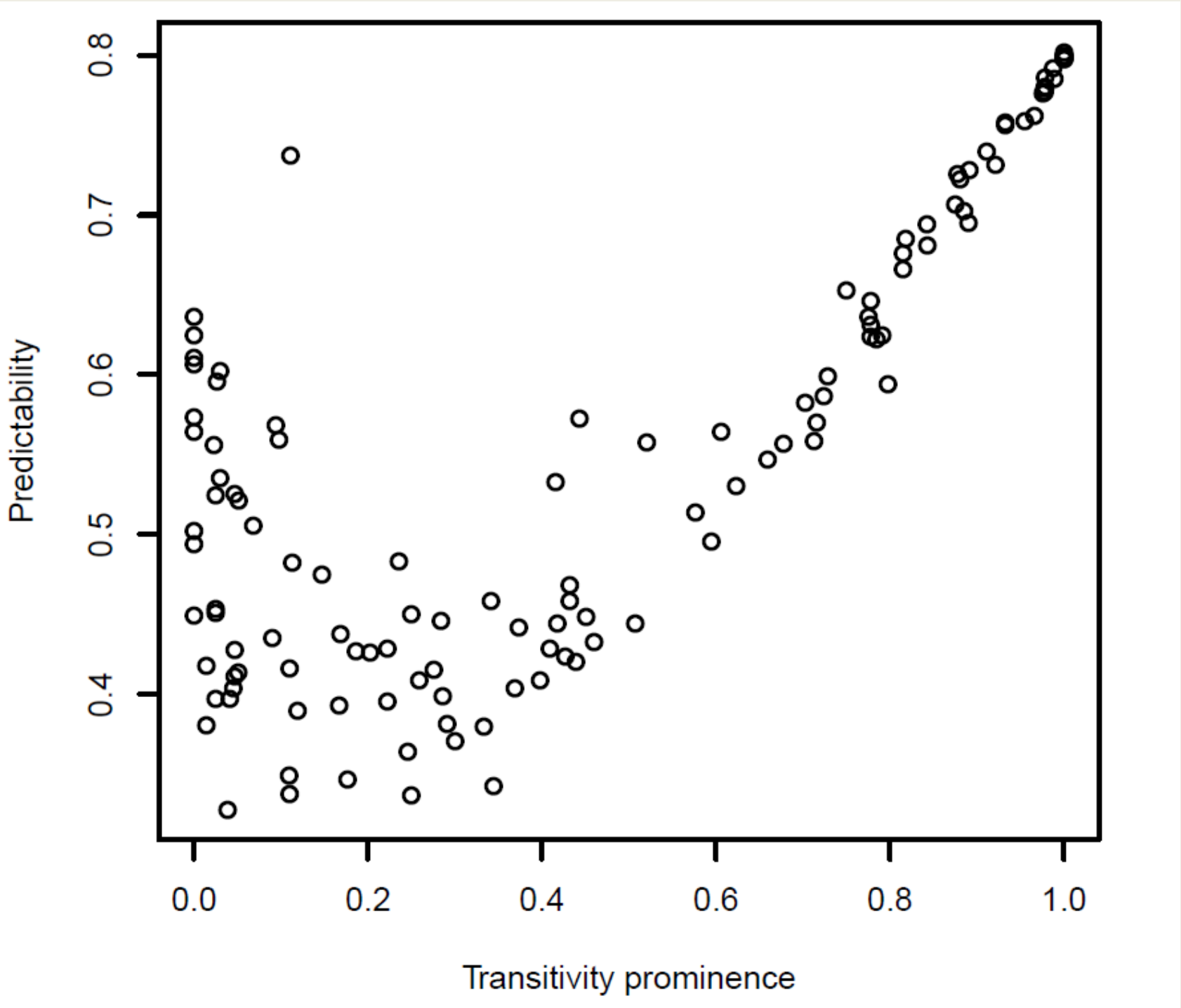
- Example: Finnish verbs with the NOM_ILL pattern

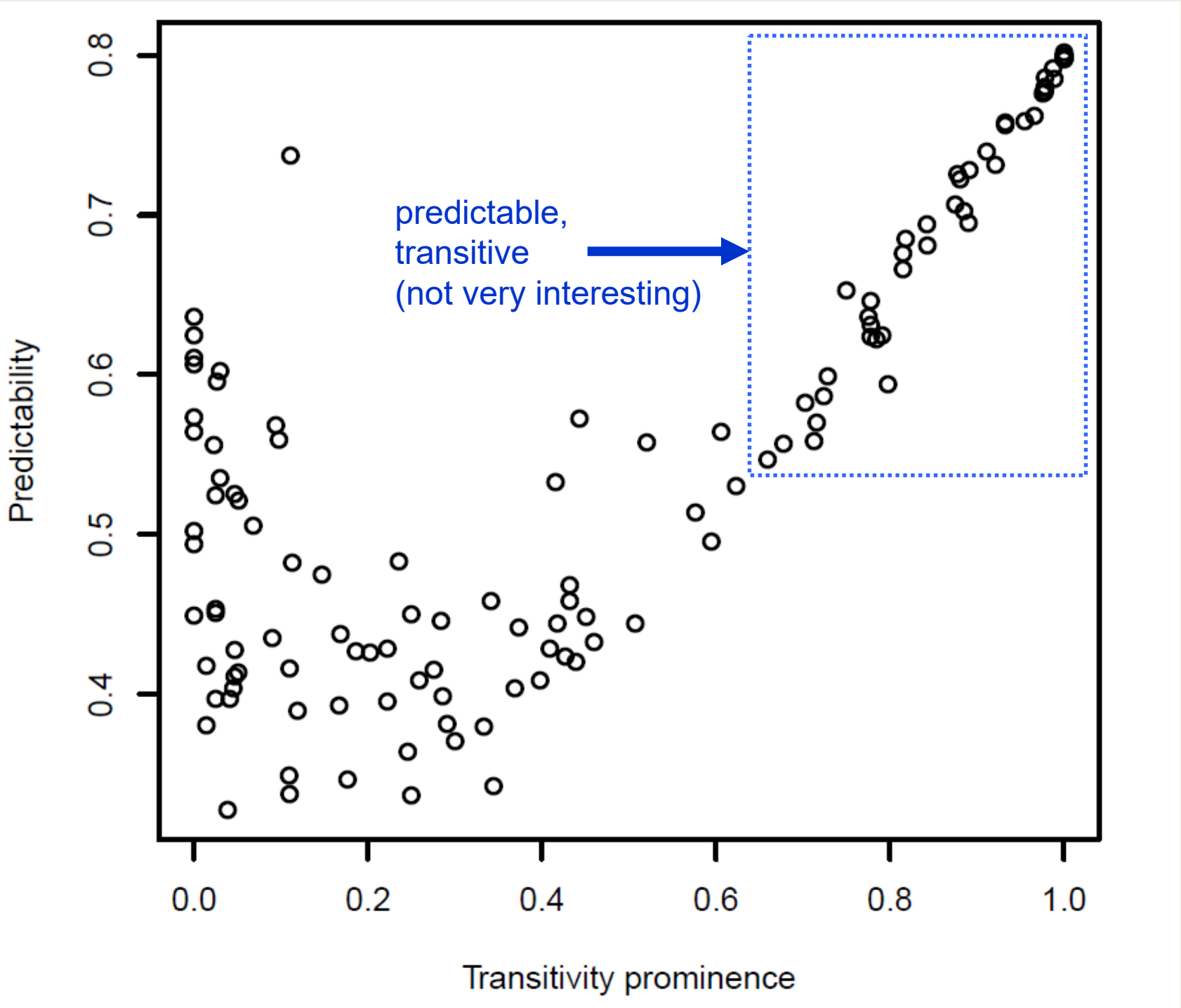
verb	meaning tag	predictability
upota	sink	0.78
astua	enter	0.64
juuttua	get_stuck	0.52
osua	hit_target	0.47
sopia	match	0.40
rakastua	fall_in_love	0.33
sekoittua	mix	0.33
koskea	touch	0.30
luottaa	trust	0.26
vaikuttaa	influence	0.23
tyytyväinen + COP	be_content	0.22
tutustua	get_to_know	0.21

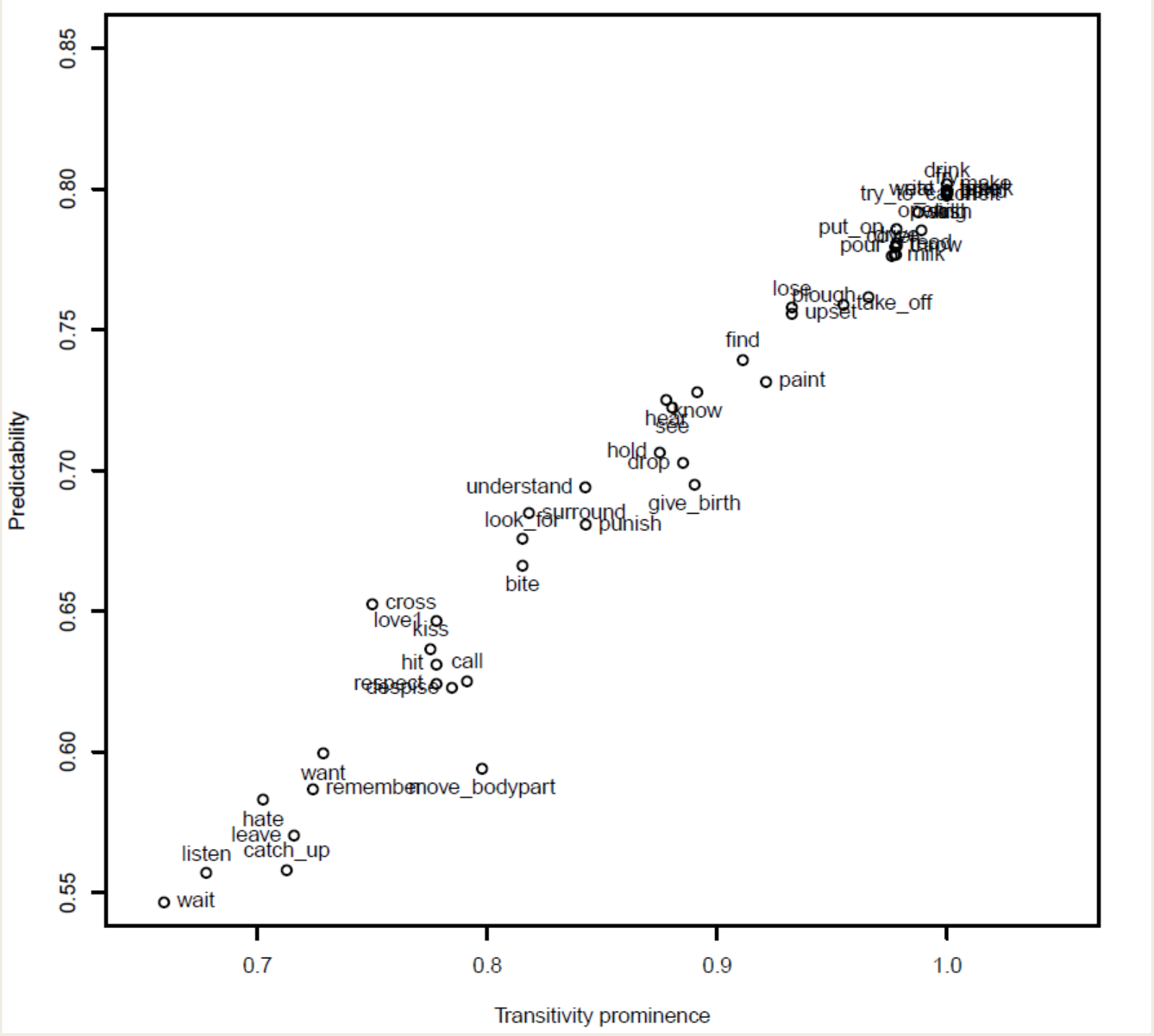
Results: verbs

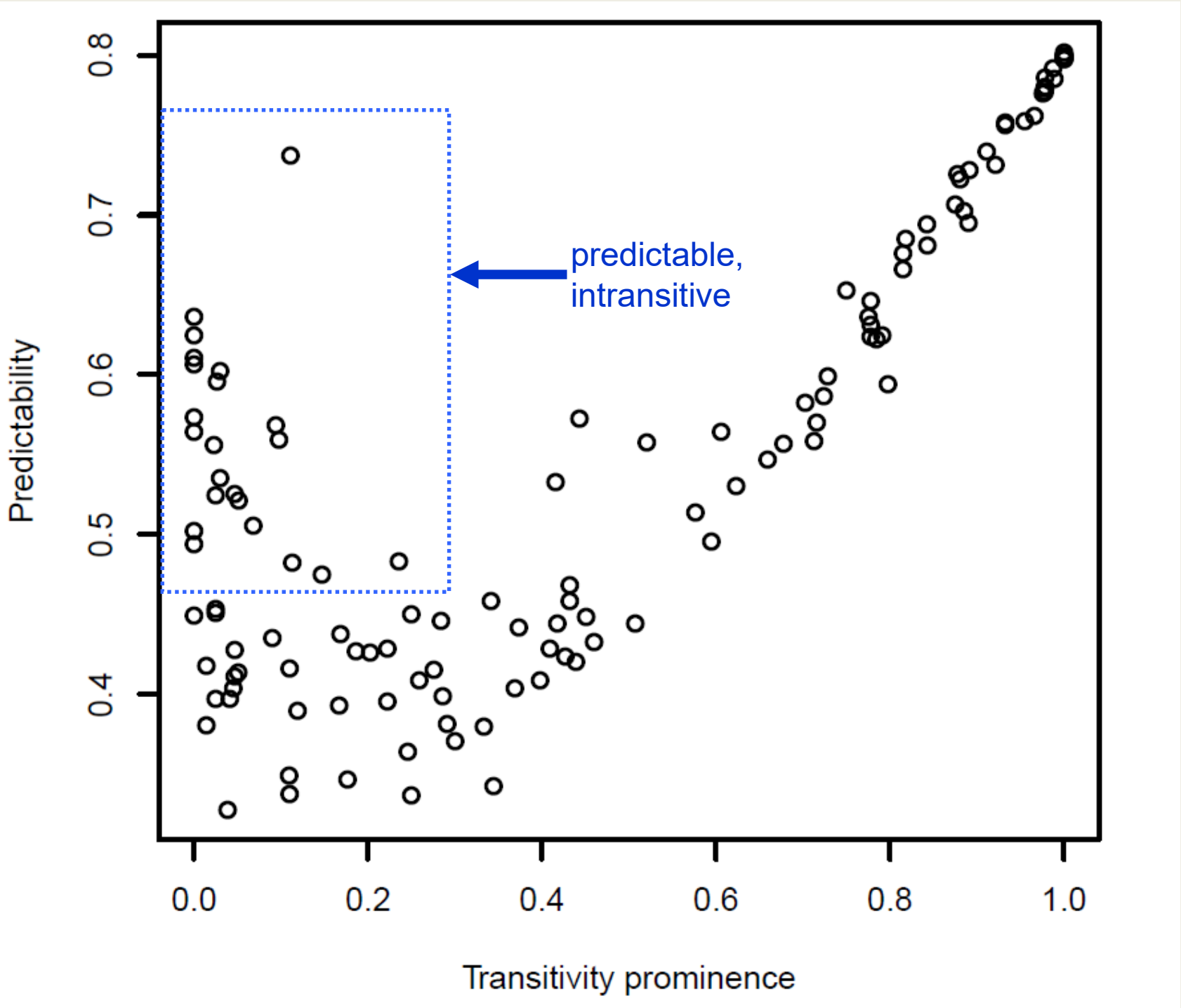
- As expected, highly transitive predicates display high predictability scores
- E.g. the list of predicates with $\pi > 0.80$: all these verbs are invariably transitive in the data set

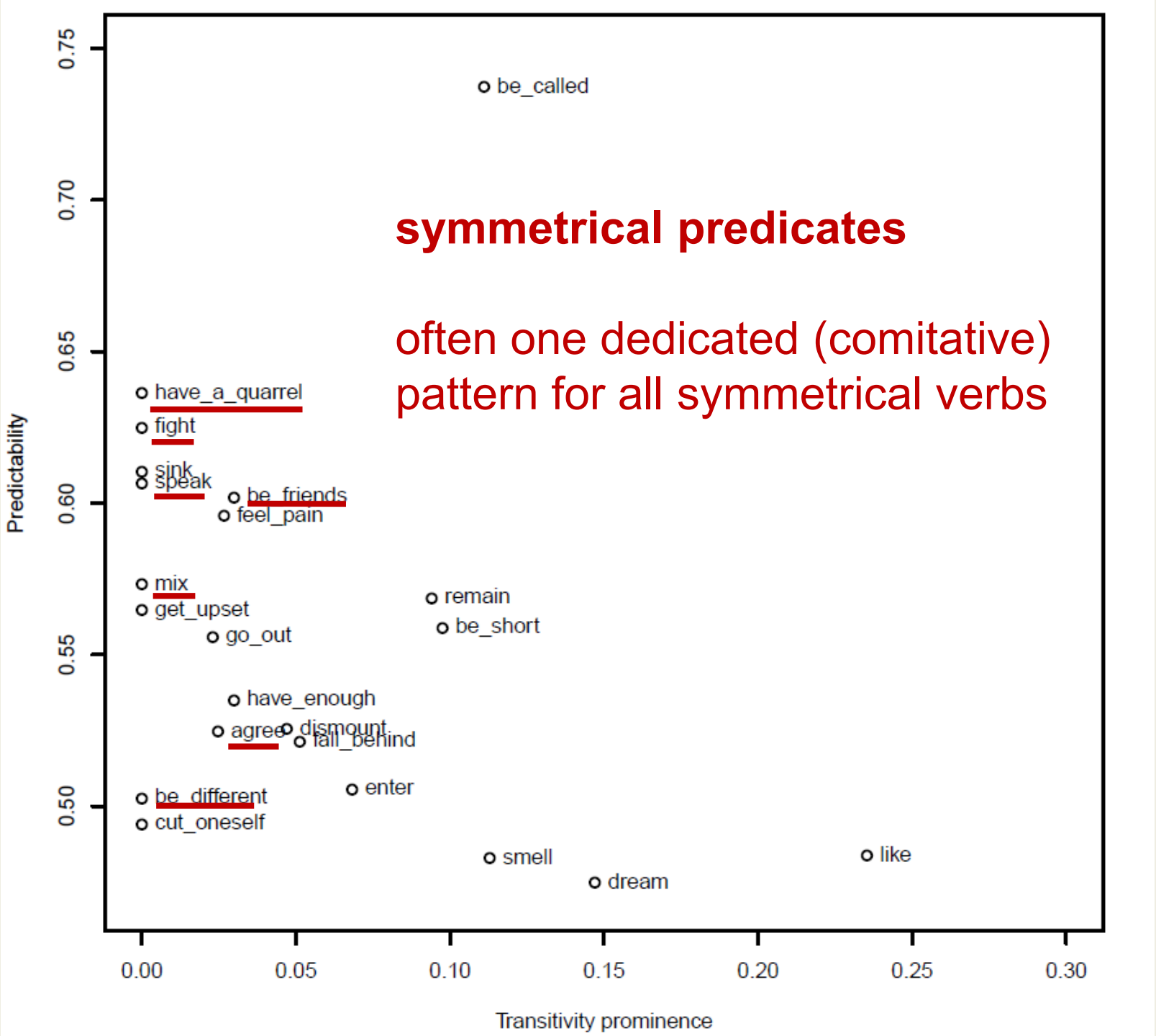
	predictability	transitivity ratio		predictability	transitivity ratio
'make'	0.80	1.00	'bend'	0.80	1.00
'eat'	0.80	1.00	'wash'	0.80	1.00
'drink'	0.80	1.00	'kill'	0.80	1.00
'take'	0.80	1.00	'sing'	0.80	1.00
'break'	0.80	1.00	'melt'	0.80	1.00
'write'	0.80	1.00	'fry'	0.80	1.00


Predictability
0.4
0.5
0.6
0.7
0.8
0.0
0.2
0.4
0.6
0.8
1.0
Transitivity prominence


predictable,
transitive
(not very interesting)
Predictability
0.4
0.5
0.6
0.7
0.8
0.0
0.2
0.4
0.6
0.8
1.0
Transitivity prominence


Predictability
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.7
0.8
0.9
1.0
Transitivity prominence
drink
milk
lose
plough
take_off
upset
find
paint
know
see
hear
hold
drop
understand
give_birth
surround
look_for
punish
bite
cross
love
kiss
hit
call
want
remember
move_bodypart
hate
leave
listen
catch_up
wait


predictable,
intransitive
Predictability
0.4
0.5
0.6
0.7
0.8
0.0
0.2
0.4
0.6
0.8
1.0
Transitivity prominence


symmetrical predicates
often one dedicated (comitative) pattern for all symmetrical verbs
Predictability
Transitivity prominence
0.75
0.70
0.65
0.60
0.55
0.50
0.00
0.05
0.10
0.15
0.20
0.25
0.30
be_called
have_a_quarrel
fight
sink
speak
be_friends
feel_pain
mix
get_upset
go_out
remain
be_short
have_enough
agree
dismount
fall_behind
enter
be_different
cut_oneself
smell
dream
like

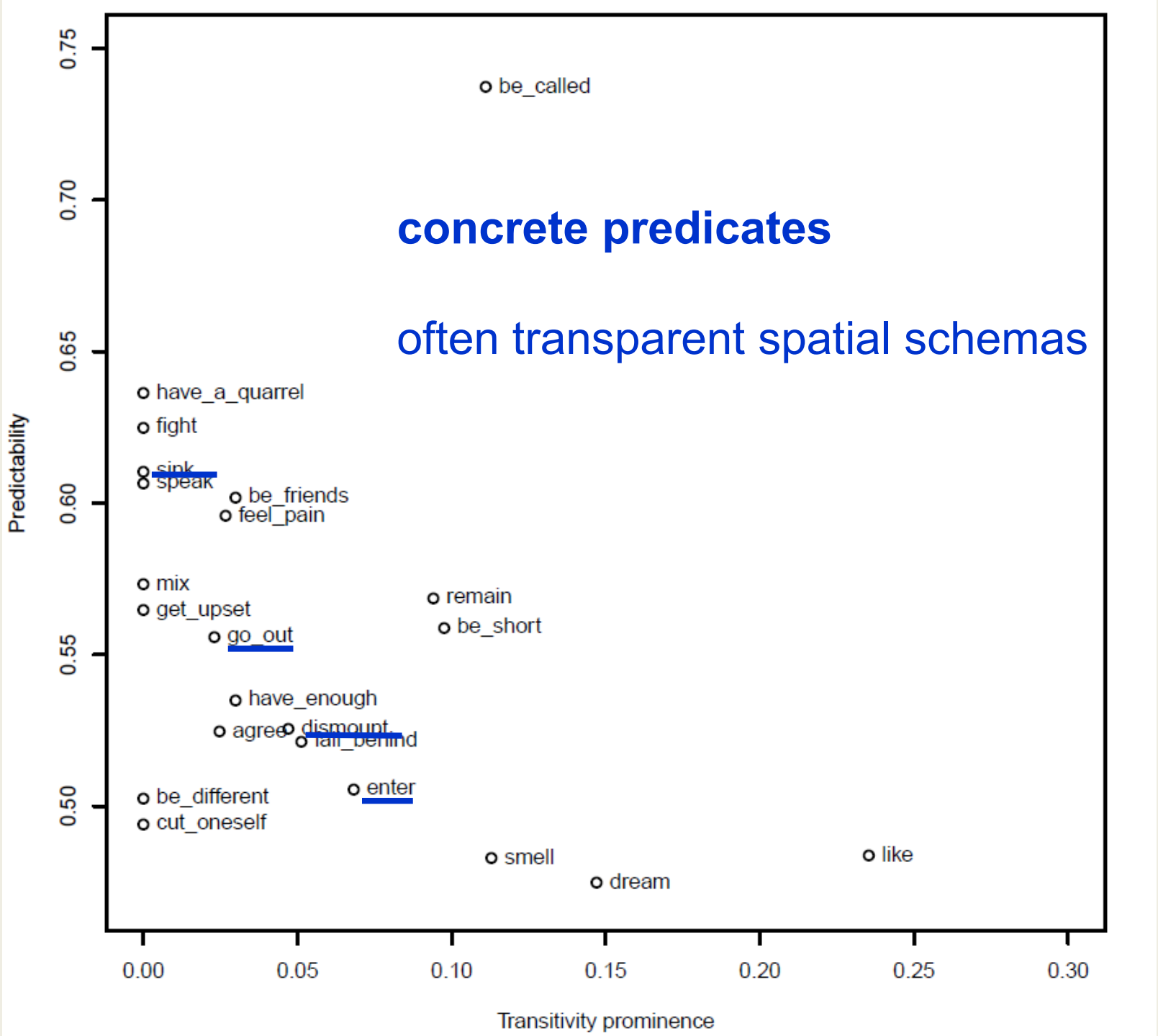
Results: verbs

- Hungarian

Péter *vereksz-ik* *Márton-nal*
PN fight-INDF.3SG PN-INS
'Péter is fighting with Márton.'

A *méz* *összekevered-ett* *a* *tej-jel*
the honey get.mixed.up-PST.INDF.3SG the milk-INS
'The honey got mixed with the milk.'

Péter *egyetért-ett* *Mártá-val*
Péter agree-PST.INDF.3SG Márta-INS
'Péter agreed with Márta.'


concrete predicates
often transparent spatial schemas
Predictability
Transitivity prominence
0.75
0.70
0.65
0.60
0.55
0.50
0.00
0.05
0.10
0.15
0.20
0.25
0.30
be_called
have_a_quarrel
fight
sink
speak
be_friends
feel_pain
mix
get_upset
go_out
remain
be_short
have_enough
agree
dismount
fall_behind
enter
be_different
cut_oneself
smell
dream
like

Results: verbs

- Erzya: the only 3 examples with the NOM_ILL pattern

Pet'a	*sova-s'*	*kudo-s*
PN.NOM	enter-PST.3SG	house-ILL

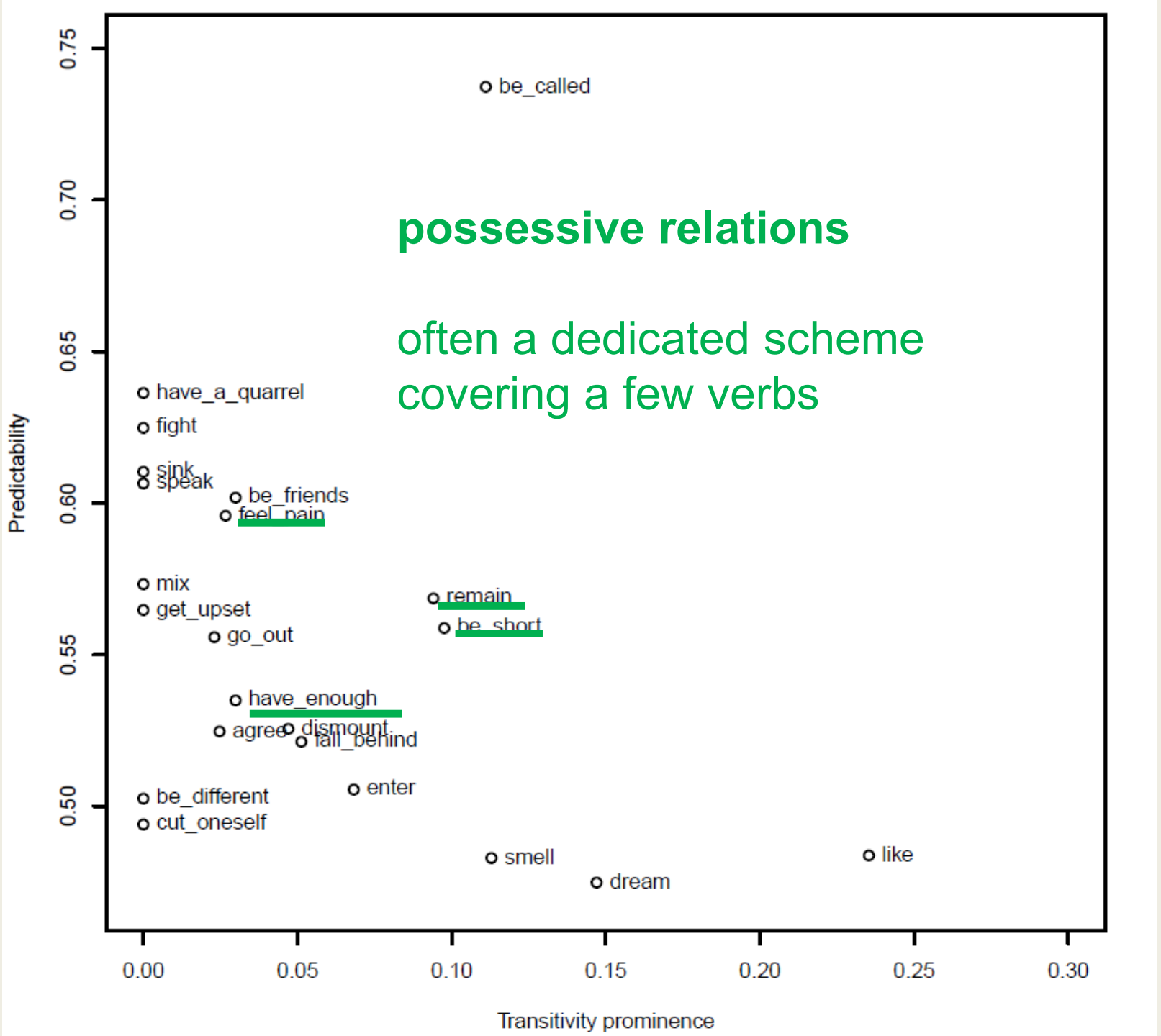
'Petja entered the house.'

jondolo-s'	*pong-s'*	*kudo-s*
lightning-DEF	hit-PST.3SG	house-ILL

'A lightning hit the house.'

p'eng'e-s'	*vaja-s'*	*v'ed'-s'*
log-NOM.DEF	drown-PST.3SG	water-ILL

'The log drowned in the water.'

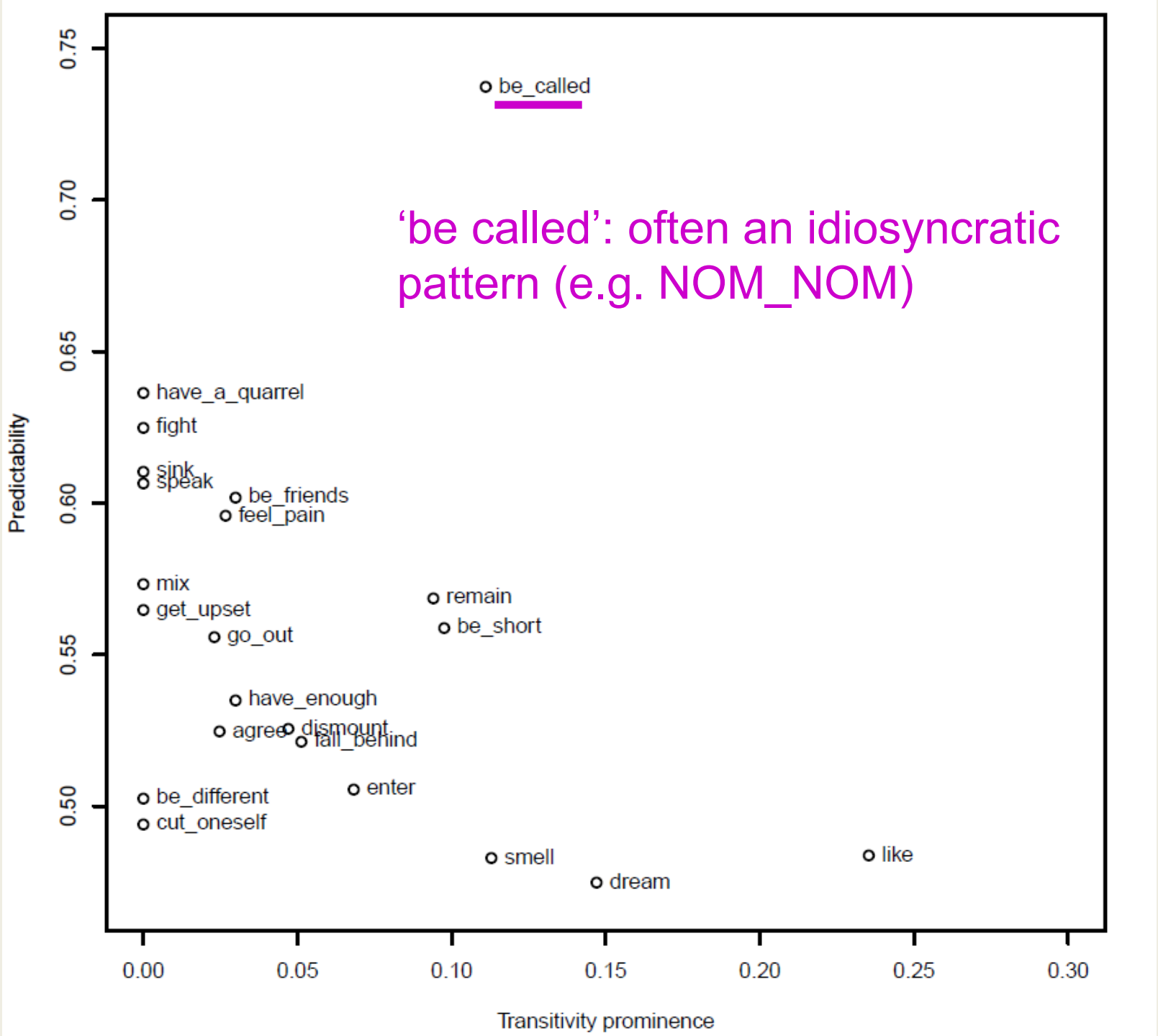

possessive relations
often a dedicated scheme covering a few verbs
Predictability
Transitivity prominence
0.75
0.70
0.65
0.60
0.55
0.50
0.00
0.05
0.10
0.15
0.20
0.25
0.30
be_called
have_a_quarrel
fight
sink
speak
be_friends
feel_pain
mix
get_upset
go_out
remain
be_short
have_enough
agree
dismount
fall_behind
enter
be_different
cut_oneself
smell
dream
like

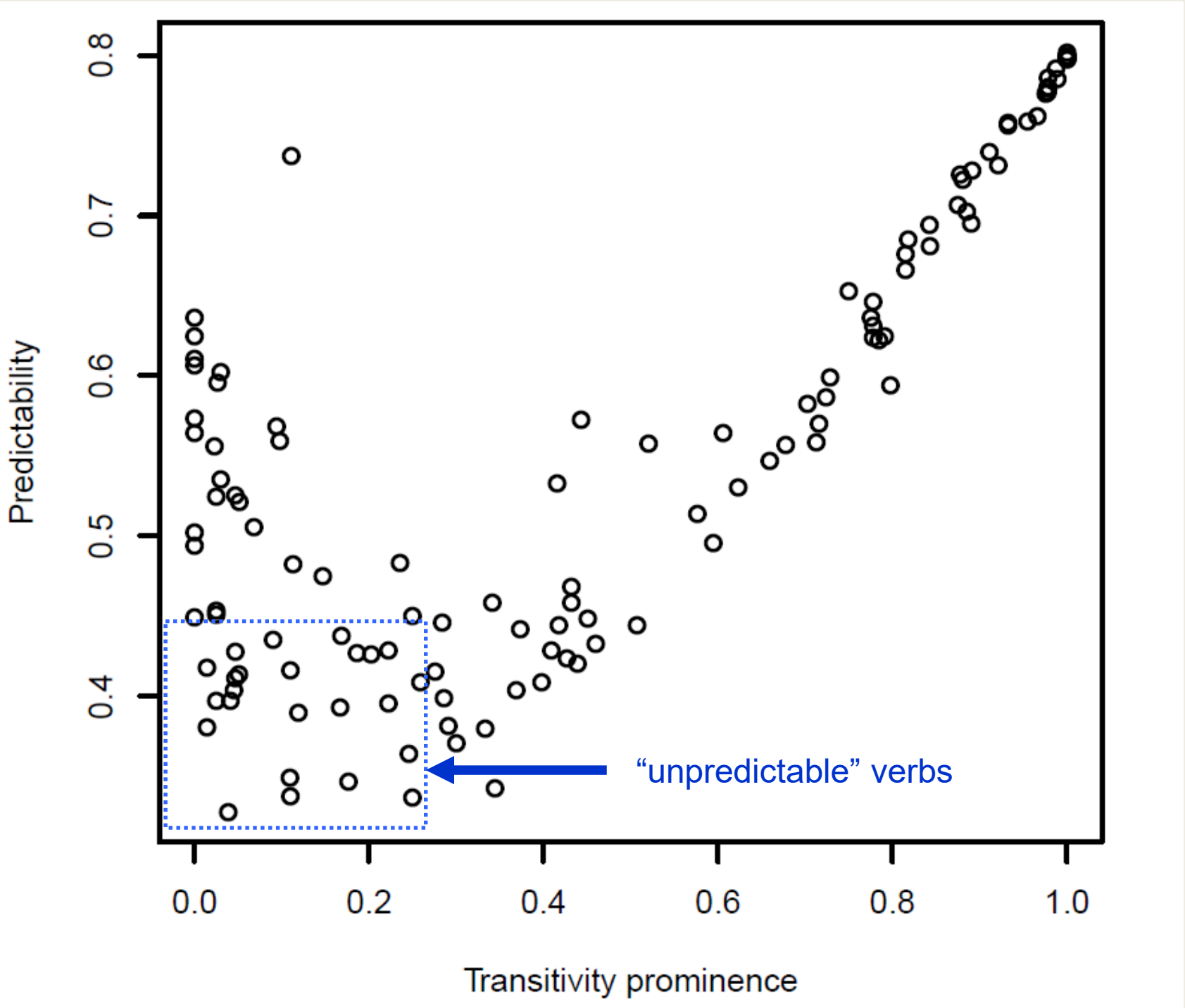
Results: verbs

- Moksha: the GEN_NOM pattern – 4 verbs in the data set

kol'ɛ-t'	*s'ɛr'ɛd'-i-∅*	*pr'a-c*	
PN-DEF.SG.GEN	ache-NPST.3-SG	head-3SG.POSS.SG	
'Kolja has a headache.'			
kol'ɛ-t'	*sat-ij̊-t'*	*jarmak-ənzə*	
PN-DEF.SG.GEN	suffice-NPST.3-PL	money-3SG.POSS.PL	
'Kolja has enough money'.			
kol'ɛ-t'	*lac'-∅*	*fkɛ*	*calkovaj*
PN-DEF.SG.GEN	remain.PST.3-SG	one	rouble
'Kolja has one rouble left'.			

+ also 'have' (= 'be')


be_called
‘be called’: often an idiosyncratic pattern (e.g. NOM_NOM)
have_a_quarrel
fight
sink
speak
be_friends
feel_pain
mix
get_upset
go_out
remain
be_short
have_enough
agree
dismount
fall_behind
enter
be_different
cut_oneself
smell
dream
like
Predictability
0.75
0.70
0.65
0.60
0.55
0.50
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Transitivity prominence


Predictability
0.4
0.5
0.6
0.7
0.8
0.0
0.2
0.4
0.6
0.8
1.0
Transitivity prominence
“unpredictable” verbs

Results: verbs

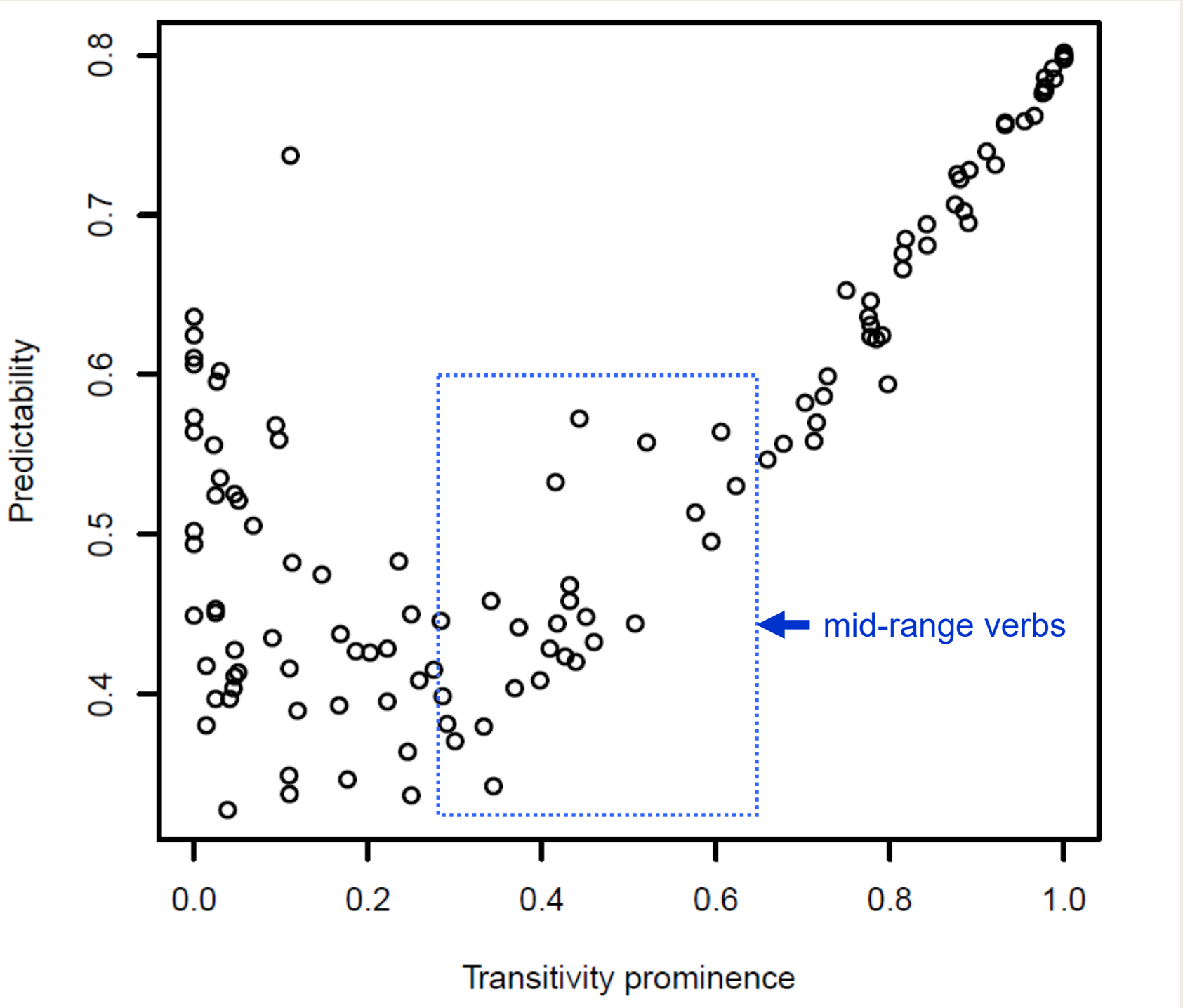
- The least predictable verbs are mainly psychological verbs
- Top 13 verbs with the lowest π-value (< 0.395):

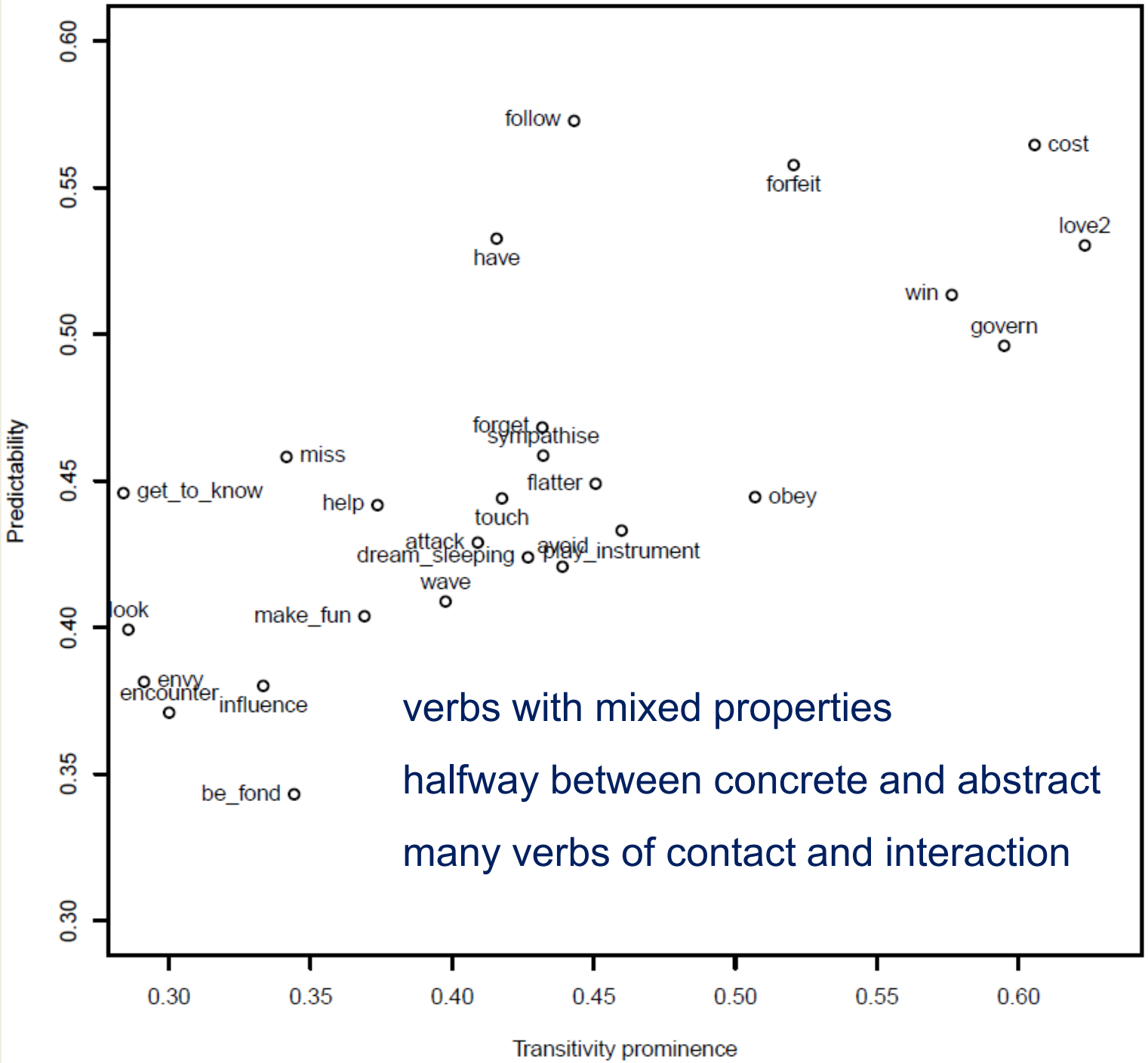
	predictability	transitivity		predictability	transitivity
be_content	0.33	0.04	encounter	0.37	0.3
fall_in_love	0.34	0.25	influence	0.38	0.33
be_surprised	0.34	0.11	take_offence	0.38	0.01
be_fond	0.34	0.34	envy	0.38	0.29
be_squeamish	0.35	0.18	resemble	0.39	0.12
marvel	0.35	0.11	trust	0.39	0.17
enjoy	0.36	0.25			

Results: verbs

- Some psychological verbs in Hungarian:
  - various patterns
  - no obvious motivation

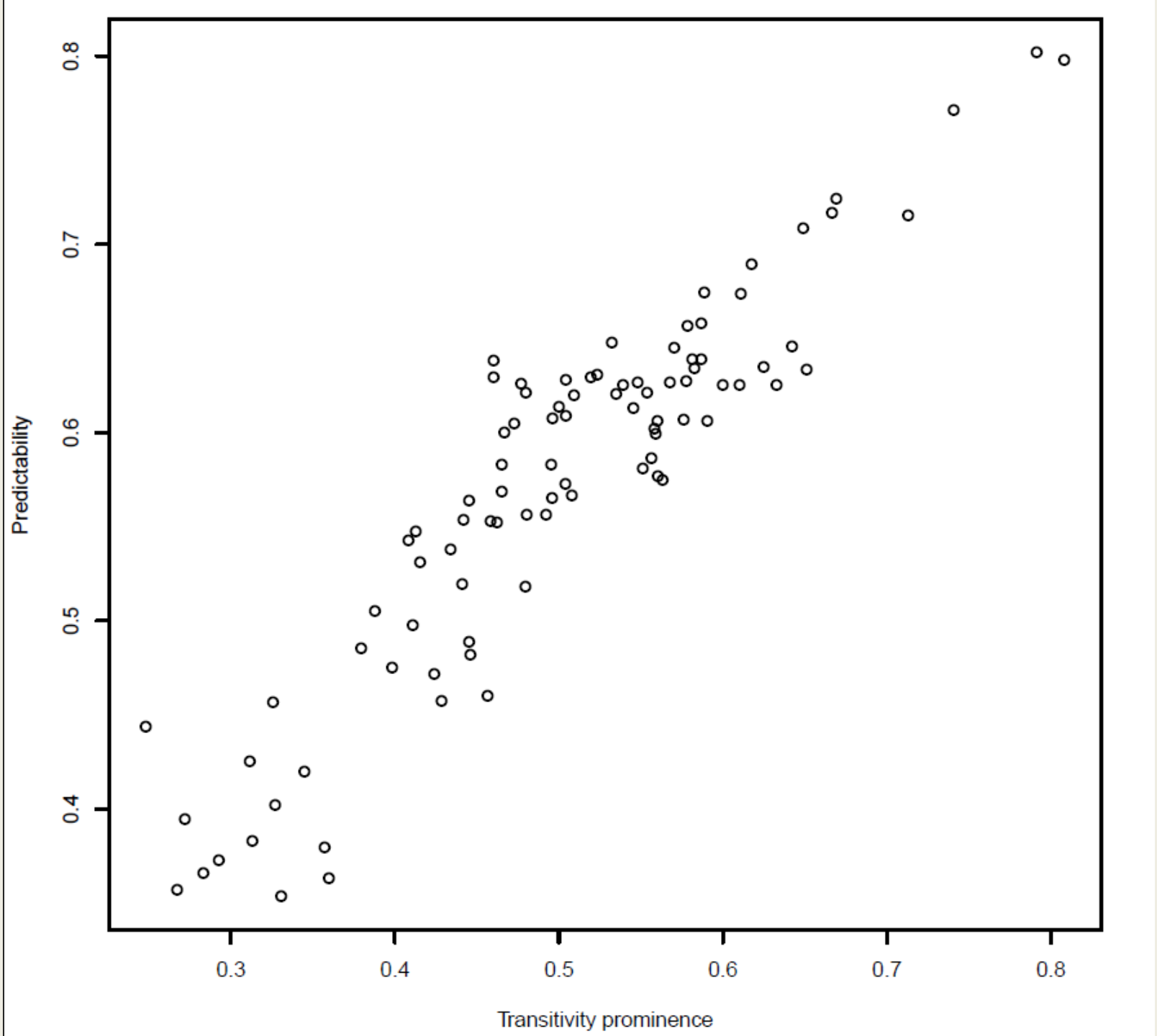
	verb	pattern
be_content	*elégedett van*	NOM_INS
fall_in_love	*beleszeret*	NOM_ILL
be_surprised	*meglepődik*	NOM_ABL
be_fond (love)	*szeret*	TR
be_squeamish	*kényes van*	NOM_SUB
enjoy	*jól esik*	DAT_NOM
take_offence	*megsértődik*	NOM_SUB
envy	*irigy van*	NOM_SUB
trust	*bízik*	NOM_INE

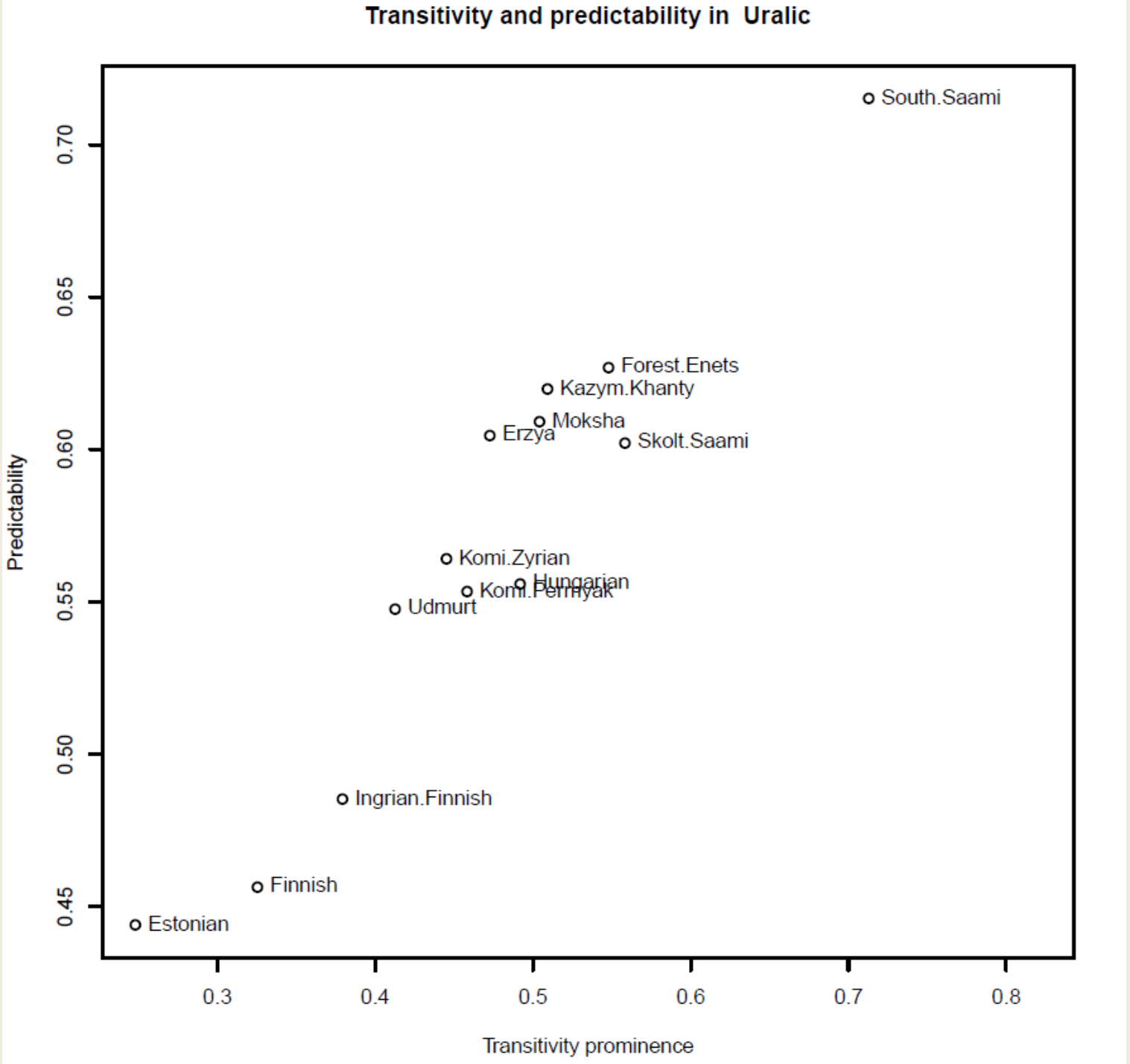

Predictability
0.4
0.5
0.6
0.7
0.8
0.0
0.2
0.4
0.6
0.8
1.0
Transitivity prominence
mid-range verbs


Predictability
0.60
0.55
0.50
0.45
0.40
0.35
0.30
follow
cost
forfeit
love2
have
win
govern
forget
sympathise
miss
flatter
get_to_know
help
obey
touch
attack
avoid
dream_sleeping
play_instrument
wave
look
make_fun
envy
encounter
influence
be_fond
0.30
0.35
0.40
0.45
0.50
0.55
0.60
Transitivity prominence
verbs with mixed properties
halfway between concrete and abstract
many verbs of contact and interaction

Results: languages

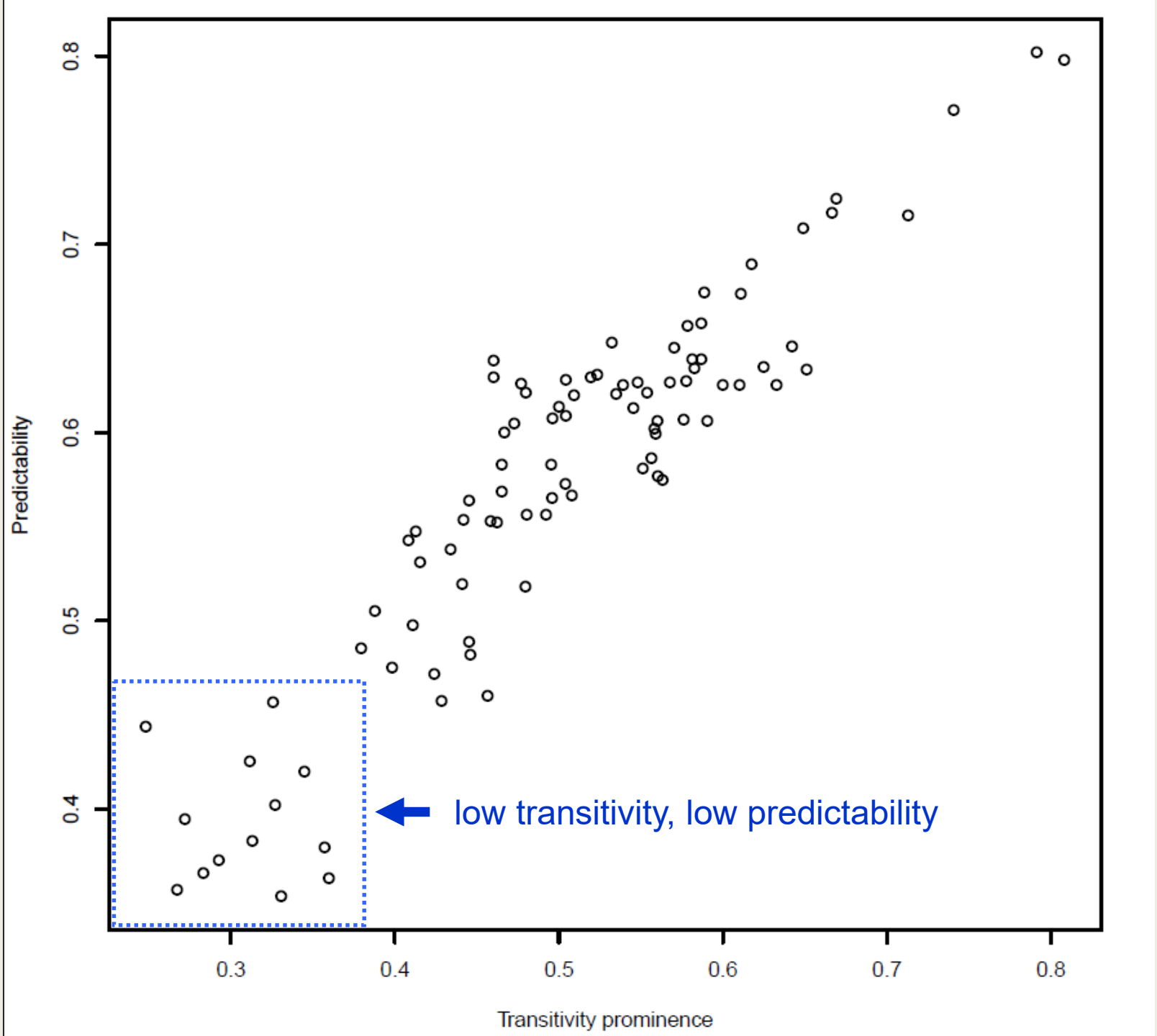
- Languages can differ in the degree of semantic motivation behind their valency classes
- Theoretically, this can be captured through calculating mean π-values across their lexica
- In reality, the main predictor of this mean is the language's transitivity prominence: the ratio of transitive verbs

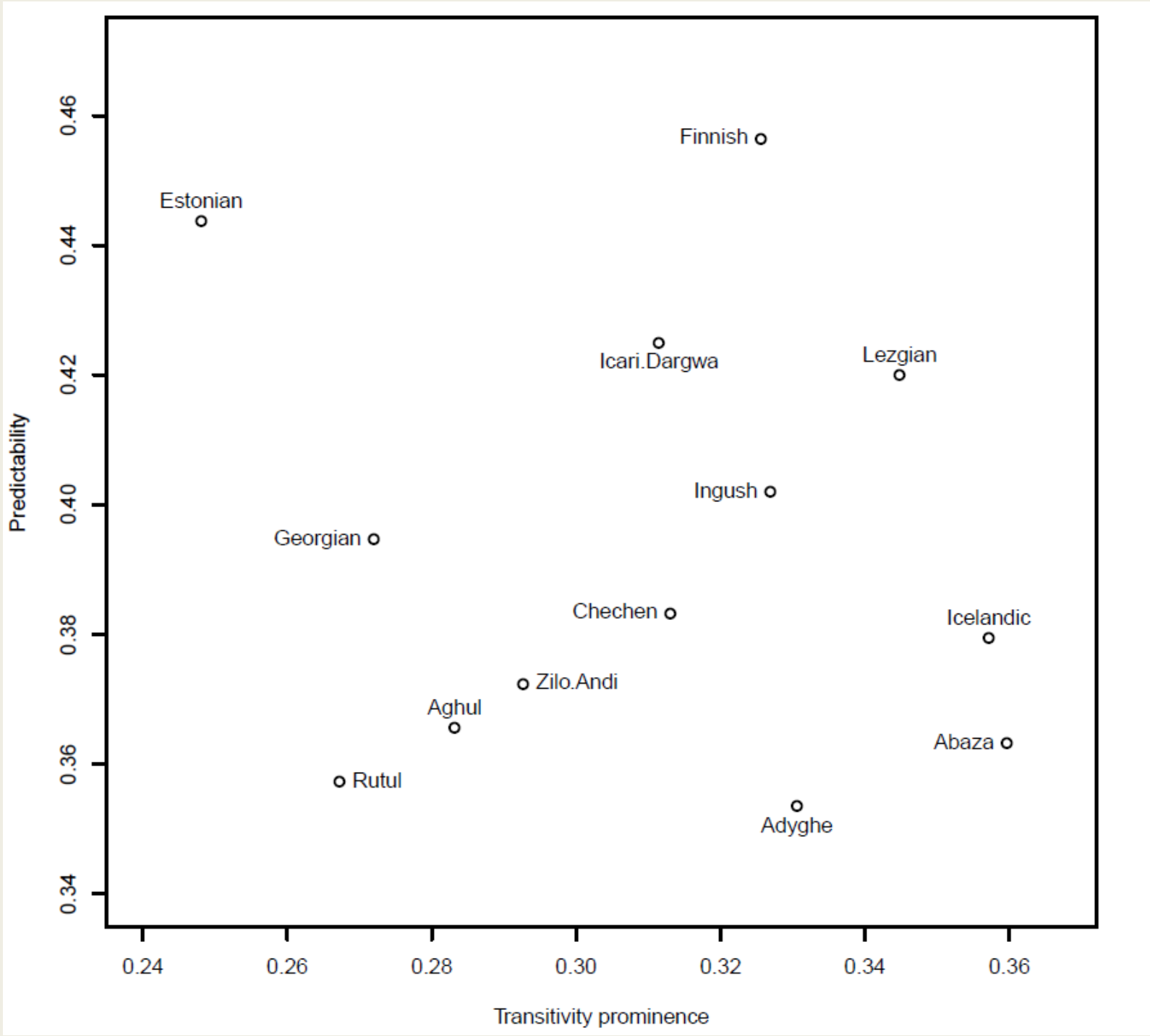

Predictability
0.4
0.5
0.6
0.7
0.8
0.3
0.4
0.5
0.6
0.7
0.8
Transitivity prominence


Transitivity and predictability in Uralic
South.Saami
Forest.Enets
Kazym.Khanty
Moksha
Erzya
Skolt.Saami
Komi.Zyrian
Hungarian
Komi.Permyak
Udmurt
Ingrian.Finnish
Finnish
Estonian
Predictability
0.70
0.65
0.60
0.55
0.50
0.45
0.3
0.4
0.5
0.6
0.7
0.8
Transitivity prominence

Results: languages

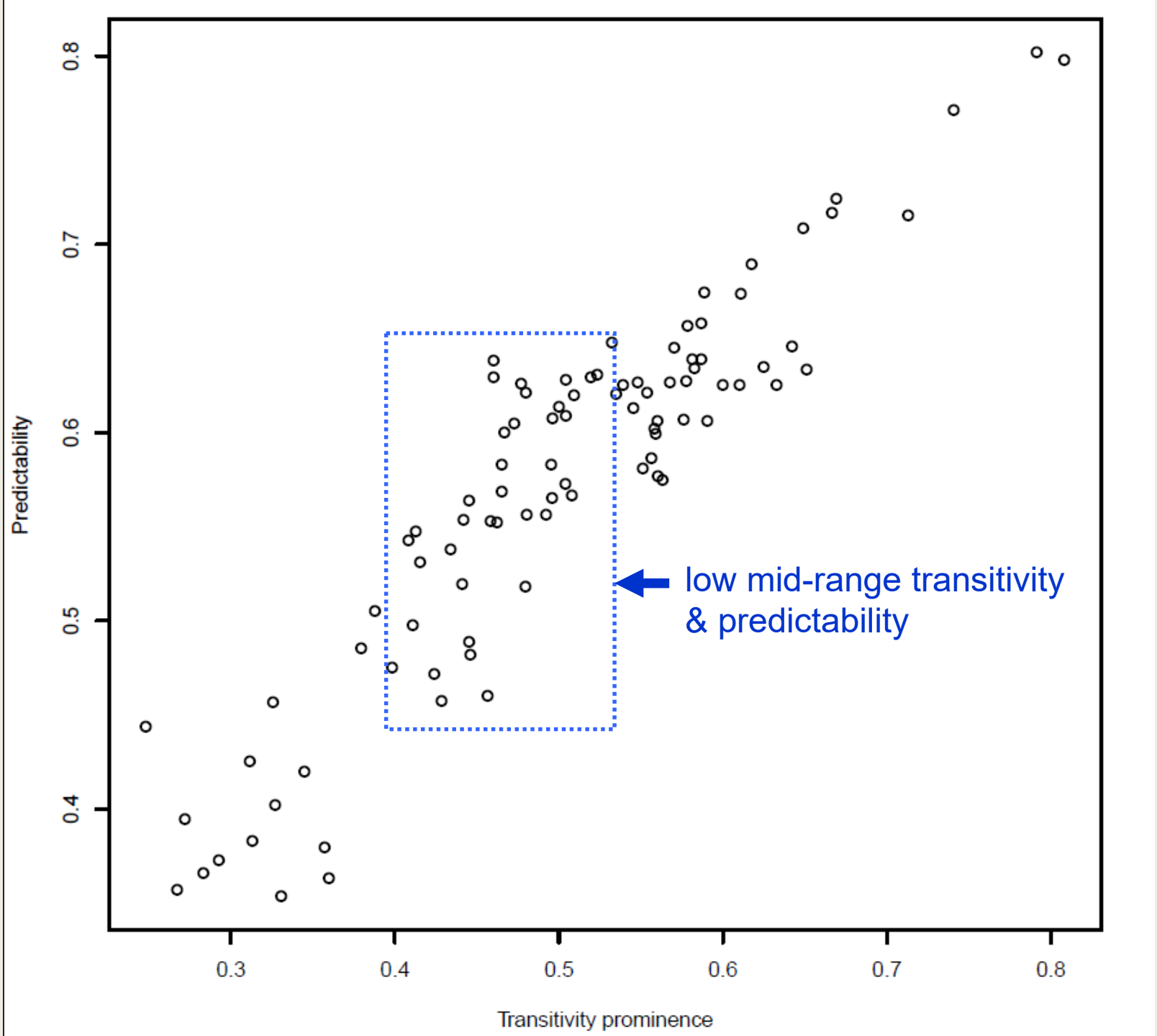
- The higher the ratio of transitive verbs, the higher the mean predictability
- This automatically follows from the methodology: less distinctions, bigger classes => easier to predict
- However, there are promising fluctuations between languages with comparable transitivity prominence

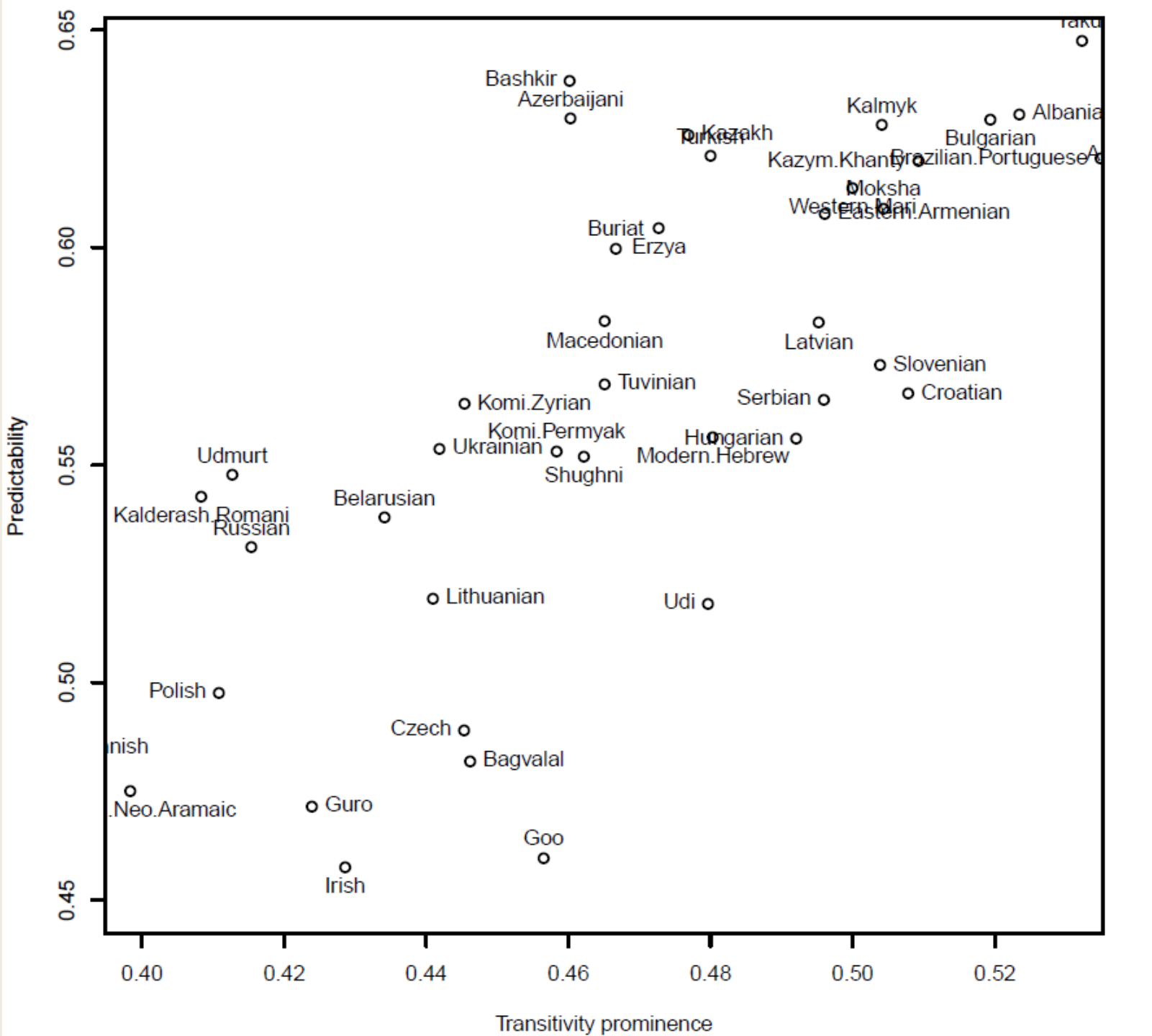

Predictability
0.4
0.5
0.6
0.7
0.8
0.3
0.4
0.5
0.6
0.7
0.8
Transitivity prominence
low transitivity, low predictability


Predictability
0.46
0.44
0.42
0.40
0.38
0.36
0.34
Finnish
Estonian
Icari.Dargwa
Lezgian
Ingush
Georgian
Chechen
Icelandic
Zilo.Andi
Aghul
Abaza
Rutul
Adyghe
0.24
0.26
0.28
0.30
0.32
0.34
0.36
Transitivity prominence

Results: languages

- Indigenous languages of the Caucasus and Baltic Finnic are among languages with
  - the lowest transitivity prominence (NB: the NOM_PART pattern in Baltic Finnic is considered instransitive)
  - the lowest predictability
- Northwest Caucasian (Abkhaz-Adyghe) languages have especially low predictability values
  - related to their non-transparent lexicalized preverbs?
- All things being equal, lower population size correlates with lower predictability (higher complexity)?


Predictability
0.4
0.5
0.6
0.7
0.8
0.3
0.4
0.5
0.6
0.7
0.8
Transitivity prominence
low mid-range transitivity
& predictability


Predictability
0.65
0.60
0.55
0.50
0.45
Transitivity prominence
0.40
0.42
0.44
0.46
0.48
0.50
0.52
Bashkir
Azerbaijani
Kalmyk
Albania
Bulgarian
Kazakh
Kazym.Khanty
Moksha
Western.Mari
Eastern.Armenian
Buriat
Erzya
Macedonian
Latvian
Slovenian
Tuvinian
Komi.Zyrian
Serbian
Croatian
Komi.Permyak
Hungarian
Ukrainian
Modern.Hebrew
Udmurt
Shughni
Belarusian
Kalderash.Romani
Russian
Lithuanian
Udi
Polish
Czech
Bagvalal
Neo.Aramaic
Guro
Goo
Irish

Results: languages

- Predictability in the low mid-range area:
  - Turkic, Mongolic >
  - most Finno-Ugric, Baltic & Slavic >
  - Mande, Irish, Udi
- Simple case systems in Turkic & Mongolic? Few grammaticalized adpositions?
  - to be explored
- Methodological issue: languages with more “neighbours” from the same genus might appear more predictable than they are
  - work in progress!

Conclusions and implications

- Valency patterns are neither fully predictably, nor fully idiosyncratic.
  - ⇒Not to say it's sensational
  - ⇒But this can be measured!
- Verb meanings differ in terms of predictability of the respective verbs' valency behaviour
- Highly transitive verbs are cross-linguistically stable (and invariably predictable)

Conclusions and implications

- Low transitivity, high predictability:
  - symmetric predicates: ‘fight’, ‘speak’, ‘get mixed’, ‘agree’
  - some motion-related verbs: ‘go out’, ‘dismount’, ‘enter’, drown’
  - some verbs related to possession: ‘be short’, ‘have enough’, ‘remain’ + ‘feel pain’

Conclusions and implications

- Low transitivity, low predictability:
  - most verbs of emotions and other psychological verbs: ‘rejoice’, ‘be surprised’, ‘trust’, ‘fall in love’, ‘enjoy’…

  ⇒ No empirical justification for Experiencers and Stimuli as unified roles

  ⇒ Multiple models of construal in terms of more concrete (spatial) schemas

  ⇒ These models are largely idiosyncratic

Conclusions and implications

- Languages also differ in the degree of their verbs' predictability
- Highly transitive languages ignore the distinctions made by other languages and display higher predictability
- Given a certain level of transitivity prominence, languages fluctuate in terms of their predictability

  => genus-level genealogical signal?

- Intuitively, more "predictable" languages employ less variegated metaphors for abstract meanings

THANK YOU!

Selected references

- Bickel, Balthasar, Taras Zakharko, Lennart Bierkandt & Alena Witzlack-Makarevich, 2014. Semantic role clustering: An empirical assessment of semantic role types in non-default case assignment. Studies in language, 38 (3). Advances in research in semantic roles. 485–511.
- Bossong, Georg. 1998. Le marquage de l'expérient dans les langues d'Europe. In: Feuillet (ed.). Actance et valence dans les langues de l'Europe. Berlin: Mouton de Gruyter. 259–94.
- Dowty, David. 1991. Thematic proto-roles and argument selection. Language 67, 547–619.
- Fillmore, Charles. 1968. The case for case. In: E. Bach & R. Harms (eds), Universals in Linguistic Theory. Holt, Rinehard and Winston, New York. 1–88.
- Haspelmath, Martin. 1993. More on the typology of inchoative / causative verb alternations. In: Comrie, Bernard & Maria Polinsky (eds.) *Causatives and Transitivity.* Amsterdam: Benjamins. 87–120.
- Hopper, P.J., Thompson, S.A. 1980. Transitivity in grammar and discourse. Language, 56. 2. 251–350.
- Lehmann, Ch. 1991, Predicate classes and PARTICIPATION. H. Seiler & W. Premper, Partizipation. Das sprachliche Erfassen von Sachverhalten. Tübingen: G. Narr (LUS, 6). 183–239.

Selected references

- Lazard, Gilbert. 1994. L'actance. Paris: Presses Universitaire de France.
- Malchukov, A. L. 2005. Case pattern splits, verb types and construction competition. In M.Amberber and H. de Hoop, H. (eds), Competition and Variation in Natural Languages: the Case for Case. Oxford: Elsevier, 73-117.
- Malchukov, A. & B. Comrie (eds.). 2015. Valency classes in the world's languages. Berlin: Mouton de Gruyter.
- Nedjalkov, V.P. 1969. Nekotorye verojatnostnye universalii v glagolnom slovoobrazovanii. In: F. Vardul' (ed.). Jazykovye universalii i lingvisticheskaja tipologija. Moscow: Nauka. 106-114.
- Nichols, Johanna. 2008. Why are stative-active languages rare in Eurasia? Typological perspective on split subject marking. In Mark Donohue and Søren Wichmann (eds). The Typology of Semantic Alignment Systems, 121-139. Oxford: Oxford University Press.
- Nichols, Johanna, David A. Peterson & Jonathan Barnes. 2004. Transitivizing and detransitivizing languages. *Linguistic Typology* 8: 149–211.
- Tsunoda, T. 1981. Split case-marking patterns in verb-types and tense / aspect / mood // Linguistics. Vol. 19. P. 389–438.
- Tsunoda, Tasaku. 1985. Remarks on transitivity. *Journal of Linguistics* 21. 385–396.
- Van Valin, Robert D., Jr. 1999. Generalized Semantic Roles and the Syntax-Semantics Interface. In: Corblin, Dobrovie-Sorin, and Marandin (Eds.) Empirical Issues in Formal Syntax and Semantics 2. The Hague: Thesus. 373–389.