

Tense, Aspect, Mood and Evidentiality

Lecture 6:

**Studying TAME systems by
questionnaires and parallel corpora**

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The Tense-Mood-Aspect Questionnaire

UNIVERSITY OF GÖTEBORG
Department of Linguistics
Research Project on Language
Universals and Language Typology

3rd version
August, 1979

Sponsor: The Swedish Research
Council for the Human and
Social Sciences
Project Leader: Östen Dahl

TENSE-MOOD-ASPECT QUESTIONNAIRE

Language under investigation:

BANDJALANG (AUSTRALIA)

Name and address of
investigator:

DR. M. C. SHARPE
C.A.E.
ARMIDALE
N.S.W.
AUSTRALIA 2350

Name of informant:

See list

Date of completion:

14th October, 1982



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Dahl
Tense and
Aspect
Systems



Stockholm
University

A page from the TMA Questionnaire (pre-computer age version)

a lot of context!

uninflected verbs

expect messy responses!

No. 25x
 ANALYSIS 11

CONTEXT
 A: My brother works at an office.
 B: What kind of work he DO?
 A:

Sentence to be translated (omit material within parentheses)
 He WRITE letters

Same translation as sentence No. 24 TRANSLATION:

No. 26x
 CONTEXT
 A: Last year, my brother worked at an office.
 B: What kind of work he DO there?
 A:

Sentence to be translated (omit material within parentheses)
 He WRITE letters

Same translation as sentence No. 20. TRANSLATION:

No. 27x
 CONTEXT
 A: My brother has got a new job at an office.
He'll start tomorrow.
 B: What kind of work he DO there?

Sentence to be translated (omit material within parentheses)
 He WRITE letters

Same translation as sentence No. 22 TRANSLATION:

No. 28x
 CONTEXT
 Talking of what happened yesterday:

Sentence to be translated (omit material within parentheses)
 While my brother WRITE the letter, I WAIT in the garden.

Same translation as sentence No. TRANSLATION:

banahm. nganyah... writing-while lab...
 buganyun } lada poudahn ngay (u) agumbone in past
 bugalingun } wundahn ngay waybare

1 p... (1a)
 22ah
 22h
 22
 3a
 w
 nw
 22
 22a

analysis of forms

The TMA Questionnaire

- Reprinted in text format in *Tense and Aspect Systems*
- Also at
www2.ling.su.se/staff/oesten/recycled/Tense&aspectsystems.pdf
- No restrictions on use – but send me a copy of the results if you can!

Questionnaire problems

- interference from source language
- possible lack of context
- multiple translation possibilities
 - Ask for best translation!
- cultural dependence in source examples
 - Replace culture-specific words (but pay attention to lexical aspect and countability!)
- possible reliance on intermediate third language
- informant fatigue
 - Give them a break!

How to use the TMA Questionnaire

- Try to get at least one complete questionnaire, preferably several
- Try to see how grams (forms and constructions) are distributed
- Compare to tables of distributions and prototypical uses in *Tense and aspect systems*
- Where a gram is not used is as important as where it is used

The perfect: prototypical uses

Table 5.3 Prototypical occurrences of PFCT

Sent. 53 Verb 1 No. of categories: 31

(A: I want to give your brother a book to read, but I don't know which.
Is there any of these books that he READ already?)

B: (Yes,) he READ this book

Sent. 54 Verb 1 No. of categories: 28

A: It seems that your brother never finishes books.

(That is not quite true.) He READ this book (=all of it)

Table 5.3 continued

Sent. 56 Verb 1 No. of categories: 28

Q: Is the king still alive? A:

(No,) he DIE

Sent. 42 Verb 1 No. of categories: 27

Q:

You MEET my brother (at any time in your life until now)?

Sent. 64 Verb 1 No. of categories: 27

Child: Can I go now? Mother:

You BRUSH your teeth?

Sent. 67 Verb 1 No. of categories: 26

Q: What did you find out when you came to town yesterday? A:

The king DIE



Continuation

- The work presented here can be seen as a continuation of this project...
- ...using a different kind of data – parallel corpora
- Like translation questionnaires, these yield sets of translationally equivalent sentences or texts
- but ones that are less governed by the investigator's preconceived notions of what distinctions will be relevant.

Bible translations

- I have been using translations of the New Testament, which are easily available in a large number of languages from different parts of the world and sometimes also from different time periods.
- Bible translations also have many obvious (and some not so obvious) drawbacks and difficulties, but at present there is no good alternative to them if one wants to go outside the major European languages.

The Parallel Bible Corpus

- \approx 1200 translations of the New Testament
- \approx 1100 different languages with ISO codes
- Somewhat patchy coverage but no European bias

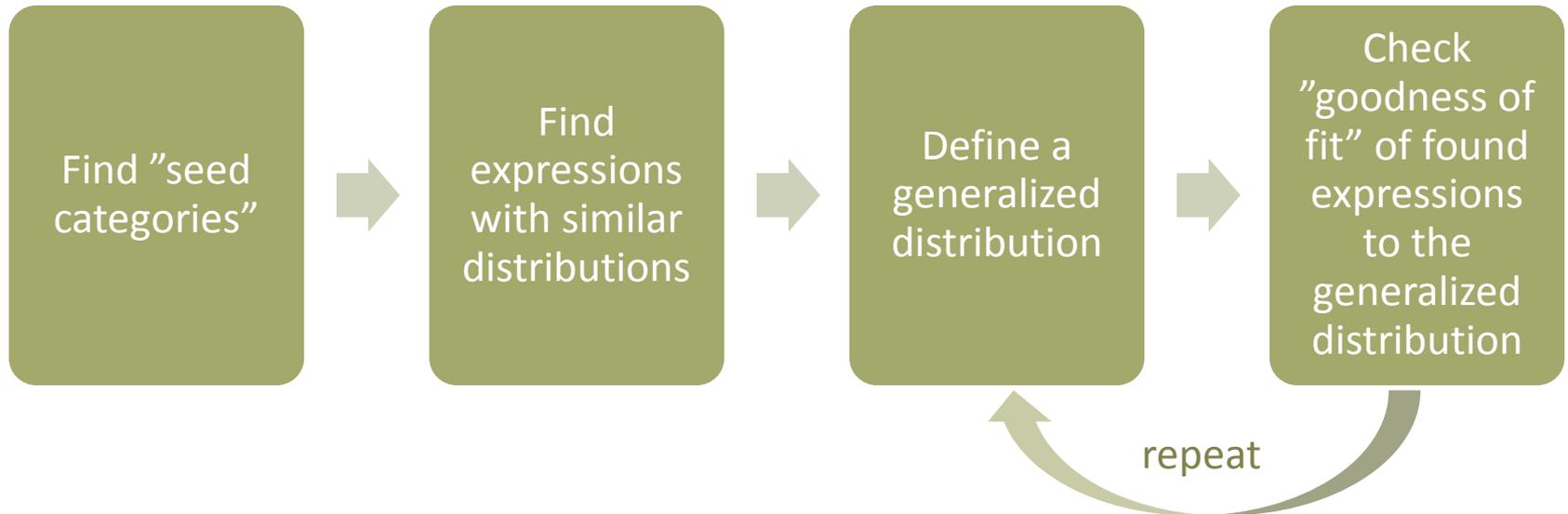


Basic methodological assumption

- The basic assumption for the kind of work reported here is:
 - Elements with similar function and/or meaning will have similar distributions in texts.
- Applied to parallel texts, the assumption will be:
 - Elements that are translational equivalents of each other will have similar distributions in a parallel corpus.



How to find members of a gram type



- The primary measures of similarity between distributions are **T-score**, **Pearson's r** , and **mutual information**.
- We use either T-score on its own or a composite index based on all three methods.
- Most of the grams are identified by automated methods, but some have to be extracted manually.

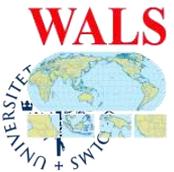
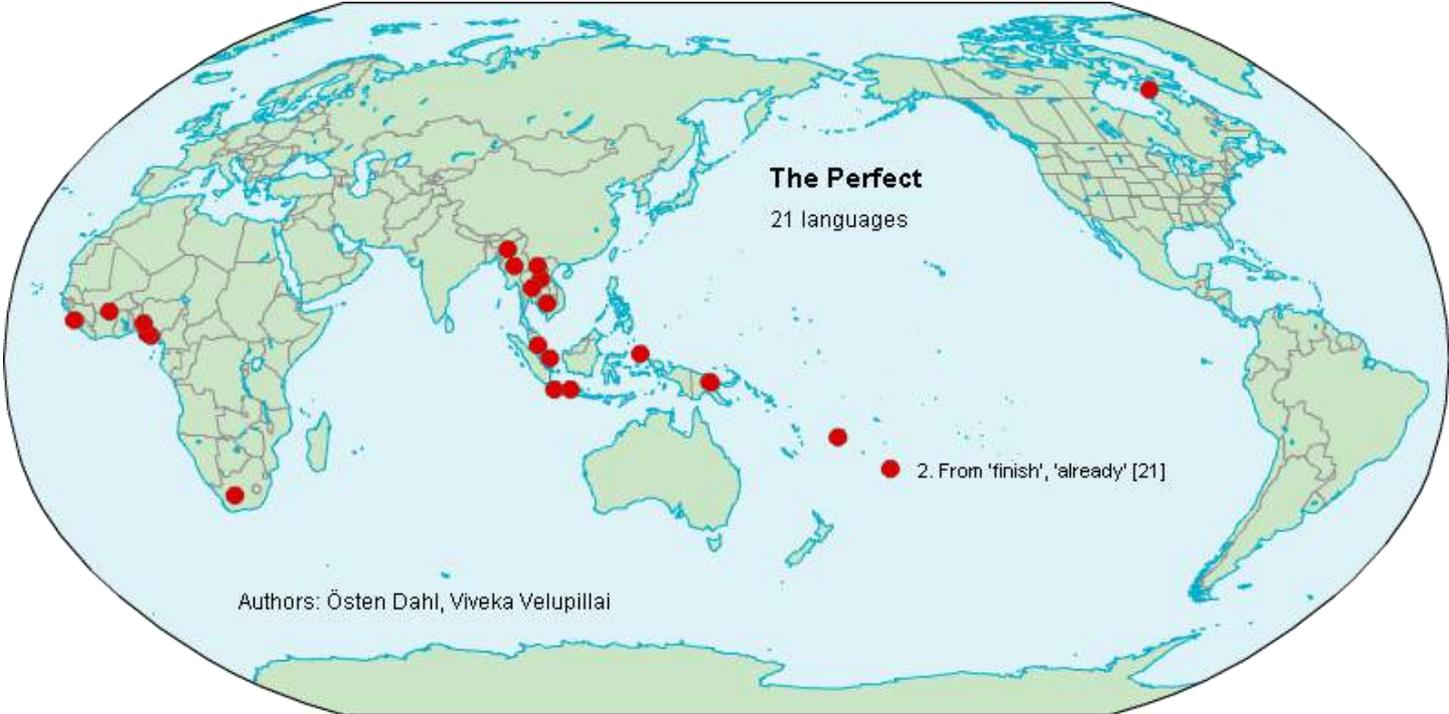


Caveats

- Automated extraction of grams biases the result towards “transparent” grams (which come close to the “one meaning-one form” ideal)
- The distribution of the grams depends on the frequency of the meanings they express in the language and in the particular corpus – certain meanings may have too low frequencies to be adequately represented
- The use of parallel corpora presupposes that the texts are really “parallel”, i.e. sufficiently close semantically and structurally – this is obviously not always the case with Bible translations



Perfects from 'finish' or 'already' according to WALS



“Iamitives”

- Are the perfects from ‘finish’ and ‘already’ a gram-type of their own?
- Some of these are treated in Olsson (2013) under the label “iamitives”*, including
 - Indonesian/Malay *sudah*
 - Thai *lɛ̀w*
 - Vietnamese *đã* and *rồi*
 - Mandarin *le*

(*from Latin *iam* ‘already’)



'Already'

- The English word *already* can be used in at least two ways:
- With a stative predicate:
 - The baby is asleep already
- With a dynamic (change-of-state) predicate:
 - The baby has already fallen asleep (or: fell asleep already)
- The two sentences mean roughly the same, however
- In both cases we contrast the present situation where a state holds to a past one where it did not hold

Iamitives often correspond to European perfects

English

- He is not here, for he **has been raised...** (Matt 28:6)
- I **have overcome** the world! (John 16:33)
- The fig tree that you cursed **has withered!** (Mark 11:21)

Indonesian

- Ia tidak ada di sini. Ia **sudah bangkit...**
- Aku **sudah mengalahkan** dunia!
- Pohon ara yang Bapak kutuk itu **sudah mati!**

English perfect (eng-leb-wbt-PFCTx) occurs in 1437 verses
Indonesian *sudah* (ind-bah-#sudah#) occurs in 1358 verses
The shared distribution is 638 verses (slightly less than half)

A major semantic difference: impact of iamitives with stative predicates

- A iamitive used with a stative predicate usually refers to a present state:

Indonesian (Sneddon et al. 2010: 74; Olsson 2013:5)

Kamar ini **sudah** bersih
room this be.clean

'This room is clean' (not: 'has been clean')

Vietnamese (Do-Hurinvile 2006: 6; Olsson 2013:19)

Paul **đã** gia
P. be.old

'Paul is old now' (not: 'has been old')

- This indicates a major difference to perfects in European languages
- ...and is consistent with the source meaning being 'already'



“Natural developments”

- Many iamitives are used seemingly redundantly with predicates denoting natural developments, such as ‘old’, ‘rotten’, ‘ripe’.

Examples of “iamitives” used with natural developments

INDONESIAN (ind-bah)

- 42001018 "Bagaimana saya tahu bahwa hal itu akan terjadi?" tanya Zakharia kepada malaikat itu. "Saya **sudah** tua, dan istri saya juga **sudah** tua."
- 43006004 Pada waktu itu **sudah** dekat Hari Raya Paskah Yahudi.

ENGLISH (eng-web)

- 42001018 Zacharias said to the angel, "How can I be sure of this? For I am an old man, and my wife is well advanced in years."
- 43006004 Now the Passover, the feast of the Jews, was at hand.



What is a "natural development" depends on culture...

**PROVINSI JAWA TENGAH
KABUPATEN KLATEN**

N.I.K. : 3321282907820002
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Tempat/Tgl lahir : KLATEN, 17 Juli 1982
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Alamat : KARANGAN
RT/RW : 001/007
Desa : KARANGAN
Kecamatan : KARANGANOM
Kabupaten : KLATEN
Agama : ISLAM
Pekerjaan : Wiraswasta
Berlaku hingga : 17-07-2015



Status Perkawinan : Sudah Kawin

KLATEN, 23-03-2010
Kepala Dinas
Kependudukan dan Pencatatan Sipil

SRI MULYATI, SH
NIP. 010 174 863

Tanda Tangan / Sidik Jari Pemegang KTP

'(lit.) already married'

**PROPINSI JAWA TENGAH
KABUPATEN SEMARANG**

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Nama Lengkap : KEVIN HARTONO PERMANA
Tempat/Tgl Lahir : BANDUNG / 24-01-1990
Jenis Kelamin : Laki-laki Golongan Darah : A
Alamat : DSN. RAWABONI
R. T./R. W. : 004 / 009
Kelurahan : RAWABONI
Kecamatan : BANYUBIRU
Kota : SEMARANG
Agama : Kristen
Pekerjaan : MAHASISWA
Berlaku hingga : 24-01-2015



Status perkawinan : Belum Kawin

Semarang, 21-01-2010
An. Walikota
Dipertanggungjawabkan dan Capil

CAHYA LITANUM, M.Si
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Tanda Tangan / Sidik Jari Pemegang KTP

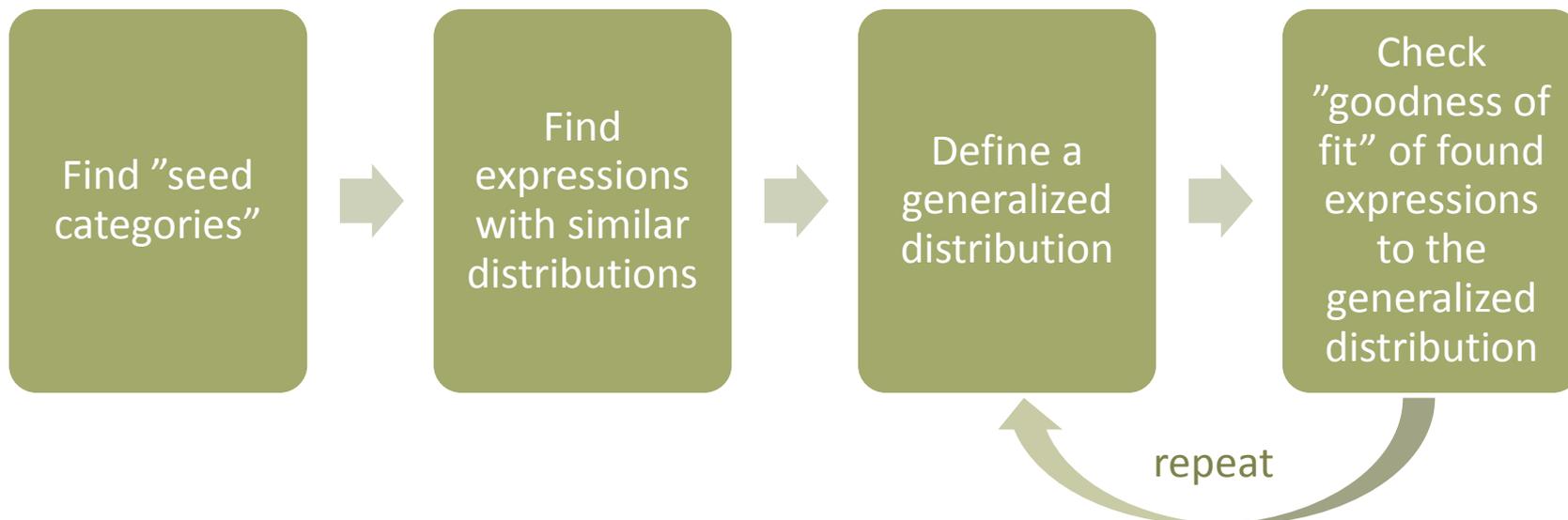
'(lit.) not yet married'

Questions

- How different are (European) perfects and “imitives”?
- Is there a discrete boundary between them?
- Along what dimensions do we find variation within the perfect gram type?
- How is the variation distributed areally?



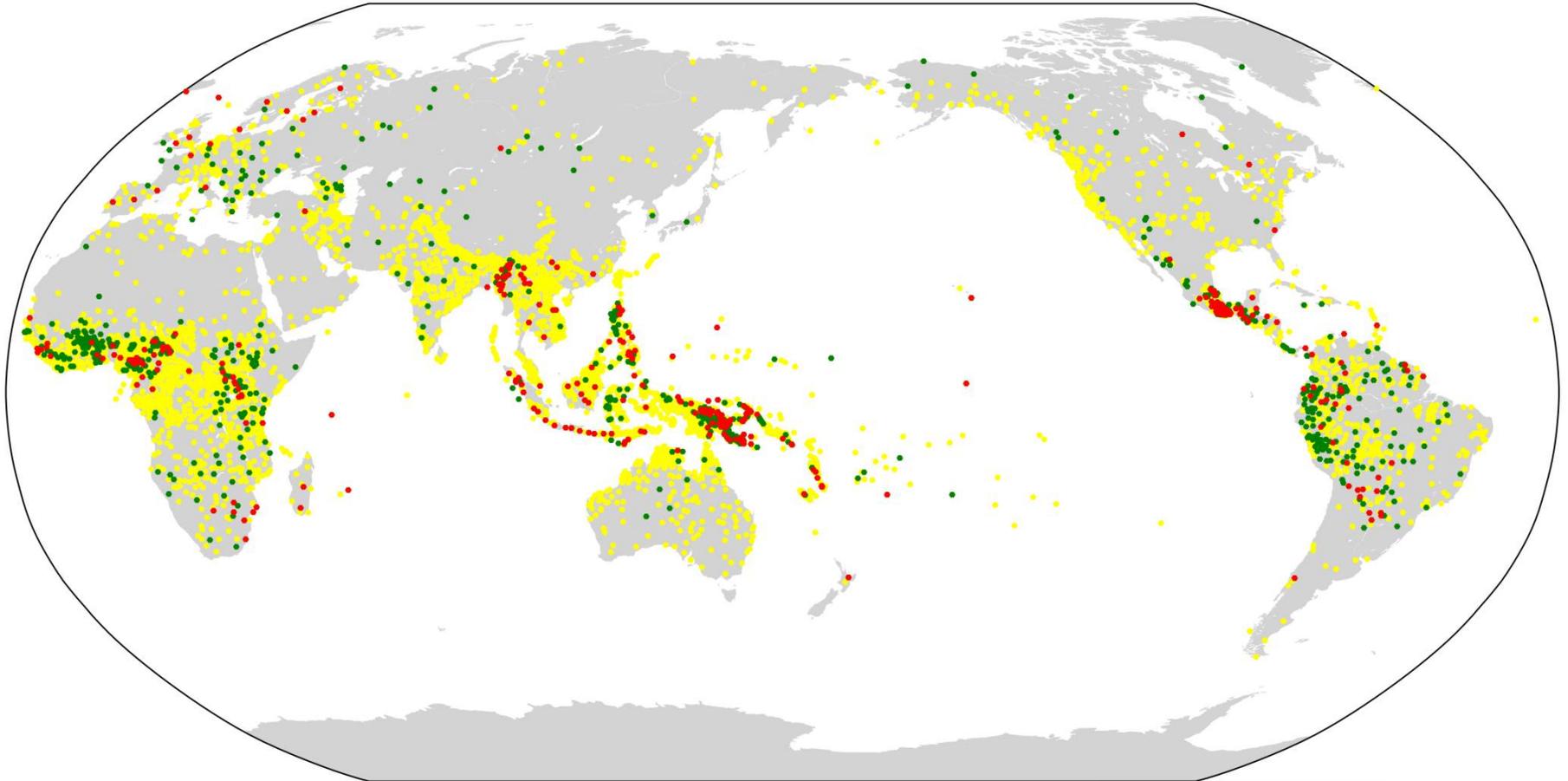
Finding perfects



- As seed categories we used five perfect grams identified in Dahl (1985), taken from Swedish, Maori, Finnish, Thai, and Yoruba
- By applying the methods above we obtained a generalized distribution for the bible texts and a sample of grams from 178 languages which all fit the distribution with a composite index of at least 0.40



Perfects in the Parallel Bible Corpus



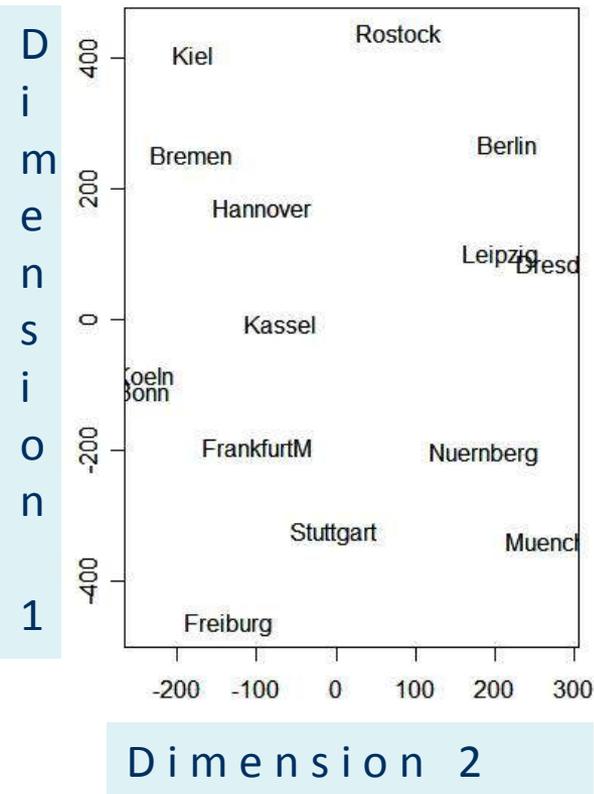
languages in the
corpus with
attested perfects

languages in the
corpus without
attested perfects

languages not
represented in
the corpus

Visualizing similarities of extracted perfect grams with Multi-Dimensional Scaling (MDS)

	Berlin	Bonn	Bremen
Berlin	0 km	593 km	386 km
Bonn	593 km	0 km	343 km
Bremen	386 km	343 km	0 km

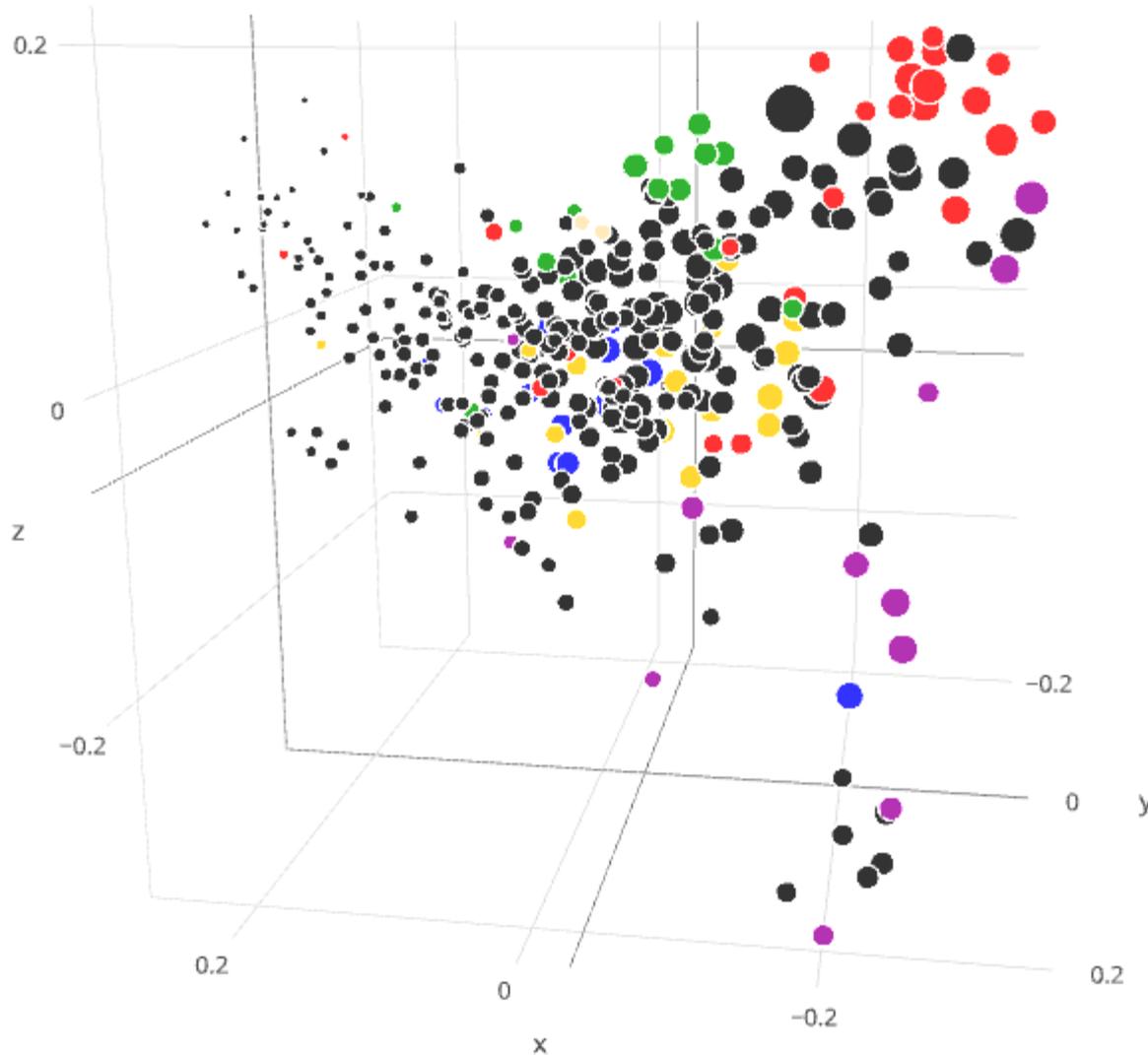


- MDS extracts dimensions from a distance matrix, the dimension reflecting most information first; i.e., constructs a space from the distance between pairs of n data points with max. $n-1$ dimensions.
- Standard method in dialectometry (e.g., Nerbonne et al. 1996) and has been used in typology (e.g., Croft & Poole 2008, Wälchli & Cysouw 2012)
- The distance matrix used here takes Pearson's r transformed to a dissimilarity measure for calculating the matrix. Classical MDS is used here.



The perfect sample from the Parallel Bible Corpus – an MDS analysis

[Link to 3D view](#)



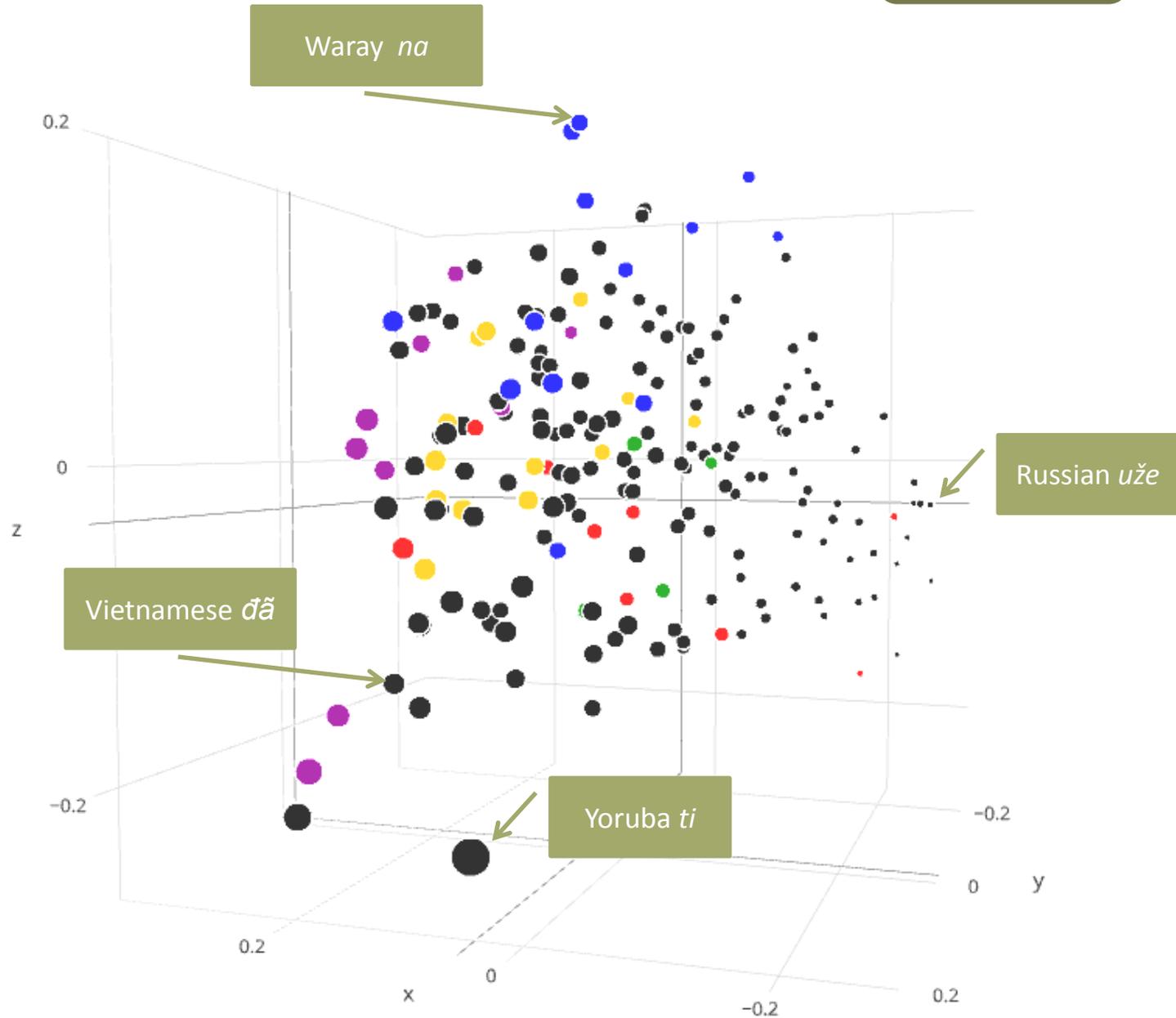
European
perfects

sizes of symbols
represent number of
occurrences in the NT
translations

- Although the European perfects stand out from the others, it is not possible to separate perfects from iamitives so as to obtain two clearly distinct “gram types”
- At the same time, there is great variation within the grams regarded as iamitives

Iamitives in 3D

[Link to 3D view](#)



Prototypical contexts for “Europerfects”

English PFCT

40019006\$17+ What God has joined together
40026056\$5+ But all this has happened
40028011\$28+ the that had happened
42002020\$15+ that they had heard and
42008056\$17+ what had been done
42009019\$27 that one of the old prophets is risen again
43002010\$25+ You have kept the good wine until now
43004046\$13 where he made the water into wine
43006046\$18+ He has seen the Father
43010032\$8+I have shown you many good works from
my Father
43012046\$3+I have come as a light into the world
43015003\$12+ which I have spoken to you
43017014\$3+I have given them your word
43017022\$13+ The glory I have given to them
44010033\$33+ that have been commanded you by God
44012018\$20+ as about what had become of Peter
44013029\$5+When they had fulfilled all things
44017031\$4+because he has appointed a day in which
55002002\$7+which you have heard from me among
many witnesses the
57001018\$7+if he has wronged you at all or

18

Indonesian sudah

40019006\$17+ apa yang sudah disatukan oleh Allah
40026056\$5+ Tetapi memang sudah seharusnya begitu
supaya
40028011\$28+ yang sudah terjadi .
42002020\$15 yang telah mereka dengar dan
42008056\$17 peristiwa itu
42009019\$27+ salah seorang nabi zaman dahulu yang
sudah hidup kembali
43002010\$25 Saudara menyimpan anggur yang paling baik
sampai sekarang !
43004046\$13 mana Ia pernah mengubah air menjadi
anggur
43006046\$18+ sudah melihat Bapa .
43010032\$8+ Kalian sudah melihat Aku melakukan banyak
pekerjaan baik , Bapa Dari semua
43012046\$3 Aku datang ke dunia ini sebagai terang
43015003\$12 yang Kuberikan kepadamu .
43017014\$3+ Aku sudah menyampaikan kepada mereka
perkataan Bapa
43017022\$13+ Aku sudah memberikan mereka keagungan
44010033\$33 Allah suruh Tuan katakan kepada kami .
44012018\$20 mengenai apa yang telah terjadi dengan
Petrus
44013029\$5 setelah mereka selesai melaksanakan
semuanya yang
44017031\$4+Sebab Ia sudah menentukan suatu
55002002\$7+sudah kaudengar dari saya di depan banyak
orang
57001018\$7 Kalau ia bersalah atau

10

Prototypical contexts for “Europerfects”

	English perfect (18/20)	Indonesian sudah (10/20)
40019006\$17	What God has joined together	apa yang sudah disatukan oleh Allah
40026056\$5	But all this has happened	Tetapi memang sudah seharusnya begitu supaya
40028011\$28	the that had happened	yang sudah terjadi .
42002020\$15	that they had heard and	yang telah mereka dengar dan
42008056\$17	what had been done	peristiwa itu
42009019\$27	that one of the old prophets is risen again	salah seorang nabi zaman dahulu yang sudah hidup kembali
43002010\$25	You have kept the good wine until now	Saudara menyimpan anggur yang paling baik sampai sekarang
43004046\$13	where he made the water into wine	mana la pernah mengubah air menjadi anggur
43006046\$18	He has seen the Father	sudah melihat Bapa .
43010032\$8	I have shown you many good works from my Father	Kalian sudah melihat Aku melakukan banyak pekerjaan baik , Bapa Dari semua
43012046\$3	I have come as a light into the world	Aku datang ke dunia ini sebagai terang
43015003\$12	which I have spoken to you	yang Kuberikan kepadamu
43017014\$3	I have given them your word	Aku sudah menyampaikan kepada mereka perkataan Bapa
43017022\$13	The glory I have given to them	Aku sudah memberikan mereka keagungan
44010033\$33	that have been commanded you by God	Allah suruh Tuan katakan kepada kami
44012018\$20	as about what had become of Peter	mengenai apa yang telah terjadi dengan Petrus
44013029\$5	When they had fulfilled all things	setelah mereka selesai melaksanakan semuanya yang
44017031\$4	because he has appointed a day in which	Sebab la sudah menentukan suatu
55002002\$7	which you have heard from me among many witnesses	sudah kaudengar dari saya di depan banyak orang
57001018\$7	if he has wronged you at all or	Kalau ia bersalah atau

Prototypical contexts for “Europerfects”

	English perfect (18/20)	Cebuano <i>na</i> (2/20)
40019006\$17	What God has joined together	ang sa Dios gihiusa , sa
40026056\$5	But all this has happened	Apan nagakahinabo kining tanan aron
40028011\$28	that had happened	nahitabo .
42002020\$15	that they had heard and	ilang nadungog ug
42008056\$17	what had been done	nahitabo .
42009019\$27	that one of the old prophets is risen again	nga kono usa sa mga karaang profeta nabanhaw .
43002010\$25	You have kept the good wine until now	ikaw , imo hinoong gitagoan ang maayong bino hangtud karon .
43004046\$13	where he made the water into wine	diin gihimo gani niyang bino ang tubig
43006046\$18	He has seen the Father	kini siya nakakita sa Amahan .
43010032\$8	I have shown you many good works from my Father	Gipakitaan ko kamog daghang mga maayong buhat gikan sa Amahan
43012046\$3	I have come as a light into the world	Ingon nga kahayag mianhi ako sa kalibutan
43015003\$12	which I have spoken to you	akong gisulti kaninyo .
43017014\$3	I have given them your word	Gihatag ko kanila ang imong pulong ; ug
43017022\$13	The glory I have given to them	Ug gihatagan ko sila sa kadungganan
44010033\$33	that have been commanded you by God	nga gisugo kanimo sa Ginoo .
44012018\$20	as about what had become of Peter	naunsa na kaha si Pedro .
44013029\$5	When they had fulfilled all things	sa ila nang natuman tanang
44017031\$4	because he has appointed a day in which	kay siya nakatudlo na ug adlaw
55002002\$7	which you have heard from me among many witnesses	imong nadungog gikan kanako sa atubangan sa daghang mga saksi
57001018\$7	if he has wronged you at all or	kon siya nakahatag man kanimog kadaut o

Prototypical contexts for iamitives

	English perfect (12)	Indonesian
40005028\$19+	after her has committed adultery with her already in his heart	itu sudah berzinah dengan wanita itu di dalam hatinya .
40006005\$49+	they have received their reward	upah yang mereka sudah terima .
40006016\$39+	they have received their reward	upah yang mereka sudah terima .
40012028\$18+	But then the kingdom of God has come on you	Tetapi berarti Allah sudah mulai memerintah di tengah-tengah kalian .
40017012\$10+	that Elijah has come already	Elia sudah datang
41007029\$18+	The demon has gone out of your daughter	roh jahat sudah keluar dari anakmu !
41009013\$9+	that Elijah has come also	Elia sudah datang
42011007\$23	The door is now shut , and	Pintu sudah terkunci dan
42011020\$18	But then is the kingdom of God come to you	Tetapi berarti bahwa Allah sudah mulai memerintah di tengah-tengah kalian .
42014022\$14	Lord is done and	Tuan sudah dijalankan , tetapi
43004035\$36	that they are white already to harvest	sudah siap untuk dituai !
43009027\$8	I told you already and	Sudah saya ceritakan kepadamu , tetapi
43011017\$11+	he had been in the tomb four days already	di tempat itu , Lazarus sudah empat hari lamanya dikubur .
43012028\$17	I have both glorified it and	Aku sudah mengagungkan-Nya , dan
43016011\$13+	because the prince of this world has been judged	dan mulai sebab penguasa dunia ini sudah dihukum .
43019033\$12	he was already dead	Ia sudah meninggal
48005024\$8+	Those have crucified the flesh with its passions and lusts	Orang-orang orang-orang itu sudah mematikan tabiat manusianya dengan segala nafsu dan keinginannya .
51003009\$11+	seeing that you have put off the old man with his doings	sebab hidup yang lama dengan segala sifatnya sudah kalian lepaskan .
55002018\$13	that the resurrection is already past	bahwa kebangkitan dari kematian sudah terjadi .
58013023\$8+	that our brother Timothy has been freed with whom	bahwa saudara kita Timotius sudah dibebaskan
40005028\$19+	after her has committed adultery with her already in his heart	itu sudah berzinah dengan wanita itu di dalam hatinya .

Prototypical contexts for iamitives

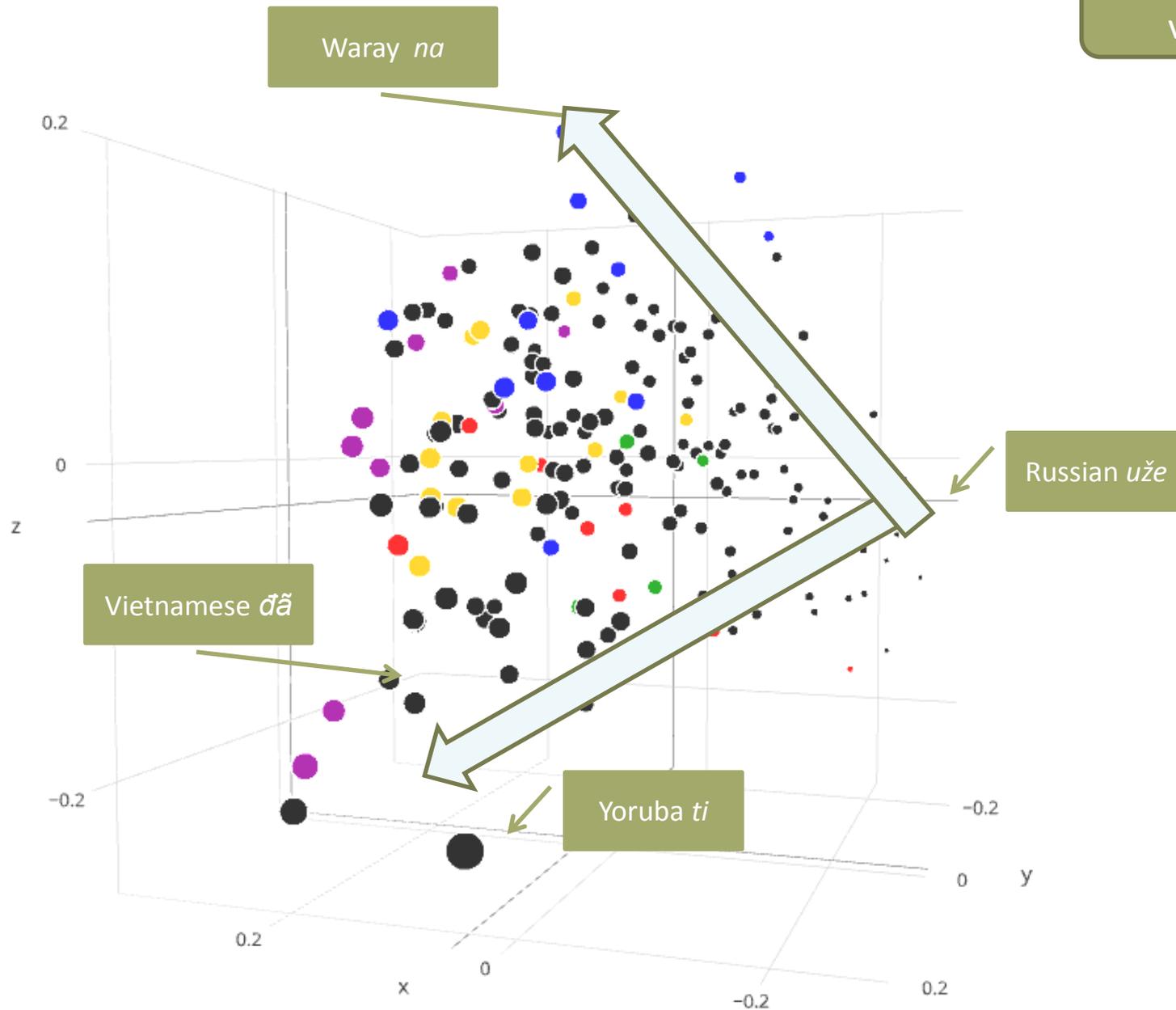
	English perfect (12)	Cebuano <i>na</i> (19)
40005028\$19+	after her has committed adultery with her already in his heart	uban kaniya , nakapanapaw na kaniya diha sa sulod sa iyang kaugalingong kasingkasing
40006005\$49+	they have received their reward	Sa , kaninyo , nga sila nakadawat na sa ilang balus .
40006016\$39+	they have received their reward	Sa , kaninyo , nga sila nakadawat na sa ilang balus .
40012028\$18+	But then the kingdom of God has come on you	Apan nan ang gingharian sa Dios nahidangat na diay diha kaninyo
40017012\$10+	that Elijah has come already	nga si Elias nahianhi na
41007029\$18+	The demon has gone out of your daughter	----
41009013\$9+	that Elijah has come also	nga si Elias nahianhi na
42011007\$23	The door is now shut , and	ang pultahan gikatrangkahan na ug
42011020\$18	But then is the kingdom of God come to you	Apan nan ang gingharian sa Dios nahidangat na diha kaninyo .
42014022\$14	Lord is done and	Agalon , nahimo ko na ngani
43004035\$36	that they are white already to harvest	mga hinog na aron pagaanohon .
43009027\$8	I told you already and	Gitug-anan ko na kamo , ug
43011017\$11+	he had been in the tomb four days already	iyang si Lazaro upat na ka adlaw didto sa lubong .
43012028\$17	I have both glorified it and	ko na kini , ug pagapasidunggan
43016011\$13+	because the prince of this world has been judged	ug sa kay ang punoan niining kalibutan gihukman na man .
43019033\$12	he was already dead	nga siya patay na na
48005024\$8+	Those have crucified the flesh with its passions and lusts	Ug mga ilang unod diha sa krus dala ang mga pangibog ug mga tinguha niini .
51003009\$11+	seeing that you have put off the old man with his doings	maingon nga nahukasan na kamo sa inyong daan nga kinaiya uban sa mga batasan niini
55002018\$13	that the resurrection is already past	nga ang pagpangabanhaw nahitabo na
58013023\$8+	that our brother Timothy has been freed with whom	nga ang atong igsoon nga si Timoteo gibuhian na uban kaniya

Prototypical contexts for iamitives

40005028\$19+	after her has committed	Cebuano #na#
adultery with her already in his heart		40005028\$19+ uban kaniya , nakapanapaw na
40006005\$49+	you they have received their	kaniya diha sa sulod sa iyang kaugalingong kasingkasing .
reward		40006005\$49+ Sa , kaninyo , nga sila
40006016\$39+	you they have received their	nakadawat na sa ilang balus .
reward		40006016\$39+ Sa , kaninyo , nga sila
40012028\$18+	But then the kingdom of	nakadawat na sa ilang balus .
God has come on you		40012028\$18+ Apan nan ang gingharian sa
40017012\$10+	that Elijah has come already	Dios nahidangat na diay diha kaninyo .
41007029\$18+	The demon has gone out of	40017012\$10
your daughter		41009013\$9+ nga si Elias nahianhi na
41009013\$9+	that Elijah has come also	42011007\$23+ ang pultahan gikatrangkanan
42011007\$23	The door is now shut , and	na ug
42011020\$18	But then is the kingdom of	42011020\$18+ Apan nan ang gingharian sa

- It appears that words meaning 'already' can grammaticalize in different ways...
- which may take them more or less closely to perfects of the traditional type

[Link to 3D view](#)



Differences in iamitive usage

Cebuano

Kay unsa bay imong na-buhat?

for what SBJ you REALIS-do

Vietnamese

vậy người đã làm điều gì?

so you IAM do what

English

What have you done?

Incipient grammaticalization of 'already' in Romance languages

