Lectures on Tense-Aspect-Mood-Evidentiality (TAME)

Östen Dahl
TAME (tense-aspect-mood-evidentiality)

- The four labels tense, aspect, mood, and evidentiality (abbreviated TAME) stand for sentence or clause level grammatical phenomena manifested either inflectionally on verbs or periphrastically by constructions usually involving auxiliaries or particles.
TAME (tense-aspect-mood-evidentiality)

- Similar grammatical markings are found in an overwhelming majority of all languages in the world, and in most of these one or more distinctions are encoded inflectionally.
- The presence of such inflectional markings is often considered a hallmark of finite verb forms.
TAME (tense-aspect-mood-evidentiality)

- Together with subject and object markers, the phenomena subsumed under the acronym TAME cover the bulk of inflections on finite verbs and auxiliaries in the languages of the world.

- A possible way of characterizing the common semantic content of TAME which sets it off from argument marking is to say that it concerns the “purported reality status” of the content of the proposition expressed.
Seven languages out of eight have tense-aspect inflections

http://wals.info
“Grammatical categories”

- Traditionally, TAME is thought of as a set of grammatical categories.
- However, the notion of a grammatical category conflates two different things:
  - a dimension of a grammatical paradigm
  - the semantic domain from which the content of a grammatical item is taken
- These two notions seldom coincide totally in TAME.
Neat categories: number and person

- Number and person are examples of (seemingly) unproblematic inflectional categories in verbs

<table>
<thead>
<tr>
<th></th>
<th>Sg</th>
<th>Pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>amo</td>
<td>amamos</td>
</tr>
<tr>
<td>2</td>
<td>amas</td>
<td>amáis</td>
</tr>
<tr>
<td>3</td>
<td>ama</td>
<td>aman</td>
</tr>
</tbody>
</table>
Not so neat: tense and aspect

<table>
<thead>
<tr>
<th></th>
<th>Imperfective</th>
<th>Perfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>amo</td>
<td></td>
</tr>
<tr>
<td>Past</td>
<td>amaba</td>
<td>amé</td>
</tr>
<tr>
<td>Future</td>
<td>amaré</td>
<td></td>
</tr>
</tbody>
</table>

traditional view: all tense

modern view: tense and aspect
Semantic criteria are assumed to have precedence

- Traditional grammar subsumed all verb forms that express tense and aspect under “tense”
- Modern grammarians tend to insist on separating tense and aspect
- ... tacitly assuming that semantic criteria have precedence in defining what is a grammatical category
- This leads to an uneasiness with cases where the structure of paradigms doesn’t seem to reflect the postulated semantically defined categories in a neat way
Intertwining is the normal case

- What is important to see is that those cases are not anomalies but rather the normal state of affairs in human languages
- .. and that the ways in which e.g. temporal and aspectual notions are intertwined and integrated in morphological systems show strong similarities across languages
- – similarities that are ultimately motivated by semantic and pragmatic affinities between those notions
Gram types

- Bybee and Dahl (1989) argue that tense, mood, and aspect are most appropriately seen as broad domains representing possible semantic content of grammatical entities...
- ...and that cross-linguistic generalizations are to be looked for at the level of "gram types" such as past, future, progressive etc.
- ... which would be manifested as "grams" in individual languages
Grammaticalization

- Furthermore, in order to understand the structure of TAME systems (like grammatical systems in general) it is essential to understand the ways in which they arise over time.
- It is suggested that TAME grams arise by grammaticalization along a limited number of grammaticalization paths.
- Semantic, formal and behavioural properties of TAME grams depend on how far they have advanced on those paths (=their degree of grammaticalization).
The general picture

Temporal distinctions

Aspectual distinctions

Grammatical domain

Modal distinctions

Gram types

Semantic domains

TAME

future

inferential

progressive

past

perfective
The “now” window

- Past
- Present
- Future

Memories

Perceived world

Plans and expectations
The unfinished present

- You cannot observe a boundary until it has passed

- Any finished bounded entity has to be in the past
- Anything you see in the present is unfinished
- …or almost
A strong affinity at different levels

<table>
<thead>
<tr>
<th>Telicity/Boundedness</th>
<th>Grammatical Aspect</th>
<th>Grammatical Tense</th>
<th>Temporal Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telic/Bounded</td>
<td>Perfective</td>
<td>Past Tense</td>
<td>Past Time</td>
</tr>
<tr>
<td>Atelic/Unbounded</td>
<td>Imperfective</td>
<td>Present Tense</td>
<td>Present Time</td>
</tr>
</tbody>
</table>
Manifestations of the affinity

- Whenever grammatical distinctions are lacking, the default interpretation is governed by the connection between boundedness and time reference.
- Perfective verb forms tend to have past or at least non-present reference.
- Paradigms are **systematically skewed**: there tends to be no aspectual distinction in the present and (to a somewhat lesser extent) no aspectual distinction in the future.
The perfective cluster

- finished event
- perfective
- past time reference
Perfective

- Perfective verb forms are the default way of referring to past events (when they are talked about as wholes, which is the normal case).
- In many languages, zero-marked dynamic verbs are normally interpreted as if they were perfective in this sense, i.e. they refer to whole events in the past.
- ...while stative verbs refer to the present.
Possible combinations of PAST and PERFECTIVE/IMPERFECTIVE

may take on special interpretations
Most common combination of perfective/imperfective + past

No perfective present!
Example: Ancient Greek system

- Ancient Greek represents the most common option

**Perfective**
- Aorist:
  - éluse

**Imperfective**
- Non-Past:
  - lúei
- Past:
  - élue

**Notes:**
- lu-: 'let go, untie, open, solve'
TAME choice in Greek New Testament

Aorist + present = 73 %
Imperfect = 11 %

Indicative verb forms

- The combination past+imperfective = imperfect has a low frequency
- The combination present+perfective does not exist in the system
TAME systems

Core system
mainly inflectional
highly grammaticalized

Peripheral system 1
periphrastic/phraseological

Peripheral system 2
lexical/derivational

less highly grammaticalized
Gram types in TAME systems

grammaticalizing...

Core system

perfective/imperfective

past

future

perfect

progressive

durative

habitual

futuroid

Further gram types:
remoteness markings: hodiernal, hesternal, remote evidentiality markings
narrative markers experientials resultatives ....
Ultimate sources of gram types

Core system

past

perfective/imperfective

future

perfect

futuroid

resultative

'finish'

'already'

'be at'

'be away X-ing'

perfect

progressive

durative

habitual

Core system

'want'

'go (to)'

'come (to)'

'must'
Future and irrealis

- Many languages – in particular in Oceania – are described as having a major distinction realis – irrealis
- These notions, however, are controversial since the irrealis category is highly variable
- Even if it tends to include reference to the future, negated sentences, counterfactual sentences, and non-asserted complement clauses, none of these is a necessary component
Future and irrealis

- On the other hand, specific events and descriptions of states in the past and the present are always treated as realis.
- ... which suggests that realis may be an underlying semantic category (possibly universal).
- ... and that irrealis markings pick out a subset of non-real is constructions for marking.
Areal clusterings

- The geographical distribution of grammatical phenomena in the languages of the world is seldom random.
- In most cases, languages that share a certain grammatical feature will tend to cluster in certain areas of the world...
- and the clusterings will often involve languages which are not genealogically related although they are close geographically.
Lack of historical information

- Since the history of most languages in the world is not well-known, it is usually difficult to identify the diachronic processes that give rise to those clusterings.
- In other words, often we cannot go further than just observing the geographical patterns.
- Tense and aspect systems are no exception here.
- A glance at the maps in the World Atlas of Language Structures (WALS) shows that there are both continent-sized clusterings and more local ones.
Continent-size clusterings:
Past tenses

- There are certain large areas in the world where the distinction between past and non-past is found in practically all languages, the most salient one covering the western half of Eurasia, but also areas where hardly any languages have a grammaticalized marking of past tense, such as South-East Asia.

- These clusterings have a long history which predates the oldest written documents, and thus it is not possible to identify the details of their genesis.
The Past Tense

1. Present, no remoteness distinctions [94]
2. Present, 2-3 remoteness distinctions [38]
3. Present, 4 or more remoteness distinctions [2]
4. No past tense [88]
Areal distribution: Perfective/Imperfective

Authors: Östen Dahl, Viveka Velupillai
Combinations of past and PFV/IPFV

There is no tendency for languages to have either one or the other

Both past and PFV/IPFV

Past, no PFV/IPFV

PFV/IPFV, no past

Neither Past nor PFV/IPFV
Spread processes

- Areal patterns show that grammaticalization may spread both between closely related languages and across boundaries between genealogical groupings
Future "gram families" in Europe

"go to"

"will"

"shall"

"come to"

"werden"

Romance inflectional future
Conservative areal pressure?

- A common phenomenon is structural homogeneity combined with diversity in the shape of grammatical markers.
- This suggests that systems may be renewed by the introduction of new markers but without deviating from the structural template that is prevalent in the region.
- Example: remoteness distinctions in the Grassfields languages (Niger-Congo; Cameroon and Nigeria).
- Grassfields languages tend to have highly elaborated remoteness systems marked uniformly by preverbal particles.
- ...but the shape of these particles is extremely diverse.
### Diversity of remoteness markers in Grassfields languages

<table>
<thead>
<tr>
<th>Tags</th>
<th>Ring</th>
<th>Mbam-Nkam</th>
<th>Momo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>West</td>
<td>Center</td>
<td>North</td>
</tr>
<tr>
<td></td>
<td>Aghem</td>
<td>Komb</td>
<td>Oku</td>
</tr>
<tr>
<td>im</td>
<td>agq</td>
<td>bkm</td>
<td>oku</td>
</tr>
<tr>
<td>mm</td>
<td>bka</td>
<td>-má</td>
<td>pé</td>
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<tr>
<td>hod</td>
<td>mò</td>
<td>là</td>
<td>kë</td>
</tr>
<tr>
<td>hst</td>
<td>ti</td>
<td>chí</td>
<td>në</td>
</tr>
<tr>
<td>mid</td>
<td>yàa</td>
<td>lùgù</td>
<td>kà</td>
</tr>
<tr>
<td>phd</td>
<td></td>
<td></td>
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<tr>
<td>phs</td>
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<td></td>
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<td>rem</td>
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<tr>
<td>rem</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Examples
- mò, làë, kë, nií, bè, lò ngë, ìN-nìN, pi, mé N, è, fè, mfú, lá, yá, nè’, áà, ghë
TAME and memory
TAME categories: a challenge for processing theories

- The processing of TAME in speech production and understanding must be extremely fast and without conscious attention
- It can only be allocated a restricted amount of processing resources
- This raises the question of the nature of the mechanisms behind TAME
Linguistic information and memory

- All information that is expressed linguistically has necessarily been stored at least briefly in the speaker’s memory...
- ...but remembered events must belong to the past.
- Thus, there is a special relationship between memory and past time reference.
"Embodied time"

past

memories

present

perceived world

future

plans and expectations
Differential marking of past time reference

- Most languages in the world have more than one kind of TAME marking when referring to the past
- I shall focus on three categories that contribute to differential past marking:
  - Evidentiality
  - Remoteness distinctions
  - Perfect
- At least one of these categories can be found in (approximately) three languages of four
Definitions of evidentiality

- “Markers of evidentiality express the evidence a speaker has for his/her statement.”
- “Evidentiality...marks the source of information the speaker has for his or her statement”

(From Ferdinand de Haan in WALS)

- Controversial point: Does evidentiality also include degree of certainty?
Evidentiality systems

Evidentiality

Direct (sensory)

- Visual
- Non-visual

Indirect

- Inferential
- Second-hand information
Evidentiality in Turkish

Ahmet gel-di.
Ahmet come-PST.DIR
‘Ahmet came/has come.’
(witnessed by the speaker)

Ahmet gel-miş
Ahmet come-PST.INDIR
‘Ahmet came/has come.’
(unwitnessed by the speaker)
Evidentiality in the languages of the world

Coding of Evidentiality

Author: Ferdinand de Haan
Evidentiality and time: past time bias

- “Many languages make a distinction of witnessed (direct) versus unwitnessed (indirect) actions in the past tense... Because evidentials are used to describe the speaker’s involvement with events, they tend to occur in realis contexts, especially in past tense situations.”

- The past time bias means that grammaticalized evidentiality tends to concern whether the event is one that speakers remember as having witnessed themselves
Human memory

memory

- short term memory
- long term memory
  - implicit memory (procedural memory)
  - explicit memory (declarative memory)
    - semantic memory
    - episodic memory
Two declarative memory systems

- episodic memory – memory for personally experienced events

  episodic memory—the kind of memory that allows us to "mentally travel" in time, and thus recollect our own past experiences, events we have observed and participated in.

- semantic memory – memory for all other kinds of knowledge, such as general factual knowledge

Endel Tulving
Episodic memory – some characteristics according to Tulving

- "autonoetic" ("self-knowing") consciousness
- "chronesthesia" ("subjective sense of the past, present, and future time.")
- relatively recent evolutionary origin

Relatively recent evolutionary origin of episodic memory

- “A third (hypothesical) feature that makes episodic memory different from other kinds is that it is of relatively recent evolutionary origin, and that as such, at least in its full-fledged form, it exists in human beings only.
- Many animals--mammals such as mice, squirrels, dogs, elephants, and chimpanzees, as well as most if not all birds--have excellent "semantic" memory.
- However, there exists no evidence that they can mentally travel in time in the same was as humans do, to remember the past and to plan for the future.
- It is in this sense that remembering the past and envisioning the future can be thought of as uniquely human brain/mind capacities.”
Differences between episodic and semantic memory

<table>
<thead>
<tr>
<th>Diagnostic feature</th>
<th>Episodic</th>
<th>Semantic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Sensation</td>
<td>Comprehension</td>
</tr>
<tr>
<td>Units</td>
<td>Events; episodes</td>
<td>Facts; ideas; concepts</td>
</tr>
<tr>
<td>Organization</td>
<td>Temporal</td>
<td>Conceptual</td>
</tr>
<tr>
<td>Reference</td>
<td>Self</td>
<td>Universe</td>
</tr>
<tr>
<td>Veridicality</td>
<td>Personal belief</td>
<td>Social agreement</td>
</tr>
<tr>
<td>Operations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration</td>
<td>Experiential</td>
<td>Symbolic</td>
</tr>
<tr>
<td>Temporal coding</td>
<td>Present; direct</td>
<td>Absent; indirect</td>
</tr>
<tr>
<td>Affect</td>
<td>More important</td>
<td>Less important</td>
</tr>
<tr>
<td>Inferential capability</td>
<td>Limited</td>
<td>Rich</td>
</tr>
<tr>
<td>Context dependency</td>
<td>More pronounced</td>
<td>Less pronounced</td>
</tr>
<tr>
<td>Vulnerability</td>
<td>Great</td>
<td>Small</td>
</tr>
<tr>
<td>Access</td>
<td>Deliberate</td>
<td>Automatic</td>
</tr>
<tr>
<td>Retrieval queries</td>
<td>Time? Place?</td>
<td>What?</td>
</tr>
<tr>
<td>Retrieval consequences</td>
<td>Change system</td>
<td>System unchanged</td>
</tr>
<tr>
<td>Retrieval mechanisms</td>
<td>Synergy</td>
<td>Unfolding</td>
</tr>
<tr>
<td>Recollective experience</td>
<td>Remembered past</td>
<td>Actualized knowledge</td>
</tr>
<tr>
<td>Retrieval report</td>
<td>Remember</td>
<td>Know</td>
</tr>
<tr>
<td>Developmental sequence</td>
<td>Late</td>
<td>Early</td>
</tr>
<tr>
<td>Childhood amnesia</td>
<td>Affected</td>
<td>Unaffected</td>
</tr>
</tbody>
</table>
Episodic memory and TAME systems

direct evidentiality

perfective aspect vs. imperfective (generic) aspect

Table 1. Summary of differences between episodic and semantic memory

<table>
<thead>
<tr>
<th>Diagnostic feature</th>
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<tr>
<td>Reference</td>
<td></td>
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</tbody>
</table>
Remoteness distinctions

- Remoteness distinctions = distinctions between forms and constructions that depend on the distance between two points in time...

- ...most commonly the point of event and the point of speech

- Distances may be
  - **subjective**: “close” – “distant”
  - **objective**: referring to an objective time measure, usually in terms of elapsed days or nights (“circadian tense”)

- Objective and subjective distances tend to be mixed in the same system
Remoteness distinctions in the past

past
remote
"yesterday" (hesternal)

"today" (hodiernal)

immediate

present
## Remoteness in Diyari

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Tense</th>
<th>Participle Formulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distant Past</td>
<td>tends to cooccur with waru 'long ago'</td>
<td>participle + wanṭi-'search' + -yi 'PRES'</td>
</tr>
<tr>
<td>Intermediate Past</td>
<td>'one to two months prior to the present'; 'a good while ago'</td>
<td>participle + wapa-'go' + -ya</td>
</tr>
<tr>
<td>Recent Past</td>
<td>'one to two weeks prior to present'</td>
<td>participle + pada-'lie' + -ya</td>
</tr>
<tr>
<td>Yesterday Past</td>
<td>'between this morning and yesterday morning'</td>
<td>future + widi-'enter' + yi 'PRES'</td>
</tr>
<tr>
<td>Immediate Past</td>
<td>'between now and this morning'</td>
<td>participle + wara-'throw' + -yi 'PRES'</td>
</tr>
</tbody>
</table>

Hodiernality

- Hodiernal past = referring to “earlier today”
- Hesternal past = referring (primarily) to “yesterday”
- Hodiernality = distinction between “today” and “before today”
- ...the most common way of making the distinction precise is at the beginning of the night
- Hodiernality is involved in
  - hodiernal past
  - hesternal past
  - present-hodiernal forms
Common systems

- recent:remote (no precise cut-off points)
- hodiernal:prehodiernal
- hodiernal:hesternal:remote
- immediate:hodiernal:prehodiernal
- immediate:hodiernal:hesternal:remote
- hodiernal-hesternal:prehesternal

- The least remote tense is sometimes non-distinct from the present
Hodiernality in the world’s languages

- Surveying grammars, I have found about
  - about 300 languages with grammaticalized hodiernality
  - 30-40 without hodiernality but with a distinction between ‘yesterday’ and ‘before yesterday’
Remoteness distinctions in the languages of the world

languages with hodiernality

other languages with remoteness distinctions
The relation between remoteness distinctions and memory

- Subjective remoteness distinctions for experienced events have to rely on whether the event is felt to be close or remote.
- Even if it is not clear how such a subjective evaluation of temporal distance is made, it is a reasonable hypothesis that it has to do with the representation of the event in memory.
How are objective remoteness distinctions related to memory?

- The big question is now: do objective ("circadian") remoteness distinctions also reflect how an event is represented in memory?
- Given that objective and subjective distance measures seem to flow into each other in actual usage, there ought to be a close relationship between them.
Why hodiernality?

- Another question is: why is hodiernality – the today/before-today cut-off point – so pervasive?
- This takes us to the neurocognitive notion of consolidation
Consolidation of memory

- New information has to be **consolidated** in long time memory to be preserved for a longer time.
- Evidence is accumulating that this consolidation large takes place during sleep.
Consolidation: episodic memory

- For episodic memory consolidation involves a dialog between hippocampus – where memories are stored first – and neocortex.
- It is not quite clear what the division of labour between these parts of the brain look like.
- During “slow wave sleep” episodes from waking periods are replayed in hippocampus.

http://www.memorylossonline.com/glossary/hippocampus.html
Relation between hodiernality och memory

- Hypothesis: hodiernal past concerns events that have not yet been consolidated in episodic memory
- Normally at least a whole night should have elapsed before a prehodiernal tense is possible
Remoteness distinctions and evidentiality – anything in common?

- That grammaticalized remoteness distinctions and grammaticalized evidentiality have partly complementary geographical distributions may be accidental.
- However, it is noteworthy that hodiernal pasts and indirect evidentials share a major diachronic source - **perfects**
The traditional readings of the perfect

- **resultative**: The dog has eaten the dinner steak
- **experiential**: Have you been to Spain?
- **“persistent situation”**: I have lived here for five years
- **recent past**: I have just come back
Two types of uses of perfects

**type-focused use (experiential meaning)**
- a certain type of event takes place
  - one or more times
  - during a period that ends at the point of reference
- the type of event must be
  - possible at the point of reference
  - repeatable
- focusing is on the type of event rather than on the event itself

"current relevance" use (resultative meaning)
- an event takes place
  - with repercussions at the point of reference
- repeatability is not relevant
- the state at the point of reference is contrasted against a presupposed state before the event
- the point of the utterance is the difference between these states
Examples

type-focused use (experiential meaning)

- Have you been to Spain?
- Has anyone called?
- Have you swept the floor recently?

The dog has eaten the dinner steak (direct result)
- The gong has sounded (indirect result)
- Have you swept the floor?
The perfect in the languages of the world
Further grammaticalization of the perfect

- perfect
- hodiernal past
- general past
- perfective
- inferential past
  - second-hand information
Is there a relationship between the perfect and episodic memory?

- In order to see how the semantics of the perfect is related to the notion of episodic memory, we have to look at the cognitive status of events.
Experienced and (re)constructed events
Reification of events

- When we experience an event directly, reification takes place at a subconscious level – in sensory memory.
- The event is reified automatically.
- When an event is (re)constructed, the reification may be more or less complete – focus can remain on the states (most often on the post-state).

the door is open  ➔ the door is opened  ➔ the door has been opened  ➔ the door was opened
Reification of events

- A fully reified event in the past is taken from episodic memory
- Events referred to using the perfect tend not to be wholly reified...
- ... and are not always retrieved from episodic memory, rather they are constructed by comparing the present state of the world with an earlier state
Questionnaires and parallel corpora
Where I started

- In my book *Tense and Aspect Systems* (1985), I tried to use quantitative methods to compare tense-aspect categories across languages using translation questionnaire data.
- I wanted to identify “cross-linguistic gram-types” by finding clusterings in the distributions of language-specific categories.
- These clusterings were seen as focusing on prototypical uses.
The Tense-Mood-Aspect Questionnaire
The perfect: prototypical uses

Table 5.3 Prototypical occurrences of PFCT

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Verb 1</th>
<th>No. of categories</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>53</td>
<td></td>
<td>31</td>
<td>(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</td>
</tr>
<tr>
<td>54</td>
<td></td>
<td>28</td>
<td>A: It seems that your brother never finishes books. (That is not quite true.) He READ this book (=all of it)</td>
</tr>
</tbody>
</table>

Table 5.3 continued

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Verb 1</th>
<th>No. of categories</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>56</td>
<td></td>
<td>28</td>
<td>Q: Is the king still alive? A: (No,) he DIE</td>
</tr>
<tr>
<td>42</td>
<td></td>
<td>27</td>
<td>Q: You MEET my brother (at any time in your life until now)?</td>
</tr>
<tr>
<td>64</td>
<td></td>
<td>27</td>
<td>Child: Can I go now? Mother: You BRUSH your teeth?</td>
</tr>
<tr>
<td>67</td>
<td></td>
<td>26</td>
<td>Q: What did you find out when you came to town yesterday? A: The king DIE</td>
</tr>
</tbody>
</table>
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 yields 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.
Bible texts

- For the study of TAME Bible texts, like many other written texts, have the drawback that they largely consist of narratives or other text types that reflect the variety of TAME choices of spoken language in a very skewed fashion.

- There is, however, a sizeable amount of direct speech quotations in the Bible.
My corpus

- I have focused on past time reference in direct speech.
- As a basis for the corpus I extracted all strings in the New Testament which were enclosed in quotes and contained in a single verse.
- From this set of string I chose verses containing about 300 verbs with past time reference and purporting to be a direct rendering of a spoken utterance.
- The parallel corpus consists of the corresponding verses in translations into different languages.
Goals

- The primary goal is to study the distribution of grammatical markings for past time reference in this corpus.
- Here I shall focus on the distribution of grammatical categories or grams known as perfects.
- Like in my 1985 book, the idea is to compare the distributions in different languages to identify on one hand common or prototypical uses, on the other points where the languages differ.
The perfect index

- The **perfect index** indicates for a given item in the corpus the cross-linguistic propensity for a perfect gram to be used with this item.
- Alternatively, the index can be seen as indicating the closeness of this item to a prototypical use of a perfect.
- The perfect index is derived from an aggregation of data from English, Scandinavian, German, Spanish, Catalan and Finnish.
But Jesus, turning around and seeing her, said, "Daughter, cheer up! Your faith has made you well."

If I have wrongfully exacted anything of anyone, I restore four times as much.

Fear took hold on all, and they glorified God, saying, "A great prophet has arisen among us"

The neighbors therefore, and those who saw that he was blind, before, said, "Isn't this he who sat and begged?"

but they only heard: "He who once persecuted us now preaches the faith that he once tried to destroy."

He answered, "A man called Jesus made mud, anointed my eyes, and said to me, "Go to the pool of Siloam, and wash." So I went away and washed, and I received sight."
The perfect map

- One problem is how to represent the distribution graphically
- A normal diagram will tend to look messy since many examples will cluster in one spot
- What I have done is to sort all the items in the corpus so that the position on the x-axis represents the value of the perfect index
The “perfect map”

← more prototypical

less prototypical →
# Swedish perfect

Data from "Gustav V" official translation (1917)

|     | 182 | 192 | 183 | 385 | 94  | 298 | 311 | 237 | 445 | 107 | 331 | 147 | 332 | 378 | 275 | 86  | 65  | 446 | 236 | 348 | 317 | 88  | 89  | 18  | 67  | 212 | 216 | 106 | 368 | 59  | 333 | 447 | 341 | 246 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 211 | 302 | 210 | 40  | 124 | 44  | 368 | 301 | 76  | 140 | 87  | 193 | 23  | 433 | 286 | 307 | 69  | 56  | 273 | 426 | 161 | 122 | 158 | 141 | 224 | 22  | 283 | 330 | 33  | 92  | 272 | 120 | 6   | 248 |
|     | 235 | 357 | 220 | 115 | 194 | 60  | 227 | 310 | 85  | 199 | 116 | 195 | 48  | 444 | 324 | 340 | 122 | 263 | 151 | 19  | 1   | 133 | 96  | 250 | 247 | 23  | 34  | 373 | 327 | 343 | 121 | 189 | 73  | 281 |
|     | 309 | 369 | 266 | 128 | 218 | 91  | 361 | 377 | 131 | 203 | 125 | 354 | 118 | 70  | 152 | 61  | 25  | 17  | 219 | 165 | 151 | 134 | 103 | 10  | 320 | 72  | 339 | 102 | 358 | 242 | 205 | 190 | 96  | 184 |
|     | 344 | 46  | 311 | 345 | 268 | 53  | 43  | 126 | 173 | 44  | 101 | 84  | 41  | 143 | 305 | 143 | 64  | 34  | 268 | 197 | 175 | 197 | 234 | 303 | 114 | 223 | 282 | 351 | 231 | 39  | 426 | 209 | 363 | 230 | 213 | 328 |
|     | 38  | 78  | 345 | 359 | 312 | 179 | 77  | 297 | 240 | 83  | 316 | 388 | 170 | 174 | 334 | 228 | 58  | 140 | 52  | 198 | 155 | 362 | 189 | 286 | 31  | 248 | 119 | 448 | 222 | 207 | 169 | 265 |
|     | 129 | 86  | 376 | 442 | 347 | 180 | 81  | 242 | 353 | 2   | 137 | 123 | 226 | 386 | 7   | 336 | 291 | 177 | 175 | 197 | 234 | 303 | 114 | 223 | 282 | 351 | 231 | 39  | 426 | 209 | 363 | 230 | 213 | 328 |
|     | 130 | 127 | 391 | 14  | 380 | 304 | 320 | 360 | 183 | 239 | 439 | 8   | 440 | 295 | 241 | 158 | 160 | 308 | 395 | 32  | 374 | 104 | 329 | 268 | 168 | 259 | 214 | 141 |

Merged data from six different Swedish Bible translations
Comparing the distribution of the Perfect and the Past in six Swedish translations

<table>
<thead>
<tr>
<th>Perfect</th>
<th>Past</th>
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</table>
The distribution of the perfect in four English translations
The distribution of the perfect in seven Spanish translations

- In Peninsular Spanish, the Perfect is also used as a hodiernal past, that is, to refer to events that took place on the day of speech.
- The same holds for Catalan, but in that language the Perfect has also a wider use in general.
Hodiernal uses of the Perfect in Peninsular Spanish and Catalan

- Immediately Jesus, perceiving in himself that the power had gone forth from him, turned around in the crowd, and asked, "**Who touched my clothes?**" (Corpus item 88, Luke 5:30, World English Bible)

- ¿Quién ha tocado mis ropas?
  - ‘Who touched my clothes?’ (Corpus item 88, Luke 5:30, Reina-Valera translation)

- Qui m’ ha tocat els vestits?
  - ‘Who touched my clothes?’ (Corpus item 88, Luke 5:30, Catalan Evangelical translation)
The distribution of the Perfect in one Catalan translation
The distribution of the perfect in seven German translations

- Another language with a highly grammaticalized perfect is German
Grammaticalization goes from more prototypical to less prototypical
Some deviant perfects

- Portuguese
- Latin American Spanish
- Finnish
- Greek
Portuguese perfect (distribution in the Almeida translation)

• The Portuguese construction *ter 'have' + past participle* is commonly referred to as "Perfect"

• but it is well known that it has a different semantics from the perfects of other European languages, and in Dahl (1985), it came out as a borderline case of a perfect.

• It is usually said that it requires durativity or iterativity involving an indefinite number of events
Latin American Spanish

- Some Latin American Spanish varieties, specifically Mexican Spanish, have a restricted use of the perfect somewhat resembling that found in Portuguese.
Distribution of the Spanish perfect, as represented by *Biblia en lenguaje sencillo*

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<td>215</td>
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</tr>
</tbody>
</table>

Spanish

generalized

Portuguese

Stockholm

University
Modern Greek

- The Perfect in Modern Greek formed with the auxiliary ἔκχω + an invariant verb form derived from the perfective stem, is another example of a gram that was treated as a borderline case of the perfect gramm type in Dahl (1985), with a much more restricted distribution than most perfects.

- I have looked at three Bible translations of which only two use the Perfect at all.

- In one of them, there are 47 occurrences in the corpus, in the other 35 occurrences. But only in 24 cases, both translations use the Perfect.

- This suggests that the use of the Perfect is largely optional, and there may also be a competition between different norms.
### Distribution of the perfect in two Modern Greek translations

|   | 182 | 192 | 183 | 355 | 94 | 298 | 311 | 242 | 446 | 107 | 331 | 147 | 332 | 375 | 278 | 68 | 65 | 446 | 236 | 349 | 317 | 88 | 89 | 18 | 67 | 212 | 216 | 106 | 368 | 59 | 333 | 447 | 341 | 246 |
|---|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|-----|-----|-----|
|   | 211 | 302 | 210 | 40  | 124 | 42  | 365 | 301 | 70  | 75  | 149 | 87  | 193 | 92  | 450 | 288 | 286 | 267 | 95  | 69  | 46  | 273 | 426 | 161 | 132 | 158 | 141 | 224 | 22  | 283 | 330 | 33  | 92  |
|   | 285 | 357 | 223 | 115 | 194 | 60  | 202 | 310 | 85  | 99  | 116 | 195 | 195 | 195 | 84  | 444 | 321 | 340 | 122 | 263 | 181 | 19  | 1   | 133 | 68  | 259 | 247 | 23  | 34  | 373 | 327 | 343 | 121 |
|   | 309 | 369 | 265 | 128 | 218 | 91  | 361 | 377 | 131 | 203 | 125 | 354 | 118 | 70  | 152 | 61  | 25  | 17  | 219 | 196 | 151 | 134 | 103 | 10  | 320 | 72  | 339 | 192 | 358 | 243 | 206 | 190 | 96  | 254 |
|   | 344 | 46  | 313 | 245 | 268 | 95  | 45  | 126 | 173 | 44  | 184 | 356 | 95  | 154 | 267 | 443 | 38  | 117 | 34  | 171 | 153 | 281 | 136 | 137 | 338 | 258 | 31  | 248 | 119 | 448 | 222 | 207 | 199 | 255 |
|   | 16  | 78  | 345 | 358 | 312 | 179 | 77  | 267 | 240 | 83  | 316 | 398 | 170 | 174 | 334 | 229 | 58  | 140 | 52  | 196 | 155 | 362 | 162 | 379 | 438 | 191 | 145 | 300 | 278 | 97  | 277 | 217 | 206 | 257 |
|   | 128 | 86  | 375 | 442 | 347 | 180 | 81  | 242 | 352 | 2   | 337 | 123 | 226 | 366 | 7   | 338 | 291 | 157 | 175 | 197 | 234 | 303 | 114 | 223 | 282 | 351 | 231 | 38  | 429 | 209 | 363 | 230 | 213 | 328 |
|   | 150 | 127 | 351 | 14  | 380 | 304 | 82  | 312 | 372 | 204 | 300 | 163 | 239 | 459 | 8   | 440 | 285 | 341 | 248 | 221 | 318 | 346 | 166 | 308 | 355 | 32  | 374 | 104 | 329 | 266 | 168 | 259 | 214 | 418 |
|   | 150 | 139 | 392 | 41  | 425 | 314 | 178 | 378 | 84  | 244 | 371 | 235 | 299 | 238 | 64  | 143 | 305 | 441 | 35  | 306 | 319 | 394 | 264 | 51  | 142 | 101 | 406 | 323 | 335 | 271 | 406 | 260 | 216 | 419 |
Finnish

- A further peculiar case is Finnish, where the Perfect is formed by the copula followed by the so-called supine form of the verb.
- There are three versions of the New Testament in the corpus. The oldest translation is from 1776 has a rather restricted use of the Perfect -- 98 items in the corpus.
- The other two translations, from the 20th century, have frequencies more comparable with what we saw in other languages (134 and 158, respectively).
### Finnish perfect (distribution in the 1776 translation)

| 182 | 192 | 193 | 355 | 94  | 298 | 311 | 237 | 445 | 107 | 331 | 147 | 332 | 375 | 276 | 68  | 65  | 446 | 236 | 349 | 317 | 68  | 89  | 18  | 67  | 212 | 216 | 106 | 308 | 59  | 333 | 447 | 341 | 246 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 211 | 302 | 210 | 40  | 124 | 42  | 365 | 301 | 75  | 149 | 97  | 193 | 28  | 430 | 266 | 307 | 69  | 56  | 273 | 426 | 161 | 132 | 158 | 141 | 224 | 22  | 283 | 330 | 33  | 82  | 272 | 129 | 6   | 248 |
| 285 | 357 | 220 | 115 | 184 | 60  | 227 | 310 | 85  | 199 | 118 | 195 | 45  | 444 | 321 | 340 | 122 | 253 | 181 | 19  | 1   | 133 | 55  | 250 | 247 | 23  | 34  | 373 | 327 | 343 | 121 | 189 | 73  | 251 |
| 309 | 369 | 286 | 128 | 219 | 91  | 381 | 377 | 131 | 203 | 125 | 354 | 118 | 70  | 152 | 61  | 25  | 17  | 219 | 156 | 161 | 134 | 103 | 10  | 320 | 72  | 339 | 102 | 358 | 243 | 206 | 190 | 96  | 254 |
| 344 | 48  | 313 | 245 | 258 | 93  | 43  | 129 | 173 | 44  | 164 | 398 | 95  | 164 | 287 | 443 | 38  | 117 | 47  | 171 | 153 | 261 | 136 | 137 | 338 | 258 | 31  | 248 | 119 | 448 | 222 | 207 | 189 | 255 |
| 16  | 78  | 345 | 359 | 312 | 179 | 77  | 257 | 240 | 83  | 316 | 338 | 170 | 174 | 334 | 228 | 58  | 140 | 52  | 196 | 155 | 362 | 162 | 379 | 438 | 151 | 145 | 300 | 278 | 97  | 277 | 217 | 206 | 257 |
| 129 | 86  | 376 | 442 | 347 | 180 | 81  | 242 | 353 | 2  | 337 | 123 | 228 | 366 | 7  | 336 | 281 | 281 | 157 | 175 | 187 | 234 | 303 | 114 | 223 | 282 | 351 | 231 | 38  | 429 | 209 | 383 | 230 | 213 | 328 |
| 130 | 127 | 391 | 33  | 350 | 82  | 315 | 372 | 204 | 360 | 163 | 239 | 439 | 8  | 449 | 296 | 241 | 348 | 221 | 318 | 346 | 166 | 308 | 396 | 32   | 374 | 104 | 329 | 265 | 188 | 259 | 214 | 418 |
| 150 | 139 | 392 | 41  | 425 | 314 | 178 | 378 | 84  | 264 | 371 | 235 | 299 | 238 | 64  | 143 | 305 | 441 | 35  | 306 | 319 | 394 | 264 | 51  | 142 | 101 | 406 | 323 | 335 | 271 | 405 | 290 | 215 | 419 |
SplitsTree map of the perfects in the corpus
Current project

- to extend the investigation to the whole New Testament text (and maybe other texts) and to more languages …
- … and to more gram types
- … used automated methods as far as possible