Iconicity in event representation across languages

Theme session Verbalization of experience – In honor of Wallace Chafe

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Overview

• Verbalizing Experience across languages
• the macro-event property
• methods and data
• language-specificity
• iconicity
• the emergent interface
• summary
Verbalizing Experience across languages

- Chafe's (1977a,b; 1980; cf. also Croft 2007) Verbalization of Experience (VE) model

Experience: something unfolding in time

Linguistic event representation

Content-related processes (Chafe 1977a,b)

The red circle rolled from the blue square to the green triangle

Figure 1. VE
Verbalizing Experience across languages (cont.)

• possible sources and effects of language-specificity
  – these can be thought of Thinking-for-Speaking effects in the sense of Slobin 1996, 2003

Experience: something unfolding in time

Linguistic event representation

Subchunking → Verbalizable states of affairs
Propositionalizing → Objects vs. events; predicate-argument structures; semantic roles
Linguistic categorization → Lexical items, constructions
Packaging → Information perspective
Syntactic processes → Grammatical relations; agreement
Phonological encoding → Morphophonology; prosody

The red circle rolled from the blue square to the green triangle

Figure 2. Language-specificity and Thinking-Speaking in VE
some initial evidence of language-specificity

- Pawley 1987 on Kalam (Kalam family, Papua New Guinea)

  • **complex motion paths**

    (1.1) B mon-day d yokek,
    KALAM man stick hold he:displaced:DS waty at amb, wog-mgan yowp fence above it:went garden-inside it:fell
    'The man threw a stick over the fence into the garden'

  • **causal chains**

    (1.2) Kab añañ ap yap
    KALAM stone glass come fall pkek, pagak ok.
    it:having:struck:DS it:broke that
    ‘A stone broke the glass’ (Pawley 1987: 354-355)
Verbalizing Experience across languages (cont.)

• questions
  – how much variation is there in VE across languages?
    • specifically to the extent that it is impacted by lexical and morphosyntactic patterns
  – what is driving this variation?
  – what constraints or tendencies – if any – hold across languages?
  – where do these constraints and tendencies come from?
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The Macro-Event Property

• how to measure subchunking across languages?
  – cf. the Pawley-Givón debate
  – Pawley 1987: compare the segmentation of given complex scenarios in terms of clauses and verb phrases
    • problem: that primarily assesses linguistic categorization
  – Givón 1991: use intonation units segmented by pauses
    • problem: pauses may reflect a host of other factors apart from subchunking (cf. Levelt 1989: 256-260; 385-387)
  – Bohnemeyer 2003a; Bohnemeyer et al 2007, 2010; Bohnemeyer & Van Valin ms: the Macro-Event Property
    • a semantic property that assesses event representations in terms of their compatibility with temporal modifiers
• consider for example **motion** (Bohnemeyer 2003a; Bohnemeyer et al 2007)

  – take a seemingly simple scenario of motion from one place to another
English provides both mono-clausal and multi-clausal descriptions of this scenario.

(2.1) *The ball rolled from the square to the triangle*

(2.2) *The ball went rolling from the square and reached the triangle*

(2.3) *The ball was at the square. It went rolling. It reached the triangle.*
these descriptions are not synonymous

– multi-clausal descriptions permit locating the departure and arrival subevents in time separately

(2.4) a. The ball went rolling from the square and then reached the triangle
b. The ball went rolling from the square at eight and reached the triangle at nine
– in contrast, monoclausal descriptions only permit time adverbials that refer to both subevents

(2.5) a. *The ball rolled from the square

   and then to the triangle

b. *The ball rolled from the square at eight

   to the triangle at nine

c. The ball rolled from the square to the triangle

   in the morning

– these descriptions “bundle” the subevents so “tightly”

as to present them as parts of a single macro-event
The Macro-Event Property (cont.)

– a more formal definition of this semantic property
  • cf. Bohnemeyer 2003a; Bohnemeyer et al 2007; Bohnemeyer et al 2010; Bohnemeyer & Van Valin ms.

Macro-Event Property (MEP): An event description has the MEP if and only if it has no constituent that describes a proper subevent and that combines with time adverbials that locate only that subevent in time.

• using the MEP: the program
  – identify a particular domain of complex events
  – across languages, identify constructions used to encode events in this domain that have the MEP
  – ask which further mapping properties these constructions have in common aside from the MEP
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Methods and data

- study I: ECOM (Bohnemeyer & Caelen 1999; Bohnemeyer 2003a; Bohnemeyer et al 2007)
  - domains
    - complex motion events
    - causal chains
    - transfer (change of possession) events
  - data
    - collected by the author and his colleagues
      - in the Event Representation project at the Max Planck Institute for Psycholinguistics 1999 – 2000
      - in most cases, 3-5 speakers were consulted per language
        » and most of the studies were conducted in the field
Methods and data (Cont.)
– the subset of the ECOM language sample to be reported on below

<table>
<thead>
<tr>
<th>Language</th>
<th>Affiliation</th>
<th>Country (of data collection)</th>
<th>Researcher</th>
<th>Questionnaire</th>
<th>ECOM clips</th>
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Methods and data (Cont.)

– stimuli
  • **E**(vent)**COM**(plexity)
    – 74 short animated video clips covering
      » complex causal chains
      » complex transfer events
      » complex motion scenarios
  • a field questionnaire
    – covering additional scenarios and suggesting tools for semantic analysis

– method
  • elicitation of preferred descriptions and range of possible descriptions
  • entailment tests to ensure all subevents encoded
  • time adverbials (etc.) to test for MEP
• study II: ECOM Causality Revisited (Bohnemeyer & Majid 2002; Bohnemeyer et al 2010)
  – domain: complex causal chains
  – data: collected in the field 2002-2003 with speakers of four languages
    • Ewe (Essegbey; 6 speakers), Japanese (Kita; 4 speakers), Lao (Enfield; 3 speakers), and Yucatec (Bohnemeyer; 7 speakers)
  – stimuli: subsets of ECOM and Staged Events (van Staden, Senft, Enfield, & Bohnemeyer 2001)
    » 32 clips total
– method

• *Why*-questions
  – e.g., 'Why did the triangle break?'

• *Who*-questions
  – e.g., 'Who broke the triangle?' / 'Who caused the triangle to break?' / etc.

• following the model of the *Where*-question in *BowPed*
  » cf. Bowerman & Pederson ms.; Levinson & Meira 2003
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Language-specificity

• both studies found considerable crosslinguistic variation in constraints on subchunking
• for instance, many languages require multiple verbs to talk about a sequence of location changes

(4.1)
Circle  lá  mli  tsó  blutɔ  gbó  le  mó-a
dzí
Ewe
[circle  the roll from  blue  place  be at  road-theon]
tó  xo-a  ṣú  yi  dé  triangle  lá  gbó.

[pass  house-the  skin]  [go to  triangle  the place]
'The circle rolls from the blue one on the road passing the house.'
Language-specificity (cont.)

- in Ewe, these verbs can form a serial verb construction (SVC) which has the MEP

(4.2)

*Circle lá mli tsó bluto gbó le mó-a
dzí

EWE

[circle the roll from blue place be at road-the
on
le ga enyí me tó xɔ-a ñú le ga asiéke me
at.eight] [pass house-the skin at.nine]

yi dé triangle lá gbó le ga ewó me.
[go to triangle the place at.ten]

intended: 'The circle rolls from the blue one on the road at...
in contrast, Yucatec Maya lacks such SVCs

- each location change verb therefore constitutes its own clause, and as a result, the description lacks the MEP

\[(4.3)\]  

\((...)\) hun-p'él chan áasul ba'l k-u=p'áat-al

\[\text{YUC} \]  

\[\text{[one-CL.IN small blue thing IMPF-A3=await-INC} \]

'\((...)\) a little blue thing, it remains'

\[\text{t-u=xùul le=tu'x h-luk'} le=chan ba'l} \]

\[\text{LOC-A3=end DET=where PRV-leave(B3SG) DET=small thing} \]

'at the end where the little thing left'

\[\text{chak=o'; k-u=bin u=balak'=e'; k-u=ts'o'k-ol=e',} \]

\[\text{red(B3SG)=D2] [IMPF-A3=goA3=roll=TOP] [IMPF-A3=end-INC=TOP} \]

'that's red; it goes rolling; and then,'

\[\text{k-u=máan y=iknal hun-p'él chan ba'l chak xan=e';} \]

\[\text{[IMPF-A3=pass A3=at one-CL.IN small thing red(B3SG) also=TOP} \]

'it passes by a little thing that's also red;'

\[\text{k-u=ts'o'k-ol=e', k-u=k'uch-ul} \]

\[\text{[IMPF-A3=end=TOP] [IMPF-A3=arrive-INC} \]

'and then, it arrives (\(\ldots\))'
Language-specificity (cont.)

– toward a typology

Figure 5. *The three segmentation types (Bohnemeyer et al 2007: 517)*
— this distribution is driven by categorization factors of lexicalization and grammaticalization

• Type-I languages are either satellite-framed (Talmy 2000) or use serial verb constructions to describe motion events
  — cf. Ameka & Essegbey 2001; Zlatev & Yangklang 2004

• Type-II languages are verb-framed, but to some extent express path relations outside the verb root as well
  — they are “double-marking” (Bohnemeyer et al 2007)

• Type-III languages express path exclusively in verb roots and lack Ewe/Lao-style serial verb constructions

**Figure 5. The three segmentation types (Bohnemeyer et al 2007: 517)**
• a similar picture emerged in the study on complex causal chains
  – lexicalization
    • no root-causative (transitive) verbs in Lao
      -> serial verb constructions for even the simplest chains
    • 'hyper-transitivitiy' in Ewe (Essegbey 1999)
      -> root-transitive verbs used for a larger set of chain types
  – grammaticalization
    • Japanese lacks causative light verbs
    • at the same time, morphological causatives are restricted to intentional actions
      – possibly due to interaction with the honorific system
    • -> scenes that involve a causer, causee, and affectee cannot be described as macro-events if the cause is unintentional
simple transitive verb w/ causer subject
'The man broke the plate'

causative light verb construction w/ causer subject
'The man made the woman break the plate'

multi-clausal description
'The plate broke because the man bumped into the woman'

Figure 6. Subchunking and categorization of ECR 23

Ewe
Yucatec
Lao
Japanese
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Iconicity

• we also found a number of traits of subchunking that were shared across the languages

• interestingly, all of these shared properties involve elements of iconicity

• the best-understood iconic aspect of event descriptions: iconic order of clauses in narratives

  — cf. Labov & Waletzky 1967; Reinhart 1984; Bohnemeyer 2003b *inter alia*
(5.1) (...) k-u=chîik-pah-al le=chan kwàadrâdro=o',
YUC IMPF-A.3=appear-SPONT INC DEF=DIM square=D2
'(...) the little square appears,'
chich u=tàal=e', k-u=koh-ik
hard(B.3.SG) A.3=come(INC)=TOP IMPF-A.3=collide-INC(B.3.SG)
'it comes on hard, it bumps into'
Iconicity (cont.)

le=chan (...) sìrkulo=o', le=chan sìrkulo tÚun=o'
DEF=DIM circle=D2 DEF=DIM circle then=D2
'the little (...) circle; the circle now,'

k-u, óolbèey, estée, k-u=lúubul
IMPF-A.3 it.seems HESIT IMPF-A3=fall-INC
'it, apparently, uhm, [there] falls'

hun-p'éel chan che'-il ñàan (...) ti'=e',
one-CL.IN DIM wood-REL EXIST(B3SG) PREP(B3SG)=TOP
'a little piece of wood that (...) [the circle] has,'

k-u=hats'-ik le=chan triàangulo=o',
IMPF-A3=hit-INC(B3SG) DEF=DIM triangle=D2
'it hits the little triangle,'

k-u=káach-al.
IMPF-A3=break\ACAUS-INC
'[the triangle] breaks.'

• why no encoding of causal relations? -> causality is omitted or backgrounded in narratives
  – e.g., Lascarides 1992

Figure 7. ECOM E7 schematically
Iconicity (cont.)

- there are a number of “soft” constraints on form-to-meaning mapping in macro-event expressions
  - that can be interpreted as preferences for iconic encoding
  - these are instances of diagrammatic iconicity (Haiman 1980)

  example: unique assignment of semantic roles
  - first postulated by Fillmore 1968
  - more recent formulations: the Biuniqueness Condition (Bresnan 1980); the Theta-Criterion (Chomsky 1981)

(5.2)  a. The ball rolls from the rock across the tracks to the hills
       b. ??The ball rolls from the rock to the tracks to the hills

(5.3)  ??Sally walked out of the library from the reception to the entrance.

(5.4)  ??Sally went to Nijmegen home.
this constraint does not apply to expressions that lack the MEP

• consider co-ordination inside a VP

\[(5.5)\]
\[\begin{align*}
\text{a. } & \text{ ?Sally walked } \textbf{out} \text{ of the library} \\
& \quad \textbf{from} \text{ the reception } \textbf{to} \text{ the entrance.} \\
\text{b. } & \text{ Sally walked } \textbf{out} \text{ of the library } \textbf{and (then)} \\
& \quad \textbf{from} \text{ the reception } \textbf{to} \text{ the entrance.}
\end{align*}\]

\[\text{[-MEP]}\]

\[(5.6)\]
\[\begin{align*}
\text{a. } & \text{ *Sally went } \textbf{to} \text{ Nijmegen } \textbf{home}. \\
\text{b. } & \text{ Sally went } \textbf{to} \text{ Nijmegen } \textbf{and (then) home.}
\end{align*}\]
– in Ewe, simple serial verb constructions that have the MEP prefer unique mapping

(5.7) ??Kofi vá aﬁ sia gé dê afé-a me.

EWE [Kofi come place this] [drop ALL house-DEF in]

'Kofi came here entering the house.'

– but the more complex constructions involving 'modal' particles, which lack the MEP, do not!

(5.8) Kofi vá aﬁ sia vá gé dê afé-a me.

EWE [Kofi come place this] [MOD drop ALL house-DEF in]

'Kofi came here entering the house.'
— in Japanese, simple single-verb clauses prefer unique mapping
  • but converb constructions which lack the MEP do not!

(5.9) a. ??le-**ni** gakko-**ni** it-ta.
Japanese house-LOC school-LOC go-PAST

'*(Someone) went to the house to school.'

b. le-**ni** it-**te** gakko-**ni** it-ta.

'Having gone to the house, (someone) went to school.'
– in what sense is unique role assignment more iconic than non-unique role assignment?
• in the sense that it involves a better = simpler correspondence between meaning and form
  – in algebraic terms, a homomorphism or isomorphism

– why is it that specifically macro-event expressions prefer unique linking?
• because event representations are individuated by the semantic roles they entail (Carlson 1998)!
  – two agent/theme/goal roles
  => two macro-event representations
Iconicity (cont.)

• similarly, multiple references to the same object or place are dispreferred in MEP expressions
  – except for designated expressions such as reflexives and control (= ‘equi’) constructions

(5.10) a. ??Hanako-wa ki-noi kotoro-kara

Japanese Hanako-TOP tree-GEN place-ABL

sono ki-noi tokoro-made it-ta.
that tree-GEN place-until go-PAST
Intended: ‘Hanako went from the tree to that (same) tree.’

b. Hanako-wa ip-pon-me-no ki-no kotoro-kara

Hanako-TOP one-CL-ORD-GEN tree-GEN place-ABL
ni-hon-me-no ki-no tokoro-made it-ta.
two-CL-ORD-GEN tree-GEN place-until go-PAST
‘Hanako went from the first tree to the second tree.’
Iconicity (cont.)

– outside macro-event expressions, multiple references to the same entity/place are of course perfectly inconspicuous

(5.11) Hanako-wa ki-noi kotoro-kara ie-no hoogaku-e

Japanese  Hanako-TOP tree-GEN place-ABL house-GEN direction-ALL
           shuppatsu-shi,  ichi-jikan-go-ni  sono ki-noi
departure-do  one-hour-later-DAT  that tree-GEN
tokoro-made  modot-ta.
place-until  return-PAST

‘Hanako departed from the tree to the direction of the house, and one hour later, returned to the tree.’
the unique vector constraint
(Bohnemeyer 2003a)

– the explicit encoding of changes in direction requires multiple macro-event expressions

– here, 'direction' refers to a type of path function defined with respect to a ground that

  “does not fall on the path, but would if the path were extended some unspecified distance” (Jackendoff 1983: 165)

  as specified by expressions such as toward, away from, up, left, and north
• consider the following scenario

—a description in Ewe

(5.12) Circle lá liá rectangle lá

EWE [circle DEF climb rectangle DEF] hé ñj tó anyígbá [ITI descend pass ground] yi ña-liá triangle lá [go DIR-climb triangle DEF] vá ñó é ta-me. [VEN arrive 3.SG peak-LOC] 'The circle climbed the rectangle, descended passing the ground, climbed the triangle, came arriving at the top.'

Figure 7. ECOM C6 schematically
– a description in Dutch

(5.13) ... en roll dan naar rechts richting een groen driehoekje

DUTCH [and rolls then to the right towards a green triangle

wat daar ligt, en het balletje rolt tegen het driehoekje
which there lies] [and the little ball rolls against the triangle

op naar boven en komt op de bovenkant
up to the top] [and comes on the top

van het groene driehoekje tot stilstand.
of the green triangle to a standstill]
Iconicity (cont.)

• this principle does not simply fall out from the general constraints on thematic relations
  – assume, with Jackendoff 1983, two path functions for the encoding of directions
    » TOWARD and AWAY-FROM

• biunique assignment alone does not explain why the scenario in Figure 8 is described by (5.14a)
  » but not by (5.14b)
  – whereas Figure 9 is described by (5.14b), but not (5.14a)

(5.14)

a.  *F moved away from A toward B*

b.  *F moved away from A and then toward B*

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**Figure 8.** Two collinear Direction vectors

**Figure 9.** Two non-collinear Direction vectors
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The emergent interface

• why are there constraints on macro-event expressions that are shared across languages?
  – hypothesis I: domain-specific innate principles of UG
  – hypothesis II: “soft”, violable tendencies that reflect encoding preferences of general cognition
    • and preferences of the language production system in particular
  – Occam’s Razor favors hypothesis II
    • absent specific evidence for innateness
  – evidence in favor of hypothesis II
    • constraint violations do not seem to result in “hard” ungrammaticality
The emergent interface (Cont.)

- why do macro-event expressions show a preference for *iconic* encoding?
  - hypothesis: iconicity facilitates speech production and enhances learnability
  - it remains to be investigated whether iconic encoding also benefits non-linguistic cognition

- a general perspective: the design of the syntax-semantics interface as an emergent property
  - emergent from
    - the semiotics of language
    - the structure of discourse
    - properties of general cognition
    - the advantage of an “intuitive” design for learnability (Deacon 1997)
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Summary

• Verbalization of Experience is language-specific
  – languages vary in the categorization of events
  – the variation manifests itself in both lexicalization and grammaticalization
  – such categorization differences affect the subcategorization and propositionalizing of experience
    • in what can be considered Thinking-for-Speaking effects

• shared across languages:
  preference for iconic encoding
  – concrete iconicity – clause order encoding event order in narrative discourse
  – abstract *diagrammatic* iconicity in the mapping in reference tracking and role assignment
Acknowledgments

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The end

Thank you!
References


Bohnemeyer, J. & R. D. Van Valin, Jr. (ms.). The macro-event property and the layered structure of the clause. Manuscript, University at Buffalo.

References (cont.)


References (cont.)


