Iconicity in event representation across languages

Theme session *Verbalization of experience – In honor of Wallace Chafe*

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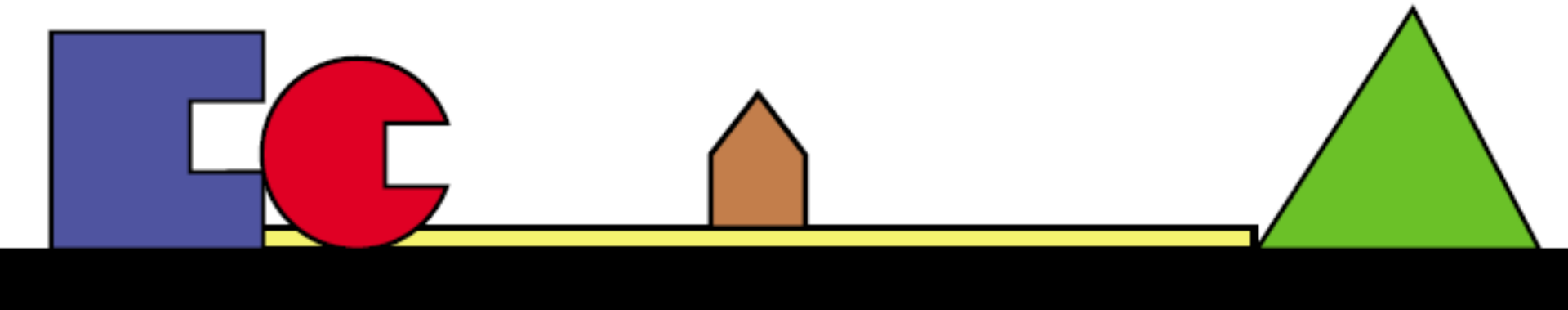
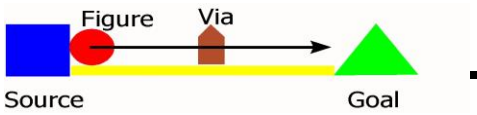


Overview

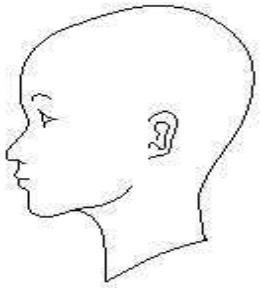
- Verbalizing Experience across languages
- the macro-event property
- methods and data
- language-specificity
- iconicity
- the emergent interface
- summary

Verbalizing Experience across languages

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



Experience: something unfolding in time



Content-related processes (Chafe 1977a,b)

Subchunking → Verbalizable states of affairs

Propositionalizing → Objects vs. events; predicate-argument structures; semantic roles

Linguistic categorization → Lexical items, constructions

Linguistic event representation

Packaging → Information perspective

Syntactic processes → Grammatical relations; agreement

Phonological encoding → Morphophonology; prosody

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

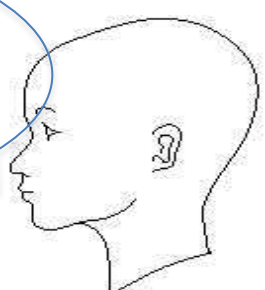
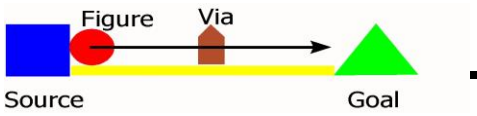


Figure 1. *VE*

- 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

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

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

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)

- 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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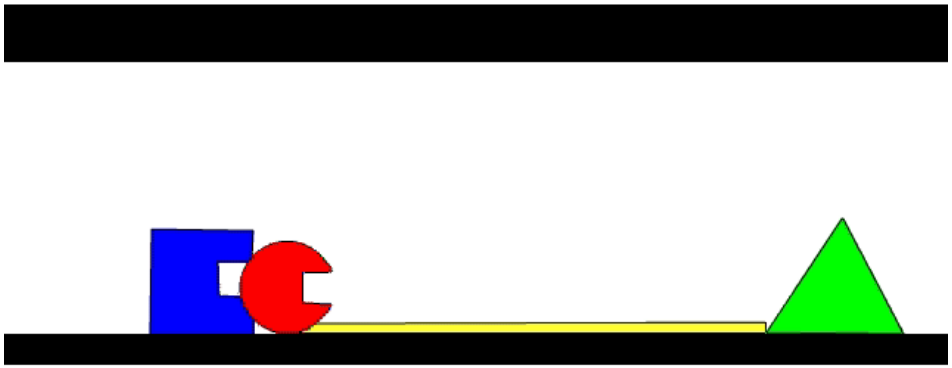
The Macro-Event Property

- 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 [redacted]

- 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**

– 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

Language	Affiliation	Country (of data collection)	Researcher	Question-naire	ECOM clips
Basque	isolate	Spain	I. Ibarretxe	x	x
Dutch	Indo-European (West Germanic)	Nether-lands	J. Bohnemeyer; M. Caelen	x	x
Ewe	Niger-Congo (Gbe)	Ghana	F. Ameka; J. Essegbey	x	x
Hindi	Indo-European (Indo-Aryan)	India	B. Narasimhan	x	x
Jalonke	Niger-Congo (Western Mande)	Guinea	F. Lüpke	x	x
Japanese	isolate	Japan	S. Kita	x	x
Kilivila	Austronesian (Papuan Tip)	Papua New Guinea	G. Senft	x	x
Lao	Tai-Kadai (East Central Tai)	Laos	N. Enfield	x	x
Marquesan	Austronesian (Central Polynesian)	Marquesas	G. Cablitz	x	x
Mpwarntwe Arrernte	Australian (Arandic)	Australia	D. Wilkins	x	-
Saliba	Austronesian (Papuan Tip)	Papua New Guinea	A. Margetts	-	x
Tidore	West Papuan (North Halmahera)	Indonesia	M. van Staden	x	x
Tiriyo	Carib (Wayana-Trio)	Brazil	S. Meira	x	x
Trumai	isolate	Brazil	R. Guiradello	x	x
Tzeltal	Mayan (Cholan-Tzeltalan)	Mexico	P. Brown	x	x
Yélî Dnye	East Papuan (Yele-Solomons)	Papua New Guinea	S. Levinson	x	x
Yucatec	Mayan (Yucatecan)	Mexico	J. Bohnemeyer	x	x
Zoogocho Zapotec	Oto-manguean (Zapotec)	Mexico	A. Sonnenschein	x	-

- 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

Figure 4. *ECOM B5*

(4.1)

	Circle	*lá*	*mli*	*tsó*	*blutɔ*	*gbɔ́*	*le*	*mɔ́-a*	*dzí*
Ewe	[circle	the	roll	from	blue	place	be at	road-the	on]
	tó	*xɔ-a*		*ŋú*	*yi*	*dé*	*triangle*	*lá*	*gbɔ́* **.**
	[pass	house-the		skin**]**	**[**go	to	triangle	the	place]

'The circle rolls from the blue one on the road passing the house.

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

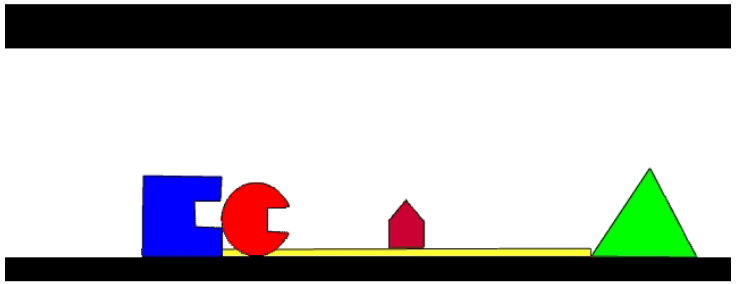

Figure 4. *ECOM B5*

(4.2)

	*Circle	lá	mli	tsó	blutɔ	gbɔ́	le	mɔ́-a dzí
EWE	[circle	the	roll	from	blue	place	be at	road-the on
	le ga enyí me		tó		xɔ-a		ŋú	**le ga asiéke me**
	at.eight]		**[**pass		house-the		skin	**at.nine**]
	yi	dé	triangle	lá	gbɔ́	**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'éel chan áasul ba'l k-u=p'áat-al
YUC [one-CL.IN small blue thing IMPF-A3=await-INC
'(…)a little blue thing, it remains'

t-u=xùul le=tu'x h-luk' le=chan ba'l
LOC-A3=end DET=where PRV-leave(B3SG) DET=small thing
'at the end where the little thing left'

chak=o'; k-u=bin u=balak'=e'; k-u=ts'o'k-ol=e',
red(B3SG)=D2] [IMPF-A3=goA3=roll=TOP] [IMPF-A3=end-INC=TOP]
'that's red; it goes rolling; and then,'

k-u=máan y=iknal hun-p'éel chan ba'l chak xan=e';
[IMPF-A3=pass A3=at one-CL.IN small thing red(B3SG) also=TOP]
'it passes by a little thing that's also red;'

k-u=ts'o'k-ol=e', k-u=k'uch-ul …
[IMPF-A3=end=TOP] [IMPF-A3=arrive-INC
'and then, it arrives (…)'

– toward a typology

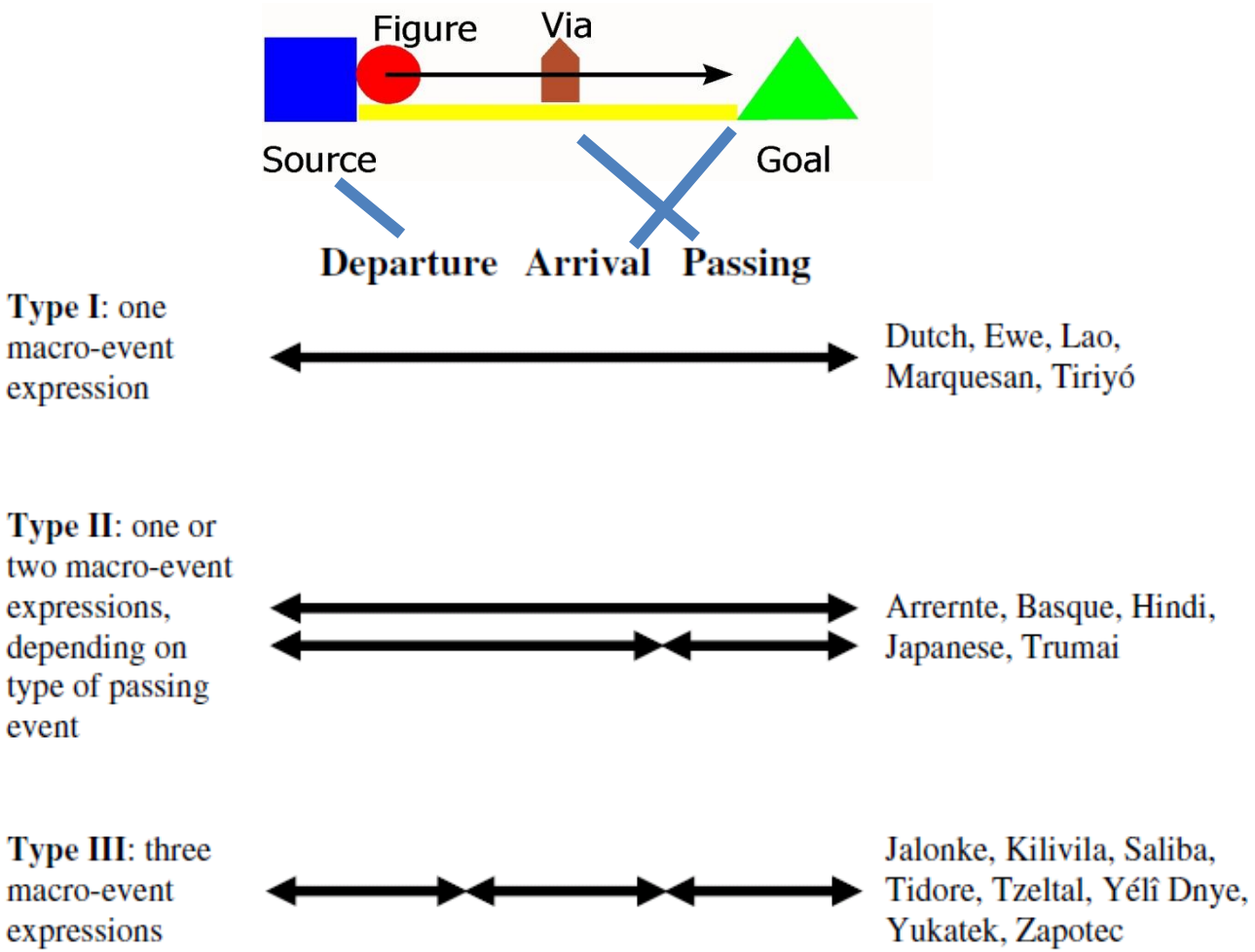

Figure 5. *The three segmentation types (Bohnemeyer et al 2007: 517)*

- 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

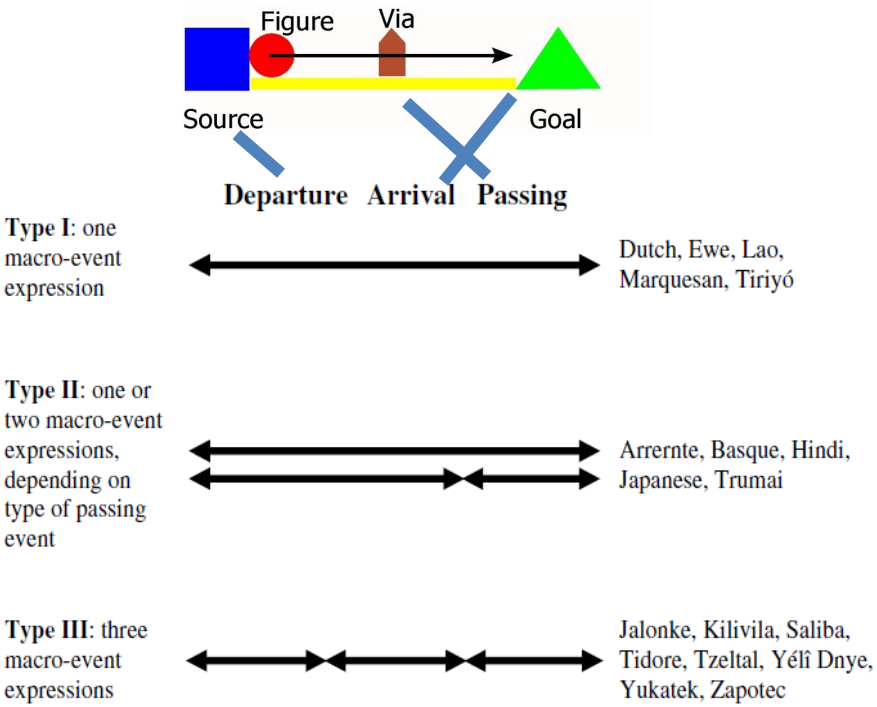

Figure 5. *The three segmentation types (Bohnemeyer et al 2007: 517)*

- 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-transitivity' 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

– example

Figure 6. *Subchunking and categorization of ECR 23*

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'

Ewe

Yucatec

Lao

Japanese

+MEP

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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*

– example

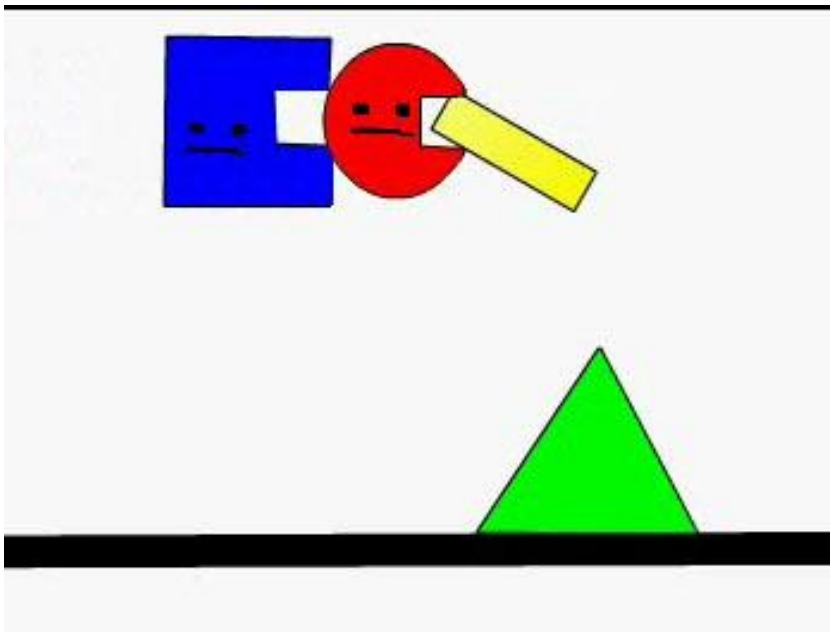

Figure 7. *ECOM E7*

(5.1) (...) k-u=chíik-pah-al le=chan kwàadradro=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 (...) sìirkulo=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 yàan (...) 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.'

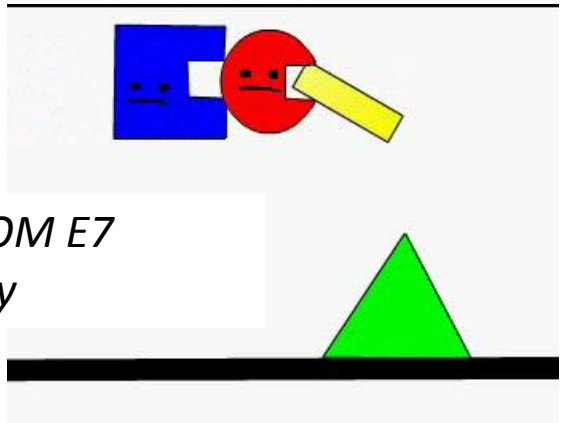

Figure 7. *ECOM E7 schematically*

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

- 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) a. ?*Sally walked **out** of the library **from** the reception **to** the entrance.*

[-MEP] b. *Sally walked **out** of the library **and (then)** **from** the reception **to** the entrance.*

(5.6) a. **Sally went **to** Nijmegen **home**.*

[-MEP] b. *Sally went **to** Nijmegen **and (then) home**.*

– in Ewe, simple serial verb constructions that have the MEP prefer unique mapping

(5.7) ??*Kofi vá afi sia gé ɖé afé-a me.*
EWE [Kofi come place this] [drop ALL house-DEF in]
[+MEP] '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 ɖé afé-a me.*
EWE [Kofi come place this] [MOD drop ALL house-DEF in]
[-MEP] '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. ??Ie-**ni** gakko-**ni** it-ta.
Japanese house-LOC school-LOCgo-PAST
[+MEP] '(Someone) went to the house to school.'

b. Ie-**ni** it-**te** gakko-**ni** it-ta.
[-MEP] [house-LOC go-CON] [school-LOC go-PAST]
'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

- 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

[+MEP] 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

[+MEP] 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.'

– 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

[-MEP] 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

Figure 7. *ECOM C6 schematically*

– a description in Ewe

(5.12)

	Circle	*lá*	*liá*	*rectangle*	*lá*
EWE	[circle	DEF	climb	rectangle	DEF]
	hé	dj	*tó*	*anyígbá*	
	[ITI	descend	pass	ground]	
	yi	ɖa-*líá*		*triangle*	*lá*
	[go	DIR-climb		triangle	DEF]
	vá	ɖó	*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.'

– a description in Dutch

(5.13) … ***en*** *rolt* ***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]

- 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*

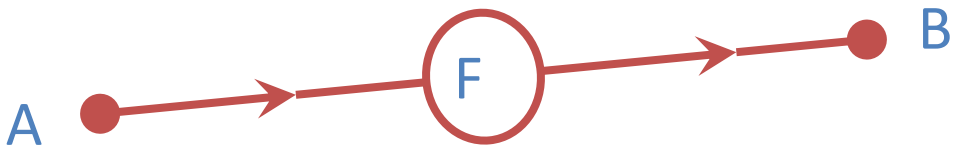

Figure 8. *Two collinear Direction vectors*

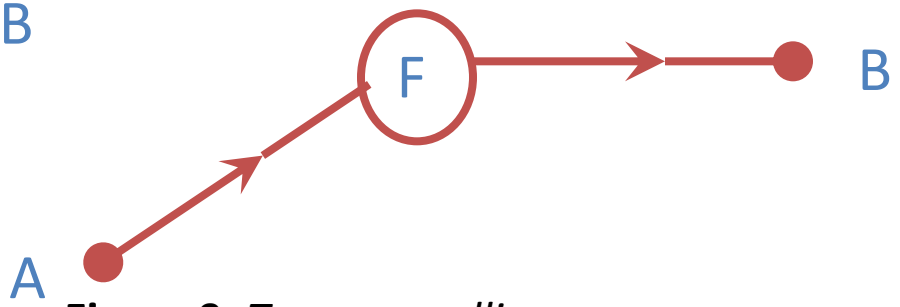

Figure 9. *Two non-collinear Direction vectors*

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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

- 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)

Overview

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

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

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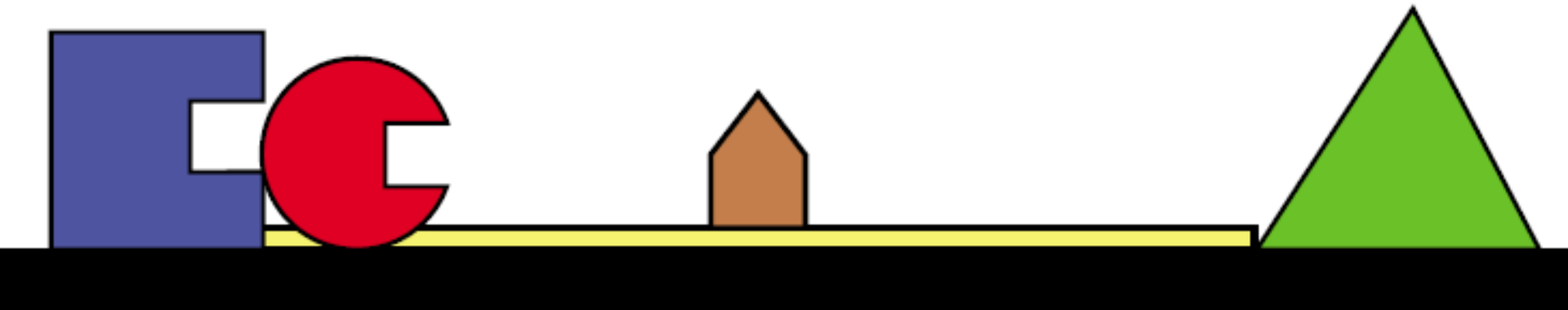
The end

Thank you!



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