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The Processing of Events

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Linguistik Aktuell/Linguistics Today (LA) provides a platform for original monograph studies into synchronic and diachronic linguistics. Studies in LA confront empirical and theoretical problems as these are currently discussed in syntax, semantics, morphology, phonology, and systematic pragmatics with the aim to establish robust empirical generalizations within a universalistic perspective.

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The Processing of Events
by Oliver Bott

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This monograph is dedicated to Katrin and to my family to whom goes all my love.

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Abbreviations and symbols

#	semantically deviant sentence
*	clearly unacceptable sentence
?	marked sentence
[± *ADDTO*]	feature expressing whether a verb introduces a path or not
[± *DUR*]	feature expressing whether a verb is durative or not
[± *SQA*]	specified quantity feature
[± *PERF*]	perfectivity feature
α	conventional significance level
$\exists$	existential quantifier
$\forall$	universal quantifier
λ	lambda operator
$\neg$	negation operator
$\rightarrow$	conditional
$\leftrightarrow$	biconditional
$\vee$	disjunction
$\wedge$	conjunction
acc.	accomplishment
ach.	achievement
act.	activity
AdvP	adverbial phrase
AEH	aspectual enrichment hypothesis
AKTIONSART	aktionsart feature
AMF	anterior midline field, a MEG component
ANOVA	(repeated measures) analysis of variance
AP	adjective phrase
ATSH	abstract type shifting hypothesis
AUH	aspectual underspecification hypothesis
CI	confidence interval
CLLS	constraint language for lambda structures
CP	complementizer phrase
CVPH	complete verb phrase hypothesis
DP	determiner phrase
DRS	discourse representation structure
DRT	discourse representation theory
DRT/EC	semantic framework combining DRT and EC
$e_0,\ldots, e',\ldots$	events
EC	event calculus
EEG	electroencephalography
ELAN	early left anterior negativity in the ERPs
ERP	event related potentials
$f_0,\ldots,f',\ldots$	fluents
F_1	F value of the by subjects ANOVA
F_2	F value of the by items ANOVA
fMRI	functional magnetic resonance imaging
IAIH	incremental aspectual interpretation hypothesis
IP	inflection phrase
KΩ	kilo ohm
LAIH	late aspectual interpretation hypothesis
LAN	left anterior negativity in the ERPs
LDH	lexical disambiguation hypothesis
LPH	lazy parsing hypothesis
M350	an MEG component
MEG	magnetencephalography
ms	milliseconds
MSE	mean squared error
MT+	brain region selectively activated by motion
μV	micro volt
N	number of participants
N400	negative ERP component peaking around 400ms post stimulus
NMUH	non monotonic update hypothesis
NP	noun phrase
obj.	direct object
OVAS	object verb adverbial subject word order
p	significance level

P(A|B)	conditional probability of A given B
P100	ERP component
P300	ERP component
P600	positive ERP deflection between 500–900ms post stimulus
PH	planning hypothesis
pl.	plural
PP	prepositional phrase
PPH	probabilistic parsing hypothesis
PROG	progressive operator
PROLOG	logic programming
pSTS	posterior superior temporal sulcus
RT	reading/reaction time
sem.	semelfactive
sing.	singular
SRH	syntactic reanalysis hypothesis
std.	standard deviation
subj.	subject
SVAO	subject verb adverbial object word order
SVOA	subject verb object adverbial word order
t_1	t value of the by subjects paired t-test
t_2	t value of the by items paired t-test
TENSE	tense feature
TP	temporal perspective feature
VP	verb phrase
WebExp2	java toolbox for conducting web-based experiments

CHAPTER 1

Introduction

Human language understanding has a very remarkable property. Seemingly effortlessly, we mentally structure the plot of the incoming linguistic material, by encoding and ordering events and actions in our mental construction of time. This is astonishing because the computation of the temporal profile of a described situation rests upon the integration of tense, grammatical aspect and lexical aspectual information as well as world knowledge and information from preceding discourse. This interplay of information at multiple linguistic and extralinguistic dimensions makes temporal processing an excellent test case for investigating semantic interpretation on a supralexical level. This book is about the cognitive mechanisms involved in this construction process during language perception.

The cognitive notion of time as it is reflected in our linguistic categories is only indirectly connected to physical time in its Newtonian representation as a dimension comprising an infinite number of instants corresponding to the real numbers. In contrast, mental time involves the construction of a cohesive representation of ontological primitives like processes, states and events by means of a whole range of relations like precedence, causality, and so forth. Thus, there is a discrepancy between the external and our individual representations of time. Linguistic theory has a lot to offer concerning the latter. Interestingly, crosslinguistic studies on tense and aspect show that although there is variation between languages in terms of how they encode temporal categories and relations, the temporal concepts underlying these varying systems seem to be universal (Dahl 1985; Smith 1991). Moreover, studies on the ontogenesis of temporality in language have shown that English speaking children learn the progressive as their first inflectional form without making stativity-errors at any stage of acquisition (Brown 1973, p. 324–328). That is, children learning English never say things like *I am liking you* indicating that from the very beginning they cognitively make a distinction between state predicates and non-statives. These findings suggest that the encoding of events in language directly reflect fundamental ontological distinctions between event types. Psychological studies, on the other hand, have shown that event perception can be conceived of as a fundamental cognitive capacity analogous to object perception (Zacks & Tversky 2001).

Although there is a rich theoretical literature on temporality in language, there are only very few psycholinguistic studies on the processing of eventualities. This is