

Event structure and the acquisition of passives

Berit Gehrke, UPF Barcelona (*berit.gehrke@upf.edu*)

Nino Grillo, CSIC Madrid (*nino.grillo@gmail.com*)

Seventh GLOW in Asia, EFL-U Hyderabad, February 25-27, 2009

1 Introduction

- *common view*: **passivization as an operation on argument structure**

focus on inverse mapping of argument type and syntactic relation in actives and passives

internal argument (understood object) appears in (syntactic) subject position

logical subject is demoted and (optionally) surfaces in a *by*-phrase

- *our proposal*: **passivization as an operation on event structure**
(Gehrke and Grillo, 2007, to appear; Grillo, 2008)

a part of the VP (a lower VP shell), which is semantically associated with a consequent (inchoative or resultative) state subevent, moves to a discourse-related position at the edge of VP

event structure as a crucial ingredient in the representation and processing of passives:

passivizability of different kinds of verbs, beyond a mere distinction with respect to transitivity
potentially new insights into the acquisition of passives

structure of the talk:

section 2: acquisition of passives

section 3: our proposal, based on event structure

section 4: empirical support

section 5: passivizing states

section 6: event structure and acquisition

section 7: passivizing activities

section 8 concludes

2 Acquisition of passives

two main issues in the acquisition literature on passivization:

verbal passives are problematic in children until after 4;0 (Bever, 1970; Horgan, 1978; Maratsos et al., 1985; de Villiers and de Villiers, 1985; Borer and Wexler, 1987; Meints, 1999) (see Guasti 2004 for an overview of the literature, and Hyams and Snyder 2008 for a discussion of different results in O'Brien et al. 2005)

children do better with comprehension and production of **actional passives** (1-a) than with passives of **non-actional** verbs (1-b) (see Maratsos et al., 1985; Borer and Wexler, 1987; Fox and Grodzinsky, 1998, among others)

- (1) a. Anca was kicked/ pushed (by Christina).
b. Roberta was feared (by Giorgos).

this talk:

new account of both issues (most attention to the actional/non-actional asymmetry)

2.1 Maturation accounts and their problems

(2) *A-Chain Maturation Hypothesis (Borer and Wexler, 1987)*

At early stages of their development children cannot form A-chains.

young children project the structure of adjectival passives in place of their verbal counterpart
adjectival passives are by assumption generated in the lexicon and do not require A-movement of the internal argument

⇒ explains the tendency to omit the *by*-phrase (which is incompatible with adjectival passives)
the option to project passives as adjectival is more easily available with actional predicates than with non-actional ones, since the latter do not easily form adjectivals

Problem: Apparently, not all A-chains mature equally

(for discussion see Guasti, 2004, and reference cited therein)

young children correctly place **subjects** before finite verbs in active sentences, which is a problem given the VP internal subject hypothesis (Koopman and Sportiche, 1982)

⇒ Borer and Wexler (1992): only 'non-trivial' chains are problematic

BUT: children master **unaccusative predicates**, in which the subject originates as the internal argument and is successively A moved to Spec IP: *Mina arrived*.

Borer and Wexler (1987) incorrectly predict that young children produce sentences like (3)

(3) #Arrive Mina.

(4) *External Argument Requirement Hypothesis (EARH) (Babyonyshev et al., 2001)*

Children disallow clauses in which there is no external theta-role assigned to Spec of *v*

Baker et al. (1989): in verbal passives the external theta-role is assigned to the clitic *-en/ed* (the passive participle morpheme), an X^0 by definition

⇒ children do not allow verbal passives

problem for the EARH: children's good performance with **raising** (a raising verb like *seem* does not assign a theta role to Spec, *v*) (Wexler, 2002) (5)

(5) It seems to Silvia that Paolo is playing the piano.

(6) *Universal Phase Requirement (UPR) (Wexler, 2002)*

v always defines a strong phase for children under appr. 5 y.o.

Given (6), and under the assumption that movement of the internal argument in passives has no interpretive effects, the direct object DP is inaccessible to T (see Wexler, 2002, for details)

problem for the UPR: children's good performance with **reflexive clitics in Romance**

given Marantz's (1984) analysis of the reflexive-clitic construction the UPR incorrectly predicts children to fail with this structure (see Hyams and Snyder, 2006, for discussion)

Marantz: this construction is similar to passive in that it also requires movement of the internal argument to the subject position, this movement should be banned by UPR given that, like in passives, it has no interpretive effects.

2.2 Generalized Minimality

Grillo (2003, 2005, 2008, to appear); Garraffa and Grillo (2008): children's difficulties with passives are part of a more general issue, in different populations (agrammatic aphasics, children, adult speakers in stressful situations), with the representation of 'non-local' chains, i.e. movement that generates inversion of the canonical order of arguments of a predicate (7) ¹

(7) Generalized Minimality (GM) (Grillo, 2008)

- a. Projection of scope/discourse features is more costly than that of argumental features, and therefore problematic in populations with reduced (syntactic) processing capacity (possibly because of their slowed-down activation of morphosyntactic information).
- b. A minimality effect arises as a consequence of this impoverishment, which explains the comprehension deficit with particular structures (i.e. structures displaying a non-canonical order of NPs).

structural similarity between the traditional minimality effects captured by Relativized Minimality (Rizzi, 1990, 2004; Starke, 2001) in (8), and the intervention effect in movement of the object NP over an intervening subject (9)

(8) *How do you wonder who behaved <how>?

(9) Show me the boy that the girl kissed <the boy>.

movement of *how* in (8) is blocked by the intervention of another *wh*-element *who* underspecification of the morphosyntactic feature set associated with the moved NP in (9) would also lead to a minimality effect given the structural similarity between this element and the intervening subject NP

GM accounts for comprehension asymmetries in agrammatic aphasia and acquisition:

- comprehension asymmetries between *subject and object relatives, clefts, wh-movement*
- absence of difficulties with *unaccusatives, verb movement*

Before applying GM to the acquisition of passives, we will discuss problems for NP movement approaches and then introduce a novel approach to the representation of these structures developed in Gehrke and Grillo (2007, to appear) that seeks to deal with these problems.

2.3 The external argument of passives and the absence of minimality effects

Collins's (2005) smuggling approach

Problem of GB approaches: Violation of Uniformity of Theta Assignment Hypothesis (UTAH) (Baker, 1988): the external theta-role would be assigned in two different fashions in active and passive constructions

Collins: passive morphology does not absorb external theta role or accusative case:

- the external theta role is assigned in Spec vP in line with UTAH
- ACC is checked by the *by*-phrase (*by* itself being the head of VoiceP) merged directly above vP

¹Grillo's analysis has also been applied to the acquisition of relative clauses in Italian and Hebrew in Adani (2008); Friedmann et al. (2009).

immediate problem: movement of the internal argument over the external argument should raise a minimality effect

Collins' solution: **Smuggling** of the VP over the ν P makes the internal argument the closest to Spec TP allowing for its promotion to subjecthood without violating locality:

(10) Smuggling (Collins, 2005)

a. Suppose a constituent YP contains XP. Furthermore, XP is inaccessible to Z because of the presence of W, some kind of intervener that blocks any syntactic relation between Z and XP. If YP moves to a position c-commanding W, we say that YP smuggles XP past W.

b. Z ... XP ... W ... [YP <XP>]

└──────────────────────────┘
NOT OK

c. Z ... [YP <XP>] ... W ... <[YP XP]>

└──────────┘ └──────────┘
OK smuggle YP

phrasal movement of the participle to the left of the *by*-phrase:²

- (11) a. The coach summed up the argument.
The coach summed the argument up.
b. The argument was summed up by the coach.
*The argument was summed by the coach up.

(12) **Problems of a smuggling approach to passive formation:**

- a. What is the status of smuggling in the theory?
b. What are the limits of smuggling and more generally of look-ahead computations? Doesn't smuggling massively over-generate? Can it be used to avoid minimality effects with other potential interveners, for example in A'-movement?
c. How do we explain sentences like (13), where passivization applies independently of movement of the internal argument to the subject position?

(13) There was a man killed.

3 An alternative proposal: From arguments to events

3.1 Some background assumptions about event structure

decomposition of events into subevents (Moens and Steedman, 1988; Parsons, 1990; Pustejovsky, 1991; von Stechow, 1995; Higginbotham, 2000; Rothstein, 2004; Kratzer, 2005; Arsenijević, 2006; Ramchand, 2008, among many others)

in particular: ontology contains a transition into a state, a **consequent state** (in the sense of Moens and Steedman, 1988) to capture the semantics of predicates involving change, a (durative or instantaneous) change from $\neg\phi$ to ϕ (accomplishments and achievements)

A consequent state can be related to (an atemporal version of) Dowty's (1979) **BECOME**-operator, involved in the representation of accomplishments and achievements (see, for instance

²Collins (2005) argues convincingly against alternative analyses in terms of right specifiers or extraposition of the *by*-phrase to the right (see there for details on this point and on the formation of the participle).

McIntyre, 2006, for an atemporal definition of BECOME in event semantic terms)
lexical (achievements and) accomplishments, e.g. *kill* (14)

- (14) John kills Bill. (Dowty, 1979, 91)
[[*John does something*] CAUSE [BECOME \neg [*Bill is alive*]]]

syntactically created accomplishments³ (15), (16)

- (15) *Secondary (resultative) predicates*

- a. Davide took off his hat.
- b. Boban hammered the metal flat.
- c. Kriszta and Balázs danced into the house.

- (16) He sweeps the floor clean. (Dowty, 1979, 93)
[[*He sweeps the floor*] CAUSE [BECOME [*the floor is clean*]]]

Note: we are not necessarily concerned here with telic events but rather with complex event structures that rely on BECOME⁴

Travis's (2000) VP shell account for the syntactic representation of event structure

V₁ corresponds to the causing sub-event and introduces the external argument (DP_{ext})

V₂ introduces the theme argument (DP_{int}) as well as the endpoint of the event

a consequent state is structurally represented as a lower VP shell with DP_{int} in its specifier

3.2 The proposal

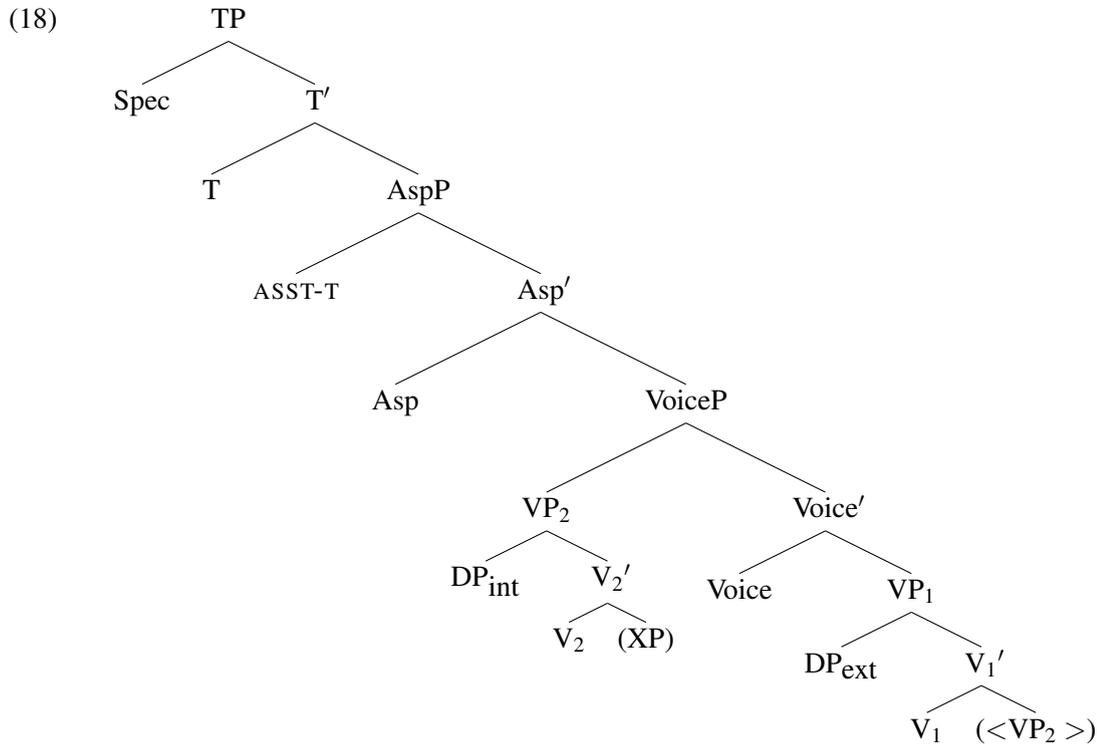
- (17) **Main hypothesis:** The promotion of a consequent state subevent of a complex event to a position above VP is the fundamental ingredient of passive constructions.

- Passivization necessarily involves the zooming in on a consequent state subevent, which is the result of a transition associated with the BECOME component
 - A discourse-semantic requirement singles out this consequent state which is endowed with a feature that will determine the movement of the lower VP to a discourse-related projection at the edge of the VP phase, represented as VoiceP
 - two properties of the feature that triggers movement to VoiceP:
 - discourse-related: chooses the element of the complex event that needs to be singled out
 - quantificational: makes it readable to the next phase
- ⇒ main job of this feature: to single out an element of the atemporal event structure associated with the VP and to enrich its semantics by introducing temporality, thereby making it available to the temporal domain (and ultimately the discourse domain) of the clause (see appendix, section 9, for more details)

³There are different approaches (e.g. von Stechow, 1995; Doetjes, 1997; Rothstein, 2004) as to how the two predicates in syntactically created accomplishments are combined semantically to form one complex predicate and refer to a single event, which are irrelevant for the present purposes (see also Gehrke, 2008, for discussion).

⁴With Rothstein (2004); Arsenijević (2006); MacDonald (2006) and others, we separate the theory of event types and the creation of such types at the VP level, from the effect that the quantificational properties of the internal argument DP can have on the interpretation of the VP as bounded or unbounded.

- Voice is responsible for grounding the event time in a particular way; with passives: the event time is anchored within the consequent state subevent



the relevant feature defines the lower VP as a member of π 's class and drives its movement to [Spec, Voice], without generating a minimality effect⁵

(19)
$$\text{VP}_2 \pi \text{ VP}_1 \langle \text{VP}_2 \rangle \pi$$

(20)
$$[\text{VoiceP}[\text{VP}_2 \text{ pushed } \langle \text{the boy} \rangle_i]_j \text{ [by [VP}_1 \text{ [the girl]}_k \text{ [VP}_2 \text{ [the boy] pushed}]_j]]]$$

Speculation: What kind of feature is π ?

aboutness (see Rizzi, 2006; Rizzi and Shlonsky, 2007, for some preliminary distinction between topichood and aboutness)

e.g. Arsenijević (2006): functional verbal projection that basically picks out that part of the complex event structure that something is asserted about

our approach:

- whatever is asserted about the event or that part of the event the focus lies on has to move up
- passives: the consequent state moves up to serve as a basis for the event time (see appendix)

Contra Collins and other argument structure based approaches:

the proposed movement of the lower VP shell is completely independent of the promotion of the internal argument to subject position and motivated by interface requirements

⁵We assume this feature at the edge of the VP to be similar in nature to those that project at the edge of the clause or the DP, and that the distinction between these is given by the syntactic environment in which they are projected.

4 Empirical support

4.1 Not all transitive verbs form passives⁶

our prediction: unless a secondary predicate is supplied syntactically, only those transitive verbs that are associated with an accomplishment or achievement event structure (involving BECOME) should be able to form passives

- (21) *Transitive transition structures allow passives*
- a. The lion killed the antelope.
The antelope was killed (by the lion).
 - b. He put the card on the table.
The card was put on the table (by him).
- (22) *Transitive verbs associated with simple event structures do not allow passives*
- a. This laptop weighed two kilos.
*Two kilos were weighed (by this laptop).
 - b. This chair cost 50 euro.
*50 euro were costed (by this chair).

4.2 Word order restrictions with secondary resultative predicates

- (23) The argument was summed up by the coach. (= (11), Collins 2005)
*The argument was summed by the coach up.
- (24) a. Jutta was spoken to by Eric.
*Jutta was spoken by Eric to.
b. Tom zipped the sleeping bag all the way up to the top.
??The sleeping bag was zipped by Tom all the way up to the top.
- (25) a. The table was wiped clean by John. (from Postal 2004)
??The table was wiped by John clean.
b. The metal was hammered flat by John.
??The metal was hammered by John flat.

4.3 Passives of existentials

problem for NP movement approaches: why does the internal argument have to appear in pre-verbal position, whereas the postverbal position is ungrammatical?

- (26) a. There was a man killed.
b. *There was killed a man.

our account: regular passives involve two independent operations

- first, the lower VP shell moves to Spec VoiceP to form a basis for the event time
- second, a DP moves to Spec TP to satisfy the EPP

standard assumption: EPP requirements on T can be satisfied in at least two ways

- movement of the closest argument to Spec TP
- expletive insertion

⁶See also Postal (2004) for extensive discussion.

our proposal: the same options are available in passives

- movement: the closest argument (DP_{int} given prior movement of VP_2) is attracted

- expletive: (26-a)

(27) *Collins (2005) makes the wrong prediction*

*There was by the police a man killed.

4.4 Floating quantifiers

floating quantifiers are banned from the post-verbal position in passives (28), whereas both word orders are grammatical in the active counterparts (29) (first observed in Sportiche, 1988)

(28) a. The boys were both given a good talking to.

b. *The boys were given both a good talking to.

(29) a. Ad gave the boys both a good talking to.

b. Ad gave both the boys a good talking to.

unexpected under NP movement approaches to passives: the quantifier should be strandable in postverbal position where it is originally merged

our account: VP_2 -movement is independent of DP-movement to satisfy the EPP

⇒ The floating Q moves together with the internal argument in Spec VP_2 and remains stranded after the movement of the internal argument to Spec TP.

4.5 Trace reactivation in passives

conflicting empirical findings in the psycholinguistics literature on antecedent reactivation at the trace position in passives, which questioned the psychological reality of NP traces

MacDonald (1989)

Visual Probe Recognition task (VPR) to test reactivation of the passive subject NP at the trace position: a sentence is presented on a screen, after which a word appears on the screen and the subject has to say if the word was present in the sentence

In case of the passive the probe word used is the head noun of a subject DP like *mayor* in (30).

(30) The terrorist wanted to disrupt the ceremonies.

[The new mayor at the center podium]_i was shot *NP-trace*_i.

Reaction time in this modality were compared to reaction times with predicate adjectives (31)

(31) The terrorist wanted to disrupt the ceremonies.

The new mayor at the center podium was furious.

prediction: facilitatory effect should obtain only in verbal passives

borne out: probe recognition was faster after verbal passives than after adjectives

Osterhout and Swinney (1993)

Cross-Modal Priming task (CMP): Sentences are presented auditorily while strings of letters appear on the screen at specific time points and have to be recognized by the subject as being words or non-words. Given that a previous presentation of a semantically related word reduces the reaction time in word recognition it can be tested whether a word present in the sentence is active at specific points during processing.

findings: no reactivation at the trace position in passives until one second after the alleged trace

These findings are in conflict under NP movement analyses but not under our approach:

- predicts facilitatory effect in VPR found by MacDonald (1989): The lower VP, with the internal argument NP in its specifier, is reactivated at its trace position, which explains the facilitatory effects in VPR in verbal passives but not in adjectives.

- predicts the absence of reactivation found by Osterhout and Swinney (1993): In the structure proposed in (18) there is no trace in the position tested (i.e. in postverbal position).

5 Passivizing states

States do not involve BECOME, since they consist of only one sub-event, a state
potential problem for our proposal: many stative predicates passivize:

- (32) a. The house is owned by Louise.
b. The answer / myth is known / believed by the pupils.
c. Toni is loved (by Stefan).

BUT: the availability of passivization is not a common property of stative predicates in general

e.g. passivizing psych-verbs

Belletti and Rizzi (1988): three kinds of psych-verbs

- *fear*-type (*temere*): can derive eventive passives (33-a)

- *worry*-type (*preoccupare*): can only derive adjectival passives

- *appeal*-type (*piacere*): cannot passivize at all (33-b)

- (33) a. Giorgos feared Roberta.
Roberta was feared (by Giorgos).
b. The solution escapes me.
*I am escaped (by the solution).

intuitive difference between *appeal*-verbs vs. *fear*-verbs & stative predicates in (32):
only the latter can have an inchoative meaning of the state denoted by the verb (34)

- (34) a. Shakuntala got to know the answer.
b. Louise got to own a house.
c. Nino got to fear sharks.
d. ??The solution got to escape Berit.

⇒ allow a reading under which the state denoted by the verb is re-interpreted as a consequent state, a state having come into existence, which is predicated over the internal argument

our proposal: this reading involves a **coercion** of the underlying event type (a state), which is shifted into a more complex event type (an achievement), by adding a BECOME predication this secondary predication over the internal argument, represented by a lower VP shell with the internal argument in its specifier, makes passivization possible

semantic/pragmatic constraint: the state has to be interpretable as a consequent state

Similar coercion operations proposed in the literature (see also Partee, 1987; Pustejovsky, 1995; Asher, 2007, for more general proposals for type shifts and coercion):

(35) *de Swart (1998)*

- a. French stative predicates are coerced into ‘events’ (accomplishments / achievements) when combined with the *passé simple* or point adverbials like *soudain* ‘suddenly’ to meet the input requirements of the latter
- b. semantic effect of this type shift: the state is interpreted as an inchoative state⁷

(36) *Rothstein (2004)*

- a. achievements are coerced into accomplishments when combined with the Progressive (e.g. *Jonathan was reaching the summit*), by adding an activity (associated with Dowty’s DO predicate), which is interpreted as a preparatory process
- b. constraint on this type shift: it has to be possible to construe an appropriate activity

more restricted availability of passivization in the DP domain: additional indication that a more complex structure has to be provided syntactically for these kinds of predicates (37)

- (37)
- a. the enemy’s destruction of the city
 - b. the city’s destruction by the enemy
 - c. Giorgos’ fear of Roberta
 - d. *Roberta’s fear by Giorgos

the nominal in (37-b) derives from a verb that is lexically specified for a complex event structure the nominal in (37-d) does not, but instead derives from a stative verb

our proposal: the only possible way to introduce BECOME with state predicates is the formation of a complex predicate in the syntactic structure via merge of additional verbal structure

independent evidence: merging additional verbal structure with nominal heads is not possible

- inability of nominals to take SC as complements (see also Haegeman and Guéron, 1999)

- (38)
- a. I consider [Rick a good musician].
 - b. *my consideration [Rick a good musician]

- inability of nominals to assign accusative case to a DP in the Spec of their complement or to incorporate the complement’s head

- (39)
- a. I consider [Sharon to be a good writer].
 - b. *my consideration (of) [Sharon to be a good writer]

⁷Following upon de Swart’s analysis of this type shift as involving covert aspectual operators, Travis (in press) proposes to represent these operators in the syntax by means of a VP shell account.

- inability of nominals to combine with particles

- (40) a. Andrea gave the book away.
 Andrea gave away the book.
 b. *the gift of the book away
 *the gift away of the book

our assumption: the only option for nominals to undergo passivization is to be lexically endowed with a complex event semantics

no extent reading with verbal passives

some spatial expressions (verbs and PPs) display an ambiguity between an eventive movement reading (41-a) and a stative spatial extent reading (41-b) (see Gawron, 2005, for discussion)

- (41) a. The army surrounded the city.
 b. Trees surrounded the city.

under verbal passivization only the eventive reading survives (42)

- (42) a. The city was surrounded by the army. (*verbal or adjectival passive*)
 b. The city was surrounded by trees. (*only adjectival passive*)

with the respective nominalizations: a *by*-phrase is available only with the eventive reading (43)

- (43) a. The surrounding of the city by the army
 b. *The surrounding of the city by the trees

6 Event structure and the acquisition of passives

6.1 Problems with verbal passives

our account: a scope/discourse-related feature drives movement of the secondary predicate over the intervening VP

⇒ absence of minimality effects in standard passives: a feature encoding ‘aboutness’ [π] is associated with the lower VP and drives its movement to [Spec, Voice]

⇒ the moved $VP_2[\pi]$ in (44) is not blocked by the intervening VP_1 , since the latter does not qualify as a member of the π class

- (44) $VP_2[\pi]$ VP_1 $\langle VP_2 \rangle \pi$
 └──────────┘
 π

- (45) $(VP_2, \pi)_{Class \pi}$ $(VP_1)_{Class V}$ $(VP_2, \pi)_{Class \pi}$
 [_{voiceP}[_{VP2} pushed \langle the boy \rangle_i]_j [by [_{VP1} [the girl]_k [_{VP2} [the boy] pushed]_j]]]
 └──────────────────────────────────┘
 π

Given GM (7), however: children have trouble with the projection of scope/discourse features (in the absence of strong contexts as the one provided in O’Brien et al., 2005)

⇒ impoverished representation of VP_2 , in which the π feature is missing

⇒ inactivation of π makes VP_2 indistinguishable from VP_1 , which ultimately generates a min-

imality effect whenever the former is moved above the latter (46)

(46) VP2 VP1 <...>

6.2 The actional / non-actional distinction

distinction between states and events (activities, accomplishments, achievements)

passivization as an operation on the event structure of a predicate: only those predicates which involve a BECOME component should allow passivization

state predicates do not involve BECOME and need to be coerced into achievements in order to be able to passivize (semantically/pragmatically constrained type shift)

Piñango et al. (2006); Brennan and Pytkäinen (2008): **type shift operations** in other domains add extra **processing complexity**

our proposal:

- coercion requires both a revision of the semantic properties of the predicate (which also requires checking if the predicate can have an inchoative meaning) *and* a revision of the syntactic structure generally associated with that predicate
- a child's capacity for processing, which is already limited in dealing with 'normal' actional passives, is exceeded by the necessity to operate these extra-computations

future tasks:

- run experiments to test trace reactivation time in passives
- run experiments to test whether passivization of states involves coercion

7 What about activities?

unlike accomplishments and achievements (and like states), activities are generally assumed not to involve definite change, and thus not to involve BECOME

Potential objection to our proposal:

some activities passivize, and when they do they rather seem to pattern with accomplishments and achievements with respect to the acquisition of passives (do not pose a problem) and to the processing costs (do not involve aspectual coercion Piñango et al., 2006)

under our proposal, this would mean that activities (can) involve a complex event structure containing a transition into a consequent state, and that they do not involve coercion

7.1 Semelfactives: *kick, hit, slap; push*⁸

Smith (1991/97); Rothstein (2004): semelfactives are systematically ambiguous between an activity and an achievement reading

⁸Verbs like *push* have been analyzed as a complex of *give pushes to* (Verkuyl, 1993), which can be seen as an iteration of single atomic pushes and thus as analogous to semelfactive verbs (see also Zucchi and White, 2001).

- (47) *systematic ambiguity of semelfactives* (Rothstein, 2004, 184)
- a. John jumped for ten minutes. *activity*
b. John jumped at ten o'clock. *achievement*
- (48) *semelfactive vs. activity* (Rothstein, 2004, 187)
- a. He jumped again and again.
 \approx He jumped for several minutes.
b. He ran again and again.
He ran for several minutes.
- (49) *semelfactive vs. activity: nominalizations* (Rothstein, 2004, 187)
- a. He gave a jump / a kick / a wink.
b. He had a walk / a run / a swim.

this (incorrectly?) predicts that under passivization only the achievement reading should survive

- (50) a. Sören kicked the tree (once / several times).
The tree was kicked (once / several times) (by Sören).
b. Giusi pushed the cart (once / for a longer period of time).
The cart was pushed (once / for a longer period of time) (by Giusi).

an alternative approach to semelfactives:

the semelfactive reading is the basic one, and the activity reading is the derived one (by iteration of single jumps, kicks, pushes etc.), in which case the data in (50) goes well with our proposal

7.2 Other activities

- *surround* and other motion verbs that refer to routes and not to goals (or sources)
it is generally not clear whether these are activities or accomplishments (see also Gehrke, 2008, for discussion)

- *kiss, wash, brush, pet, comb, touch*

we assume that these can be treated on a par with semelfactives as suggested above, even if semelfactives are commonly assumed to comprise less verbs
the activity reading is derived by iterating single atomic events (achievements)

7.3 Some evidence from nominalizations

indication that activities can behave like complex events:

nominalizations of these verbs often refer to single, countable ('bounded') events and behave like complex event nominals (CENs) (in the sense of Grimshaw, 1990): *kiss, touch*

nominalizations cannot involve coercion since this would add additional verbal structure to nominal structure (recall discussion in section 5)

Meinschaefer (2005)

- some deverbal nouns derived from activity verbs show 'count noun' properties only (i.e. behave like CENs):

allow modification with *frequent* only in the plural (51-a)

are compatible with count but not with mass modifiers (51-b)

(51) *activity nouns behaving like CENs (Meinschaefer, 2005, 362)*

- a. *Their frequent fight scared everyone.
Their frequent fights scared everyone.
- b. *Much fight over this issue was going on.
Many fights over this issue were going on.

- others display properties of both ‘mass’ and ‘count’ nouns, i.e. simple event nominals (SENs) and CENs (52):⁹

allow modification with *frequent* in both singular and plural (52-a)

are compatible with both count and mass modifiers (52-b)

(52) *activity nouns behaving like SENs and CENs (Meinschaefer, 2005, 362)*

- a. The frequent debate of the issue raised much interest.¹⁰
The frequent debates of the issue raised much interest.
- b. Much debate of the issue was going on.
Many debates of the issue were going on.

our assumption: the two sets of data from passivization and nominalization of activities indicates that their complex event readings do not involve coercion

8 Conclusion

problems with argument structure/DP perspective on passive formation

locality constraints on movement (see Collins, 2005, among others)

insights from theoretical and experimental literature: more than argument structure is involved

shift to an analysis based on event structure

movement of VP₂ (a consequent state subevent) to a discourse-related position at the edge of the VP (Spec, VoiceP); from this position the internal argument can further move to the subject position, though this is not a necessary feature of passivization

different kinds of predicates behave differently with respect to the availability of passives

not necessarily a matter of (in)transitivity

split between different kinds of states

taking into account finer-grained distinctions that pose problems for NP movement approaches to passivization: new possibilities for testing children’s knowledge of these structures

future tasks:

further investigate the precise discourse properties of the stipulated VoiceP

experiments to test for trace position, aspectual coercion, likeliness of availability of inchoative state readings with particular state predicates

⁹Meinschaefer notes that the Spanish counterpart of (52) (*debate*) behaves like English, whereas the French counterpart (*débat*) displays ‘count’ behavior only (i.e. it behaves like a CEN). She also shows that nouns derived from semelfactives (e.g. *jump* and its French and Spanish counterparts) as well as French *glissade* ‘slide’ behave like ‘count’ nouns, whereas French *glissement* ‘sliding’ is like *debate* in (52).

¹⁰Note that this sentence is only acceptable under the reading that the frequency raised interest, whereas with the plural the debates raised interest.

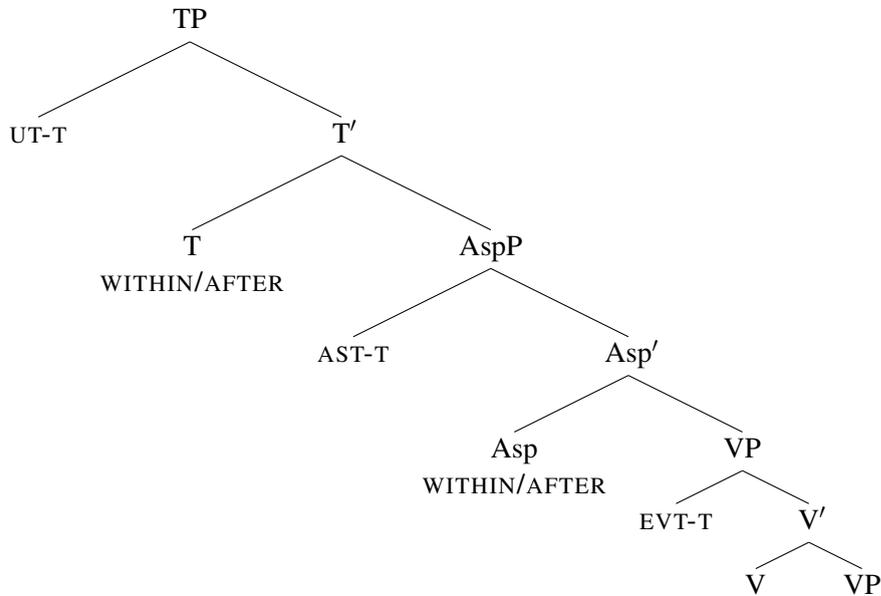
9 Appendix: Anchoring events in time

ASSUMPTION # 1: the syntax and semantics of tenses and aspects involve reference to points or intervals in time (Partee, 1984; Zagona, 1990; Stowell, 1996; Giorgi and Pianesi, 1997; Demirdache and Uribe-Etxebarria, 2000, among others)

point of departure: Reichenbach's (1947) event time (E), speech time (S), reference time (R)

Klein (1994): interval-based, event time (EV-T), assertion time (AST-T), utterance time (UTT-T)

(53) *The syntax of Tense and Aspect* (Demirdache and Uribe-Etxebarria, 2000)



tenses and aspects are predicates that take temporal arguments (following Zagona, 1990)

aspect heads take event time as internal argument and assertion time as external argument:

- with the imperfective aspect the assertion time lies within the event time (WITHIN)
- with the perfective aspect it lies after the event time (AFTER)

tense heads take assertion time as internal argument and utterance time as external one:

- the utterance time is placed WITHIN the assertion time (present)
- the utterance time is placed AFTER the assertion time (past)

ASSUMPTION # 2: event structure itself is atemporal in nature, i.e. there are no times associated with either the event or any of the subevents

Moens and Steedman (1988): the basic components that make up an event are not connected via temporal relations but rather by contingency (see also Rothstein, 2004; Truswell, 2007)

⇒ no immediate link between the (atemporal) event and the temporal domain of the clause

general idea: Voice is responsible for grounding the event time in a particular way

the position VP₂ in passives moves to is independently needed, also for active sentences, to form a basis for the event time that subsequently serves as the internal argument of Asp

the event time is provided by Voice at the point of transition from the atemporal domain of the event structure to the temporal one

with passives: event time is anchored within the consequent state subevent, because VP₂, which is semantically associated with the transition into a consequent state, moves to Spec VoiceP where it is assigned temporal properties

with actives:

- in the default case: nothing moves to the position above VP₁ and the event time is assigned locally, or alternatively, the entire VP moves
 - in other cases, when the event time has to be placed within a certain subevent, the projection associated with this subevent moves up;
- e.g. the Progressive could be thought of as focusing on the process of an event rather than on its initial or final state

References

- Adani, Flavia. 2008. *The Role of Features in Relative Clause Comprehension: A Study of Typical and Atypical Development*. Doctoral Dissertation, Università di Milano Bicocca.
- Arsenijević, Boban. 2006. *Inner Aspect and Telicity: The Decompositional and Quantificational Nature of Eventualities at the Syntax-Semantics Interface*. Doctoral Dissertation, University of Leiden. LOT Dissertation Series 142.
- Asher, Nicholas. 2007. *A Web of Words: Lexical Meaning in Context*. Ms. Université Paul Sabatier Toulouse & University of Texas at Austin.
- Babyonyshev, Maria, Jennifer Ganger, David Pesetsky, and Kenneth Wexler. 2001. The maturation of grammatical principles: Evidence from Russian unaccusatives. *Linguistic Inquiry* 32:1–44.
- Baker, Mark. 1988. *Incorporation: A Theory of Grammatical Function Changing*. Chicago: The University of Chicago Press.
- Baker, Mark, Kyle Johnson, and Ian Roberts. 1989. Passive argument raised. *Linguistic Inquiry* 20:219–251.
- Belletti, Adriana, and Luigi Rizzi. 1988. Psych verbs and θ -Theory. *Natural Language and Linguistic Theory* 6:291–352.
- Bever, Thomas G. 1970. The cognitive basis for linguistic structures. In *Cognition and the Development of Language*, ed. John R. Hayes, 279–362. New York: John Wiley & Sons.
- Borer, Hagit, and Kenneth Wexler. 1987. The maturation of syntax. In *Parameter Setting*, ed. Tomas Roeper and Edwin Williams, 123–172. Dordrecht: Reidel.
- Borer, Hagit, and Kenneth Wexler. 1992. Bi-unique relations and the maturation of grammatical principles. *Natural Language and Linguistic Theory* 10:147–189.
- Brennan, Jonathan, and Liina Pylkkänen. 2008. Processing events: Behavioral and neuromagnetic correlates of aspectual coercion. *Brain & Language* 106:132–143.
- Collins, Chris. 2005. A Smuggling approach to the passive in English. *Linguistic Inquiry* 36:289–297.
- Demirdache, Hamida, and Myriam Uribe-Etxebarria. 2000. The primitives of temporal relations. In *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, ed. Martin R., D. Michaels, and J. Uriagereka, 157–186. Cambridge, MA: MIT Press.
- Doetjes, Jenny. 1997. *Quantifiers and Selection*. Doctoral Dissertation, Leiden University / HIL.

- Dowty, David. 1979. *Word Meaning and Montague Grammar: The Semantics of Verbs and Times in Generative Semantics and in Montague's PTQ*. Dordrecht: Reidel.
- Fox, Danny, and Yosef Grodzinsky. 1998. Children's passive: A view from the *by*-phrase. *Linguistic Inquiry* 29:311–332.
- Friedmann, Na'ama, Adriana Belletti, and Luigi Rizzi. 2009. Relativized relatives: Types of intervention in the acquisition of A-bar dependencies. *Lingua* 119:67–88.
- Garraffa, Maria, and Nino Grillo. 2008. Canonicity effects as grammatical phenomena. *Journal of Neurolinguistics* 21:177–197.
- Gawron, Jean M. 2005. Generalized paths. Ms. San Diego University.
- Gehrke, Berit. 2008. Ps in Motion: On the Syntax and Semantics of P Elements and Motion Events. Doctoral Dissertation, Utrecht Institute of Linguistics OTS. LOT Dissertation Series 184.
- Gehrke, Berit, and Nino Grillo. 2007. Aspects on passives. In *Proceedings of ConSOLE XIV*, ed. Sylvia Blaho, Eric Schoorlemmer, and Luis Vicente, 121–141.
- Gehrke, Berit, and Nino Grillo. to appear. How to become passive. In *Explorations of Phase Theory: Features, Arguments, and Interpretation at the Interfaces*, ed. Kleanthes K. Grohmann, Interface Explorations. Berlin: de Gruyter.
- Giorgi, Alessandra, and Fabio Pianesi. 1997. *Tense and Aspect: From Semantics to Morphosyntax*. Oxford: Oxford University Press.
- Grillo, Nino. 2003. Comprensione agrammatica tra processing e rappresentazione: effetti di minimalità. Master's thesis, Università di Siena.
- Grillo, Nino. 2005. Minimality effects in agrammatic comprehension. In *Proceedings of ConSOLE XIII*, ed. Sylvia Blaho, Eric Schoorlemmer, and Luis Vicente, 106–120.
- Grillo, Nino. 2008. Generalized Minimality: Syntactic Underspecification in Broca's Aphasia. Doctoral Dissertation, Utrecht Institute of Linguistics OTS. LOT Dissertation Series 186.
- Grillo, Nino. to appear. Structural impoverishment and minimality effects. *Lingua*.
- Grimshaw, Jane. 1990. *Argument Structure*. Cambridge, MA: MIT Press.
- Guasti, Maria Teresa, ed. 2004. *Language Acquisition: The Growth of Grammar*. Cambridge, MA: MIT Press.
- Haegeman, Liliane, and Jacqueline Guéron. 1999. *English Grammar: A Generative Perspective*. Blackwell Publishers.
- Higginbotham, James. 2000. Accomplishments. Ms. USC and University of Oxford.
- Horgan, Dianne D. 1978. The development of full passives. *Journal of Child Language* 5:65–80.
- Hyams, Nina, and William Snyder. 2006. Young children are frozen: Reflexive clitics and the Universal Freezing Hypothesis. Ms. UCLA / UConn.

- Hyams, Nina, and William Snyder. 2008. Children's passives: The role of discourse features. Paper presented at UConn Psycholinguistics Brownbag, 6 September 2008.
- Klein, Wolfgang. 1994. *Time in Language*. Germanic Linguistics. New York: Routledge.
- Koopman, Hilda, and Dominique Sportiche. 1982. The position of subjects. *Lingua* 85:211–258.
- Kratzer, Angelika. 2005. Building resultatives. In *Event Arguments: Foundations and Applications*, ed. Claudia Maienborn and Angelika Wöllstein, 177–212. Tübingen: Niemeyer.
- MacDonald, Jonathan. 2006. The Syntax of Inner Aspect. Doctoral Dissertation, Stony Brooks University.
- MacDonald, Mary C. 1989. Priming effects from gaps to antecedents. *Language and Cognitive Processes* 4:1–72.
- Marantz, Alec. 1984. *On the Nature of Grammatical Relations*. Linguistic Inquiry Monograph 10. Cambridge, MA: MIT Press.
- Maratsos, Michael P., Danny Fox, Judith E. Becker, and Mary A. Chalkley. 1985. Semantic restrictions on children passives. *Cognition* 19:167–191.
- McIntyre, Andrew. 2006. The integration of directional PPs: Thoughts on the way to getting towards knowing if I'm (be)coming or going. Paper presented at the conference Syntax and semantics of spatial P in Utrecht, June 2006.
- Meinschaefer, Judith. 2005. Event-oriented adjectives and the semantics of deverbal nouns in Germanic and Romance: The role of boundedness and the mass/count distinction. In *La formazione delle parole*, ed. Anna Maria Thornton and Maria Grossmann, 355–368. Rome: Bulzoni.
- Meints, Kirsten. 1999. Prototypes and the acquisition of passives. In *Perspectives on Cognitive Science, Volume 4*, ed. Boicho Kokinov, 67–77. Sofia: NBU Press.
- Moens, Marc, and Mark Steedman. 1988. Temporal ontology and temporal reference. *Computational Linguistics* 14:15–28.
- O'Brien, Karen, Elaine Grolla, and Diane Lillo-Martin. 2005. Non-actional passives are understood by young children. Paper presented at the 40th Boston University Conference on Language Development, Boston, MA, November 2005.
- Osterhout, Lee, and David Swinney. 1993. On the temporal course of gap-filling during comprehension of verbal passives. *Journal of Psycholinguistic Research* 22:229–259.
- Parsons, Terence. 1990. *Events in the Semantics of English: A Study in Subatomic Semantics*. Cambridge, MA: MIT Press.
- Partee, Barbara. 1984. Nominal and temporal anaphora. *Linguistics and Philosophy* 7:243–286.
- Partee, Barbara. 1987. Noun phrase interpretation and type-shifting principles. In *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers*, ed. Jeroen Groenendijk, Dick de Jongh, and Martin Stokhof. Dordrecht: Foris.

- Piñango, Maria Mercedes, Aaron Winnick, Rashad Ullah, and Edgar Zurif. 2006. Time-course of semantic composition: The case of aspectual coercion. *Journal of Psycholinguistic Research* 35:233–244.
- Postal, Paul M. 2004. *Skeptical Linguistic Essays*. Oxford and New York: Oxford University Press.
- Pustejovsky, James. 1991. The syntax of event structure. *Cognition* 41:47–81.
- Pustejovsky, James. 1995. *The Generative Lexicon*. Cambridge, MA: MIT Press.
- Ramchand, Gillian. 2008. *Verb Meaning and the Lexicon: A First Phase Syntax*. Cambridge Studies in Linguistics 116. Cambridge: Cambridge University Press.
- Reichenbach, Hans. 1947. *Elements of Symbolic Logic*. London: MacMillan.
- Rizzi, Luigi. 1990. *Relativized Minimality*. Number 16 in Linguistic Inquiry Monograph. Cambridge, MA: MIT Press.
- Rizzi, Luigi. 2004. Locality and the Left Periphery. In *Structure and Beyond*, ed. Adriana Belletti, chapter 7, 223–251. New York: Oxford University Press.
- Rizzi, Luigi. 2006. On the form of chains: Criterial positions and ECP effects. In *Wh-Movement: Moving on*, ed. Lisa Cheng and Norbert Corver, chapter 5, 97–134. Cambridge, MA: MIT Press.
- Rizzi, Luigi, and Ur Shlonsky. 2007. Strategies of subject extraction. In *Interfaces + Recursion = Language? Chomsky's Minimalism and the View from Syntax-Semantics*, ed. Uli Sauerland and Hans-Martin Gärtner, 115–160. Berlin: Mouton de Gruyter.
- Rothstein, Susan. 2004. *Structuring Events: A Study in the Semantics of Lexical Aspect*. Oxford: Blackwell.
- Smith, Carlota S. 1991/97. *The Parameter of Aspect*. Dordrecht: Kluwer.
- Sportiche, Dominique. 1988. A theory of floating quantifiers and its corollaries for constituent structure. *Linguistic Inquiry* 19:425–449.
- Starke, Michal. 2001. Move Dissolves into Merge: A Theory of Locality. Doctoral Dissertation, University of Geneva.
- von Stechow, Arnim. 1995. Lexical decomposition in syntax. In *The Lexicon and the Organization of Language*, ed. Urs Egli, Peter E. Pause, Christoph Schwarze, Arnim von Stechow, and Götz Wienhold, 81–118. Amsterdam: John Benjamins.
- Stowell, Tim. 1996. The phrase structure of Tense. In *Phrase Structure and the Lexicon*, ed. Johan Rooryck and Laurie Zaring. Dordrecht: Kluwer.
- de Swart, Henriëtte. 1998. Aspect shift and coercion. *Natural Language and Linguistic Theory* 16.2:347–85.
- Travis, Lisa deMena. 2000. Event structure in syntax. In *Events as Grammatical Objects: The Converging Perspectives of Lexical Semantics and Syntax*, ed. Carol Tenny and James Pustejovsky, 145–185. Stanford, CA: CSLI Publications.

- Travis, Lisa deMena. in press. *Inner Aspect*. Dordrecht: Kluwer.
- Truswell, Robert. 2007. Locality of Wh-movement and the Individuation of Events. Doctoral Dissertation, University College London.
- Verkuyl, Henk. 1993. *A Theory of Aspectuality: The Interaction between Temporal and Atemporal Structure*. Cambridge: Cambridge University Press.
- de Villiers, Jill, and Peter de Villiers. 1985. The acquisition of English. In *The Crosslinguistics Study of Language Acquisition*, ed. Dan Isaac Slobin, 27–141. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Wexler, Kenneth. 2002. Theory of phasal development. Ms. MIT.
- Zagona, Karen. 1990. Times as temporal argument structure. Paper presented at the conference 'Time in Language', MIT Cambridge, MA.
- Zucchi, Sandro, and Michael White. 2001. Twigs, sequences and the temporal constitution of predicates. *Linguistics and Philosophy* 24:223–270.