

How to BECOME Passive

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1 Introduction

- *since Chomsky (1957): passivization as an operation on argument structure*

focus on inversion in the 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 *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: argument structure based approaches to passivization

section 3: our proposal, based on event structure

section 4: passivizing states

section 5: acquisition of passives

2 NP movement approaches to passives

2.1 GB approaches

the external argument is still present in verbal passives:

- Strong Crossover effects (1-a)
- subject-controlled infinitival clauses (1-b)
- subject-oriented modifiers (1-c)
- depictives (1-d)
- binding (1-e,f)
- purpose adverbials (1-g)

- (1) a. *They_i were killed by themselves_i.
b. The book was written to collect the money. (Manzini, 1980)
c. The book was written deliberately. (Roeper, 1983)
d. The book was written drunk. (Baker, 1988)
e. Damaging testimony is always given about oneself in secret trials. (Roberts, 1985)
f. Such privileges should be kept to oneself. (Baker et al., 1989)
g. The book was written on purpose.

the external argument must be present in the syntactic representation: different behavior of *middle* counterparts (examples from Baker et al., 1989):

- (2) a. This bureaucrat was bribed [PRO to avoid the draft].
b. *This bureaucrat bribes easily to avoid the draft.
c. This bureaucrat was bribed deliberately.
d. *This bureaucrat bribes deliberately.

Baker et al. (1989) (elaborating on Jaeggli, 1986b):

the external argument is the *-ed/en* morpheme of the passive participle, a clitic base-generated in the IP head and later on in the derivation lowered down to adjoin to the verbal stem

this operation ‘absorbs’ the case assignment capacity of the verb making it necessary, given Case Theory, for the internal argument to move to the subject position

*problem with this kind of account:*¹

How does the NP in the *by*-phrase (the logical subject) receive its theta role?

Marantz (1984); Roberts (1985): the external argument NP cannot be assigned its theta role by the preposition, given that there can be different kinds of theta roles, but must receive it compositionally from the VP:

- (3) a. A cake was taken from the oven by Willemijn.
b. The train was taken to Den Haag by Mirjam.
c. A nap was taken by the professor in his office. (Roberts, 1985, p.55)

Jaeggli (1986a): theta transmission mechanism

Baker et al. (1989): the NP in the *by*-phrase receives its theta role from the clitic via a non-movement chain, in analogy to clitic doubling

problems for both:

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

2.2 Collins’s (2005) smuggling approach

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

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

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

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

¹Another question, which we set aside here, is the following: what prevents active past participle morphemes to be analyzed as clitics whose lowering absorbs a verb’s capacity to assign case?

- (4) 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 ... W ... [YP <XP>]
 - c. Z ... [YP <XP>] ... W ... <[YP XP]>

OK

smuggle YP

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

- (5) (examples from Collins, 2005)
- 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.
- (6)
- a. Jutta was spoken to by Eric.
 - b. *Jutta was spoken by Eric to.
- (7)
- a. Tom zipped the sleeping bag all the way up to the top.
 - b. ??The sleeping bag was zipped by Tom all the way up to the top.
- (8) **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 (9), where passivization applies independently of movement of the internal argument to the subject position?
- (9) 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

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).

- (10) BECOME *in (informal) event semantic terms (McIntyre, 2006)*
 $\lambda e \lambda s \lambda P \text{ BECOME}[P(s)](e)$
 ‘e is an event of coming-into-existence of a situation s with property P, where ‘coming-into-existence’ is a conceptualized entry / arrival of s in the domain of existing things’

lexical (achievements and) accomplishments, e.g. *kill* (11)

- (11) John kills Bill. (Dowty, 1979, 91)
 $[[\text{John does something}] \text{ CAUSE } [\text{BECOME } \neg[\text{Bill is alive}]]]$

syntactically created accomplishments³ (12), (13)

- (12) *Secondary (resultative) predicates*

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

- (13) He sweeps the floor clean. (Dowty, 1979, 93)
 $[[\text{He sweeps the floor}] \text{ CAUSE } [\text{BECOME } [\text{the floor is clean}]]]$

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

- (14) **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
- Voice is responsible for grounding the event time in a particular way
 with passives: the event time is anchored within the consequent state subevent

³There are different approaches in the literature as to how the two predicates in syntactically created accomplishments are combined semantically to form one complex predicate and refer to a single event. Something extra is needed to make this link such as von Stechow’s (1995) Principle (R) adding a CAUSE BECOME component that glues the two predications together, Doetjes’ (1997) inchoative auxiliary mediating between the two predications, Rothstein’s (2004) accomplishment type shifting operation, or Snyder’s (2005) Rule C. For present purposes, it is not relevant which one we choose so we will leave it open (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.

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)

future task: investigate the discourse properties of VoiceP

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

3.3 Empirical support

resultative constructions allow passivization, and our proposal accounts for the word order restrictions discussed above:

- (18) a. The argument was summed up by the coach. (= (5), Collins 2005)
*The argument was summed by the coach up.
b. Jutta was spoken to by Eric. (= (6))
*Jutta was spoken by Eric to.
- (19) 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.

Postal (2004): **not all transitive verbs can form passives**

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 - borne out:

- (20) *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).
- (21) *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).

• 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?

- (22) 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

our proposal: the same options are available in passives

- movement: the closest argument (DP_{int} given prior movement of VP_2) is attracted
- expletive: (22-a)

- (23) *Collins (2005) makes the wrong prediction*
*There was by the police a man killed.

• Floating quantifiers

floating quantifiers are banned from the post-verbal position in passives (24), whereas both word orders are grammatical in the active counterparts (25) (first observed in Sportiche, 1988)

- (24) a. The boys were both given a good talking to.
b. *The boys were given both a good talking to.

- (25) 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.

3.4 Psycholinguistic support

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 (26).

- (26) 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 (27)

- (27) 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 (15) there is no trace in the position tested (i.e. in postverbal position).

future task: CMP experiment to test whether there is reactivation of the verbal head after the *by*-phrase in verbal passives

4 An apparent problem: Passive constructions with state verbs

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

- (28)
- a. The house is owned / surrounded by the army.
 - 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 (29-a)

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

- *appeal*-type (*piacere*): cannot passivize at all (29-b)

- (29)
- 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 (28): only the latter can have an inchoative meaning of the state denoted by the verb (30)

- (30) a. Lisa and Gemma 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):

- *de Swart (1998)*

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

semantic effect of this type shift: the state is interpreted as an inchoative state⁶

- *Rothstein (2004)*

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 (of e.g. reaching a summit)

constraint on this type shift: it has to be possible to construe an appropriate activity

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

- (31) 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 (31-b) derives from a verb that is lexically specified for a complex event structure
 the nominal in (31-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)

⁶Following 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.

- (32) 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

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

- inability of nominals to combine with particles

- (34) 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 semantics⁷

future task: investigate the likelihood of particular states to be interpretable as inchoative states (one might be more easily shifted than the other)

5 Acquisition of passives

Maratsos et al. (1985): children do better with comprehension and production of *actional* passives (35-a) than with passives of *non-actional* verbs (35-b)

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

Horgan (1978): children comprehend and produce *short passives* (passives without *by*-phrase) earlier than long passives; short passives used by children are not real eventive passives, rather they seem to describe a state (36)

- (36) Tree is broken = the tree is in a broken state.

Berman and Sagi (1981); Mills (1985): adjectival passives are mastered earlier than verbal ones⁸

5.1 Borer and Wexler (1987)

- (37) *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

⁷Note that this is not Grimshaw's (1990) distinction between simple and complex event nominals. Within this distinction both nominals in (31) have to be considered complex event nominals, since both take argument structure. The difference between the two under our proposal is rather that the underlying verb identifies a complex (accomplishment) event structure in the case of *destruction* but a simple (state) event structure in the case of *fear*.

⁸These studies use data from Hebrew and German, in which the two constructions are morphologically distinct.

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 (38), than with non-actional ones because the latter do not easily (if at all) form adjectivals (39).

- (38) a. the combed boy
b. the very combed boy
c. the boy seems combed

- (39) a. *the heard boy
b. *the very heard boy
c. *the boy seems heard

Adjectival passives can appear in prenominal positions, can follow *very*⁹ and can be used as complements of verbs like *seem*, whereas verbal passives cannot (see Wasow, 1977).

Problem: Not all A-chains mature equally

Theoretical problems (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)

- 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 (40)

- (40) #Arrive Mina.

Empirical problems

Pinker et al. (1987); Demuth (1989); Crain and Fodor (1993); Fox and Grodzinsky (1998): children are capable of comprehending and producing actional passives in a systematic way that is not predicted by the maturational approach

(41) *Summary of the empirical findings*

- Children comprehend and produce actional passives with a *by*-phrase.
- Children comprehend and produce *get*-passives correctly.
- Children have difficulties comprehending non-actional passives with a *by*-phrase.
- Children can assign an eventive interpretation to passives.

different results due to differences in the experimental settings:

- Crain and Fodor (1993): tested children's ability to produce passive sentences with a *by*-phrase in the presence of the appropriate contextual conditions, and found that children use a *by*-phrase about 50% of the time.

- Pinker et al. (1987): child's preference for stative interpretation as an effect of the use of static pictures in the experimental settings of Horgan (1978)

- Gordon and Chafetz (1990): earlier use of adjectival passives as an effect of the higher frequency of these structures with respect to verbal passives

⁹Note that the validity of this test to determine the adjectival status of a participle is limited. Degree modifiers such as *very* can only be combined with a subset of adjectives (see Kennedy and McNally, 1999, for discussion).

5.2 Fox and Grodzinsky (1998)

Condition	Percentage of correct responses
Actional long passive <i>The rock star is being chased by the koala bear</i>	100
Actional short passive <i>The rock star is being chased</i>	100
Get-passive <i>The boy is getting touched by the musician</i>	100
Nonactional long passive <i>The boy is seen by the horse</i>	46
Nonactional short passive <i>The boy is seen</i>	86.5

Table 1: Comprehension of passive sentences by 13 English learners (age range 3;6 - 5;5; mean age 4;7) (from Fox and Grodzinsky, 1998)

hypothesis 1: children have a problem with the transmission of the thematic role to the *by*-phrase (possibly due to a processing problem)

(Jaeggli 1986a; Baker et al. 1989: the thematic role is assigned to the external argument - the clitic *ed/en* in passives - and is later transmitted to the *by*-phrase)

two ways for a NP inside the *by*-phrase to receive a thematic role:

- via theta-transmission in verbal (*be*-)passives
- by direct assignment from the preposition *by* (only agent/causer) in *get*-passives

get-passives lack implicit arguments:

- (42) a. The ship was sunk [PRO to collect the money].
b. *The ship got sunk [PRO to collect the money].
- (43) a. The book was written on purpose.
b. *The book got written on purpose.
c. The book was written drunk.
d. *The book got written drunk.

instead, the preposition *by* has to assign a thematic role in these constructions

the NP inside the *by*-phrase can only be assigned the role of agent/causer, and only actional verbs can form *get*-passives:

- (44) a. Angelo got pushed by Fabrizio.
b. *Angelo got seen by Fabrizio.
c. *Angelo got feared by Fabrizio.

hypothesis 2: when children correctly comprehend and produce long passives they resort to the second strategy, in which the NP inside the *by*-phrase is assigned a thematic role directly from the P, and this is only possible if it is an agent/causer

difficulty with the mechanism of theta-transmission makes the following predictions:

- actional passives: no problem, since *by* assigns the role of causer/agent (children also do not have problems with *get*-passives, recall (41))
- non-actional truncated passives (without a *by*-phrase): no problem, since they do not require theta-transmission
- non-actional non-truncated passives: comprehension failures because direct assignment of the agent/causer role from the *by*-phrase is inconsistent with the thematic representation of non-actional predicates

Problems:

- data obtained by Fox and Grodzinsky (1998) do not support these predictions completely:

- (45)
- 2 children (4;1 & 4;9): adult performance, were not considered for the discussion
 - 8 children (3;6 - 5;5, mean age 4;75) (as predicted): 100% correct responses in all conditions except the non-actional non-truncated passives
 - 3 children (4;3, 4;6, 4;9) (problematic group):
 - performed well with *get*-passives and actional *be*-passives
 - at chance (41.6% correct responses) with non-actional truncated *be*-passives
 - below chance (25% correct) with non-actional nontruncated *be*-passives

Fox and Grodzinsky simply ignore this last group

5.3 Back to event structure

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 Pytkänen (2008): **type shift operations** in other domains (including aspectual coercion) 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
- ⇒ accounts for the fact that non-truncated non-actional passives are problematic

future task: experiments to test whether processing load with passives of state verbs is more complex and involves aspectual coercion

truncated non-actional passives:

contra Fox and Grodzinsky, these can be interpreted as adjectival by the children in (45-b)¹⁰ still, this must be harder given the difference between (45-b) and (45-c): the children that perform at chance with the truncated non-actional passives are more conservative in this respect

indication that they can be adjectival: allow *un*-prefixation, which is a property of adjectives, not verbs (see Kennedy and McNally, 1999, for relevant tests):

- (46) a. The unseen pictures of the candidate.
b. This disc contains a previously unheard song of the Rolling Stones.

(47) *anecdote in Fox and Grodzinsky (1998, fn. 16, 320)*

When the children punished the puppet, they were always asked to say what really happened. In the case of non-actional truncated passives they usually correctly reversed the truncated passive. Sometimes, however, they tried to add a *by*-phrase (probably because in the course of all these sessions they came to expect that a *by*-phrase would follow a passive). However, the children were not very successful in adding the *by*-phrase. In one striking case the child and the puppet had the following dialogue:

Puppet The little girl was seen.
Child The gorilla was seen . . . The gorilla was seen by . . .
The gorilla was seen by . . . by, by the gorilla.
The gorilla was seen by the gorilla.
Puppet Was the gorilla seen by the gorilla?
Child Yes.

additional speculation: it might be the case that the relative frequency of a lexical item to be projected as a verbal head or as an adjectival head as well as whether or not a given participle can be conceived of as expressing a property (rather than an action / event / state) - in the sense of: how easy is it to build a context that fits this interpretation - might be at play

preliminary support for this idea in Fox and Grodzinsky (1998, fn.15, p.319): contrast between children's performance with *hear* (25% correct responses) and their performance with *see* (55%)

6 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

¹⁰This goes against Borer and Wexler (1987) who take the incompatibility of such predicates with degree modifiers like *very* to indicate that they are not adjectival. As Kennedy and McNally (1999) show, this fact alone is not reliable to test whether or not we are dealing with an adjective. Incompatibility of *very* with the stative participles under discussion stems not from their inability to project syntactically as adjectives but from a semantic incompatibility with degree modifiers given their non-gradability. The same is true for other non-gradable properties: *very* modification generates ungrammaticality or a strong meaning shift, see e.g. *??a very pregnant woman*.

- *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*
irrelevance of (in)transitivity

split between different kinds of states

Taking into account finer-grained distinctions that cannot (so easily) be integrated into argument structure based approaches to passivization opens up new possibilities for testing children's knowledge of these structures

- *the position the lower VP shell moves to is independently needed*

the movement of (part of) the atemporal event structure is necessary to single out an element of the verbal domain (the consequent state subevent in the case of passives), associated with the VP, and to enrich its semantics by introducing temporality, and to make it available to the temporal (and eventually to the discourse) domain

- *future tasks:*

formalize the semantics (coercion, temporal links etc.)

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

7 Appendix

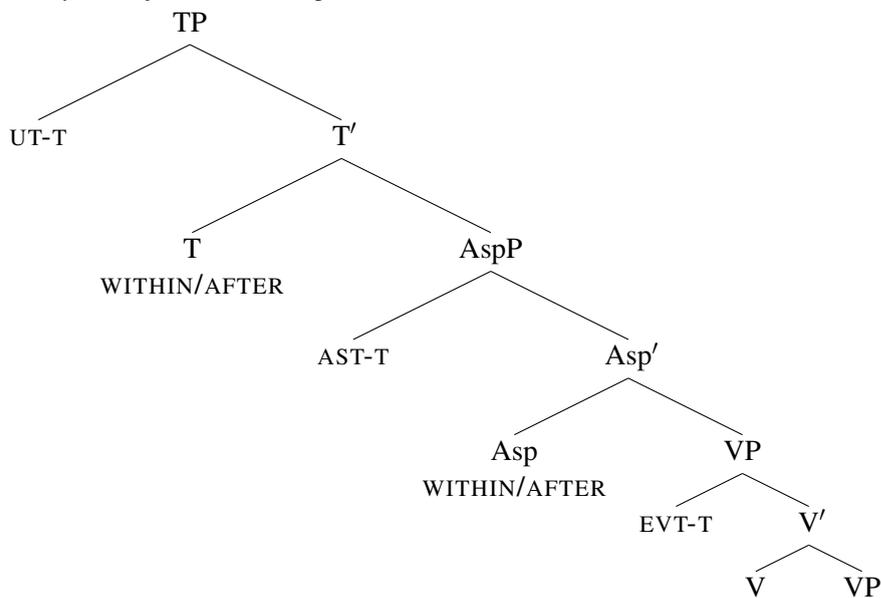
7.1 Anchoring events in time

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)

(48) *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

7.2 Additional support from agrammatism

(49) Generalized Minimality (Grillo, 2008)

- a. Agrammatics are unable to project scope/discourse features (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 aphasics have with particular structures.

accounts for a number of asymmetries of agrammatic comprehension deficits:

- comprehension asymmetries between *subject and object relatives, clefts, wh-movement*
- impoverished capacity to deal with *unaccusatives and verb movement*

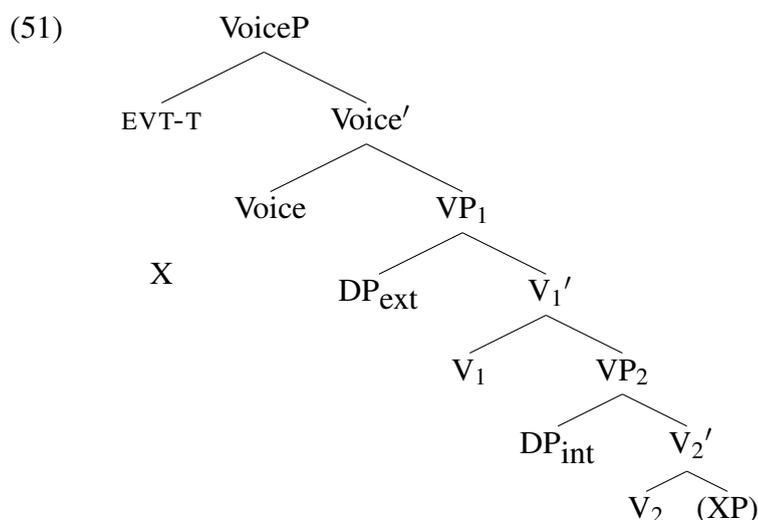
Grillo (2008) in combination with our event structure approach correctly predicts: agrammatics have problems with passive sentences (known fact since Caramazza and Zurif, 1976)

The inability of agrammatics to project the postulated discourse feature generates an impoverished representation of VP₂: π is missing

⇒ VP₂ is indistinguishable from VP₁

⇒ a minimality effect is generated when the former is moved above the latter

(50) VP₂ VP₁ <...>



Due to the failure to front the most embedded VP the system interprets the first NP as the external argument and assigns it the relevant thematic role (agent/causer or experiencer)

When the *by*-phrase is encountered, the system will not know how to integrate it into the current representation and interpretation will fail.

extends to comprehension deficits in the domain of nominal passives (discussed in Rausch, 2005):

- (52) a. the enemy's destruction of the city *above chance*
b. the city's destruction by the enemy *chance*

Passive of psych-verbs with aphasics

Grodzinsky (1995): agrammatic aphasics comprehension is more impaired with passives of psych-verbs than with actional passives:

- below-chance with passives of psych-verbs
- at chance with actional passives

Grodzinsky's account: *agent-first* strategy, applied across the board, generates more difficulties with predicates that require a different thematic role to be assigned to the first NP

our account

- in order to passivize stative predicates like *psych*-verbs, a complex predicate has to be formed syntactically which introduces a consequent state that the passive can operate on
 - independently known: agrammatics have problems with timing of lexical access, their structure building system is generally slowed down (see Grillo, 2008, for discussion)
 - Piñango et al. (2006); Brennan and Pytkänen (2008): aspectual coercion in other domains adds extra processing complexity
- ⇒ higher processing complexity adds more difficulty to the lack of the discourse-feature that enables movement of the lower VP shell

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