

Results at the edge: an event-structure-based account of passivization

Introduction. We propose that movement of the result state of the event (the res(ult)P in Ramchand's 2005 proposal) to a discourse-related position at the edge of the first phase is the fundamental characteristics of passive constructions. This assumption is supported not only by the semantics of passives but also by the fact that it provides a natural account of many of their syntactic properties.

The proposal. In passive constructions the result state of the event is promoted through movement of res(ult)P (Ramchand 2005) to a discourse-related position above vP. More precisely, we assume an additional functional projection between vP and AspP (at the edge of the vP phase) which supplies an event time that in turn is the internal argument of Asp, in line with Demirdache & Uribe-Etxebarria (2000). This application of movement is semantically motivated and instantiated through feature checking. We assume the event to be atemporal in nature constituting a complex of several subevents that are merely causally linked. In order for there to be a single event time, which is located with respect to a reference time, we need some intermediate projection between vP and AspP providing this event time and ultimately temporality. In this way, this projection is a syntactic reflex of Krifka's (1998) temporal trace function to locate the event time with respect to the complex event. In the case of the passive then, the event time falls within the result state subevent. The internal argument (hosted in Spec resP) is successively moved to Spec TP being the closest element that can be attracted.

Empirical evidence. Our analysis naturally accounts for several important characteristics of passivisation both in English and cross-linguistically.

i) A direct explanation is given for the behaviour of particle verb constructions in passives:

- (1) a. *John ate **up** the sandwich.* / *John ate the sandwich **up**.*
b. *The sandwich was eaten **up** by John.* / **The sandwich was eaten by John **up**.*

Following Ramchand & Svenonius' (2002) account of verb-particle constructions, there is in fact no way to move the whole resP over the vP without moving the particle along with it, since the particle is generated in prtP as the direct complement of resP.

ii) More generally, this approach provides an explanation of several apparent idiosyncrasies of the syntax and word order of passives and predicts which elements can appear after the external argument in passives. Collins (2004), for example, notes that resultative secondary predicates rather precede the external argument than follow it and therefore concludes that these elements do not undergo movement out of the particle phrase but are instead pied-piped with it just like particles:

- (2) a. *John wiped the table **clean**.*
b. **The table was wiped by John **clean**.*

This is directly accounted for in our approach that assumes with Ramchand (2005) that resultative adjectives occupy the same position as particles in appearing as direct complements of resP.

iii) A long-lasting problem for a proper understanding of Floating Quantifiers has been their unexpected behaviour in passives, where they are banned from the post-verbal position, which directly contrasts with their behaviour in the active counterparts:

- (3) a. *John gave the boys **both** a good talking to.*
*John gave **both** the boys a good talking to.*
b. *The boys were **both** given a good talking to.*
The boys were given **both a good talking to.*

This is naturally derived in our account provided that Floating Qs move together with resP to the edge of vP (just like the internal argument) and subsequently remain stranded after movement of the internal argument to Spec TP. It is hard to capture these facts in a natural way in a movement-based analysis of Floating Qs that posit a single movement of the internal NP to the subject position.

iv) In *there*-expletives the internal argument has to precede the participle:

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

This fact casts strong doubts on an NP movement analysis of passivisation but is a natural consequence under the present approach: movement of resP will drag along the internal argument (hosted in its Spec). The insertion of *there* will independently impede the latter to further move to satisfy the EPP.

v) Only predicates with a result state will form good verbal passives (data from Postal 2001):

- (5) a. *This laptop weighs two kilos.* / **Two kilos are weighed by this laptop.*
b. *This chair costs 50 euro.* / **50 euro are costed by this chair.*

vi) A potential problem for this account could be that a number of atelic predicates (thus not containing resPs) can still form passives. This is the case for certain psych verbs (examples from Reinhart 2002):

- (8) a. *The news worried / surprised / excited Max.*
b. *Max was worried / surprised / excited (by the news).*

However, Rizzi & Belletti (1988) show that there are two kinds of psych-verbs, namely the *worry*-type (*preoccupare*) and the *appeal*-type (*piacere*). Crucially, only *worry*-verbs can undergo passivisation, whereas *appeal*-verbs cannot (examples again from Reinhart 2002):

- (9) a. *The solution appeals to me / escapes me.*
b. **I am appealed / escaped (by the solution).*

The intuitive difference between these classes of psych-verbs is that while *worry*-verbs can have an inchoative meaning of the state denoted by the psych-verb (*Max got into a worrying state*), *appeal*-verbs cannot (**I got into an escaping state*).

Similarly, only ditransitive predicates in which both internal arguments are part of the result state form good passives of their double object counterparts (Fillmore 1965):

- (10) a. *John sold her the radio.*
She was sold the radio by John. / *The radio was sold her by John.*
b. *John bought her the Radio.*
**She was bought the radio by John.* / **The radio was bought her by John.*

vii) Finally, our analysis allows a unified treatment of comprehension patterns in agrammatic Broca's aphasics (see Grodzinsky 2000 for a review). We assume that selective deficitarian comprehension is better understood as a consequence of a minimality effect that arises only when a dependency has to be built over an intervening element which shares part of its featural make-up with the goal. Elaborating this account, we propose that a limitation of computational resources can affect the possibility to move resP over vP. Such limitation can in fact impede maintaining the activation of the relevant feature that allows to distinguish the two subevents and thus to generate a minimality effect. This analysis allows to make the important prediction that comprehensions of passives with and without the *by*-phrase are equally problematic whereas unaccusatives are not (see Piñango 1999).

Conclusion. Grounding our analysis on the semantic and syntactic properties of passive sentences we propose movement of the resP (Ramchand 2005a) to a position above vP as a fundamental ingredient of passive constructions. Such a position is independently needed to form a basis for the event time that subsequently serves as the internal argument of Asp^o (in the sense of Demirdache & Uribe-Etxebarria 2000). The position that resP moves to and the feature related to this movement constitute an example of edge-related syntax/semantics. The particular projection involved has two properties, a discourse-related and a quantificational one. The discourse-related part chooses the element that needs to be singled out from the event structure whereas the quantificational part makes it readable by the following phase. Thus, the main job of this feature is to single out an element of the first phase, namely resP, and to enrich its semantics by introducing temporality and thus making it available to the next phase. The present work adds further evidence to proposals expressed in recent Cartographic works that hypothesize the presence of a vP periphery similar in its discourse-related properties to that of the clause (see Belletti 2000 for an analysis of free inversion in Italian as movement to a low Focus projection at the edge of vP).