Passive[1]

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1. Introduction: Chomsky (1957)

The starting point of any investigation of the passive is the observation that active and passive sentences are related. Unlike other Voice alternations, e.g. the causative alternation, the relationship between the active and the passive seems to be pretty systematic. To illustrate this, consider the examples in (1):

(1) a. John destroyed the manuscript.
b. The manuscript was destroyed (by John).

The two sentences have basically the same meaning, but they differ in word order and the form of certain elements (e.g. the form of the verb and the (however optional) inclusion of the *by*-phrase in the passive). Unlike the causative-inchoative alternation, the active-passive alternation in English and many other languages is fully productive, does not show gaps and is always associated with special morphology.

The relationship between actives and passives is discussed in Chomsky (1957:42f.), where passive formation is presented as an example of the limitation of phrase structure grammars. Chomsky argues that passive formation should be excluded from the grammatical kernel of phrase structure rules and, instead, be derived from a phrase marker by the transformational rule in (2):[2]

(2) If S_1 is a grammatical sentence of the form
$NP_1 - Aux - V - NP_2$,
then the corresponding string of the form
$NP_2 - Aux+be+en - V - by+NP_1$
is also a grammatical sentence.

Chomsky argues that the grammar of English would have to be a lot more complicated if passives were formed by phrase structure rules instead of the transformation in (2). Assume the basic phrase structure rules in (3) (Chomsky1957: 26), auxiliaries can be included if we add (4) (Chomsky 1957:39), where M stands for modals, C reflects inflectional affixes (zero, 3rd person *-s* or past tense *-ed*), which are lowered, just as the affixes *-en* and *-ing*, to the next

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[2] Chomsky (1957: 79f.) briefly entertains the hypothesis how the grammar would be like if passives were to be seen as the kernel sentences instead of actives and rejects it as it would lead to a more complex grammar. The simplest grammar is one in which the kernel contains simple, active, declarative sentences and all other sentences are the result of transformations. Note that there are two conceptions of the term kernel. For Chomsky, a kernel sentence is crucially generated without the application of optional transformations. Specifically, in Chomsky's conception of the kernel, transformations apply to abstract structures to generate other structures. This differs from Harris's (1957) conception of the kernel, where a kernel sentence is a sentence that is not derived by any transformations, and transformations apply to sentences to generate other sentences. Thus, crucially for Harris passive sentences are derived from active sentences, while this does not literally hold for Chomsky's interpretation of the term (Chomsky 1957: 44f.). We would like to thank Norbert Hornstein for discussing this issue with us.

verbal head to the right. Passive sentences in English would be formed by choosing the third auxiliary-affix combination *be+en* from the phrase structure rule in (4iii).

(3) (i) Sentence -> NP+VP
(ii) NP->T+N
(iii) VP->V+NP

(4) (i) Verb->Aux +V
(ii) V->hit, take, walk, read, etc.
(iii) Aux -> C(M) (have+en) (be+ing) (be+en)

However, as Chomsky points out, the passive discontinuous element *be+en* shows a number of unique properties among auxiliaries. On the one hand, it can only be selected if the following V is transitive (*was eat-en* is permitted, but not the unaccusative *was occur-ed* or the plain unergative *was danced*). On the other hand, it can also not be selected if V is immediately followed by an NP, i.e. *lunch was eaten John* is not possible. Next, while the other auxiliaries can optionally be inserted, the passive auxiliary is obligatory in the sense that it must be selected if V is transitive and the preposition *by* follows V (*Lunch is eat-en by John*; **Lunch eats by John*; **Lunch is eat-ing by John*). Finally, a full-fledged grammar must enrich (3) with selectional restrictions on part of individual verbs to reflect that e.g. *John admires sincerity* and *sincerity frightens John* are ok sentences but *sincerity admires John* and *John frightens sincerity* are not. In later stages of the theory (Chomsky 1981, 1986), these restrictions were implemented by the interplay of lexical θ-roles, the projection principle and a mapping theory that culminated in UTAH (Baker 1988, 1997). As Chomsky (1957) furthermore points out, active and passive sentences show exactly the same selectional restrictions on their NPs, with the crucial difference that these apply in exactly the opposite order in passives than in actives (consider NP_1 and NP_2 in (2)). If both actives and passives are formed by phrase structure rules, then a verb's selectional restrictions would have to be stated twice, once for the NPs in active sentences, and a second time in exactly the opposite order for the NPs in sentences involving the passive auxiliary *be+en*.

Chomsky concludes that all these complications can be overcome if passives are not formed by phrase structure rules but by the transformational rule in (2). This rule "interchanges the subject and object of the active, and replaces *V* by is+V+en+by" (Chomsky 1957: 77). Consequently, *be+en* can be dropped from (4iii), and all restrictions on passive formation mentioned above are reflected by the well-formedness of the base sentence and the properties of this rule. Thus, if *John admires sincerity* is a sentence, so is *Sincerity is admired by John*.

Two further operations need to be considered in order to cover the full treatment of passives in Chomsky (1957). First, the substring *by* + NP_1 in (2) behaves like a constituent, as it can be the input to further transformations like WH-movement or topicalization. Chomsky (1957: 73f.) proposes the general condition on *derived constituent structure* in (5). Applied to passives, (5) says that the sub-string *by* + NP_1, formed by the transformation in (2), has the status of a PP because a string *by+NP* is otherwise also characterized as a PP by the phrase structure grammar.[3]

(5) If *X* is a *Z* in the phrase structure grammar, and a string *Y*
formed by a transformation is of the same structural form as

[3] "In particular, even when passives are deleted from the kernel we will want to say that the *by*-phrase (as in "the food was eaten – by the man") is a prepositional phrase (*PP*) in the passive sentence." (Chomsky 1957: 74).

X, then *Y* is also a *Z*.

Second, since passive *by*-phrases are optional, Chomsky (1957: 89f.; see also p. 81, fn. 7) assumes that this PP can be deleted by an "elliptical transformation ... that drops the agent in the passive".

In this chapter, we will address the following questions: after 60 years of syntactic research, what aspects of this analysis of English passives do we definitely have to capture in our current models? In other words, which aspects of this analysis (both (morpho-)syntactic and semantic) should any theory of the passive in English, but also cross-linguistically to the extent that other languages have English-type passives, offer an account for?

First, every theory must capture the generalization that at least in English basically every transitive verb can passivize (though we will refine this below), that active and passive sentences differ in word order (and/or in case/agreement morphology) and that verbal passives come with a particular morphological marking (in English the passive auxiliary and the participle).

Second, (2) expresses the fundamental insight that the selectional restrictions in active and passive sentences are two sides of the same lexical-semantic coin; the argument NPs of a passive sentence are the very same arguments that we find in the active sentence, which surface, however, in the opposite order in English.

This insight is taken care of in (2) via the hypothesis that the argument NPs are generated in a fixed position by the kernel rules, and the passive transformation consists of what could be called today an instance of leftwards movement plus an instance of rightward movement. Indeed, most modern grammatical theories employ (different versions of) leftward movement, and there is robust and extensive cross-linguistic evidence that the subject of the passive is merged as an internal argument of the verb eventually undergoing A-movement to a derived subject position for Case/EPP reasons.

The hypothesis that the external argument NP_1 undergoes rightward movement, however, has turned out to be problematic as it is generally accepted that rightward movement, in particular rightward A-movement, does not exist. And, indeed, the question of how exactly to treat the external argument in passive *by*-phrases remains one of the main controversies in the discussion of passives, as will be seen.

In this connection, two further aspects in the treatment of the external argument of passives in Chomsky (1957) are clearly not satisfactory from today's perspective. One concerns the formation of the *by*-phrase via the rule in (5); as Collins (2005:107) points out (5) "violates a general economy condition that states that constituent structure that is already built cannot be changed at a later point in the derivation." Furthermore, the idea that in so-called short passives (i.e. passives without the *by*-phrase) the *by*-phrase is deleted by a rule of ellipsis cannot be maintained. First, it does not obey any considerations of recoverability. Second, it is unclear how to preclude such a rule from over-generation by deleting other arguments, e.g. the external arguments of active clauses. These points of criticism are relevant in so far as the treatment of *by*-phrases remains one of the most problematic issues in more recent theories of passivization.

Finally, rule 2 was introduced as to capture the properties of English passivization and was not necessarily meant as a theory of passivization that holds universally. We observe the following. First, the generalization that only transitive predicates can form passives is not even fully correct for English.[4] Importantly, rule 2 does not necessarily have to be transferred

[4] In Aspects, it is pointed out that the passive rule does not hold for all transitive predicates. Chomsky (1965: 103f.) notes that the passive transformation can apply to verbs that are positively specified in the lexicon for the subcategorization frame [_NP Manner], i.e. verbs that allow a manner adverb. By doing this, Chomsky captures Lees's (1960) observation that only verbs that can combine with manner adverbials can freely form a passive,

as is to other languages, leading to a state of affairs in which for each language X, a new and different passive rule should be formulated. And indeed, as is well-known, there are languages like German or Icelandic where transitive and unergative verbs productively passivize. The relevant generalization in view of this seems to be that any verb with an external argument can, in principle, passivize and there are differences across languages concerning the availability of impersonal passives.[5] It has been argued that even unaccusatives can passivize in some languages.[6]

There is another, less widely acknowledged point of variation, however, which we will discuss in section 3, namely that there are also languages where passivization is not fully productive and applies only to what seems to be an at least partially idiosyncratic subset of active verbs. Thus, crosslinguistic research has shown that passivization is a very general rule across languages but is nevertheless not a fully uniform phenomenon and that at least two modes of passive-formation need to be identified. As will be seen in the next sections, this second point of variation has occasionally been observed for individual languages but has not figured prominently in analyses of the passive within the P&P framework and subsequent work.

In the next section, we will describe in some detail a modern incarnation of Chomsky (1957) in Collins (2005); see also Müller (2016) for a different approach in the same spirit.

2. Passives in syntactic theory with a focus on problems caused by *by*-phrases

The Chomskian framework has undergone several important shifts in its 60 years of existence. With the rise of Government & Binding (GB) theory, the model moved away from construction specific rules such as the passive transformation towards a theory of interacting general and abstract Principles across different modules of the grammar. θ-theory provided the module for making statements about lexical properties (of verbs and their arguments) in the lexicon, which was abandoned in much later work that adopted configurationally determined thematic roles (see Borer 2005, Ramchand 2008 for alternative ways to capture lexical properties). Abstract Case-theory provided an explanation for A-movement, i.e. the observation that NPs occur in surface positions different than their thematic ones. In a lot of work on Parameters, cross-linguistic variation has been tied to what came to be labeled as the Chomsky-Borer Conjecture, i.e. reducible to differences in the Lexicon of different languages and specifically the elements of their functional vocabulary.

The standard analysis of passives put forth within the P&P framework makes crucial use of the following two assumptions:

(6) a. The passive suffix –en absorbs accusative Case.
b. The passive suffix –en absorbs the external θ-role. (Collins 2005:82)

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e.g. reciprocal *marry*, *resemble*, *have*, *weight* etc. do not form passives in English. The passive rule in Chomsky (1965: 104) also captures pseudo-passives ("*the proposal was vehemently argued against*"). Still this account offers no explanation for impersonal passives with embedded complement clauses and the pronoun 'it' in subject position ("*it was decided/concluded that* ...").

[5]It seems that the question whether unergatives can passivize relates to the EPP-properties of the language combined with the availability of a suitable expletive and/or default agreement (see e.g. Ruys 2010).

[6]Zaenen (1993), Primus (2011), Kiparsky (2013) among others cast doubt on the unavailability of impersonal passives of unaccusatives predicates. As summarized in Kiparsky (2013: 10), two conditions seem to guide passivization of intransitive predicates. The first one is whether the language allows the EPP to be violated, i.e. no languages that disallow subjectless sentences allow for impersonal passivization of unaccusatives (cf. the previous footnote). Second, the implicit argument of such predicates is interpretable as human or agentive/volitional.

Jaeggli (1986) and Baker, Johnson & Roberts (1989) suggest that these two properties coincide in the passive suffix because this suffix actually is an argument in the technical sense, and as such it needs to be assigned a θ-role and Case (the former follows from the θ-Criterion; the latter from the Visibility Condition; Chomsky 1981). On this line of analysis, *-en* is like a clitic base generated under I(nfl), where it receives the external θ-role, and lowers onto the verb, from which it receives accusative. Consequently, the internal argument cannot be assigned (accusative) Case *in situ*, and it moves to the subject position (Spec,IP at that time), where it receives nominative Case. The derivation of passives is thus subsumed under Move-A. This reflects the general shift in the theory to move away from construction specific transformations.

One further aspect of this analysis is the treatment of *by*-phrases. According to Jaeggli (1986), the passive suffix not only absorbs (or better receives) the external θ-role, but it can also transmit the external θ-role to the *by*-phrase (a process called *θ-role transmission*). The θ-role transmitted to the PP percolates to *by* and *by* assigns the external θ-role to its complement DP. Baker, Johnson & Roberts (1989) view this relationship between the suffix and the *by*-phrase similar to that of a clitic-doubling. Both these accounts then assume a kind of non-movement chain between the passive suffix and the DP inside the *by*-phrase.

Collins (2005: 83f.) criticizes this approach and related approaches from that period because the external θ-role is not assigned uniformly in the active and in the passive; in the active it is assigned to a DP in Spec,IP. The passive morpheme, however, is located in the I(nfl)-head when it is assigned the external θ-role, and a DP inside the *by*-phrase receives its θ-role by a special mechanism of θ-role transmission from the passive morpheme. Thus, such theories appear to violate UTAH (Baker 1988: 46), which states that "identical thematic relationships between items are represented by identical structural relationships between these items at the level of D-structure." Collins adds the consideration that such theories are also incompatible with the so-called configurational theory of θ-role assignment which replaced UTAH in minimalist theorizing once D-structure as an independent representational level was dispensed with and the existence of the lexicon as a level where lexical relationships are stated was questioned. Within the configurational theory of θ-role assignment "each syntactic position (e.g. Spec,vP, complement of V) is associated with a particular θ-role (or set of θ-roles)"(Collins 2005: 84). Collins concludes that "from the point of view of the Minimalist Program it is necessary that the θ-role of the external argument in the passive be assigned in exactly the same way as the external θ-role in the active" (Collins 2005: 84).

While we only partially agree with this last statement (see below), recall that the assumption that the θ-role of the external argument is assigned in exactly the same way in the active and in the passive, is a central assumption underlying Chomsky's transformational analysis of the Passive in English. It is from this perspective that Collins's analysis of the passive (2005) could be called a modern incarnation of (2), as we detail right below.

Based on UTAH Collins proposes that the external argument is always merged in the canonical subject position, Spec,vP, both in the active and in the passive (v is similar to Kratzer's (1996) Voice-head in that it severs the external argument θ-role from the lexical verb, which is located in V). Furthermore, Collins treats the passive participial suffix *-en* (*John was seen*) as identical to the past participial suffix *-en* (*I have seen John*). Both participles involve the same Participle Phrase (PartP) headed by the *-en* affix which is sandwiched between vP and VP, as in (7) (but see Embick (2004), who labels the projection headed by *-en* AspectP, and places it above vP). The lexical verb in V raises to Part to form the participle. Spec,vP is filled by the external argument, and the participial affix *-en* does not absorb any thematic role, nor does it absorb Case for reasons having to do with the way

Collins treats the Active-Passive distinction discussed below (see the discussion below (11); he actually claims that absorption of accusative Case in passives is an illusion).

(7) $[_{vP}\ DP_1\ v\ [_{PartP}$ -en $[_{VP}\ V\ DP_2]]]$

The difference in word order between passives and actives follows from this analysis because it is hypothesized that participles need to be licensed and there is one way to license them as active past participles and a different way to license them as passive participles, as described in (8a, b) (Collins 2005: 90).[7]

(8) A participle (PartP) must be licensed by
a. being c-selected by the auxiliary *have* or
b. moving to Spec,VoiceP.

We concentrate here on (8b). In passives, a VoiceP (which differs from Kratzer's VoiceP in that it is especially dedicated to formal passive formation and does not carry any semantic impact) must merge on top of vP, and PartP is attracted to Spec,VoiceP, thereby *smuggling* the internal argument across the external argument in Spec,vP. That is, the rightward-movement aspect of NP_1 in rule (2) is replaced in Collins (2005) by phrasal movement to the left, and this phrasal movement can take place only if Voice is present to provide a thematically empty specifier as an escape hatch, i.e. if a passive is formed.

(9) $[_{VoiceP}$ **$[_{PartP}$ -en $[_{VP}\ V\ DP_2]]$** Voice $[_{vP}\ DP_1\ v\ [<PartP>]]]$

Finally, an auxiliary *be* and I(nfl) are merged as in (10), and DP_2 is attracted to Spec,IP. Note that without the smuggling of PartP across the subject, movement of DP_2 to Spec, IP would be blocked due to a violation of the Minimal Link Condition, as DP_1 would intervene.[8]

(10) $[_{IP}$ **DP_2** $[_{I'}\ I\ [_{VP}$ be $[_{VoiceP}\ [_{PartP}$ -en $[_{VP}\ V <DP_2>]]$ Voice $[_{vP}\ DP_1\ v <PartP>]]]]]$

The derivation in (10) does not feature yet the preposition *by* and its relation to DP_1. In (9/10), DP_1 is merged in Spec,vP, exactly as in active clauses.

In his discussion of *by*, Collins (2005: 93f) raises a further point (which has not drawn much attention in the GB-literature) beyond the UTAH issue in connection to the *by*-phrase discussed above: how to ensure that the preposition *by* only introduces external arguments in passives, and not, for example, an internal argument (**John was written by the book*) or the external argument in actives? He concludes that this distributional fact about passive *by* suggests that *by* selects for a vP (not the other way around, as would be the case if Spec,vP could be filled by the *by*-phrase). He then proposes that *by* is the head of VoiceP, as in (11), an updated version of (9) above.

(11) $[_{VoiceP}$ PartP $by_{Voice}\ [_{vP}\ DP_1\ v\ [<PartP>]]]$

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[7] (8a, b) are counterbalanced by (ia, b), in order to avoid overgeneralization (Collins 2005: 91, (25a, b)):
(i) a. The auxiliary verb *have* obligatorily c-selects for a participle.
b. Voice requires a participle (PartP) to move to Spec,VoiceP.

[8] Collins is aware of the fact that other instances of XP-movement trigger Freezing effects. He suggests that there are two types of XP-movement that differ in this respect. He also provides empirical evidence that XP-movement has taken place in English passives, which we will not review here. If XP-movement obligatorily triggers freezing effects, then an alternative account should be provided for the empirical evidence he discusses.

As mentioned, Voice for Collins is a functional head that lacks any interpretational features, in contrast to the lower v head introducing the external argument. Consequently, Collins characterizes *by*, the head of VoiceP, as a dummy linker, and not as a lexical preposition. Furthermore, he assumes that accusative Case is checked by v in active clauses; in passive clauses, however, "the case feature of v is divorced from v and is projected as part of VoiceP" (Collins 2005: 96). ACC-absorption in passives is thus just an illusion as by_{Voice} then checks the structural ACC feature of the DP_1 in Spec,vP (similarly to the prepositional complementizer *for* checking ACC on the DP in Spec,IP in ECM constructions of the type [$_{CP}$ *For John to win would be nice*]). DP_2 then receives NOM from T.

But note that the structure in (11) raises the same question as Chomsky's rule (2): how do $by+DP_1$ form a constituent? Recall that Collins rejects a solution along the lines of (5). Instead, he argues that the PP-constituency of *by*-phrases is an illusion. For example, he suggests that (12a) does not have the structure (12b) but it is derived from (13a), where two VoicePs are coordinated. Each VoiceP has the identical PartP moved to its specifier. DP_2 is extracted by ATB-movement and the second PartP is deleted under identity.

(12) a. The book was written by John and by Bill.
b. The book was written [$_{ConjP}$ [$_{PP}$ by John] and [$_{PP}$ by Bill]]

(13) a. The book was written by John and written by Bill.
b. The book was [[$_{VoiceP}$ [$_{PartP}$ written <the book>] by$_{Voice}$ John] and
[$_{VoiceP}$ ~~[$_{PartP}$ written <the book>]~~ by$_{Voice}$ Bill]]

While we agree that he offers convincing arguments for the claim that (12a) can, in principle, be derived by coordinating two VoicePs and deleting material in the second one, the claim that *by* + DP_1 do not form a constituent-PP has been criticized by many (e.g. Kiparsky 2013, Müller 2016) and we agree with these criticisms. Kiparsky, for example, points out that if *by* is the head of Voice, then we have no explanation for *by*'s adnominal functions. Moreover, an analysis along the lines of (13b) becomes impossible if the coordinated *by*-phrases are topicalized as in (14), and similar phenomena can be found in other languages.

(14) Neither by John nor by Mary could such a book ever have been written.

On the basis of the discussion so far, we would like to conclude that, while DP_1 in passives indeed receives the external argument θ-role of v, *by* still behaves like a preposition that takes DP_1 as its complement. Case considerations strongly support this conclusion. In languages with morphological case, *by* does not typically assign the verb's objective case (ACC) to DP_1 but rather lexical case, e.g. in German dative, as shown in (15), while in Slavic languages agents appear bearing instrumental Case. Moreover, note that the presence of lexical case is rather unexpected if *by* is really void of any meaning and of (DP-related) argument structure, contra Collins (2005).[9]

But then the question how ACC is absorbed in passives resurfaces. We hold that Case absorption should not be allowed as a special mechanism in the grammar and we follow what we think is the simplest account of Case based on a particular interpretation of Burzio's generalization: ACC depends on the presence of a syntactically projected external argument. If passive vP lacks a specifier (see Alexiadou, Anagnostopoulou & Schäfer 2015 for detailed argumentation why passives include a light head lacking a specifier), the internal argument

[9] Note that we are not suggesting that *by* assigns its own θ-role. *By* allows transferring the canonical external argument role provided by v to its complement DP in a compositional way via the semantics in (28a) to be discussed below.

DP of passives (just as the internal argument of unaccusatives) will get nominative case in nominative-accusative languages following a dependent case approach (Marantz 1991 and many others following him).[10]

(15) a. Der Junge las den Roman
the.NOM boy read the.ACC novel
b. Der Roman wurde von dem Jungen /*den Jungen gelesen
the.NOM novel was by the.DAT boy /the.ACC boy read

Collins furthermore assumes that the external argument is syntactically present even in short passives. In this case, the head of passive VoiceP is phonologically zero, the external argument is merged in Spec,vP as PRO and zero Voice checks whatever case PRO has, possibly null Case (Chomsky 1995, chapter 1). We find this view on short passives rather problematic for a number of reasons.

First, it has to be stipulated that this PRO has to be arbitrary and, unlike ordinary PRO, can never be controlled (cf. (16) from Bhatt & Pancheva 2006). Crucially, (16a) can only have the interpretation in (16b) and not the one in (16c); this must be stipulated if the implicit argument in (16a) is ordinary PRO.

(16) a. Every journalist wants Kylie to be interviewed.
b. Every journalist wants Kylie to be interviewed by someone.
c. Every journalist$_1$ wants Kylie to be interviewed by him$_1$.

Second, if the implicit argument is PRO, it remains unclear why impersonal passives (of unergative verbs or of verbs with objects carrying lexical case), cannot appear in infinitives. For instance, the German example in (17a) shows that an infinitival subject clause with the active version of the dative verb *helfen* (help) is well-formed. Here the subject is arguably PRO. Since the verb *helfen* selects an object with lexical dative case, it can only form an impersonal passive. In (17b), we see that the impersonal passive can appear in a subject clause if the clause is finite. But if the subject clause is non-finite, the passive of *helfen* is no longer possible (17c). This is unexpected if the external argument of the passive is (arbitrary) PRO.

(17) a. [PRO dem Mann zu helfen] ist gut.
the.DAT man to help is good
b. [Dass dem Mann geholfen wird] ist gut
that the.DAT man helped is is good
c. *[Dem Mann geholfen zu werden] ist gut.
the.DAT man helped to be is good

Third, Collins claims that passives license reflexive pronouns as in (18a), and that this is expected because PRO is known to license anaphors (18b).

(18) a. Such privileges should be kept to oneself
b. To be nice of oneself is a priority.

However, across languages, binding of reflexive pronouns by the implicit external argument of passives seems to be rather impossible. A few languages indeed allow strings such as

[10] But see Schäfer (2012) for a discussion of certain complications.

(18a), e.g. German, but Schäfer (2012) provides experimental evidence that the passivized verb in such cases must be inherently or naturally reflexive; with ordinary transitive verbs, the construction is rejected in German. Concerning English, Collins mentions that examples like (18a) show lots of speaker variation. Furthermore, note that the more acceptable examples in the literature all involve modality (or negation, as pointed out to us by Norbert Hornstein); when this condition is not met, the result is ungrammatical (cf. (19a, b) adapted from Kastner & Zu 2014). Since active infinitive clauses do not show such variation and restriction we tend to conclude that a close look at Principle A phenomena actually suggests that the implicit argument of passives is not a licenser of reflexive pronouns.[11]

(19) a. *A book was being sent to himself/oneself.
b. *Mary was shown [a picture of himself/oneself].

A further reason to reject the PRO-analysis comes from depictives. Collins argues that the implicit argument of passives is PRO, as it can license depictives, see (20). Data similar to (20) received quite different judgments in the literature (cf. Chomsky 1986, Landau 2010). As Pitteroff & Schäfer (2017) show, adjectival depictives relating to the implicit agent of passives are, in principle, acceptable in many languages (including English).[12] However, they are illicit in passives of exactly those languages where the secondary depictive adjective overtly inflects for phi-features of its antecedent (e.g. in Icelandic, Russian or Hebrew passives). This suggests that (uninflected) depictives can be licensed in a purely semantic way and that the implicit argument of passives is not projected as PRO, because PRO should have phi-features and hence depictives in Icelandic, Russian and Hebrew passives should be grammatical.

(20) The book was written drunk

To sum up, the main insight from Chomsky (1957) is that English active and passive sentences are the two sides of the same coin as they impose exactly the same selectional restrictions on their NPs, though in exactly the opposite linear order. Chomsky derives this thematic parallelism with the transformation in (2) and Collins rephrases this approach in modern syntactic terms. Collins correctly rejects the rule in (5), which forms the *by*-phrase in Chomsky (1957), as incompatible with minimalist reasoning, but then he makes two assumptions which, as we argued, are empirically not warranted, neither within English nor beyond, namely that the *by*-phrase does not exist as a structural unit and that short passives involve a PRO subject. Above, we have explicitly argued against these claims: we believe that *by*-phrases really are prepositional phrases. Furthermore, the empirical picture suggests to us that the implicit external argument is not projected in the syntax (e.g. as PRO).[13]

[11] Collins suggests that speaker variation and marginality of examples such as (18a) results because PartP must be reconstructed. However, the same marginality, or even ungrammaticality, holds in SOV languages (German, Dutch, etc.) where word order suggests that smuggling is not a reasonable option to begin with.

[12] Such depictives seem to be subject to a kind of acceptability hierarchy. They are best in impersonal passives lacking any overt DP. With personal passives, they are better if the nominative DP is non-human than if it is human. In the latter case, speakers tend to relate the depictive to the human DP, even if this results in a rather nonsensical interpretation. Again, this suggests to us that the implicit argument is not a syntactic entity in passives, as it should then be on a par with overt DPs, as in infinitives where PRO can easily be accessed by depictives despite the presence of overt DPs.

[13] Landau (2010) also argues that implicit arguments are syntactically projected not as PRO but as so-called *phiP* (see also Legate 2014). His argument, which is developed on the basis of implicit arguments of adjectives, is not directly transferable to passives and, as discussed in Pitteroff & Schäfer (2017), became obsolete for theoretical reasons. In general, we would like to refrain from postulating covert categories that seem to appear only in construction specific contexts.

Consequently, we cannot assume that the external argument of short or long passives enters the syntactic structure in exactly the same way as in active sentences.

Recall now that the reasoning behind Collins's set-up derives from his view on the lexicon-syntax mapping and specifically on the way he views the concept of configurational θ-role assignment. However, we are hesitant to follow Collins's ultimate reasoning, which says: "From the point of view of the Minimalist Program it is necessary that the θ-role of the external argument in the passive be assigned in exactly the same way as the external θ-role in the active" (Collins 2005: 84). In fact, this conclusion does not directly follow from the theory of configurational θ-role assignment: nothing prohibits the external theta-role i) to remain without syntactic realization (implicit, i.e. as an existentially bound variable only semantically represented in the meaning of v/Voice), or ii) to be realized by an adjunct to vP/VoiceP, i.e. as the *by*-phrase, unless we limit configurational theta-roles to *Set*-Merge (Chomsky 2000). Instead, it seems to implicitly rely on the second clause of the θ-criterion in (21), which could be read in such a way that a semantic argument slot comes into existence by external merge:[14]

(21) Each argument bears one and only one θ-role, and each θ-role is assigned to one and only one argument. (Chomsky 1981: 36)

The theory of configurational θ-role assignment relates to the first sentence of (21): If an argument (DP) is merged in the syntax, the position of merge determines its interpretation/thematic role; if, for example, a DP is merged in Spec,vP, it will be interpreted as agent/causer. We do not see, however, how such a principle could enforce that each semantic argument/θ-role is necessarily projected to syntax; it does not enforce, for example, that Spec,vP of a transitive verb is always filled with a DP. Furthermore, it does not ensure that a semantic argument/θ-role can only be realized by a syntactic element merged in one particular position.

In fact, lexical theories, which underlie UTAH and the θ-Criterion, assumed that the external argument of passives is existentially bound in the lexical-semantic representation - the level of argument structure - and consequently it is not projected to syntax. In that sense, the (θ-role of the) external argument of passives is exempt from the second clause of (21) (under the interpretation that 'argument' means 'syntactic argument'). While Minimalism does not per se do away with a level of argument structure, at least within those frameworks such as Distributed Morphology (DM) that seek to reduce the burden on the lexicon we need to find a way to rephrase this lexical treatment of the external argument of passives in more syntactic terms. Verbal decomposition, in particular the idea that the external argument variable is semantically introduced by a semi-functional projection above the verbal phrase (Kratzer 1996), allows us to analyze passives in a way that they do not include a syntactically projected external argument while at the same time being able to account for the fact that the external argument is interpreted in the same way in the active and in the passive. In some sense, Kratzerian Voice, with its semantic variable (agent(e, x), causer(e, x), holder(e, x)) could be understood as doing the job of Chomsky's (1957) kernel, while the active-passive opposition derives from whether Voice projects a DP-specifier saturating the variable introduced by Voice or not.

On the other hand, we will see in the next section that both an account along the lines of Collins (who thereby follows Chomsky 1957) that projects the external argument in passives in the canonical subject position, and an account along the lines of Kratzer (1996) that represents the implicit argument of passives only at the semantic level introduced by Voice,

[14] We find Collins's idea according to which argumenthood is fully driven by syntactic realization of arguments inherently consistent; it is just that we do not see it confirmed by the empirical picture.

undergenerate from a cross-linguistic perspective. It turns out that there are actually two ways to form a passive across languages, a productive and a semi-productive way, and we will suggest an account for this distinction in terms of the hypothesis that passivization might either apply inside of the verbal phase or outside and on top of the verbal phase.

3. Passive formation across languages

Recall that Chomsky's analysis of English passives predicts that passivization is a fully productive process, in that basically every transitive verb should give rise to a passive. This holds (more or less; see fn. 3) for English and many more languages, suggesting that rule 2 could be seen as rule of UG instead of just a rule of the English grammar. However, it has been pointed out in the literature that passive formation is not equally productive across languages, pointing to the non-generality of rule 2.

Greek is a case in point. As Zombolou (2004) and Alexiadou, Anagnostopoulou & Schäfer (2015) report, there are several, sometimes poorly understood, restrictions on Greek passive formation. For one, many and perhaps most change-of-state verbs strongly resist the combination with the non-active (NAct) ending which is necessary to form a passive in Greek, e.g. *kriono* 'cool-1sg', *krionome 'cool-NAct'; *vatheno* 'deepen-1sg', *vathenome 'deepen-NAct'; *adinatizo* 'thin-1sg', ?*adinatizime 'thinen-NAct'; *gernao* 'age-1sg', *gerazome 'age-NAct', etc. Arguably some of these verbs belong to the group of "internally-caused verbs" (Levin and Rappaport Hovav 1995), i.e. they are unaccusative verbs, which simply do not combine with an external argument. However, other predicates such as the Greek counterparts of *break, deepen, cool* and many others clearly have active transitive uses. Nevertheless, they resist passivization.[15] Moreover, Zombolou (2004) observed that passivization is quite restricted with other verb classes as well. For example, several mono-eventive verbs cannot form a passive in Greek or can do so very marginally, unlike English and German: *haidevo* 'stroke', *derno* 'beat', *klotsao* 'kick', *frondizo* 'take care of'.

Furthermore, Alexiadou, Anagnostopoulou & Schäfer (2015) noted that many Greek verbs are allowed to combine with non-active morphology (e.g. the translation equivalents of *burn, cut* or *kill*), but only yield an anticausative, not a passive interpretation (they do not accept the Greek counterparts of *by*-phrases, for example). Similar gaps have been described for other languages as well, e.g. Palestinian Arabic (Laks 2009).

Such languages pose a problem for theories that assume that every transitive verb should have a passive counterpart, as they make it impossible to exclude individual verbs and verb classes from passive formation. In fact, such restrictions have been taken by many to signal a lexical approach to passivization. Laskaratou & Philippaki (1984) and Smirniotopoulos (1992) argued that the limited productivity of the passive in Greek seems to have properties associated with a lexical operation (see e.g. the discussion in Wasow 1977; cf. the Lexicon-Syntax parameter in Reinhart & Siloni 2005 which is in the same spirit).

The above contrast between Greek and English-like languages suggests that there are two ways in which a passive can come about, see also Alexiadou & Doron (2012): passives are either amenable to what has been analyzed as a lexical and a syntactic derivation in weak lexicalist approaches. Adapting a line of analysis pursued in Kratzer (1996) and Marantz (2001) for different types of adjectival passives within languages, in Alexiadou, Anagnostopoulou & Schäfer (2015) we argued that the Greek vs. English contrast in the productivity of verbal passives can be understood and implemented in a syntactic framework

[15]As pointed out in Alexiadou, Anagnostopoulou & Schäfer (2015), some of these verbs lack passives just for reasons of a phonological clash that results from the combination of their stem with the non-active affix (e.g: **vathinome* 'deepen-NAct', **kontenome* 'shorten-NAct', **leptenome* 'thinen-NAct', **makrenome* 'lenghten-NAct').

of word formation in general and passive formation in particular if (parts of) the building blocks of passive formation are located either inside or outside the verbal phase (Chomsky 2001). In the first case, passivization will be sensitive to (eventually idiosyncratic) properties of lexical items, in the latter case, the only restriction on passivization would relate to the (un-)availability of an active/transitive verbal phase. In other words, in a syntactic approach to word formation the two types of passives differ in how much structure they contain. In the rest of this section, we sketch in some more detail the analysis pursued in Alexiadou, Anagnostopoulou & Schäfer (2015) for English and Greek passives, respectively, and see Alexiadou & Doron (2012) for Hebrew passives.

Kratzer (1996) proposed that the external argument is severed from the lexical verb as in (22a). The VP in (22b) provides a predicate of events where the object variable of the lexical verb is saturated by the VP-internal DP_2. The Kratzerian Voice-head in (22c), which provides a neo-davidsonian thematic predicate (e.g. *agent*) that relates an event variable with an argument variable combines with the VP via event identification, resulting in (22d). Active Voice (similar to Collins' v) selects a DP in its specifier. Technically this is implemented by the assumption that active Voice is lexically equipped with a D-feature (Embick 2004). θ-role assignment boils then down to merge followed by variable saturation. Since argument saturation is an automatic process, the DP in Spec,VoiceP, being the first DP merged in the context of Voice, will necessarily saturate the agent variable provided by Voice as in (22e). This derives, at the level of VoiceP, the effect of a theory of configurational θ-role assignment.[16]

(22) a. $[T \ldots [_{VoiceP} DP_1 \ Voice_{\{D\}} [_{VP} V \ DP_2 \ ]]]$
b. $[[VP]] = \lambda e[V(e, DP_2)]$
c. $[[Voice]] = \lambda x \lambda e[agent(e, x)]$
d. $[[Voice']] = \lambda x \lambda e([agent(e, x)] \ \& \ [V(e, DP_2)])$
e. $[[VoiceP]] = \lambda x \lambda e([agent(e, x)] \ \& \ [V(e, DP_2)]) \ DP_1$
$= \lambda e([agent(e, DP_1)] \ \& \ [V(e, DP_2)])$

The lexicon can provide two variants of the semi-functional Voice-head, which differ in their syntax and semantics. Languages can provide a passive Voice as in (23a), which does not select for a DP-specifier (it lacks a D-feature; see Embick 2004; Alexiadou et al. 2015; Schäfer 2017 for discussion). Semantically, passive Voice introduces an existentially bound agent variable (23b). Voice and VP combine as in (23c).

(23) a. $[T \ldots [_{VoiceP} Voice_{\{\varnothing\}} [_{VP} \ V \ DP_2 \ ]]]$
b. $[[Voice_{PASS}]] = \exists x \lambda e[agent(e, x)]$
c. $[[VoiceP]] = \exists x \lambda e([agent(e, x)] \ \& \ [V(e, DP_2)])$

Since no DP_1 is merged in the specifier of passive Voice, no DP will intervene between T and DP_2; the leftward-movement aspect of passives thus follows rather trivially. Furthermore, any version of a dependent case approach (cf. Marantz 1991) will rather easily derive the effect of Case absorption, i.e. that DP_2 receives unmarked nominative case.

Do actives as in (22) and passives as in (23) then share the same argument structure? In semantic terms they do, as the very same number of arguments with the very same thematic

[16]Since Voice combines with VP via event identification, DP_2 must have merged with the verb inside the VP before Voice enters the derivation. Many authors proposed that indirect objects are severed from the verb by an ApplP (e.g. Pylkkänen 2008) and some suggested something similar for direct objects (e.g. Borer 2005; Lohndal 2014). While such proposals go beyond our main interest here, they have important consequences for a configurational theory of θ-role assignment.

and ontological restrictions are involved. However, the syntax, in particular the syntactic shape of the VoiceP is not identical in actives and passives; only the former is projected by a Voice-head with a D-feature, which in turn is checked by merging a DP in Spec,VoiceP.

This syntactic difference has been argued to trigger active vs. passive morphology on Voice. Embick (2004), for example, proposes that NAct-morphology found on Greek passives as in (24) follows from the PF spell-out rule in (25) which states that Voice heads that lack a specifier receive the spell-out 'NAct':

(24) O Janis katijori-thike
the John accused-NACT
'John was accused.'

(25) Voice -> Voice[NACT]/ ___No DP specifier (Greek)

Crucially, on the above account passives and actives are not transformationally related as they involve different functional heads, $\text{Voice}_{\text{active}}$ and $\text{Voice}_{\text{passive}}$. Since VoiceP is a phase (Chomsky 2001), we can rephrase the "lexical behavior" of Greek passives by stating selectional restrictions on individual lexical verbal items (or on verbal classes) to combine only with Voice active, with both active or passive or none (the latter unaccusatives).

However, at the same time and by the same reasoning, the Kratzerian Voice-theory to passivization outlined so far leaves it unexplained (or at least as a matter of chance), that many languages in fact anti-restrict passivization in that every active verb can productively form a passive. This empirical fact about English and many other languages is captured by Chomsky's transformation in (2), but also in Collins's theory, where the specifier of v is filled by PRO. But above, we argued against the projection of the external argument in passives as a PRO in English. And yet we do need a passive built on an active for English-type languages, if we want the express the difference between Greek and English.

A solution to this apparent contradiction, an active Voice/v without a specifier for English-type languages, is provided in the passive theory of Bruening (2012). According to this theory, English-type passives involve the structure in (26) with a Passive projection (Pass) on top of a VoiceP. In particular, PASS selects for a basically active VoiceP with an unchecked D-feature, that is, for an active VoiceP, yet without a specifier. Bruening (2012: 22) proposes that "a head that selects a head with an unchecked feature will check that feature when it combines with it."

(26) $[_{\text{TP}}\ \text{T}\ [_{\text{PassP}}\ \text{Pass}\ [_{\text{VoiceP}}\ \text{Voice}_{\{\text{D}\}}\ [_{\text{VP}}\ \text{V}\ \text{DP}_2\ ]]]]$

The Voice head in (26) introduces an unsaturated agent variable. The semantics of PASS, given in (27) impose existential quantification over the open argument slot introduced by the Voice head below it. (27a) applied to the open VoiceP in (27b) derives a standard passive meaning in (27c).

(27) a. $[\![\text{Pass}]\!] = \lambda f_{e,st}\lambda e[\exists x.f(x)(e)]$
b. $[[\text{VoiceP}]] = \lambda x\lambda e([\text{agent}(e, x)] \,\&\, [\text{V}(e, \text{DP}_2)])$
c. $[[\text{PassP}]] = \exists x\lambda e([\text{agent}(e, x)] \,\&\, [\text{V}(e, \text{DP}_2)])$

To conclude, in this approach, English-style passives and Greek-style passives have exactly the same meaning (compare English (27c) with Greek (23c)). However, Greek-style languages introduce existential closure at the level of Voice while English-style passives introduce existential closure at the level of a functional PASS head that selects for an active

VoiceP. Thereby, existential closure either is or is not introduced in the domain of idiosyncratic lexical selection (the lexical VoiceP-phase).

Finally, we need to account for *by*-phrases in both types of passives. Above, we expressed our conviction that *by* projects a prepositional phrase involving DP_1. Next, *by*-phrases seem to transmit the verb's external argument role to DP_1. Furthermore, *by*-phrases are optional. All these properties followed in Chomsky (1957) from the transformation in (2) combined with the condition on derived constituent structure in (5) and the ellipsis transformation deleting *by*-phrases. Finally, Collins (2005) arrives at the interesting conclusion that *by* selects for a vP (a VoiceP in Kratzer's terms), and, therefore, it cannot be that the *by*-phrase is located in Spec,VoiceP.

Once again, Bruening (2013: 23f.) seems to us to formulate an interesting response to this bundle of empirical and theoretical requirements. He suggests that *by* combines with DP_1 to form a PP. This *by*-PP is an adjunct, however an adjunct that strictly selects the syntactic category of the phrase it adjoins to, namely VoiceP. Furthermore, while *b*y does not introduce a thematic relation itself, *by* is also not semantically empty but has the meaning in (28a).

As depicted in (28), *by* first selects DP_1 as its complement, projecting the PP with the meaning in (28b). Next, PP selects, as an adjunct, VoiceP. This VoiceP must come with an open, unsaturated argument slot as in (28c), so that it can functionally apply to (28b) as in (28d).[17] This last interpretative step ensures that the DP_1 saturates the variable provided by Voice. Thereby, it comes about that DP_1 in the *by*-phrase has exactly the same semantic relation to the verbal event as a DP in the specifier of active VoiceP would have. Consequently, an active sentence and a long passive sentence do not differ in meaning.

(28) a. [[by]] $= \lambda x \lambda f_{<e,st>} \lambda e.f(e,x)$

b. [[PP]] $= (\lambda x \lambda f_{<e,st>} \lambda e.f(e,x))\ (DP_1)$

$= \lambda f_{<e,st>} \lambda e.f(e, DP_1)$

c. [[VoiceP]] $= \lambda x \lambda e\ ([agent(e, x)] \ \&\ [V(e, DP_2)])$

d. [[PP+VoiceP]] $= \lambda f_{<e,st>} \lambda e.f(e, DP_1)(\lambda x \lambda e\ ([agent(e, x)] \ \&\ [V(e, DP_2)]))$

$= \lambda e\ ([agent(e, DP_1) \ \&\ [V(e, DP_2)])$

Because the *by*-PP is an adjunct to VoiceP, VoiceP will project and DP_1 will also not intervene for A-movement of DP_2 and agreement. Finally, since *by* has meaning and selects DP_1, it is not surprising that it assigns lexical case to DP_1.

4. Summary

In this paper, we discussed the passive from the perspective of Chomsky's (1957) original transformational analysis asking the question how many insights expressed in Chomsky (1957) have survived today, after 60 years of history of the Chomskian framework. The modern analysis that is closest to Chomsky's insights in maintaining that the passive is literally derived from an active syntax is the one developed in Collins (2005). We reviewed in detail Collins's theory pointing to a number of limitations that relate specifically to his treatment of external arguments either expressed as *by*-phrases or as implicit arguments in the absence of a *by*-phrase. Moreover, we selectively reviewed some of the most influential treatments of the passive in the GB framework and Minimalism and we reached the conclusion that the most problematic aspect of the passive in all of these approaches is the

[17] In Greek, Voice lacks a D-feature, so that rule in (25) derives NAct morphology. In English, Voice involves a D-feature which must be checked by PASS. Note that PASS in the presence of a *by*-phrase cannot apply existential closure to the variable introduced by Voice but remains semantically expletive (see Bruening 2012: 25, Schäfer 2017 for further discussion).

representation of implicit external arguments, *by*-phrases and their relationship. While Chomsky's (1957) original rightward movement-type approach is clearly untenable today, it seems to us that no approach so far has been completely successful in dealing with this complex set of questions. Although Chomsky in (1957) did not explicitly address cross-linguistic variation, it is conceivable to think that certain rules could be viewed as general rules applying to all languages and subsequent research in the Principles & Parameters theory showed that indeed the passive is a very general (though not universal) crosslinguistic rule. However, as differences in passive formation among languages exist, we argued for the existence of two types of passives across languages, a fully productive and a semi-productive one showing various gaps, as found in Greek. We showed that a promising way of dealing with this difference in a configurational approach to argument structure alternations is in terms of decomposition combined with the view that the passive Voice domain constitutes a phase in Greek-type languages. On the other hand, in languages like English, the passive is built on the active, as originally proposed by Chomsky. We argued that the best way to express this in a decomposition framework is in terms of Bruening's (2012) Passive projection (Pass) on top of a basically active VoiceP lacking a specifier due to an unchecked D-feature.

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