Transitivity

John Bowers

It is argued in this article that there is a functional category Tr (= transitivity) located between v/Pr and V, which is universally present in all transitive sentences, regardless of whether they are active, passive, middle, or impersonal in form. Tr may contain a probe with (object) ϕ-features and assign accusative Case. In contrast to v/Pr, Tr does not assign a θ-role in its specifier position. Hence, the functions of the traditional light verb category ''v'' are split between v/Pr and Tr. Empirical evidence from English, Russian, Scottish Gaelic, Icelandic, Ukrainian, and German supports this claim.

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A predicate is commonly said to be *transitive* if it has two arguments and *intransitive* if it has only one. It seems, however, that natural languages universally pick out one of the arguments of a verb and mark it in some way, either by a morphological case marking, by means of an agreement relation, or simply by placing it in a designated position in the linear ordering of constituents, so as to indicate that it bears a special *subject* relation to the predicate. At the same time natural languages universally seem to pick out a second argument of a verb with more than one argument, again marking it morphologically in some way, so as to indicate that it bears a special *object* relation to the predicate. I have argued in recent work (Bowers 1993b, 1997, 2001) that the predication relation is represented by means of a functional category *Pr,* a generalization of the ''light verb'' v, which may be lexically realized in a variety of ways (see Bowers 2001:310–311 for some discussion of the range of crosslinguistic variation).[1] In English, Pr is realized as the light verb v in main clauses, but it can also be realized lexically as *as* in small clause constructions with predicate nominals and adjectives. In this article I argue in a parallel fashion that the relation of transitivity must also be represented by a functional category that I shall dub *Tr,* adopting a term proposed by Collins (1997) but adapting it to my purposes here. Tr is a distinct substantive

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[1] Current minimalist accounts of argument structure all share the assumption that there is a functional category between T and V that has the following two correlated properties: (a) its specifier contains the external argument of transitive and unergative sentences; (b) its head contains a probe with object agreement features. This category has been identified variously in the literature as a *VP-shell* (Larson 1988, Hale and Keyser 1993), as *Pr(ed)* (Bowers 1993b, 1997, 2001), as *Voice* (Kratzer 1993), as the *light verb* v (Chomsky 1995:chap. 3), and as *Tr* (Collins 1997). VP-shell and v were originally assumed to be present only in transitive sentences, while Pr was argued to be present in all sentences and in small clauses as well. More recently it has been assumed that v also is obligatorily present (Chomsky 1995:chap. 3) and that it contains the object Case and agreement features formerly assigned to the functional category Agr_O (Chomsky 1995:chap. 4).

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category that may optionally be selected by Pr, hence is located between Pr and V. Tr may contain ϕ-features and assign accusative Case, as well as containing an EPP-feature. It follows, then, that Spec,Tr is the position to which accusative Case-marked NPs are moved. In English, Tr has no overt phonetic realization, but there are languages that have special morphemes marking transitivity (see Collins 2000 for recent discussion of such a transitivity marker in two Khoisan languages).

There is an obvious connection between this proposal and the so-called split-VP hypothesis (Koizumi 1993, 1995, Bowers 1993a, Lasnik 1995a,b,c), according to which the Agr category responsible for checking accusative Case and object agreement features is located between v/Pr and V, rather than between T and v/Pr. With the elimination of Agr as a functional category in recent work within the Minimalist Program (Chomsky 1995:chap. 4, 2000, 2001, Collins 1997), the standard view is now that the probe responsible for object agreement and accusative Case assignment is located in v/Pr. Empirical support for this view rests heavily on the assumption that object shift in Germanic languages such as Icelandic is a reflex of object agreement, thus accounting for the fact that shifted objects in these languages characteristically move to a position higher than that of the internal subject, namely, the ''second specifier'' position of Pr. I argue, on the contrary, that object shift in Icelandic and the short A-movement associated with object agreement are entirely different and unrelated phenomena. I show that the latter arises from the fact that Tr has an EPP-feature, while the former, I assume, is triggered by some P-feature of the peripheral system (Chomsky 2000) associated with the category Pr.[2] I argue that this system accounts for a wider range of observations than previous proposals, at the same time providing a firm basis for a minimalist analysis of argument structure.

A crucial part of my argument will involve showing that the category Tr does not necessarily have ϕ-features associated with it, hence cannot simply be reduced to a category such as Agr or to a set of ϕ-features associated with some other category such as v/Pr. Accordingly, in section 7 I analyze a wide range of passive and middle constructions that have been discussed in the literature, showing that what all of these constructions have in common is the transitivity category Tr.

1 Theoretical Background

I adopt the fundamental assumptions of the minimalist framework as outlined in Chomsky 2000, 2001. The two basic syntactic operations are Merge and Agree. Merge is a recursive operation that takes two syntactic objects α and β and forms a new object $\Gamma = \{\alpha, \beta\}$ with a label LB(Γ). Agree is a relation that holds between α and β, where α has interpretable inflectional features and β has uninterpretable ones that delete under Agree. We refer to β as the *probe* and α as the *goal.* Agreement takes place only if both probe and goal are *active,* meaning that they both have uninterpretable features that are deleted by Agree under matching. The uninterpretable features

[2] If Bobaljik and Jonas (1996) are correct in their claim that there is an analogous ''subject shift'' position in Icelandic, then this same P-feature may also be associated with some higher functional category, most likely C, if the analysis of Icelandic expletives proposed later on is correct. Alternatively, the category in question could be M(ood); see footnote 16.

of the probe are ϕ-features, while the uninterpretable feature of the goal is structural Case. The latter is not a feature of the probes but is assigned a value under agreement (the value assigned depending on the particular probe) and is then removed by Spell-Out. I adopt the general principle (though I will propose a refinement of it later on) that once the Case value of a category has been determined, it no longer enters into agreement relations and is frozen in place.

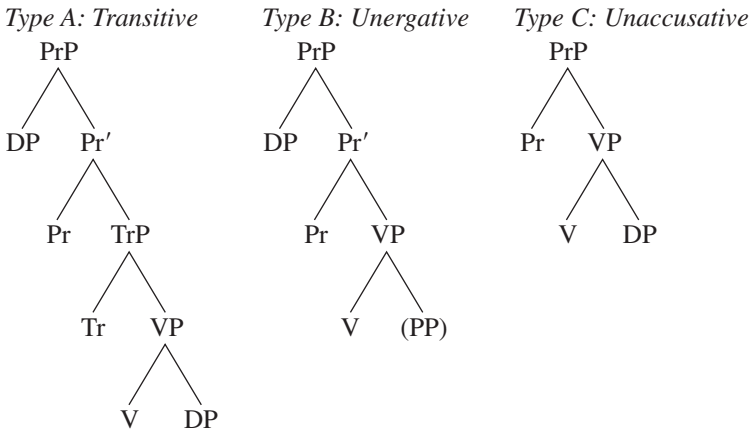
Movement, or ''displacement,'' is effected by matching a probe with a goal, inducing Agree, followed by Merge of a category determined by the uninterpretable Case feature valued by the probe (pied-piping) to a position determined by an EPP-feature in the label of the probe. This is the composite operation Move, a combination of Agree/Pied-Pipe/Merge.

The EPP-feature is, by definition, an uninterpretable selectional feature in the label of a category K that requires Merge in the specifier of LB(K). If an EPP-feature occurs in the label of a category K containing a probe P, it can be satisfied by merging an expletive in Spec,K. In that case long-distance agreement may hold between the probe and the goal. However, I shall assume, following Collins (1997) and many others, that an EPP-feature may also be satisfied by moving the nearest available category K′ (as determined by the Minimal Link Condition (MLC)) and merging it in Spec,LB(K), so that movement is not always dependent on Agree. I assume that derivation takes place by *phase* and is subject to the Phase Impenetrability Condition (PIC), though phases do not play a major role in my argumentation here. In the system proposed here, the two strong phases are CP and PrP. There are also strong indications (see section 5.2) that the original definition of equidistance proposed in Chomsky 1995:chap. 3 holds. Whether these two assumptions are compatible with one another is a question that I leave for future research.

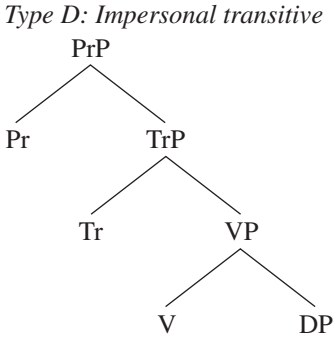
Turning now to the *core functional categories,* I assume that they are C (= complementizer), T (= tense), and Pr (= predication), the last a generalization of the category v along the lines suggested in Bowers 1993b, 2001. However, as mentioned above, my central claim is that there must be an additional category Tr (= transitivity) that is optionally selected by Pr. I assume that there are probes with ϕ-features in both T and Tr. In addition, T, Pr, and Tr all have an EPP-feature that must be satisfied. To simplify the exposition, I shall henceforth not refer explicitly (unless it is necessary for the sake of clarity to do so) to the process of matching uninterpretable ϕ-features of the probe with interpretable ϕ-features of the goal (and subsequent deletion of the former) that takes place under Agree, mentioning instead only the valuation of the Case feature associated with the goal. Thus, I will usually refer to assignment of nominative Case by T and assignment of accusative Case by Tr, using such locutions as shorthand to refer to the entire process of matching, valuation, and deletion of the uninterpretable ϕ-features of the probe and valuation and deletion of the Case feature of the goal.

2 Transitive Impersonal Constructions

Assuming the functional structure proposed above, the universal typology of verbs can be defined as follows: transitive verbs are those with an external argument in Pr that selects TrP; unergative verbs are those with an external argument in Pr that selects VP; and unaccusative verbs are those without an external argument in Pr that selects VP. These structures are shown here.



In the standard theory of argument structure, the only structural difference between transitive and intransitive sentences is that transitives have both an external argument and an internal argument, whereas intransitives have either one or the other, but not both. In the theory proposed here, in contrast, transitivity is an independent property, separate from the property of having an external argument. One immediate consequence of this theory is that it predicts the existence of a type of structure not found in the standard theory, namely, one with a TrP but no external argument in PrP. I shall refer to such structures as *impersonal transitive* constructions.



In the standard theory it is not possible to distinguish a structure of this type from that of an unaccusative. The only structure available is one of the form [$_{PrP}$ Pr [$_{VP}$ V DP]]. In fact, however, structures of type D are found in many languages and are quite distinct in form from unaccusative sentences. Consider, for example, ‘‘adversity impersonal’’ sentences with accusative case-marked objects such as the following in Russian (Babby 1989, 1994, Lavine 2000):[3]

(1) Rabočego ubilo oskolkom plity.
worker-ACC killed-3P.SG.NEUT shard-INSTR of.concrete.slab
‘A worker was killed by a shard of concrete slab.’

[3] A similar construction exists in German: for example, *Es friert mich* ‘I am cold (lit. ‘it freezes me’)’, *Es hungert*

(2) Nos založilo ot pyli.
nose-ACC clogged-3P.SG.NEUT from dust-GEN
'My nose got stuffed up from the dust.'

(3) Sestru tošnilo ot ryby.
sister-FEM.ACC nauseated-3P.SG.NEUT from fish-GEN
'The fish made (my) sister feel nauseous.'

(4) Dorogu zasypalo peskom.
road-ACC covered-3P.SG.NEUT sand-INSTR
'It covered the road with sand.' (= 'The road covered over with sand.')

In my theory an example such as (3) is naturally derived as shown in (5) (where *it* represents a silent (i.e., not phonetically realized) third person singular neuter nominative expletive[4] that agrees with the verb).[5]

(5) $[_{TP}$ T $[_{PrP}$ *it* Pr $[_{TrP}$ Tr $[_{VP}$ sestru $[v'$ tošnilo $[_{PP}$ ot ryby]]]]]]
nom acc

Tr assigns accusative Case to the object *sestru* 'sister' in Spec,V, which then moves to Spec,Tr to satisfy the EPP-feature of Tr. Hence, the only way that T can assign nominative Case, given the theory of expletives to be developed shortly (see section 4.1), is to merge a (silent) expletive in Spec,Pr. It will be shown later (see section 5.2) that the object DP's sentence-initial position results from a general process that moves a variety of constituents to Spec,T to satisfy the EPP-feature of T.

The theory thus correctly predicts the existence of a class of impersonal transitive sentences with an expletive subject. The fact that these impersonal sentences are clearly transitive yet lack an external argument demonstrates in a particularly striking way why it is essential to separate transitivity from agentivity. As we shall see, there are many other types of impersonal sentences that further support this claim.

3 Short Object Movement in TrP

If the proposed theory of transitivity is correct, then there is an operation, which I shall refer to as *short object movement* (SOM), that moves an accusative Case-marked argument in VP to Spec,Tr to satisfy the EPP-feature of Tr. I therefore begin by examining data that support the

mich 'I am hungry (lit. 'it hungers me')', and so forth. The closest analogue in English is a class of impersonal sentences with complement clauses: *It strikes me that you are an idiot, It hit me that Bill was a liar,* and so on. These are just like examples such as (21c), discussed in the text, except that they are transitive, hence contain a TrP.

[4] For arguments supporting the existence of a silent expletive in impersonal constructions in Russian, see Perlmutter 2001, Perlmutter and Moore 2001, Moore and Perlmutter 2001. For the opposing view that impersonal sentences are subjectless, see Babby 1989 and Lavine 2000. For my purposes here, it does not matter which view is correct.

[5] I assume that the accusative NPs in (1)–(4) move to Spec,T to satisfy its EPP-feature, in the manner described in section 5.2. See also Bailyn, forthcoming a,b, where it is shown that a much wider range of constituents can move to Spec,T in Russian than in English, including quite generally accusative-marked objects in transitive sentences.

existence of SOM. Some of the strongest arguments I know of depend crucially on the special properties of the class of V-modifying adverbs discussed in Bowers 1993b, 2001. The basic facts can be summarized briefly as follows:[6]

(6) a. V-modifying adverbs are always postverbal, regardless of the verb's valency;
b. they are prohibited between the verb and an accusative Case-marked object;
c. they may always occur between the verb and a nonaccusative Case-marked complement.

These properties are illustrated in (7).

(7) a. John (*perfectly) rolled (*perfectly) the ball (perfectly) (down the hill).
b. The ball (*perfectly) rolled (perfectly) (down the hill).
c. John (*intimately) spoke (intimately) to Mary.
d. Mary (*raucously) laughed (raucously).
e. It (*torrentially) rained (torrentially).

I shall now show that properties (6a–c) follow at once from the theory proposed here, given two additional assumptions, each of which can be justified independently. First, I assume that V-modifying adverbs merge with VP *after* all the (interpretable) selectional features of V have been satisfied. This follows from the fact that adverbs select the category that they modify (Bowers 1993b, 1999, 2001), together with a general principle (Chomsky 2000:132) requiring that the selectors of a lexical item be satisfied before new elements of the lexical subarray are accessed to drive further operations.[7] Second, I assume that all verbs move in successive-cyclic fashion first to Tr and then to Pr, presumably because the V-features of Tr and Pr are always strong in English.[8] These two assumptions account for property (6a); together with SOM, they also account for properties (6b) and (6c).[9] The following derivations illustrate these points:

(8) $[_{TP}$ T $[_{PrP}$ John Pr $[_{TrP}$ Tr $[_{VP}$ perfectly $[_{V'}[_{V}$ roll] [the ball]]]]]]
nom acc

[6] Note that V-modifying adverbs can also occur quite generally to the right of complements: for example, *John rolled the ball down the hill perfectly, The ball rolled down the hill perfectly, John spoke to Mary intimately.* Various explanations are possible. In Bowers 1993b I propose that adverbial modifiers in English can generally occur either on the left edge or on the right edge of the constituent they modify. Alternatively, there could be optional leftward movement of non-Case-marked complements. Still another possibility, following Kayne (1994) and Cinque (1999), would be to assume ''remnant'' movement of the whole VP to the left. I shall not try to decide among these possibilities here.

[7] One of the weakest points of the analysis of V-modifying adverbs in Bowers 1993b was that it simply had to be stipulated that adverbs were V′ adjuncts, not VP adjuncts, an ad hoc condition for which there was no independent motivation. As far as I am aware, there is no empirical evidence for distinguishing between X′ and XP adjuncts, suggesting that the approach proposed here is correct. This fact also argues strongly against the assumption (as, e.g., in Larson 1988) that adverbs can merge freely with V before, after, or between its arguments.

[8] For discussion of a language (Scottish Gaelic) in which the verb does not always move to Pr, see section 3.

[9] In order to ensure that property (6b) holds, it must also be stipulated that adverbs cannot modify the category Tr. Though I do not at present have a fully satisfactory explanation for this restriction, I presume that it follows in some way from the content of Tr. In general, the content of adverbs is closely correlated with the content of the categories they modify, as argued at length by Cinque (1999).

(9) [$_{TP}$ T [$_{PrP}$ Pr [$_{VP}$ perfectly [$_{V'}$[the ball] [$_{V'}$ roll [down the hill]]]]]]

nom

(10) [$_{TP}$ T [$_{PrP}$ Mary Pr [$_{VP}$ loudly coughed]]]

nom

Since all verbs end up in Pr, a V-modifying adverb such as *perfectly* will always occur to the right of the verb, regardless of how many arguments the verb takes or where its arguments originate (property (6a)). At the same time, since SOM always moves an accusative Case-marked DP out of VP into Spec,Tr, a V-modifying adverb can never end up between the verb and its object (property (6b)). Finally, since complements of V that lack a structural (nominative or accusative) Case feature must remain in VP, V-modifying adverbs will always be able to occur between such complements and the moved verb (property (6c)). It is clear, then, that the explanation of properties (6b) and (6c) hinges crucially on the existence of SOM.

Another strong argument for the existence of SOM is that it generalizes to raising constructions (Lasnik and Saito 1991, Bowers 1993b, 2001, Koizumi 1993, 1995). The only difference between structures containing basic intransitive (unaccusative) or transitive verbs, on the one hand, and structures containing the corresponding raising verbs such as *seem, appear* and *believe, prove,* on the other, is that in the first case the nominative- or accusative-marked DP originates in VP, whereas in the second case it originates in the specifier of a TP complement of V. I illustrate raising to subject and object, respectively, with the following partial derivations:

(11) . . . [$_{PrP}$ Pr [$_{VP}$ seem [$_{TP}$ Mary to be sick]]]

nom

. . .

(12) . . . [$_{PrP}$ John Pr [$_{TrP}$ Tr [$_{VP}$ conclusively [$_{V'}$ prove [$_{TP}$ Smith to be guilty]]]]]

nom acc

. . .

In (11) the subject of the exceptional-Case-marking (ECM) complement moves to Spec,Pr to satisfy the EPP-feature of Pr, where it is assigned nominative Case by T. In (12), on the other hand, the subject of the ECM complement is assigned accusative Case by Tr and then raises to Spec,Tr to satisfy the EPP-feature of Tr. As argued in some detail in Bowers 1993b, it is this extension of SOM to object-raising constructions that accounts for the fact that V-modifying adverbs, dative arguments, floating quantifiers, and so on, associated with the matrix verb appear at the surface *between* the subject and the infinitive in an ECM complement. My theory thus provides a simple and straightforward resolution of the perennially contentious issue of raising to object position.

Pursuing this line of thought further, consider the complementary distribution of PRO and lexical DP subjects in infinitival complements of transitive ECM verbs such as *believe* and intransitive control verbs such as *try.*

(13) a. John believes [$_{TP}$ Mary/*PRO to be sick].
b. Mary tried [$_{CP}$[$_{TP}$ *John/PRO to leave]].

The principles-and-parameters account of these facts (Chomsky 1981) is as follows. ECM complements are defective TP complements, lacking CP, which is a barrier to government. Therefore, the main verb *believe,* being transitive, is able to directly Case-mark the subject of the nonfinite complement with accusative Case, at the same time ruling out PRO, which must be ungoverned by the PRO Theorem. In (13b), on the other hand, there is a CP barrier; hence, again by the PRO Theorem, only PRO can occur in Spec,T of the complement clause. One problem with this account is that there is little syntactic evidence for the CP barrier posited in (13b). Like ECM complements, complements of verbs such as *try* (and their transitive counterparts, such as *persuade*) can never have a lexical subject with *for* and can never undergo A-movement operations such as passive and raising (Bowers 1973).[10] Furthermore, in the Minimalist Program Case assignment under government is no longer available. Hence, a new account is called for.

Suppose that *believe* and *try* are both subcategorized for a bare TP complement, but that *believe,* being transitive, requires TrP in the matrix clause, while *try,* being intransitive, permits only VP.

(14) a. . . . [$_{PrP}$ John Pr [$_{TrP}$ Tr [$_{VP}$ believe [$_{TP}$ Mary/*PRO to be sick]]]]
acc null

b. . . . [$_{PrP}$ Mary Pr [$_{VP}$ try [$_{TP}$ PRO/*John to leave]]]
null acc

Suppose a lexical DP *Mary* is merged in Spec,T of the ECM complement (14a). In this instance Tr assigns accusative Case to *Mary,* after which *Mary* moves to Spec,Tr. Suppose, on the other hand, PRO is merged in Spec,T. PRO does not have a Case feature of the sort that can be valued by Tr: it only has null Case. Hence, the probe in Tr fails to find a matching goal and the derivation crashes. Consider, in contrast, (14b). Suppose that *John* is merged in Spec,T. Here the problem

[10] It has been argued by Rizzi (1982) that control clauses are generally CPs, as evidenced by the fact that they are phonetically isolable in ways that raising clauses are not: for example, *It is to drive racing cars that John prefers/*seems.* However, verbs like *try* fail Rizzi's test: **It is to drive racing cars that John tries, *It was to leave that John persuaded Mary,* and so forth. As noted in the text, this correlates systematically with other properties of these verbs. It appears, then, that both CP and TP control complements exist.

An anonymous reviewer suggests that the existence of transitive sentences such as *You should try this* argues against my claim that *try* takes a reduced complement, unless one is willing to assume that the two instances of *try* are unrelated verbs. Note, however, that the two verbs are equally unrelated under the standard analysis, since one requires a CP complement and the other a DP complement. Moreover, the transitivity test for whether a verb takes a CP complement is notoriously unreliable. For example, from the fact that there are transitive sentences such as *I don't believe that,* it does not follow that *believe* cannot take a reduced ECM complement. So if there can be two *believe*s, one taking a reduced sentential complement and the other a DP complement, why shouldn't exactly the same be true of *try*?

is that there is no probe looking for a goal with a Case feature. Hence, the uninterpretable Case feature of *John* cannot be valued and deleted and the derivation crashes. Suppose, on the other hand, that PRO is selected. Here the only feature that needs to be checked is the null Case feature. It can be checked by *to* and the derivation therefore converges.[11] Note finally that if PRO merges with T in the complement of an intransitive unaccusative verb such as *seem,* as in (11), then there will be no Case feature or ϕ-features of the sort required by the probe in T; hence, the derivation again crashes.

The complementary distribution between lexical subjects and PRO in ''defective'' bare TP complements of *believe* and *try,* respectively, thus follows automatically from the theory of transitivity proposed here without its being necessary to assume additional structure in the case of *try* for which there is no empirical evidence.

In English, SOM is invariably accompanied by successive-cyclic movement of the verb to Tr and Pr. In addition, there is no phonetic realization of the agreement features in Tr. Consequently, neither Tr nor the results of SOM are directly visible at PF. That is of course why it is necessary to resort to indirect evidence to detect the presence of TrP in English. However, there are languages where Tr and SOM are, under certain conditions, directly visible at PF. One such language is Scottish Gaelic. Ramchand (1997) has shown that in Scottish Gaelic there are two particles, *air* and *a'* (derived from prepositions, historically), that function in the modern language as markers of perfectivity, or more precisely, as Ramchand argues at length, of telicity. When one of these particles appears in a head position above the verb, head movement to that position is blocked, causing the verb to remain in situ. This in turn makes it possible to observe directly the effect of SOM in transitive sentences. To see this, consider the following examples:

(15) a. Bha Calum air am balach a fhaicinn.
be-PAST Calum PERF the boy ϕ_O see
'Calum has seen (perf.) the boy.'
b. Bha Calum a' faicinn a'bhalaich.
be-PAST Calum IMPERF see the boy-GEN
'Calum was seeing (imperf.) (= 'looked at') the boy.'

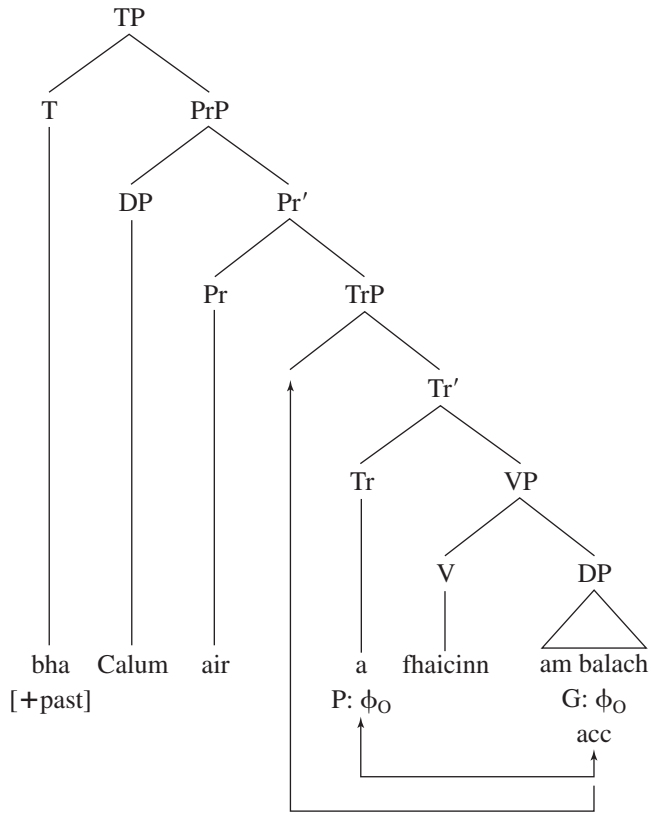
Sentence (15a), with the perfective marker *air,* refers to a completed (telic) event: Calum has succeeded in seeing the boy. Sentence (15b), with the marker *a',* means the same thing, except that the event of seeing has not been completed (is atelic), hence is roughly equivalent to English *look at.* But now notice that in the perfective sentence (15a) the object *am balach* 'the boy' appears *before* the verb with no lexical case marker (hence, it is either nominative or accusative), followed by another particle *a,* which has phonological effects on an immediately following consonant. In the imperfective sentence (15b), on the other hand, the object appears *after* the

[11] More precisely, PRO would be generated initially in Spec,Pr, where its null Case would be checked by a special probe associated with *to,* and would then move to Spec,T to satisfy the EPP-feature of T. I refine this account of PRO in section 6.

verb in the genitive case and the particle *a* is no longer present. Ramchand argues persuasively that the particle *a* that precedes the verb in (15a) is in fact an object agreement marker. Hence, if her analysis is correct, the appearance of this agreement marker correlates with movement of the object into a position to the left of the verb.

Let us consider next how these facts might be explained in the framework proposed here. Suppose, first of all, that the aspect markers *air* and *a'* are lexical realizations of the category Pr. Second, suppose that *air* may select TrP, whereas *a'* may only select VP.[12] Finally, suppose that *a* is the lexical realization of the ϕ-features of the probe in Tr. Then, given the theory proposed here, (15a) and (15b) can be derived as shown in (16).[13]

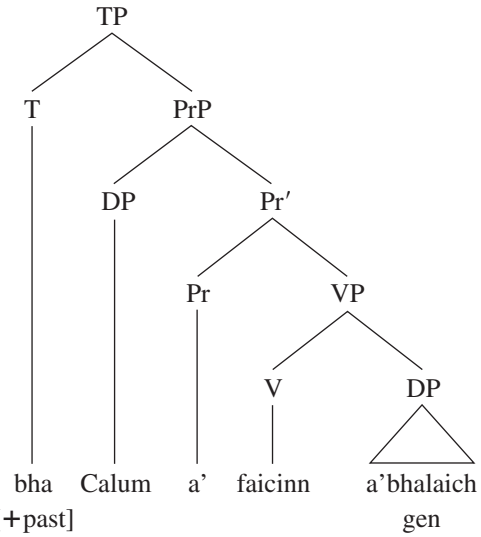
(16) a.



[12] Ramchand suggests on the basis of this fact that there is a systematic correlation between telicity and transitivity. However, this does not appear to be correct, since *air* occurs with intransitive verbs, both unergative and unaccusative, as well.

[13] As an anonymous reviewer notes, the position of V-modifying adverbs has the potential to provide further support for these structures. Unfortunately, however, both V-modifying and Pr-modifying adverbs always occur to the right in Scottish Gaelic in PF (Wayne Harbert, personal communication), hence do not provide evidence one way or the other.

b.



In the perfective form (16a), not only is the transitivity category Tr made phonetically visible by the overt agreement particle *a,* but the accompanying obligatory movement of the object into Spec,Tr (SOM) is directly observable as well, since the object appears to the left of the in-situ verb. In the imperfective form (16b), in contrast, the object stays to the right of the verb in the genitive case and there is no object agreement marker. This is exactly what my theory predicts. Since Tr contains a probe with object ϕ-features (realized lexically as *a*), there must be a lexical DP in VP to which accusative Case can be assigned or else the derivation will crash. Case is therefore assigned to the object in (16a), followed by movement to Spec,Tr. In imperfective sentences, on the other hand, there is no Tr that can assign Case. Therefore, the complement of the verb can only have a lexically determined (inherent) Case if the derivation is to converge. If the verb were to merge with a DP with an unvalued Case feature in such an imperfective structure, the derivation would crash, since there would be no way for its uninterpretable Case feature to be valued and deleted. Hence, the object in imperfective sentences can only appear to the right of the verb, marked with inherent genitive Case.

In summary, then, the proposed theory provides a simple and elegant account of SOM that requires neither unmotivated structural complications nor the complicated apparatus of the ECM theory. In addition, it accounts for the distribution of PRO and lexical DP complement constructions without having to assume a null complementizer in the infinitive complement of verbs such as *try.* All that is required are the subcategorization properties of particular verbs. Finally, the predicted effects of TrP appear to be phonetically observable under the right conditions in Scottish Gaelic, providing direct evidence to support the theory.

4 Expletives

Next I discuss expletive constructions in English and Icelandic. The special properties of these constructions have played a crucial role in the development of the Minimalist Program. In particular, it was the well-known fact that the postposed subject in expletive constructions with *there*

shows agreement with a verbal element indefinitely far away that ultimately led to the current probe-goal approach to Case assignment and ϕ-feature matching. Nevertheless, there are a number of empirical and theoretical problems with the standard analysis of expletive constructions that need to be addressed.

According to the standard theory of argument structure, the light verb v both assigns a θ-role to the external argument of unergative and transitive verbs in Spec,v and is the locus of object agreement and accusative Case assignment. Expletives such as *there* and *it,* on the other hand, merge with T in order to satisfy its EPP-feature. I show in this section that the latter assumption is untenable and that the distribution of expletives in English can be satisfactorily explained only if it is assumed that they merge in the same position as the external argument. This in turn is possible only if v is split into two separate categories, Pr and Tr. The category Pr has an obligatory EPP-feature that can be satisfied by merging either an external argument or an expletive in Spec,Pr, whereas Tr (which may also have an EPP-feature) assigns accusative Case. I first show that the distribution of the expletives *there* and *it* in English follows from these assumptions. I then show that the sharply contrasting properties of the Icelandic expletive *það* can be explained if it is assumed that *það* merges obligatorily in a higher position.

4.1 There *and* it *in English*

I start by considering two basic properties of expletive constructions with *there* that must be accounted for: (a) *there* occurs only in unaccusative constructions; (b) the subject is located in Spec,V, not in the internal subject position (Spec,Pr, in my framework). The first property is illustrated by the following data:

(17) a. *There will someone eat a bagel.
b. *There eat bagels many people.
c. *There laughed someone raucously.
d. *There laugh raucously many people.

(18) a. There arose a serious misunderstanding.
b. There appeared a ghastly face at the window.
c. There will soon arrive one of our representatives at your door.
d. There appeared at the window a particularly ghastly face.
e. There will soon arrive at your door one of our representatives.
f. There were several books on the table.
g. There are many people skating on the lake this winter.
h. There were many demonstrators arrested by the police.

As (17b) and (17d) show, even with rightward displacement of the subject, transitive expletive constructions (TECs) and expletive constructions with unergatives are prohibited in English, whereas a variety of expletive constructions with unaccusative predicates are permitted, with both in-situ and displaced subjects, as shown in (18).[14]

[14] Chomsky (2001:20), citing Kayne's (1994) examples *There entered the room a strange man* and *There hit the*

The following examples illustrate property (b). Here the presence of the modal in T rules out the possibility of the subject's occupying the internal subject position.

(19) a. There will be someone in the garden.
b. *There will someone be in the garden.

(20) a. How could there possibly arise such a serious misunderstanding?
b. *How could there possibly such a serious misunderstanding arise?

According to the standard theory, expletive *there* merges with T in order to satisfy its EPP-feature. However, this approach fails to explain either property (a) or property (b). To see that TECs are not ruled out, consider the structure of a transitive sentence at the point where T has merged with PrP: [$_{TP}$ *will* [$_{PrP}$ *someone* [$_{Pr'}$ *eat-v* [$_{VP}$ t_V *a bagel*]]]]. Clearly, there is nothing to prevent *there* from merging with TP, producing the unacceptable (17a). Similar derivations are obviously possible in the case of unergatives, leaving no way to rule out examples like (17c) (Lasnik 1995a). Whether property (b) can be explained by the standard theory depends on whether or not the category v has an EPP-feature. If it does, then examples such as (19b) and (20b) will be permitted for exactly the same reason that TECs are. If it does not, then such examples may not be a problem. However, we shall see shortly that there are many reasons for assuming that Pr (one realization of which is v in my theory) does have an EPP-feature. Hence, property (b) remains a problem.

The simplest way of explaining both of these properties is to require that *there* merge with Pr rather than with T in English.[15] Given such a restriction on the occurrence of expletive *there,* properties (a) and (b) follow immediately. Because both *there* and the external argument of transitive and unergative verbs occupy the same syntactic position, they are in complementary distribution, hence can never cooccur. Therefore, *there* can occur only with unaccusative verbs, which lack an external argument. Likewise, since *there,* by hypothesis, merges with Pr in order to satisfy its EPP-feature, the internal argument of an unaccusative verb is automatically prevented from moving into Spec,Pr. This accounts for property (b).

Let us assume, then, that *there* must merge with Pr. The next question is why. Is there a principled explanation for this fact? A related question that may help to shed light on the issue, to which I turn momentarily, is whether the differences (and similarities) between *there* and *it*

stands a new journal, suggests that ''English marginally allows a kind of transitive expletive construction if the subject is displaced to the right.'' Note, however, that the only examples that are even marginally possible are ones in which the verb contains a covert locative: *enter* = 'go into', *hit* = 'appear on', and so forth. Compare Kayne's examples with (17b) in the text and with **There ate lunch a strange man, *There hit the wall a car,* and so on, which are not even marginally possible, in my judgment. In any case, the inability of unergative verbs to occur with *there* also remains unexplained under the standard theory of expletive constructions.

It is often noted that expletive constructions with *be* are more productive than ones with other unaccusative verbs, the latter having a somewhat bookish flavor. I shall not attempt to explain this fact here.

[15] Technically, this might be accomplished by assigning Pr an optional subcategorization feature of the form [____ *there*]. Such a feature might be regarded as a special kind of (uninterpretable) EPP-feature. Alternatively, it might be appropriate to treat it as an interpretable feature, in light of the well-known restrictions on the referential properties of the associate in expletive constructions (often referred to in the literature as the ''definiteness effect''). Unfortunately, a full discussion of the definiteness effect goes well beyond the scope of this article. Chomsky (2000) suggests that *there* has a person feature that matches a probe in T, but there are conceptual and empirical problems with this approach. See Frampton and Gutman 2000 for discussion.

can also be explained in a principled way. To begin with, however, note that since expletives have no lexical content, they cannot be merged in a θ-position. This immediately rules out Merge with any of the lexical categories, V, N, A, and P. Now consider the functional categories. Of these, T and Tr contain probes with ϕ-features, while Pr and C do not. Furthermore, neither T nor Tr subcategorizes for an argument in its specifier position. Hence, the only way that the specifiers of T and Tr can be filled is through Move or Merge with an expletive in order to satisfy their EPP-features. However, it seems that Tr, in apparent contrast to T, can *never* be merged with an expletive (e.g., **John threw there/it perfectly a ball to Mary*) or with a locative PP (e.g., **John put on the table a book*), leading one to question the assumption that an expletive can ever merge with T either. Suppose, then, that expletives are excluded from merging in the specifier position of any category that contains a probe with ϕ-features. Following Chomsky (1981), we might speculate that even though expletives are not referential expressions, they are nevertheless ''quasi arguments'' and are therefore excluded from direct Merge in a pure non-θ-position. Note that in the case of expletive *it,* which has its own ϕ-features, this result follows independently from the probe-goal theory of agreement, together with the assumption that subject ϕ-features occupy T, since a probe can search for a goal only in its complement. This leaves Pr and C as the only two categories that an expletive can merge with. I show next that the differences in syntactic distribution between English *there* and *it* follow from specific lexical properties, together with the fact that both are restricted to merging with Pr. I then show in the next section that the very different syntactic properties of Icelandic *það* follow from the fact that it is restricted to merging with C.[16] Hence, all the differences between English expletives and Icelandic *það* follow from a single language-specific lexical difference between the two languages.

Consider then the contrast between *there* and *it* in English. Strikingly, the two expletives are in complementary distribution.[17]

(21) a. *It/There occurred an explosion.
b. It/*There rained.
c. It/*There seems/happens that John is sick.

[16] I am currently exploring the hypothesis that the category with which Icelandic *það* merges is not C, but another functional category between C and T that I refer to as *M(ood).* There seems to be considerable support for the existence of such a category (Bowers, in preparation b). Since Spec,M is like Spec,Pr in being neither a ''pure'' θ-position nor a ''pure'' non-θ-position (in contrast to C, which is presumably a pure non-θ-position), the idea suggested in the text could be sharpened in the following way: quasi-argumental elements such as expletives cannot be merged into pure θ-positions, because they have no lexical content; they cannot be merged into pure non-θ-positions (such as the specifier of categories like T and Tr with Case and agreement features), because they are still argument-like. This leaves as the only positions available to expletives those (like the specifier of Pr and M) that are both θ-positions and EPP-positions. We might speculate further that M also contains the features that permit the analogue of object shift argued for by Bobaljik and Jonas (1996), that it is the position to which constituents in verb-second languages move, and so forth. The possible categories with which expletives can merge would then follow directly from their quasi-argumental status.

[17] I restrict attention here to the true (i.e., contentless) expletive *it.* The *it* that occurs with ''extraposed'' complement clauses, as in *It bothers me that John is sick, Mary resents it that John is sick,* and so on, is in fact an argument, as shown for example by the fact that it can be pseudoclefted: *What bothers me is that John is sick, What Mary resents is that John is sick* (cf. **What seems/happens is that John is sick*).

If the verb has a DP argument in VP (i.e., is unaccusative), then *there* is required; if not, then *it* is required. How can this pattern be explained? By hypothesis, both expletives must merge with Pr. Let us assume in addition that *there* differs lexically from *it* in having no Case feature or ϕ-features at all. Now consider the possible derivations. Let us first try a verb such as *rain* or *seem.* In this case the only way to satisfy the EPP-feature of Pr is to merge an expletive with it. Suppose *there* is available in the lexical array.

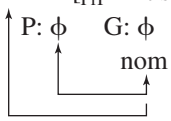
(22) $[_{TP}$ T $[_{PrP}$ there seems $[_{VP}$ t $[_{CP}$ that John is sick]]]]

P: ϕ ?

T of course has a probe that is seeking a goal with matching features. But in this instance no appropriate goal is to be found, because *there,* by hypothesis, has no Case or ϕ-features of its own and because there is no other DP with Case and ϕ-features available.[18] Hence, the derivation crashes, because the uninterpretable features of the probe in T cannot be valued and deleted. Suppose instead that *it* is selected from the lexical array and merged with Pr.

(23) $[_{TP}$ T $[_{PrP}$ it seems $[_{VP}$ t that John is sick]]]

P: ϕ G: ϕ nom

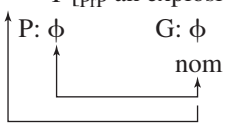


This time the search for a matching goal is successful, because *it* has the required ϕ-features and Case feature. Hence, the derivation converges, after assignment of nominative Case, deletion of uninterpretable features, and movement of *it* to Spec,T to satisfy the EPP-feature of T. Notice incidentally that if, instead of *it* being merged with Pr, the complement clause *that John is sick* were moved and merged with Pr, the derivation would again crash, since there would be no matching features available for the probe in T. This accounts for the unacceptability of **That John is sick seems.* Note also that movement of the complement clause over expletive *it* into Spec,T is prevented by the MLC, accounting for the unacceptability of **That John is sick it seems.*

Next let us try an unaccusative verb such as *occur.* In this case there are two possible ways of satisfying the EPP-feature of Pr: either the argument in VP can be moved and merged with PrP or, if an expletive is available in the lexical array, it can be merged with PrP. Suppose first the internal argument moves and merges with PrP.

(24) $[_{TP}$ T $[_{PrP}$ an explosion occur $[_{VP}$ t_V t]]]

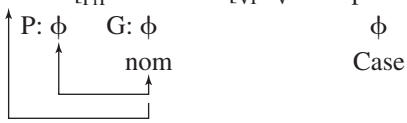
P: ϕ G: ϕ nom



[18] The subject of the complement sentence is unavailable for matching because the CP containing it is a phase and its features will therefore have already been deleted at an earlier stage of the derivation.

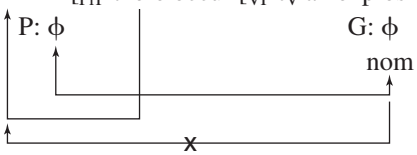
In this case the probe in T finds a matching goal in Spec,Pr. After nominative Case assignment and deletion of uninterpretable features, *an explosion* moves and merges with TP to satisfy the EPP-feature of T, resulting in a convergent derivation. Suppose next the EPP-feature of Pr is satisfied by Merge with expletive *it,* resulting in the following structure:

(25) $[_{TP}$ T $[_{PrP}$ it occur $[_{VP}$ t_V an explosion]]]



Once again the probe in T finds the nearest matching goal in Spec,Pr. However, after Case assignment and deletion of uninterpretable features, there is no way for the uninterpretable Case feature of the NP *an explosion* to be valued and deleted. Hence, the derivation crashes. In fact, there is only one possible way to produce a convergent derivation in this structure by using an expletive: namely, to merge the expletive *there* with PrP.

(26) $[_{TP}$ T $[_{PrP}$ there occur $[_{VP}$ t_V an explosion]]]



This time the nearest goal with matching features is the argument *an explosion,* which still remains in VP. The intervening expletive will not cause a defective intervention violation, because *there,* by hypothesis, contains no ϕ-features. On the other hand, *an explosion* will be prevented by the MLC from moving to Spec,T to satisfy the EPP-feature of T, because there is a closer constituent, namely, the expletive *there.* Hence, the only way for the EPP-feature of T to be satisfied is for *there* to move and merge with TP, producing the sentence *There occurred an explosion.*[19]

In summary, then, within the framework proposed here all of the basic syntactic properties of expletives in English follow from general principles, together with the specific morphological properties of *there* and *it.* Notice that this explanation of the complementary distribution of *there* and *it* rests crucially on the assumption that though the subject probe is in T, the expletives themselves are merged with Pr. An explanation along these lines is simply unavailable under the standard assumption that expletives merge with T. The only language-specific property of exple-

[19] An anonymous reviewer asks why, if Move does not presuppose Agree, the EPP-feature of T could not be satisfied by moving the PrP that is its complement. This appears to be a special case of a more general constraint of the following sort: a feature F (such as EPP) associated with a category K cannot be satisfied by merging the complement K′ of K with K itself. However, this constraint can be derived in the minimalist framework from general principles. Let us define c-command as follows (Chomsky 2000:116): X c-commands Y iff Y is contained in the sister of X. It follows that X does not c-command its sister. Assuming now, as is standard, that the MLC is defined in terms of c-command, it follows that the closest element containing a feature F required by some element K cannot be the sister K′ of K itself but must instead be some element contained in K′.

tives that needs to be stipulated is that expletives in English are restricted to merging with PrP rather than with CP. I turn next to Icelandic, which behaves in just the opposite fashion.

4.2 Icelandic það

As we have just seen, there is a specific lexical property of expletives in English that rules out the possibility of transitive expletive constructions (TECs). I shall now try to explain why languages such as Icelandic, Dutch, German, Yiddish, and Frisian, in contrast to languages such as English, Norwegian, Danish, Swedish, and Afrikaans, *do* permit TECs.[20] I first illustrate the contrast with a selection of examples from Bobaljik and Jonas 1996.

(27) a. *There has someone eaten an apple.
b. *Der har nogen spist et æble. [Danish]
there has someone eaten an apple
'Someone has eaten an apple.'
c. *Daar het baie mense baie bier gedrink. [Afrikaans]
there have many people much beer drunk
'Many people have drunk a lot of beer.'

(28) a. Það hafa margir jólasveinar borðað búðing. [Icelandic]
there have many Christmas.trolls eaten pudding
'Many Christmas trolls have eaten pudding.'
b. Es essen einige Mäuse Käse in der Küche. [German]
there eat some mice cheese in the kitchen
'There are some mice eating cheese in the kitchen.'
c. Er hat iemand een appel gegeten. [Dutch]
there has someone an apple eaten
'Someone has eaten an apple.'

In order for TECs to be possible, a language must possess an expletive that can be merged with some category higher than Pr. I suggested in the previous section that the only category besides Pr with which expletives can merge is C. Support for the correctness of this proposal can be derived from the work of Bobaljik and Jonas (1996), who have shown that the subject of a TEC in Icelandic must occupy Spec,T, since it occurs to the left of objects that have undergone object shift, as well as to the left of manner adverbs such as *alveg* 'completely' and the negative element *ekki.*

[20] A comprehensive comparative survey of expletive constructions in the major Germanic languages, while obviously desirable, would take me too far afield here. One potentially important intermediate case, discussed by Vikner (1995: 196ff.), is Danish, which reportedly permits the expletive construction with unaccusatives and unergatives but not with transitives. While I do not at present have a specific analysis to propose, it is worth noting that this pattern is highly reminiscent of one well-known type of ''split ergative'' Case-marking system in which ergative Case is assigned to the subject of transitive verbs while absolutive Case is assigned to the subject of both unaccusative and unergative verbs. Perhaps the distribution of the expletive in Danish is a more restricted language-specific manifestation of this same pattern.

(29) a. Það kláruðu margar mys alveg ostinn.
there finished many mice completely cheese.the
'Many mice finished the cheese completely.'
b. Það kláruðu margar mys ostinn alveg.
there finished many mice cheese.the completely
'Many mice finished the cheese completely.'
c. Það borðuðu margir strákar bjúgun ekki (öll).
there ate many boys sausages.the not (all)
'Many boys didn't eat (all of) the sausages.'

It follows that the expletive *það* must have been merged into CP, the only available category higher than TP.[21] Example (29b) would thus be derived as follows:

(30) [$_{CP}$ það [$_{C'}$ kláruðu [$_{TP}$ margar mys$_j$ [$_{T'}$ t$_V$‴ [$_{PrP}$ ostinn$_k$ t$_j$ [$_{Pr'}$ alveg [$_{Pr'}$[t$_j$ t$_V$″ [$_{TrP}$ t$_k$′ t$_V$′ [$_{VP}$ t$_V$ t$_k$]]]]]]]]]]

Further evidence supporting this analysis can be derived from the behavior of expletives in raising constructions in Icelandic and English. Because English *there* merges with Pr, it can subsequently be raised just like any other DP. However, because the raised expletive is merged so low in the infinitive complement, its subject is confined to postverbal position in English.[22]

(31) a. There (might) seem to be mice in the cupboard.
b. *There (might) seem mice to be in the cupboard.
c. *There (might) mice seem to be in the cupboard.

In Icelandic, on the other hand, exactly the opposite is true.

(32) a. Það virðast [$_{TP}$ margir menn t$_V$″ [$_{PrP}$ t′ t$_V$′ [$_{VP}$ t$_V$ [$_{TP}$ t vera í herberginu]]]].
there seemed many men to.be in room.the
'There seemed to be many men in the room.'
b. Það höfdu [$_{TP}$ margir menn t$_V$′ [$_{PrP}$ t′ virst [$_{VP}$ t$_V$ [$_{TP}$ t vera í herberginu]]]].
there had many men seemed to.be in room.the
'There had seemed to be many men in the room.'

Assuming that raising complements are TPs (Thráinsson 1993), this distribution follows automati-

[21] Bobaljik and Jonas (1996) argue that *það* merges with Agr$_S$. However, this option is not available in the minimalist approach assumed here. Hence, it must be merged with C. Empirical evidence supporting this conclusion can be derived from the fact that an expletive is not possible if some other constituent occupies Spec,C, as is generally the case in verb-second languages. See Platzack 1987, Sigurðsson 1991, and the references therein. Alternatively, *það* might be merged with a category (such as M(ood); see footnotes 2 and 16) that is lower than C, but higher than T (Holmberg 2000:467, fn. 22).

[22] What prevents (31b) from being derived by merging *there* with Pr in the matrix clause? Chomsky (2000, 2001) rules out such examples by an economy principle preferring Merge to Move within a phase. This explanation obviously does not carry over to my theory, assuming that PrP is a phase. It may well be the case that there is a lexical restriction preventing *seem* from occurring with *there,* as is strongly suggested by the fact that unaccusative verbs differ idiosyncratically in their ability to occur with *there* (e.g., *There occurred an explosion* vs. **There went someone to the party*). This is also consistent with the suggestion in footnote 15 that the occurrence of *there* is licensed by a special subcategorization feature associated with Pr, that is to say, with v + V.

cally from my assumptions. Since, by hypothesis, the expletive *það* cannot be merged with T in the infinitive complement, its subject *margir menn* 'many men' raises successively into Pr and T in the matrix clause, at which point *það* can finally be merged with C.

The systematic absence of expletives in subject position in ECM complements can be explained in a similar fashion.

(33) a. *Ég hafði talið [$_{TP}$ það vera villu í essu handriti].
I had believed there to.be error-ACC in this manuscript
'I had believed there to be an error in this manuscript.'
b. Ég hafði talið [$_{TP}$ vera villu í essu handriti].
I had believed to.be error-ACC in this manuscript
'I had believed an error to be in this manuscript.'

Since ECM constructions in Icelandic are TPs (Thráinsson 1993), just as they are in English, the expletive *það* simply cannot be merged into the infinitive complement in such constructions. In English, in contrast, the expletive *there* merges successively with Pr and T in the infinitive complement, after which it can be raised into object position and passivized, as described in the previous section.[23]

Finally, consider still another contrast between Icelandic and English in passive expletive constructions.

(34) a. There have (*some cakes) been (some cakes) baked for the party.
b. Það hafa nokkrar kökur veri bakaðar fyrir veisluna.
there have some cakes been baked for party.the
'There have been some cakes baked for the party.'

I will assume that the passive construction in both languages is derived by combining the verb *be* with some sort of verbal complement containing the passive participle (see section 7 for further discussion). In English, *there* merges with Pr, fixing the place of the raised object in postverbal position, and subsequently raises and merges with T.

(35) [$_{TP}$ There have [$_{PrP}$ t been [$_{VP}$ t_V [some cakes baked for the party]]]].

In Icelandic, however, *það* cannot be merged until C, by which time the passivized direct object will already have merged with T, yielding the order shown in (34b).

(36) [$_{CP}$ Það hafa [$_{TP}$ nokkrar kökur t_T [$_{PrP}$ t′ veri [$_{VP}$ t_V [t bakaðar fyrir veisluna]]]]].

All of these contrasts thus derive straightforwardly from the fact that *það* in Icelandic can only merge with C, whereas in English *there* must merge with Pr.

[23] As noted by the anonymous reviewers, the position of the accusative NP *villu* 'error' to the right of the verb *vera* 'to be' suggests that the former has not moved to Spec,T. One possible explanation for this is that Icelandic has a null variant of the English-type expletive that (under certain conditions, yet to be determined) may be merged in Spec,Pr. Another possibility is that T in Icelandic (again, under certain conditions, yet to be determined) lacks an EPP-feature. I leave it to future research to decide which of these possibilities is correct.

5 Inversion Processes

Next I take up locative inversion and related constructions. Collins (1997) has used the optionality of locative inversion to argue that the economy conditions must be local rather than global. While I believe that his conclusions concerning the nature of the economy conditions are correct, the particular analysis of locative inversion he proposes is incompatible with the analysis of expletive *there* proposed here. In particular, it fails to explain why locative inversion cannot cooccur with an expletive. I therefore propose a reanalysis of locative inversion and show that it provides additional support for my theory of transitivity and argument structure. I then contrast inversion processes in English with those in Russian and show that the differences can be explained in terms of an appropriate definition of equidistance.

5.1 Locative Inversion and Progressive/Passive Inversion in English

Collins suggests (a) that the subject ϕ-features of T and its EPP-feature can be satisfied independently, and (b) that the EPP can be satisfied by any categorial feature. It follows that the locative PP in an inversion sentence such as (37)

(37) Down the hill rolled the cart.

must have optionally moved to Spec,T to satisfy the EPP-feature of T. Notice, however, that direct movement of the locative PP into Spec,T is incompatible with the theory proposed here. Suppose we have reached the following stage in the derivation of a sentence containing the verb *roll,* its subject *the cart,* and a locative PP *down the hill:*

(38) $[_{PrP}$ roll-Pr $[_{VP}[_{DP}$ the cart] $[_{V'}$ t_V $[_{PP}$ down the hill]]]]

Pr has an EPP-feature that must be satisfied. Suppose *the cart* moves and merges with PrP, resulting in the following structure:

(39) $[_{PrP}[_{DP}$ the cart] roll-Pr $[_{VP}$ t $[_{V'}$ t_V $[_{PP}$ down the hill]]]]

At this point T can merge with PrP, followed by movement of *the cart* into Spec,T, producing the sentence *The cart rolled down the hill.* Movement of the locative PP to Spec,T is, however, ruled out by the MLC. Hence, there is no way to produce (37). Loosening the MLC in some fashion to permit direct movement of the locative PP to Spec,T will not solve the problem. Not only would such a move permit incorrect sentences such as (40),

(40) *Down the hill will a cart roll.

but it would also permit a host of other incorrect sentences, including inverted locatives in transitive and unergative sentences, as well as in unaccusative expletive sentences.

(41) a. *Down the hill will John roll the cart.
b. *At your paper will the professor look.
c. *Down the hill will there roll a cart.

The problem is, as the correct form (42) shows,

(42) Down the hill will roll the cart.

that the subject in locative inversion sentences still occupies VP, just as it does in expletive sentences. Furthermore, as (41c) shows, locative inversion is incompatible with expletive *there.*

Fortunately, all these facts fall into place quite straightforwardly under the assumption that the locative PP simply merges successively with PrP and TP in order to satisfy their respective EPP-features. In fact, given the structures proposed earlier, this is the only possible derivation of locative inversion. Examples (37)/(42) must therefore be derived as follows:

(43) $[_{TP}[_{PP}$ down the hill$]$ $[_{T}$ (will)$]$ $[_{PrP}$ $t_{PP'}$ roll(ed)$]$ $[_{VP}$ the cart t_V $t_{PP}]]]]$

P: ϕ G: ϕ
nom

Note once again that the presence of a locative phrase in Spec,Pr does not prevent the probe in T from assigning nominative Case (that is to say, there is no defective intervention violation), because the locative phrase simply does not have ϕ-features of the sort that the probe is looking for. Notice also that under the standard definition of equidistance, moving the PP *down the hill* over the subject DP *the cart* does not violate the MLC, since both start out in the same maximal projection.[24] Moving a locative phrase in unaccusative sentences to Spec,Pr, then, is just another possible way that the EPP-feature of Pr can be satisfied. It follows from these assumptions that locative inversion is incompatible with expletive *there,* that it can only take place in unaccusative sentences, and that the subject in such constructions is located in VP, just as it is in expletive constructions.[25]

If this approach is correct, then *any* complement of an unaccusative verb should be able to move to Spec,Pr to satisfy the EPP-feature of Pr, forming a variety of inversion structures analogous to locative inversion.[26] This prediction is borne out by data of the following sort:

(44) a. A crow was sitting on the fence.
b. Sitting on the fence was a crow.

[24] Note that the original conception of equidistance proposed by Chomsky (1995:chap. 3), according to which the internal domain of a chain is extended by verb movement, will work equally well here. I take up this question shortly (see section 5.2), suggesting on the basis of comparative English and Russian data that Chomsky's original conception of equidistance may well be the correct one.

[25] As noted by an anonymous reviewer, this analysis of locative inversion predicts that sentences such as *Down the hill rolled perfectly the ball* should be grammatical. While such examples seem slightly less acceptable than ones in which the V-modifying adverb is on the right edge (cf. *Down the hill rolled the ball perfectly*), both are clearly far better than transitive sentences in which the adverb intervenes between the verb and the object, such as **John rolled perfectly the ball down the hill.* The data thus provide at least weak support for my analysis.

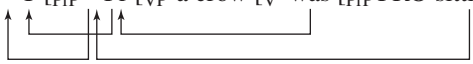
[26] An anonymous reviewer suggests that this statement is too strong, since locatives, but not datives, temporals, and other expressions, license the inversion construction. In support of this claim the reviewer cites examples such as **To John belongs this car*/*happened this, *Yesterday*/*At 5:00 arrived John.* However, all of the following examples are fine: *To John belongs the only known copy of this book, To John belongs the honor of toasting our guest, On June 23 occurred the largest explosion yet, At 10:00—more than two hours late—arrived the guest of honor,* and so on. Clearly, there are a variety of poorly understood stylistic factors that affect the acceptability of inversion structures. When these stylistic conditions are met, it becomes clear that a wide range of PPs—not just locatives—can in fact occur in inversion sentences.

(45) a. Several linguists were arrested for larceny.
b. Arrested for larceny were several linguists.

(46) a. Many interesting publications are available to the public.
b. Available to the public are many interesting publications.

As expected, progressive and passive VP complements, as well as predicate AP complements, all occur in inversion structures. Thus, (44b), for example, would be derived in a manner parallel to (43).

(47) $[_{TP}$ T $[_{PrP}$ Pr $[_{VP}$ a crow $[_{V'}$ was $[_{PrP}$ PRO sitting on the fence]]]]]



As in the case of locative inversion, the progressive phrase *PRO sitting on the fence* is moved successively into Spec,Pr and Spec,T, leaving the subject in VP. The examples in (45) and (46) are derived in exactly analogous fashion. Note, however, that extraction of the locative phrase *on the fence* from inside the progressive phrase predictably violates the MLC, as shown by the unacceptability of (48), since *a crow* and *on the fence* are not equidistant.[27]

(48) *On the fence were three crows sitting.

On the other hand, there is nothing to prevent these various inverted categories from being raised themselves, unless of course an expletive has been merged with Pr first, in which case the MLC will require that the expletive be raised, since it is now the nearest constituent. These predictions also appear to be correct.

(49) a. Sitting on the fence seems (*there) to be a crow.
b. At the party are expected (*there) to be several visiting diplomats.
c. Arrested by the police are believed (*there) to have been several linguists.
d. I expect on the table (*there) to be a pile of books.

5.2 Generalized Inversion in Russian

As we have just seen, a variety of different constituents in VP can be moved to Spec,Pr to satisfy its EPP-feature, unless Spec,Pr is already occupied by an external argument or an expletive. But what prevents a locative PP, for example, from moving directly to Spec,T to satisfy its EPP-feature, producing the ungrammatical examples in (40) and (41)? The answer is that these are straightforward violations of the MLC. However, Bailyn (forthcoming a,b) shows that in Russian a wide variety of constituents, including notably accusative case-marked objects of transitive verbs and dative case-marked arguments of experiencer verbs, can appear in inversion constructions.

[27] An apparent counterexample such as *On the fence was sitting a large crow* is probably derived by heavy NP shift from *On the fence a large crow was sitting,* where the preposed locative is an instance of Ā-movement, hence not an MLC violation. In support of this analysis, notice that the subject in such examples can be shifted over virtually any amount of intervening material: *On the fence has been sitting for the last three hours a large crow* (cf. **On the fence has been a large crow sitting for the last three hours*).

(50) a. Etu knigu čitaet Ivan.
[this book]-ACC reads Ivan
'Ivan is reading this book.'
b. Saše nravjatsja deti.
Sasha-DAT like-PL children-NOM
'Sasha likes children.'

Bailyn uses a variety of tests, including scope ambiguity, binding theory phenomena, crossover effects, Empty Category Principle effects, and so forth, to demonstrate that in every case A-movement, rather than Ā-movement, is involved. So how is this possible? What is the relevant difference between English and Russian? Bailyn argues that in Russian these constituents move directly to Spec,T to satisfy the EPP-feature of T. In the case of transitives and unergatives, this is of course the only position they could move to and the question then is why the movement of an accusative- or dative-marked argument over the subject is not ruled out by the MLC. Bailyn shows that inversion correlates with movement of the verb to T in Russian, in marked contrast to English where, as is well known, the verb remains in Pr. This strongly suggests that something like the original definition of equidistance proposed in Chomsky 1995:chap. 3 must be in effect here. In that case the chain (Pr, t) would render Spec,T and Spec,Pr equidistant. Hence, the MLC would not prevent an argument such as the accusative Case-marked DP in (50a) from moving to Spec,T to satisfy its EPP-feature.

(51) $[_{TP}$ T $[_{PrP}$ Ivan Pr $[_{TrP}$ Tr $[_{VP}$ čitaet [etu knigu]]]]]
nom acc

I conclude tentatively that Chomsky's original definition of equidistance is correct and that verb raising to T in Russian therefore permits constituents other than the subject to move to Spec,T, resulting in the ''generalized inversion'' process described by Bailyn.

In English, in contrast, there is no verb movement to T; hence, the MLC remains in full force, making it possible to satisfy the EPP-feature of T only by moving whatever is in Spec,Pr to Spec,T. As was shown earlier, the reason that inversion processes are so much more limited in English is that inversion is permitted only *within* PrP. Since Spec,Pr is an argument position, as well as the position where expletives must be merged, movement of other arguments to Spec,Pr is severely limited. Basically, inversion in English is possible only in unaccusative sentences and even then it is possible only if no other item, such as an expletive, is available in the lexical array (assuming that economy gives preference to Merge over Move). The proposed resurrection of Chomsky's original definition of equidistance thus leads to an interesting typology of inversion processes that appears to predict precisely the empirically observed differences between inversion in English and inversion in Russian.[28]

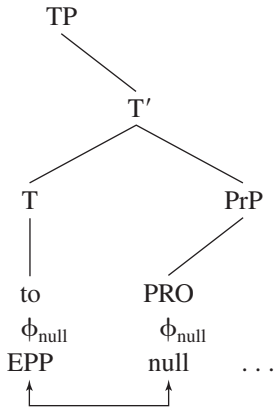
[28] Note, however, that long verb movement in a language such as French does not correlate with the presence of structures such as those in (50). I leave it to future research to determine whether French is a genuine counterexample to this definition of equidistance or whether some other typological variable is involved.

In conclusion, then, locative inversion in English, when correctly analyzed, provides strong independent support for the proposed theory of argument structure. In fact, the curious properties of these constructions follow automatically from the theory, explaining why inversion constructions and expletive constructions with *there* are possible only with unaccusative verbs in English, why they have precisely parallel structures, and why they are mutually exclusive. Finally, if Chomsky's original definition of equidistance is reinstated, then we can explain why Russian, which has verb movement to T, permits a much wider variety of inversion constructions than English, which does not.

6 PRO

At this point it is necessary to clarify the status of PRO. I have assumed so far that the restricted distribution of PRO is to be accounted for by the standard theory (Chomsky and Lasnik 1993) that PRO is the unique item that requires null Case and that null Case is licensed only in the specifier of a nonfinite T. However, there is a serious problem with this approach in a theory based on feature matching in a probe-goal relationship. Suppose we tried to extend this approach to null Case agreement, assuming that *to* has a probe containing ''null ϕ-features.'' Now suppose that *to* merges with a PrP containing PRO in its specifier, as shown in (52).

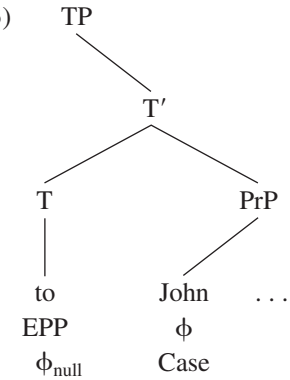
(52)



The probe in T finds a matching goal in Spec,Pr, uninterpretable features delete, and PRO moves to Spec,T to satisfy the EPP-feature of T. The derived TP with a PRO subject is then available to be merged with a verb such as *try* in the manner described in section 3. Suppose, however, that Spec,Pr contains a lexical NP with ϕ-features, as in (53). In order to produce an ECM construction, the ϕ-features of *John* must agree with the ϕ-features of a probe in Tr associated with an ECM predicate such as *believe* and accusative Case must be assigned to *John.* The problem is that *to,* by hypothesis, has a probe containing uninterpretable null ϕ-features.[29] But in this

[29] The null hypothesis, I assume, is that infinitival *to* has the same features in all contexts. The null Case theory could of course be rescued by assuming that *to* in ECM/raising and control structures has different features. I argue directly that such a departure from the null hypothesis is unnecessary.

(53)



case there is no goal in Spec,Pr with matching features. Hence, the derivation crashes. The null Case theory is thus able to account for the occurrence of PRO in Spec,Pr, but fails when there is a lexical NP in Spec,Pr.

Let us try a different approach. Suppose that *to* has no probe at all and that PRO lacks a Case feature entirely. Let us assume in addition that PRO has unvalued agreement features that can be valued only through an anaphoric relation or by ''default'' assignment of the feature *arb.* PRO thus differs from lexical arguments in having neither a Case feature nor *intrinsic* agreement features. It follows that PRO is not ''active'' and is therefore unable to value the ϕ-features of a probe. On the other hand, let us assume that PRO is like a lexical noun (and unlike an expletive) in that *it can be merged only in argument positions.* Because it lacks Case entirely, a derivation containing an instance of PRO will be able to converge only if (a) PRO either merges directly with Pr or is moved there from a lower θ-position, and (b) T is nonfinite, hence has no probe with ϕ-features that must be valued. Direct Merge with Pr may take place just in case the Pr-V position contains a verb that requires an external argument in Spec,Pr. Movement to Spec,Pr may take place just in case PRO is merged in object position and there is no Tr with a probe containing ϕ-features. As noted above, if there were a TrP, the ϕ-features of the probe in Tr would not be able to be valued; hence, the derivation would crash. It follows then that because of the special properties of PRO, on the one hand, and of Pr and nonfinite T, on the other, the only position that PRO can occupy is Spec,Pr. Once it gets there, however, it is free to move to Spec,T to satisfy the EPP-feature of T. (PRO is thus partially like an expletive, the difference being that since an expletive is only a quasi argument, it cannot be merged in a θ-position.) The special distributional properties of PRO have thus been derived from the simplest possible assumptions, namely, that PRO has neither a Case feature nor intrinsic ϕ-features and that nonfinite T has no probe at all. Notice that these two assumptions constitute the null hypothesis: any additional apparatus, such as null Case checking, is a complication, to be avoided if possible.

If this approach is correct, then PRO can end up in just two positions: Spec,T in a nonfinite clause and Spec,Pr in a small clause. The latter is a welcome result. According to the theory proposed in Bowers 1993b, 1997, 2001, a small clause (henceforth SC) is simply a bare PrP. Given this hypothesis, it is possible to describe the syntax of control and raising SC complements

(as well as adjunct SCs) in a manner that precisely parallels the treatment of infinitival raising and control complements discussed earlier. One problem with this approach, however, was that it was never quite clear what licensed the occurrence of PRO in Spec,Pr in SC constructions. Now, however, we have succeeded in deriving this result from the simplest possible assumptions concerning the inherent properties of PRO.[30]

Given these results, then, a pair of transitive and intransitive raising SC constructions would be derived as follows:

(54) a. $[_{PrP}$ they Pr $[_{TrP}$ Tr $[_{VP}$ consider $[_{PrP}$ John Pr tall]]]]
acc

b. $[_{TP}$ T $[_{PrP}$ Pr $[_{VP}$ seem $[_{PrP}$ John Pr tall]]]]
nom

In (54a) the object *John* is assigned accusative Case by Tr and then raises to Spec,Tr. In (54b), on the other hand, *John* first raises to Spec,Pr to satisfy its EPP-feature and then is assigned nominative Case by T and raises to Spec,T to satisfy its EPP-feature. Similarly, a pair of transitive and intransitive control SC constructions would have the following derivations:

(55) a. $[_{PrP}$ that Pr $[_{TrP}$ Tr $[_{VP}$ me $[_{V'}$ makes $[_{PrP}$ PRO Pr sad]]]]]
acc

b. $[_{TP}$ T $[_{PrP}$ I Pr $[_{VP}$ feel $[_{PrP}$ PRO Pr sad]]]]
nom

One particularly interesting instance of the contrast between raising and control SC complements is provided by resultative constructions of the following sort:

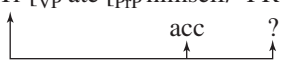
(56) a. Mary watered the tulips $[_{PrP}$ PRO flat].
b. The ice froze $[_{PrP}$ PRO solid].
c. John ate himself $[_{PrP}$ t sick].[31]
d. *John ate [PRO sick].

[30] The fact that an SC is just a bare PrP is perhaps derivable in an entirely different way from the assumption that PrP is a phase, in Chomsky's (2000, 2001) sense. It seems quite natural to suppose that only categories that are phases (''defective'' nonfinite TP in English being exceptional in this regard), namely, CP and PrP, can be selected by lexical items.

[31] An anonymous reviewer asks how the relative unacceptability of ??*John ate his mother sick,* in contrast to the clear acceptability of (56c), can be accounted for. I believe that this example is pragmatically odd, since it is hard to conceive of circumstances in which John's eating (too much) would lead to his mother's becoming sick. In support of this analysis, note that both kinds of examples are acceptable with the verb *read: John read himself/his mother sick.* The reason is that it is possible to imagine circumstances in which John's reading caused his mother to become sick (e.g., John read aloud to his mother to the point where she became sick).

As shown in Bowers 1997, (56a) is a transitive control construction, (56b) is an intransitive (unaccusative) control construction, and (56c) is a transitive raising construction. It has often been noted that there are no resultatives of the form (56d) in English (Levin and Rappaport Hovav 1995). In light of the discussion in section 3, it should be evident that this pattern of data is simply the equivalent in an SC construction of the pattern shown in (13a). Example (56d) is bad for exactly the same reason that **John believes* [*PRO to be sick*] is bad. The reason is simply that the verb *eat* in a resultative construction such as (56c) *is a transitive verb.* In order for Tr to assign accusative Case, there must be a lexical NP in Spec,PrP in the SC complement. If PRO is merged in this position instead, then the probe in Tr is unable to find a goal with matching features and the derivation crashes.

(57) [$_{PrP}$ John Pr [$_{TrP}$ Tr [$_{VP}$ ate [$_{PrP}$ himself/*PRO Pr sick]]]]



Note that control structures of the form (56d) are perfectly possible, as long as the verb is *intransitive.* If the verb is unaccusative, the result is a structure of the form (56b); if it is unergative, the result is a structure of the form (55b). If, however, the verb is *transitive,* such a structure is ruled out. Given the theory of transitivity proposed here, this fact follows from general principles, without any special stipulation.

7 Passivization

In the classical Government-Binding Theory, accusative Case is assigned to the object by the verb under government. Since a verb with passive morphology is unable to assign accusative Case, the object in a passive construction must move to subject position, where it can be assigned nominative Case, thereby satisfying the Visibility Condition on Case assignment. In its original form, the theory incorporated too strict a version of Burzio's Generalization, failing to account for the range of passive constructions actually found in natural language. In addition, the notion of ''Case absorption'' has an irreducible element of arbitrariness that has always seemed somewhat unsatisfactory. Later refinements (Jaeggli 1986, Baker, Johnson, and Roberts 1989) attempted to remedy these defects by treating the passive morpheme as an actual argument and by loosening somewhat the relation between Case assignment and θ-role assignment. However, these modifications of the Government-Binding Theory approach are not without problems of their own; and since the concept of government is, in any case, no longer available in minimalist theory, some other means of accounting for processes such as passivization is needed. I shall argue next that the theory of transitivity proposed here provides the basis for a more satisfactory approach.

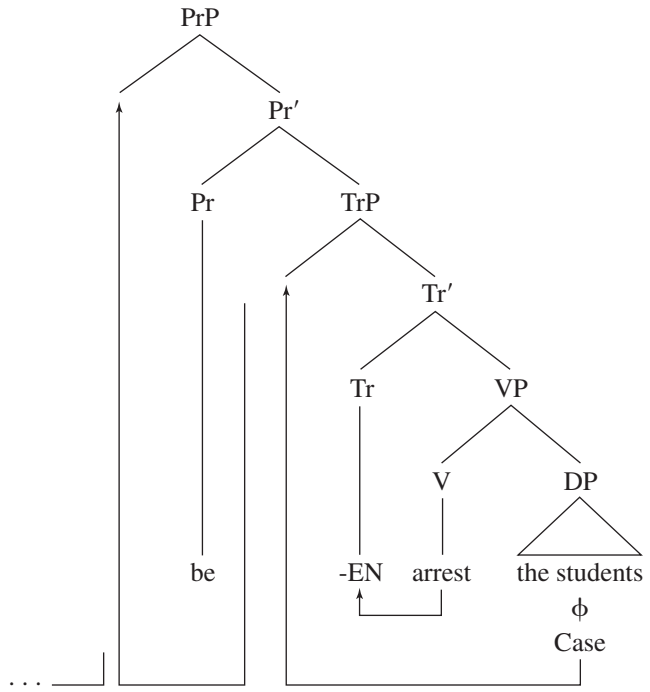
The fact that Baker, Johnson, and Roberts (1989) were forced to relax the strict connection between failure to assign a θ-role to the subject and failure to assign structural Case to the object (Burzio's Generalization) suggests that an approach based on the Visibility Condition is fundamentally flawed. The existence of passive forms of intransitives in many languages, together with the discovery of impersonal passive forms in languages such as Ukrainian (Sobin 1985), reduces the necessary correlation between Case assignment and θ-role assignment virtually to

zero. At the same time, though, it seems clear that there is some fundamental connection between transitivity and passivization. Thus, Ukrainian impersonal passives are still transitive, even though the object is assigned accusative Case. Likewise, intransitive passives, even though they have no overt object at all, are felt to have an ''understood'' object, suggesting that they too are underlyingly transitive.

7.1 Nominative and Accusative Passives

Let us start by looking at a language like English in which only transitives can be passivized and in which the object is obligatorily assigned nominative Case. By hypothesis, transitives contain a TrP. In active sentences, as we have already seen, Tr contains a probe that is searching for a matching goal. Suppose now that the only difference between an active and a passive sentence is that Tr in the latter contains the passive morpheme -EN instead of ϕ-features. The structure of a passive will then be as shown in (58).[32]

(58)



Suppose that the DP *the students* is merged in VP. Since there is no probe in Tr with matching ϕ-features that can value and delete its uninterpretable Case feature, the only alternative, as shown

[32] I assume that passive *be* is a copular verb, that is to say, a phonetically overt realization of Pr. The copula *be* then selects Tr of the form -EN, while v selects Tr of the form ϕ. Actually, the facts are more complicated, since *be* can be either a copular verb or a main verb. See Bowers 1999 and section 7.3 below, for further discussion.

in (58), is for *the students* (forced by the EPP-features of Tr and Pr) to raise successively into Spec,Tr and Spec,Pr, where its Case feature can finally be valued and deleted by the probe in T.[33] At the same time the verb *arrest* raises to Tr, where it combines with the passive morpheme -EN. The result is the passive sentence *The students were arrested.* Notice, incidentally, that the position and interpretation of V-modifying adverbs of the sort discussed earlier shows that the passive verb *must* raise at least to Tr.[34]

(59) a. The ball was thrown perfectly.
b. The song was sung beautifully.

According to this view, then, the apparent ''absorption'' of accusative Case in passives in English simply arises from the fact that Tr can be realized *either* by ϕ-features *or* by the passive morpheme -EN, but not by both. In the first case the object is assigned accusative Case and moves to Spec,Tr. In the second case it is assigned nominative Case by T after first moving to Spec,Pr, ending up in Spec,T. Similarly, it is unnecessary to stipulate that the external argument is ''suppressed'' or ''absorbed'' in this theory. Rather, it is simply the case that a structure containing both -EN in Tr and an argument in Spec,Pr will fail to converge.

At this point one might wonder why it is necessary to assume that the passive morpheme -EN is a realization of Tr. Why not assume that the passive form of the verb becomes, in effect, an intransitive verb and therefore lacks TrP altogether? The fact that the object is assigned nominative Case would then follow automatically from the fact that the passive form lacks TrP. However, there are several major problems with this approach. First, it fails to explain why only transitive verbs passivize. If a verbal form with the -EN suffix can be selected freely and merged in the V position, then there is no reason why any verb, regardless of transitivity, should not be merged in this position. Second, it would have to be stipulated that V + EN is *prohibited* from occurring with a TrP. Under the proposed analysis, in contrast, a transitive verb is characterized uniformly as one that has a TrP, regardless of whether it occurs in the active or the passive form. Third, this approach would predict that the absence of accusative Case invariably correlates with the presence of a passive form. However, the Ukrainian impersonal passives mentioned above show that this claim is false: there are in fact passive forms in which the object is marked with accusative Case. Consider the following pair of passive forms in Ukrainian (from Sobin 1985:(13)).

(60) a. Cerkv-u bul-o zbudova-n-o v 1640 roc'i.
church-FEM.ACC was-NEUT built-PASS-NEUT in 1640
'The church was built in 1640.'

[33] I leave open here the question of whether Tr has an EPP-feature when it is realized as -EN. If it does not, then the thematic object will move directly to Spec,Pr.

[34] Note that though sentences with the adverb in preverbal position are also grammatical (e.g., *The ball was perfectly thrown, The song was beautifully sung*), they have a stative interpretation that is very nearly adjectival in character, suggesting that they might derive from an SC structure containing a verbal complement of Pr. Whatever the exact nature of this ''stative'' passive might be, it crucially lacks TrP.

b. Cerkv-a bul-a zbudova-n-a v 1640 roc'i.
church-FEM.NOM was-FEM built-PASS-FEM in 1640
'The church was built in 1640.'

These examples show that the object in a passive sentence can appear in either nominative or accusative case. When the subject is nominative, the auxiliary verb agrees with it; when the subject is accusative, the verb appears in a neuter form. To account for this fact, we need only assume that in Ukrainian the passive morpheme in Tr may *optionally* have ϕ-features. If it does not, then the derivation is exactly the same as in English. If it does, then the derivation is as follows:

(61) $[_{PrP}$ $[_{Pr}$ bul-o] $[_{TrP}$ $[_{Tr}$ -no] $[_{VP}$ zbudova cerkv-u v 1640 roc'i]]]
(*it*) acc

Since accusative Case is assigned to the object by Tr, the only way to satisfy the probe in T is to merge a null expletive in Spec,Pr that agrees with the verb *bulo* 'was-NEUT'.[35] Just as in the Russian impersonal sentences discussed earlier, the accusative Case-marked DP moves to Spec,T to satisfy the EPP. The Ukrainian data thus clearly show that passive verb forms are still underlyingly transitive and therefore structurally distinct from unaccusatives. In other words, it is not Case assignment per se that determines passivizability but the more fundamental property of transitivity. Comparing these Ukrainian impersonal passives with the impersonal active sentences in Russian discussed in section 2, we see that what they have in common is precisely the property of transitivity. This in turn further reinforces the idea that transitivity is an independent category in natural language, one that is not reducible to Case assignment.

7.2 Impersonal Passives

Consider next impersonal passives such as the following in German (cited in Baker, Johnson, and Roberts 1989):

(62) a. Es wurde bis spät in die Nacht getrunken.
it was till late in the night drunk
'Drinking went on till late at night.'
(Jaeggli 1986:(22b))
b. Sonntags wird nicht gearbeitet.
Sundays is not worked
'On Sundays there is no working.'
(Roberts 1987:512)

Baker, Johnson, and Roberts (1989) attempt to account for such sentences by means of a mecha-

[35] Alternatively, if Babby (1989) and Lavine (2000) are correct, the neuter verb is simply a nonagreeing form, in which case it is unnecessary to assume a null expletive.

nism that permits nominative Case to be assigned by I within the VP to the passive morpheme -EN, which in their view is itself an argument. This makes the passive morpheme visible for θ-role assignment in the usual way. However, providing a mechanism to assign nominative Case to the -EN argument seems to overlook the fact that it is the expletive *es* that is actually assigned nominative Case: if the nominative Case that I has to assign is used up on the -EN argument, how is the expletive to get nominative Case? Furthermore, even if this proposal could be justified, Baker, Johnson, and Roberts's analysis seems to provide at best half the story. The problem posed by these sentences is why no overt arguments at all are needed: they contain neither an overt subject nor an overt object. We would like to know not only why a nonovert subject is possible but also why an overt object is unnecessary in passive sentences in some languages. Indeed, this seems to be the more puzzling of the two problems, since a nonovert (but understood) external argument in passives is quite standardly assumed in the literature, whereas a nonovert (but understood) internal argument is not.

Rather than continuing to attempt to force these facts into a theory based on the Visibility Condition, let us try a different approach entirely. It is well known that unergative verbs such as *drink, work, dance,* and so on, are closely related to transitives in that they can always take a so-called cognate object: *dance a jig, drink an enormous drink, work two nighttime jobs,* and so forth (Hale and Keyser 1993). Such cognate object constructions must be derived from structures containing TrP, according to my theory.

(63) $[_{PrP}$ Harry Pr $[_{TrP}$ Tr $[_{VP}$ dance a jig]]]
acc

As long as there is a cognate object in VP in such structures, the derivation will converge for the reasons already discussed, whereas a structure such as the following, lacking a cognate object, will obviously crash:

(64) $[_{PrP}$ Harry Pr $[_{TrP}$ Tr $[_{VP}$ dance merrily]]]
P: ϕ G: ?

Notice, however, that if a language permitted Tr in (64) to be realized morphologically by the passive participle suffix -EN, exactly as happens in English in overtly transitive sentences, then the derivation would not crash at all, because there would be no probe containing uninterpretable features in Tr and no object with an uninterpretable Case feature either. If, at the same time, the external argument is ''absorbed'' (meaning simply that it is not selected by the passive auxiliary), as is generally the case in passives, then impersonal passives of the sort found in German may be derived simply as follows:

(65) $[_{PrP}$ wurde $[_{TrP}[_{VP}$ bis spät in die Nacht trinken] $[_{Tr}$ -n]]]
es

All that is necessary for convergence in this structure is raising of the verb into Tr in order to combine with the passive morpheme and merging of the expletive *es* with Pr in order to satisfy the EPP-feature of Pr and to provide a goal for the probe in T. In short, the only difference between English and German is that Tr in unergative sentences may be realized as -EN in the latter, but not in the former. The existence of impersonal passives of intransitive verbs follows automatically from this language-particular morphological property of German. Once again, the larger point is that transitivity is a fundamental syntactic relation that cannot be reduced to any sort of visibility condition on θ-role assignment. Notice also that the existence of passive unergatives shows that the property of transitivity is independent of the presence of an external argument, since there is certainly no overt external argument in these structures and no evidence for the existence of a covert external argument either. This last point is one that will be further discussed and clarified in the next section.

7.3 The ''Understood'' Agent of Passives

I turn next to the much-discussed issue of the ''understood'' external argument of passive sentences. Consider the following contrast:

(66) a. The door opened.
b. The door was opened.

Since the earliest days of transformational grammar, it has been standard to account for the difference in interpretation between short passives and unaccusatives by positing the existence of an underlying external argument in the passive form. In earlier versions of the theory, this was an actual indefinite NP that was transformationally deleted in surface structure. In more recent work, the empty category PRO_{arb} has been posited. In both cases, however, there is an actual syntactic constituent of some sort in whatever is taken to be the external argument position. That the ''understood agent'' is an external argument is shown by the often-noted fact that regardless of what kind of θ-role is assigned to the external argument, the same θ-role is assigned to the missing argument in the passive (Marantz 1984). Yet the assumption that there is an empty category in the external argument position poses a seemingly insuperable problem within the Minimalist Program, because the PRO_{arb} in the external argument position should cause an MLC violation when the object DP is moved to Spec,T to satisfy its EPP-feature.

(67) $[_{TP}$ T $[_{vP}$ PRO_{arb} v $[_{VP}$ V DP]]]

Baker, Johnson, and Roberts (1989) attempt to find a way out of this dilemma by postulating that the θ-role required by the external argument is assigned to the passive suffix *-en,* which they treat as an actual argument. Under their analysis the suffix is in I, where it presumably will not cause an MLC violation. While this is somewhat of an improvement, there are other problems with their assumption that *-en* is an argument, as we have already seen, suggesting that it is worth looking for an alternative approach.

The strongest empirical evidence for the existence of a null external argument in passives comes from the well-known contrast between passives and middles with respect to control of purpose clauses (PCs) and occurrence of subject-oriented adverbs (SOAs) (Baker, Johnson, and Roberts 1989).

(68) a. This bureaucrat was bribed [PRO to avoid the draft].
b. *This bureaucrat bribes easily to avoid the draft.

(69) a. This bureaucrat was bribed deliberately.
b. *This bureaucrat bribes deliberately.

Somewhat surprisingly, however, passive forms with *get* do not pass the tests for presence of an understood argument.[36]

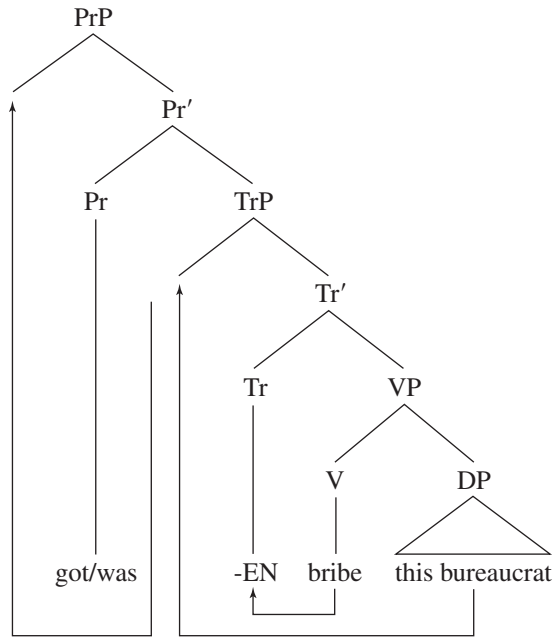
(70) a. This bureaucrat got bribed to avoid the draft.
b. This bureaucrat got bribed deliberately.

This shows that *get*-passives do not in fact have an understood external argument.

Returning now to *be*-passives, notice that examples (68a) and (69a) are actually subtly ambiguous: the SOA or PC can be interpreted in such a way that its subject is associated either with the surface subject or with an understood external argument. In other words, the *be*-passive has an interpretation that is just like that of the *get*-passive (see footnote 36), suggesting that there must be at least one derivation of the *be*-passive that is exactly like that of the *get*-passive. In this derivation there is no understood external argument and an SOA or PC can therefore only be interpreted as associated with the surface subject. If, as assumed earlier, *be* and *get* may be copular verbs (i.e., direct realizations of the category Pr), then such passive forms may be derived as shown in (71). Note that if there were a PRO_{arb} in Spec,Pr in this structure, then there would be no way for the uninterpretable ϕ-features of T to be valued, since PRO, by hypothesis, has no intrinsic ϕ-features (see the discussion in section 6). Hence, the derivation can converge only if the agent of the transitive verb is suppressed entirely, making it possible for the probe in T to find a goal in the object DP *this bureaucrat,* which is therefore assigned nominative Case by T and subsequently raised in successive-cyclic fashion into Spec,T. But if the agent of the transitive verb is suppressed completely (so that there is not even a PRO_{arb}), how is the ''agentive'' character of passive sentences to be accounted for? In other words, what syntactic property accounts for the difference of interpretation between (66a) and (66b)? The answer proposed here is that passive sentences contain the category Tr, whereas intransitive sentences do not. This shows that Tr is in fact a substantive category that carries semantic content. *The fact that passive sentences such*

[36] Note that the examples in (70) are not ungrammatical. Rather, they can only be interpreted in such a way that *this bureaucrat* is understood as the subject of the purpose clause or of the intentional adverb. They are thus roughly synonymous with the sentences *This bureaucrat got himself bribed deliberately/to avoid the draft.*

(71)



as (68a) and (69a) are subtly ambiguous thus demonstrates that transitivity cannot simply be reduced to the presence of an agent, whether overt or covert.[37] Rather, transitivity is an independent syntactic category in its own right, with interpretive properties that are independent of the presence or absence of an external argument.[38]

Notice, incidentally, that in addition to the light verb v and the copular verbs *be* and *get,* Pr may be realized by the passive auxiliaries *have* and *get,* which require an overt argument in Spec,Pr.

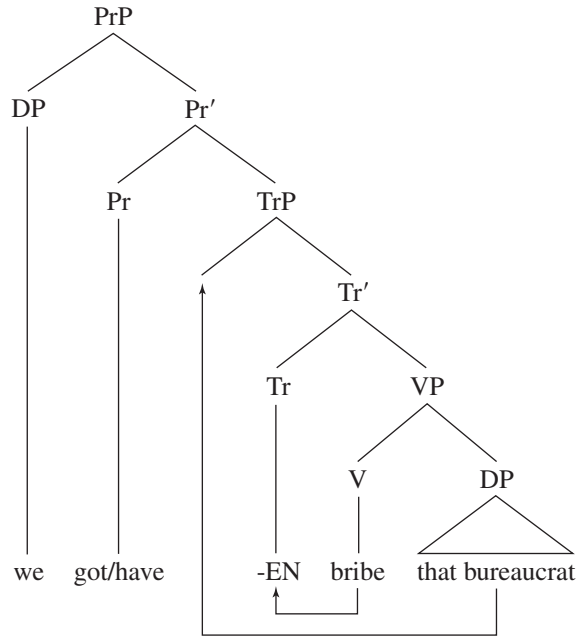
(72) a. We already have that bureaucrat bribed.
b. They will get that bureaucrat bribed in no time.

Such ''transitive'' passive constructions are identical to ''intransitive'' passives such as those in (71) except that there is an overt external argument in Spec,Pr, as shown in (73).

[37] An anonymous reviewer argues that because a sentence such as (66b) is not perceived as ambiguous, it is arbitrary to assign it two sharply different structural representations. The reviewer further suggests that such a situation should be ruled out by natural principles regulating the form/interpretation interface. I disagree. The fact that the ambiguity of (66b) is difficult to perceive when considered in isolation does not show that it is nonexistent. Rather, it simply shows that the ambiguity becomes salient only under the right conditions.

[38] Space limitations prevent me from giving a full semantic analysis of the category Tr here. Furthermore, I believe that before an adequate semantic analysis is possible, it is first necessary to recognize the essentially relational character of transitivity. These issues are discussed in Bowers, in preparation a.

(73)

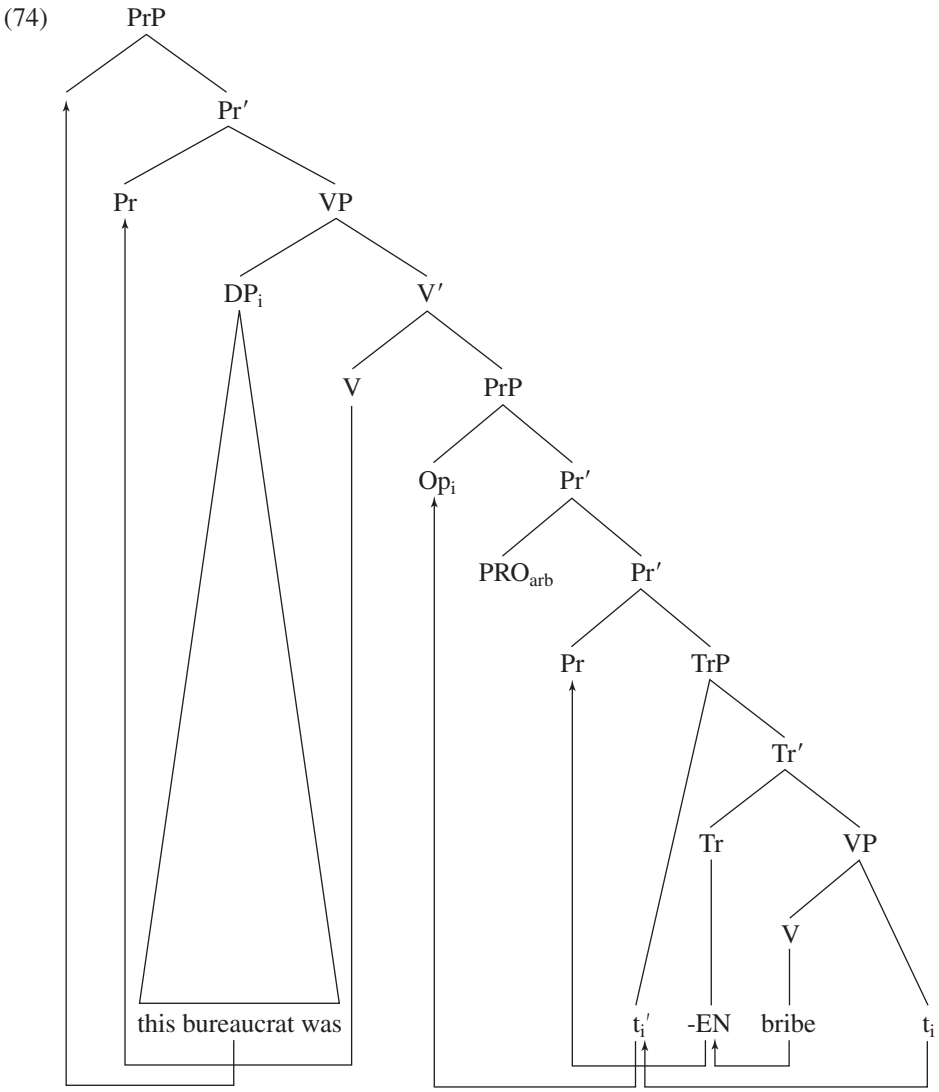


In such constructions the object is prevented from moving any further than Spec,Tr and therefore appears between the passive auxiliary and the passive participle, thus providing direct evidence both for the existence of the category Tr and for the claim that a TrP is present in passive constructions.

But then what does the other derivation of the *be*-passive look like? In particular, where does the understood external argument come from? I suggest that the passive in this case is a true existential construction in which the subject originates as an internal argument of main verb *be* and the passive participle is a PrP complement with an empty operator in the second specifier position of PrP.[39] For *This bureaucrat was bribed* the structure would be as shown in (74). This proposal immediately solves all the problems raised above. First, since there is no A-movement over the understood argument in Spec,Pr in this construction, but rather Ā-movement of the null operator, there is no MLC violation. Second, since the PrP complement in this construction contains an understood external argument, it can have an associated PC or SOA, whereas a normal passive construction with *be*, like the *get*-passive, cannot. Third, other verbs besides *be* can occur with passive empty operator constructions. In such cases it is usually much clearer that the DP which the passive phrase is predicated of is an argument of the main verb. Crucially, the passive phrase can always have an associated PC or SOA, as in (75).

[39] See Chomsky 2001 for a similar suggestion for the derivation of certain sentences with expletive *there*. Chomsky also suggests that Ā-movement is in general restricted to phase boundaries. Since PrP is a phase in my theory, it is natural to suppose that the empty operator can merge with PrP.

(74)



(75) I saw/found/had/know a bureaucrat bribed (to avoid the draft/deliberately).

Finally, note that passive phrases with an empty operator appear regularly as postnominal modifiers, in which case they can, as expected, have an associated PC or SOA.

(76) A bureaucrat bribed deliberately/to avoid the draft has a good chance of being caught.

In summary, it appears that in languages like English that require an auxiliary verb in the passive construction, there are two possible structures. One is a ''pure'' monoclausal passive construction containing a copular verb (a phonetically overt realization of the category Pr) in which the object of the main verb first raises into Spec,Pr, where it is marked with nominative

Case by T, and finally raises to Spec,T to satisfy the EPP-feature of T. Though there is no understood external argument in this construction, hence no associated PC or SOA, such structures are nevertheless transitive in interpretation because they contain the category Tr. The other one is an existential structure in which a PrP complement containing an empty operator is predicated of the thematic argument of various lexical verbs (one of which happens to be *be*). In this construction the external argument position in the Pr containing the empty operator is occupied by PRO_{arb}, which may have an associated PC or SOA.

7.4 The Middle Construction

We are now in a position to clarify the status of middle sentences such as (68b) and (69b). It is well known that these sentences differ both from passives and from unaccusatives. They are like the *get-* and nonexistential *be*-passives just discussed in *not* having an understood external argument. However, they differ from passives morphologically in that the verb does not require the passive morpheme and there is no auxiliary verb. In this respect they are more like unaccusatives. They are also similar to unaccusatives in lacking an understood external argument. Yet at the same time they differ from unaccusatives in a number of ways that have been well documented in the literature (see, e.g., Keyser and Roeper 1984, Roberts 1987, Stroik 1992, Carrier and Randall 1992). Underlying these various syntactic and semantic differences between unaccusatives and middles is the fact that middles, despite having no overt understood external argument, have a distinctly more transitive feel than unaccusatives.

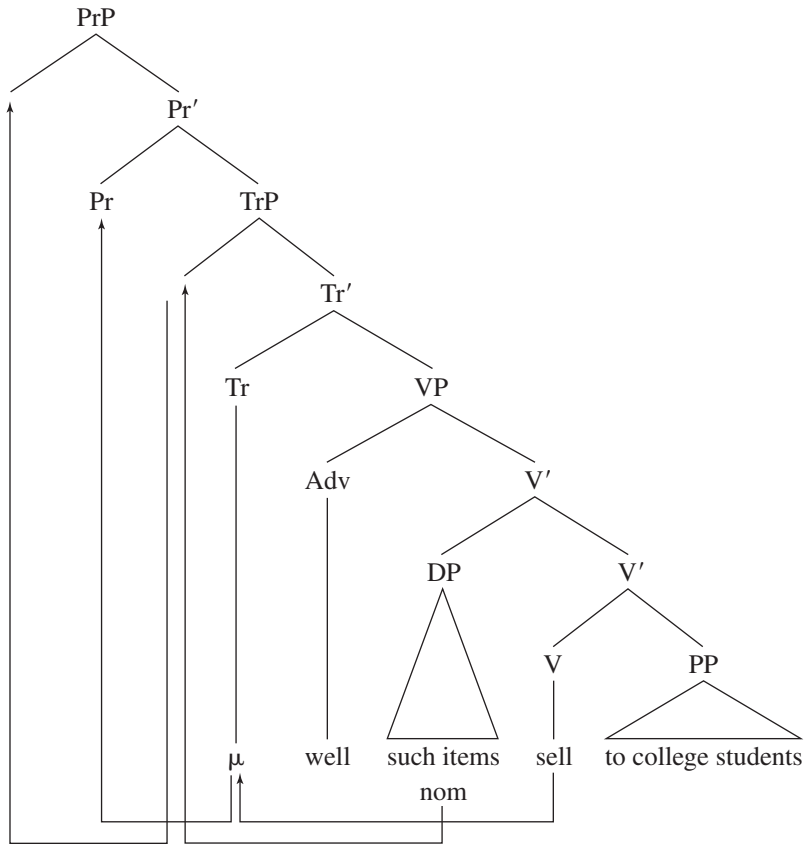
(77) a. The clothes will wash beautifully.
b. The book reads well.
c. That bureaucrat bribes easily.
d. Such items sell well to college students.

In contrast to unaccusatives, which need not have a corresponding active form, the verbs that occur in middle constructions are canonically transitive and can only be used intransitively under the somewhat limited syntactic and semantic conditions associated with this construction. How can this fact be explained?

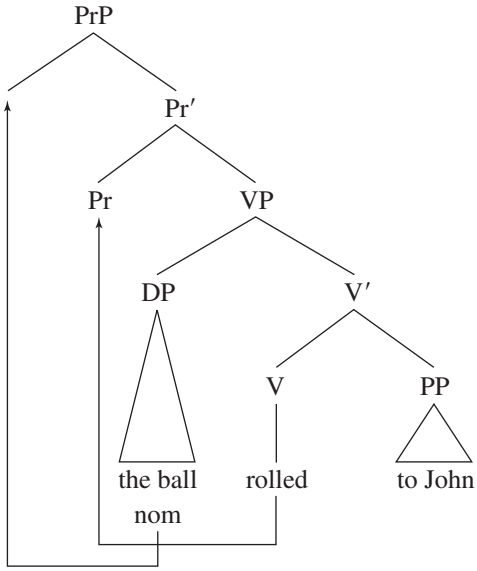
We have already seen that if Tr is realized by a morpheme such as -EN that lacks a probe with ϕ-features, then the derivation can converge only if there is no external argument to prevent nominative Case from being assigned to the object by T. Now suppose that Tr in English can have a third possible morphological realization as a phonetically null middle voice marker, which I shall represent by the symbol μ.[40] The voice morpheme μ is like -EN in not having ϕ-features, but differs from it in not requiring an auxiliary verb. Given these assumptions, a middle sentence such as (77d) may be derived quite straightforwardly as shown in (78).

[40] In Russian the morpheme *-sja* functions as a passive morpheme, rather like an overtly realized middle voice marker, but only when the verb is imperfective. When the verb is perfective, the morpheme -EN with the auxiliary verb *byt'* must be used, just as in English. Thus, in Russian a [−perf] Pr systematically selects $[_{Tr}$ -sja], while a [+perf] Pr selects $[_{Tr}$ -EN]. The morpheme *-sja* also functions as a marker of unaccusativity, allowing transitive verbs to be systematically turned into intransitives. Since the unaccusative *-sja* can be used with either imperfective or perfective verbs, we might speculate that it is in Pr rather than Tr. See Babby 1975 and Babby and Brecht 1975, for discussion.

(78)



(79)

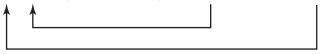


Unaccusative verbs, in contrast, do not have a TrP. Hence, an unaccusative sentence such as *The ball rolled to John* would be derived more simply, as shown in (79). The fact that unaccusatives and middles have different syntactic structures immediately provides an explanation for the ambiguity of intransitive sentences such as the following (Bowers 1993b:643):

(80) The horse gallops well.

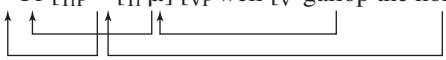
This sentence means either 'the horse is able to gallop well' or 'the horse is easy (for someone) to gallop'. In the first interpretation the verb is unaccusative and (80) is therefore derived in the same way as (79).

(81) $[_{PrP}$ Pr $[_{VP}$ well $[_{V'}$ gallop the horse]]]



In the second interpretation the verb is middle, hence derives from a structure like (78) containing a TrP.

(82) $[_{PrP}$ Pr $[_{TrP}$ $[_{Tr}$ μ] $[_{VP}$ well $[_{V'}$ gallop the horse]]]]



The theory thus provides a structural account of both the differences and the similarities between middles and unaccusatives, on the one hand, and between middles and various kinds of passives, on the other. Middles and passives are both underlyingly transitive and share the property of eliminating (or ''absorbing'') the external argument, as do impersonal intransitives in German and impersonal passives in Ukrainian. Middles differ from passives in English and German in not requiring an auxiliary verb, though in many languages passives are more like middles in this respect. The fundamental property shared by all of these constructions is transitivity, represented by the presence of a TrP in the syntax. In this respect all of them contrast with unaccusatives, which are true intransitives, hence lack TrP altogether.

8 Conclusion

I have shown that a variety of phenomena fall rather naturally into place if transitivity is treated as a substantive syntactic category, one of the core functional categories at the heart of the computational system underlying human linguistic competence. In essence, earlier theories attempted to reduce transitivity to a relation between assignment of structural Case and θ-role assignment. My investigations suggest that this approach needs to be fundamentally revised. Obviously, both the Agree relation and θ-relations play crucial roles in the operation of the system of transitivity, but the evidence shows that transitivity, like other functional categories that have been proposed, has some irreducible content that cannot be completely explicated in terms of other mechanisms of the computational system. Transitivity is similar to predication in this respect. As I have argued elsewhere, predication is also a substantive syntactic category—perhaps *the* central syntactic category of natural language—whose role in the computational system cannot be reduced to other more basic categories or mechanisms. This does not mean, incidentally, that both predication and transitivity might not be ultimately analyzable in terms of more basic substan-

tive features, but such refinements would not affect the basic point that these categories are substantive rather than purely formal in nature.

If this conclusion is correct, it is worth thinking for a moment about the nature of these categories. Both predication and transitivity are essentially relational. Predication is a relation (of a particularly fundamental kind) between two syntactic objects. Nothing precludes these two objects from being related to one another in other ways that are determined by other subsystems of grammar, but the relation itself is not reducible to the operations of these other systems. Similarly, transitivity brings two syntactic objects that may be related to one another in entirely different ways into a certain specified relation that is not decomposable into these other relations. Transitivity is different from predication in that it is not obligatory: not all sentences display transitivity, whereas all sentences display predication. Transitivity permits another syntactic element besides the subject to be brought into a relation with a predicate, but it is a subsidiary relation, hence is not always manifested in syntactic structure. Nevertheless, it is frequently there, even when not directly visible. As my analysis of passivization and related phenomena shows, transitivity is often demonstrably present even if the terms of the relation are not phonetically, or even syntactically, visible.

These observations suggest that perhaps the entire linguistic system consists ultimately of a system of relations of various kinds between classes of lexical items. Some of these relations are purely formal, others are substantive, but all are ultimately relational in nature. One of the major theoretical challenges that faces linguistic theory at the present moment is to begin to make more precise exactly what it means to say that the fundamental categories in terms of which linguistic competence is organized are essentially relational in nature. This study represents a step in that direction.

References

Babby, Leonard. 1975. A transformational analysis of transitive -SJA verbs in Russian. *Lingua* 35:297–332.

Babby, Leonard. 1989. Subjectlessness, external subcategorization, and the Projection Principle. *Zbornik Matice srpske za filologiju i lingvistiku* 9:1–55.

Babby, Leonard. 1994. A theta-theoretic analysis of adversity impersonal sentences in Russian. In *Formal Approaches to Slavic Linguistics 2: The MIT Meeting,* ed. by Sergey Avrutin, Steven Franks, and Ljiljana Progovac, 25–67. Ann Arbor: Michigan Slavic Publications.

Babby, Leonard, and Richard D. Brecht. 1975. The syntax of voice in Russian. *Language* 51:342–366.

Bailyn, John. Forthcoming a. Inversion, dislocation and optionality in Russian. In *Formale Slavistik 3,* ed. by U. Junghanns and G. Zybatow. University of Leipzig.

Bailyn, John. Forthcoming b. Towards eliminating optional movement in Russian. *Natural Language & Linguistic Theory.*

Baker, Mark, Kyle Johnson, and Ian Roberts. 1989. Passive arguments raised. *Linguistic Inquiry* 20:219–251.

Bobaljik, Jonathan, and Dianne Jonas. 1996. Subject positions and the roles of TP. *Linguistic Inquiry* 27: 195–236.

Bowers, John. 1973. Grammatical relations. Doctoral dissertation, MIT, Cambridge, Mass. [Published by Garland, New York, 1986.]

Bowers, John. 1993a. The syntax and semantics of stage level and individual level predicates. Paper presented at the Third Semantics and Linguistic Theory Conference, University of California, Irvine.

Bowers, John. 1993b. The syntax of predication. *Linguistic Inquiry* 24:591–656.
Bowers, John. 1997. A binary analysis of resultatives. In *Texas Linguistic Forum 38: The syntax and semantics of predication,* ed. by Ralph C. Blight and Michelle J. Moosally, 43–58. Austin: University of Texas, Department of Linguistics.
Bowers, John. 1999. Predication and argument structure. Invited talk, Princeton University, Princeton, N.J.
Bowers, John. 2001. Predication. In *The handbook of contemporary syntactic theory,* ed. by Mark Baltin and Chris Collins, 299–333. Oxford: Blackwell.
Bowers, John. In preparation a. Syntactic relations. Ms., Cornell University, Ithaca, N.Y.
Bowers, John. In preparation b. Tense and mood. Ms., Cornell University, Ithaca, N.Y.
Carrier, Jill, and Janet Randall. 1992. The argument structure and syntactic structure of resultatives. *Linguistic Inquiry* 23:173–234.
Chomsky, Noam. 1981. *Lectures on government and binding.* Dordrecht: Foris.
Chomsky, Noam. 1995. *The Minimalist Program.* Cambridge, Mass.: MIT Press.
Chomsky, Noam. 2000. Minimalist inquiries. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik,* ed. by Roger Martin, David Michaels, and Juan Uriagereka, 89–155. Cambridge, Mass.: MIT Press.
Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language,* ed. by Michael Kenstowicz, 1–52. Cambridge, Mass.: MIT Press.
Chomsky, Noam, and Howard Lasnik. 1993. The theory of principles and parameters. In *Syntax: An international handbook of contemporary research,* ed. by Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld, and Theo Vennemann, 506–569. Berlin: de Gruyter. [Reprinted as chapter 1 in Chomsky 1995.]
Cinque, Guglielmo. 1999. *Adverbs and functional heads.* Oxford: Oxford University Press.
Collins, Chris. 1997. *Local economy.* Cambridge, Mass.: MIT Press.
Collins, Chris. 2000. VP internal structure in Ju|'hoan and ǂHoan. Ms., Cornell University, Ithaca, N.Y.
Frampton, John, and Sam Gutman. 2000. Agreement is feature sharing. Ms., Northeastern University, Boston, Mass.
Hale, Kenneth, and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger,* ed. by Kenneth Hale and Samuel Jay Keyser, 53–109. Cambridge, Mass.: MIT Press.
Holmberg, Anders. 2000. Scandinavian stylistic fronting: How any category can become an expletive. *Linguistic Inquiry* 31:445–483.
Jaeggli, Osvaldo. 1986. Passive. *Linguistic Inquiry* 17:587–633.
Kayne, Richard. 1994. *The antisymmetry of syntax.* Cambridge, Mass.: MIT Press.
Keyser, Samuel Jay, and Thomas Roeper. 1984. On the middle and ergative constructions in English. *Linguistic Inquiry* 15:381–416.
Koizumi, Masatoshi. 1993. Object agreement phrases and the split VP hypothesis. In *Papers on Case and agreement I,* ed. by Jonathan D. Bobaljik and Colin Phillips, 99–148. MIT Working Papers in Linguistics 18. Cambridge, Mass.: MIT, Department of Linguistics and Philosophy, MITWPL.
Koizumi, Masatoshi. 1995. Phrase structure in minimalist syntax. Doctoral dissertation, MIT, Cambridge, Mass.
Kratzer, Angelika. 1993. On external arguments. In *Functional projections,* ed. by E. Benedicto and J. Runner. University of Massachusetts Occasional Papers 17. Amherst: University of Massachusetts, GLSA.
Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19:335–391.
Lasnik, Howard, and Mamoru Saito. 1991. On the subject of infinitives. In *CLS 27,* ed. by Lise M. Dobrin, Lynn Nichols, and Rosa M. Rodríguez, 324–343. Chicago: University of Chicago, Chicago Linguistic Society. [Reprinted as chapter 2 in *Minimalist analysis.* Oxford: Blackwell, 1999.]

Lasnik, Howard. 1995a. Case and expletives revisited. *Linguistic Inquiry* 26:615–633. [Reprinted as chapter 4 in *Minimalist analysis.* Oxford: Blackwell, 1999.]
Lasnik, Howard. 1995b. Last Resort. In *Minimalism and linguistic theory,* ed. by Shosuke Haraguchi and Michio Funaki, 1–32. Tokyo: Hituzi Syobo. [Reprinted as chapter 6 in *Minimalist analysis.* Oxford: Blackwell, 1999.]
Lasnik, Howard. 1995c. A note on pseudogapping. In *Papers on minimalist syntax,* ed. by Rob Pensalfini and Hiroyuki Ura, 143–163. MIT Working Papers in Linguistics 27. Cambridge, Mass.: MIT, Department of Linguistics and Philosophy, MITWPL. [Reprinted as chapter 7 in *Minimalist analysis.* Oxford: Blackwell, 1999.]
Lavine, James. 2000. Topics in the syntax of nonagreeing predicates in Slavic. Doctoral dissertation, Princeton University, Princeton, N.J.
Levin, Beth, and Malka Rappaport Hovav. 1995. *Unaccusativity: At the syntax–lexical semantics interface.* Cambridge, Mass.: MIT Press.
Marantz, Alec. 1984. *On the nature of grammatical relations.* Cambridge, Mass.: MIT Press.
Moore, John, and David Perlmutter. 2001. Evidence for silent expletives in Russian. Paper presented at the 75th annual meeting of the Linguistic Society of America.
Perlmutter, David. 2001. Language-internal and cross-linguistic bases of explanation. Presidential address presented at the 75th annual meeting of the Linguistic Society of America.
Perlmutter, David, and John Moore. 2001. Language-internal explanation: The distribution of Russian impersonals. Ms., University of California at San Diego.
Platzack, Christer. 1987. The Scandinavian languages and the null-subject parameter. *Natural Language & Linguistic Theory* 5:377–401.
Ramchand, Gillian. 1997. *Aspect and predication: The semantics of argument structure.* Oxford: Oxford University Press.
Rizzi, Luigi. 1982. *Issues in Italian syntax.* Dordrecht: Foris.
Roberts, Ian. 1987. *The representation of implicit and dethematized subjects.* Dordrecht: Foris.
Sigurðsson, Halldór Ármann. 1991. Icelandic Case-marked PRO and the licensing of lexical arguments. *Natural Language & Linguistic Theory* 9:327–364.
Sobin, Nicholas. 1985. Case assignment in Ukrainian morphological passive constructions. *Linguistic Inquiry* 16:649–662.
Stroik, Thomas. 1992. Middles and movement. *Linguistic Inquiry* 23:127–137.
Thráinsson, Höskuldur. 1993. On the structure of infinitival complements. In *Harvard working papers in linguistics 3,* ed. by Höskuldur Thráinsson, Samuel David Epstein, and Susumu Kuno, 181–213. Cambridge, Mass.: Harvard University, Department of Linguistics.
Vikner, Sten. 1995. *Verb movement and expletive subjects in the Germanic languages.* Oxford: Oxford University Press.

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