Putting the X on TH/EX

Martin Atkinson

In this discussion, I am concerned with the argument presented in Chomsky (1999, 15-21) that a specific movement rule, which he labels TH/EX for 'thematisation/extraposition,' is properly located in the phonological component of a grammar of English. This is a provocative proposal, not least because it raises interesting questions of implementation. Additionally, it has the consequence that, in a restricted sense, phonological properties play a role in narrow syntax, a consequence that 'modifies slightly the standard assumption' (19) that such a role is non-existent.[1] I hope to do two things. First, I am concerned to set out the argument as clearly as possible. This is a non-trivial task, as Chomsky writes with a familiar paucity of concessions to the reader. Second, I shall try to show that, in a surprisingly direct way, acceptance of Chomsky's conclusions yields consequences that are straightforwardly unacceptable. For the most part, I shall not raise questions about the correctness of Chomsky's claims about the data on which he bases his argument, seeking to reconstruct what he intends on the basis of the examples he cites.[2]

The argument centres on expletive constructions containing passive or unaccusative predicates, and the relevant paradigm is illustrated in (1):

(1)a. *there were donated several books on reptiles to the bazaar

   b. there were several books on reptiles donated to the bazaar

   c. there were donated to the bazaar several books on reptiles

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[1] There are two other cases of apparent syntactic movement that Chomsky (1999) suggests might be appropriately located in the phonology. One is what, in his discussion of Object Shift, he refers to as DISL (for 'dislocation'), which 'raises a [shifted object] to a higher position' in a language such as Icelandic. The attraction of this proposal is that it enables Chomsky to formulate the generalisation that languages permit Object Shift *only if* the shifted object undergoes further raising (via A'-movement in English, via DISL in Icelandic), but there is no detailed argumentation for the 'phonological nature' of DISL. The second is head raising in connection with which Chomsky makes a number of suggestive observations, but again offers no attempt to integrate such a process into his overall framework. Roberts (2001) is a recent careful evaluation of these suggestions.

[2] For a rather different discussion of this argument, taking account of a wider range of data than that considered here, but also coming to the conclusion that Chomsky's position is difficult to sustain, see Radford (2000).

What we see here is that (1a), with the direct object of the passive verb in its canonical position immediately adjacent to the verb, is unacceptable. This unacceptability, however, does not infect (1b, c), in which the direct object expression has either been 'thematised' (in 1b) by moving it to the left or 'extraposed' (in 1c) by moving it to the right. The possibility of this type of extraposition is invoked to account for the relative acceptability of such examples as (2):

(2)a. there arrived three men

   b. there occurred a great storm

In these examples, Chomsky suggests that, appearances notwithstanding, the internal argument is not strictly adjacent to the verb; rather, it has been (string) vacuously extraposed to the right via the same process as is operative in the derivation of (1c). The rule (or rules, but I will set aside such niceties from now on) in question, it is maintained, is unusual in that other European languages, regarded as having wider ordering options than English – Chomsky mentions Italian and Dutch - appear not to utilise it. Furthermore, it appears to have no interpretive consequences. What Chomsky has in mind here are the familiar concomitants of raising to subject and Object Raising, and can be illustrated by (3):

(3)a. the book on reptiles was donated to the bazaar

   b. *there was donated the book on reptiles to the bazaar

   c. *there was the book on reptiles donated to the bazaar

   d. *there was donated to the bazaar the book on reptiles

What we see here is the definiteness effect, whereby the associate in an expletive construction has to be indefinite for the existential reading to be possible. Supposing that we construct a derivation with *the book on reptiles* as direct object of *donated*. This derivation can yield an intelligible interpretation via raising the direct object to SPEC, T, one of the peripheral positions consistent with definiteness, specificity, etc. 'a traditional idea, still somewhat obscure' (27). However, this outcome is not secured by TH/EX - the only reading available for (3c) is the so-called 'list' reading, where it might be construed as an answer to a question such as *what could we send to John*?, and (3d) sounds pretty bad on any reading. Unexpectedness in the context of the behaviour of other languages and semantic inertness persuade Chomsky that it is worth examining the proposition that TH/EX is *not* an

instantiation of Move in the narrow syntax – the alternative is that it comprises a phonological process.[3]

Let us turn, then, to what might be involved in locating TH/EX in the phonology. At a descriptive level, Chomsky observes that 'English bars surface structures of the form [V-DO], where the construction is unaccusative/passive'(16). In terms of the framework developed in Chomsky (1999), this means that TH/EX must be 'triggered' by a verbal phrase 'which we may presume to be vP (v a light verb marking unaccusative/passive)' (18).[4] Thus, for the examples in (1), we are concerned with structures such as (4):

(4) [$_{vP}$ v-donated [several books on reptiles] to the bazaar]

When the system meets (4) 'the syntactic object α [= vP] so far constructed is transferred to the phonological component for application of TH/EX' (16). It is necessary to try to be explicit about the effects of TH/EX, since this transferral to the phonological component is not to be identified with a token of Spell-out. These latter occur only when strong phases are reached in the derivation, and the removal of an object to the phonological component under Spell-out has the consequence that that object is no longer accessible to the narrow syntax.[5] Note, however, that in (4), the phrase *several books on reptiles* must remain visible in some form to the narrow syntax. If this were not so, the plural agreement in (1b, c) would not be explicable, as this arises via a token of T, *which enters the derivation at a later stage than what we see in (4)*, identifying *books* as a matching goal and thereby triggering the narrow

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[3] It is worth observing that what we have here with the reliance on semantic inertness is an entirely *negative* justification for TH/EX being part of the phonology. As I understand it, within Chomsky's recent (1998, 1999) formulations of minimalism, all tokens of movement, if they are to be construed as *apparent* imperfections, must be motivated by interface requirements. If a species of movement is associated with interpretation, we have a direct argument for that species of movement belonging to narrow syntax. Equally, if a species of movement is not associated with interpretation, we have a direct argument that it should not be implemented in the narrow syntax. However, the only reason for assigning such movement to the phonology at this stage of the argument is that *there is nowhere else to put it*. If TH/EX is properly regarded as phonological, it must be ultimately motivated by PF-interface requirements (see Atkinson 2000 for some elaboration)

[4] A word of caution is appropriate in the context of the previous footnote. I am not suggesting that it is literally *this configuration* that is responsible for TH/EX. Presumably, we need to suppose that some feature (or features, taking account of the two variants of TH/EX) that is interface-uninterpretable but motivated by PF can enter the derivation at this stage, this being the object that 'triggers' TH/EX and TH/EX being the mechanism that deletes this feature. It is, of course, important to Chomsky's account that v is distinguished from v*, the light verb appearing in transitive constructions and determining a 'strong phase.'

[5] Note, however, that phase-based Spell-out does not allow the system to banish a spelled out object from all subsequent consideration. The object must be properly integrated with later stages of the derivation at both LF and PF, whatever this might amount to.

syntactic operation of Agree. Immediately, then, we meet an observation entailing that narrow syntax has access to the *product* of a phonological operation, and it is in this sense that we have a departure from 'the standard assumption' (see above).

To be explicit about the operation of TH/EX requires attention to two related questions. These are (i) what are the details of TH/EX as an operation of the phonological component? (ii) in the light of the previous paragraph, what is the nature of the object TH/EX 'returns' to the narrow syntax? In what follows, I am not going to seek to address (i) - Chomsky refers to the possibility of 'adjunction to vP' for extraposition and 'substitution in SPEC-v' for thematisation, and there are presumably difficult questions about whether even these descriptive characterisations are intelligible within the phonological component. I believe that even without an articulated view on the nature of TH/EX, it is possible to consider (ii) in an interesting way.

It seems to me that, in principle, there are four types of object that might be 'handed back' to the narrow syntax following an application of TH/EX.[6] First, TH/EX might simply produce a copy of the thematised/extraposed phrase in its vP-peripheral position, in a way that is indistinguishable from the operation of narrow syntactic rules. If this were the case, the result of TH/EX applied to (4), and hence the syntactic object available to a continuing narrow syntactic derivation, would be (5a, b):

(5)a. [$_{vP}$ [several books on reptiles] v – donated [several books on reptiles] to the bazaar]

   b. [$_{vP}$ v – donated [several books on reptiles] to the bazaar [several books on reptiles]]

A second possibility is that TH/EX copies the moved phrase into its new position and also deletes the phonological features of the phrase in its original position. Adopting the convention of using capitals for an expression stripped of its phonological features, this would give us (6a, b):

(6)a. [$_{vP}$ [several books on reptiles] v – donated [SEVERAL BOOKS ON REPTILES] to the bazaar]

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6   It must be emphasised that what I am now considering is the nature of the object that remains accessible to the narrow syntax, not the nature of the object that continues to engage phonological processes. As regards the latter, it might be wondered whether *anything* is done at this stage beyond whatever is necessary to ensure that the moved expression appears in the right linear position at PF. Perhaps this 'intermediate' phonological object is then held until the next strong

b. [$_{vP}$ v – donated [SEVERAL BOOKS ON REPTILES] to the bazaar [several books on reptiles]]

Third, TH/EX might copy the moved phrase into its pronounced position *for the phonology*, but have no affect whatsoever in the narrow syntax. This would mean that the narrow syntactic derivation continues on from (4), and is entirely oblivious to this operation of the phonological component. Finally, TH/EX might indeed copy the moved phrase exclusively for the phonology, but it might additionally strip the phonological features from the phrase in its original position. This possibility yields (7), irrespective of whether TH/EX operates leftwards or rightwards:

(7) [$_{vP}$ v – donated [SEVERAL BOOKS ON REPTILES] to the bazaar]

We now consider which of these alternatives is appropriate.

Taking (5) - the view that TH/EX gives back to the narrow syntax exactly what it would have yielded were it a narrow syntactic operation – it is immediately clear that this is conceptually unattractive. Adoption of it would appear to indicate that there is no substantive distinction between the effects of movement processes in the phonology and in the narrow syntax, and the suggestion that TH/EX is a phonological rule becomes no more than a labelling exercise.[7] Additionally, (5) could be confronted with the arguments that are about to be considered, so we can set it aside with some confidence.

Next, consider (4) – the proposal that narrow syntax is totally insulated from the effects of TH/EX. From a cross-linguistic perspective, this is attractive. As noted above, Chomsky observes that there are languages that contain constructions analogous to (1a), and it is plausible to suppose that the interpretation of these structures in these languages is identical to the interpretation of (1b, c) in English. This provides a *prima facie* case for (1b, c) having LF-representations that ignore the movements of *several books on reptiles*, and with the assumption that (4) provides both the input and (syntactically relevant) output of TH/EX, this is immediately achieved. Chomsky, however, argues (somewhat implicitly) against (4), by considering examples such as those in (8):[8]

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phase is reached, at which point it is integrated into a larger structure and goes to the PF-interface, but speculation is all we have here.

[7] In effect, this position regards a phonological rule as a narrow syntactic rule plus a phonological operation, with the effects of the phonological operation being available via the narrow syntax when the next strong phase is reached. The unattractiveness of this hardly needs emphasis. Additionally, we would expect a rule of this form to have semantic consequences, and we are starting from the proposition that this is not the case for TH/EX.

[8] In fact, I don't find these examples as bad as the asterisk would indicate. Chomsky's own illustrations of the restriction are (15, 17):

(8)a. *how many books were there donated t to the bazaar?

    b. *which books were there donated t to the bazaar?

If (4) were correct as the syntactically relevant output of TH/EX, we would expect a *wh*-phrase in the position of *several books on reptiles* to be a legitimate target for *wh*-movement. In general, there is no difficulty in extracting a *wh*-phrase from this position:

(9) which books on reptiles were donated t to the bazaar?

Nor, is there any global incompatibility between applications of TH/EX and *wh*-movement, an incompatibility that, if it existed, would of course require independent explanation. To this point, Chomsky cites (10a, b) (his (30), 17), and (10c) is an example based on the sentences being considered here:[9]

(10)a. to whom was there a present given t?

    b. ?at which airport did there arrive t three strange men

    c. to which bazaar were there donated t several books on reptiles

In (10a), *a present* has been 'thematised' by TH/EX to the left periphery of vP and *wh*-movement can still apply *to a different phrase* in the structure. Similarly, in (10b, c), *wh*-movement of *at which airport* and *to which bazaar* appears to be compatible with the rightward 'extraposition' via TH/EX of *three strange men* and *several books on reptiles*.

    (i)   *how many packages did there arrive in the mail?

    (ii)   *how many packages were there placed on the table?

    (iii) *how many men did there enter the room?

    (iv) *how many journals did there hit the stands?

    (v)   *how many men did there arrive?

For me, (i) and (ii), with the same properties as (8a, b) aren't too bad. The remaining examples are awful, but as Chomsky acknowledges, (iii) and (iv) are based on a different construction (the marginal 'English transitive expletive construction') to that under consideration here. And (v) is considerably improved for me if there is a final adjunct, e.g. *how many men did there arrive last week*? For the purposes of the argument being developed here, I shall ignore such differences and operate with the judgements Chomsky reports.

[9]   In these examples, t marks the initial position of the moved *wh*-items. The corresponding position for the item moved by TH/EX is not indicated.

Furthermore, *wh*-movement, it seems, cannot extract a *wh*-item from inside the phrase moved by TH/EX. The examples Chomsky uses to try to make this point (his (31), 17) appear as (11):

(11)a. what are they selling books about t in Boston these days?

   b.*what are there books about being sold t in Boston these days?

Unfortunately, while (11b) is relevant to a different aspect of Chomsky's argument, it is inappropriate at this point, as the phrase from which *what* has been extracted here is already on the left periphery of vP. The example needed at this stage is (12), which, fortunately for the argument, is equally bad:

(12) *what are there being sold books about t in Boston these days?

Thus, while (11a) indicates that *wh*-extraction from inside the internal argument of *sell* is legitimate in these circumstances, something in (12) prevents this extraction. If the syntactically relevant output of TH/EX left the internal argument of the passive verb completely unaffected, it is difficult to see how this contrast could be accounted for. The fact that the verb in (12) is passive does not appear to be the crucial factor given the relative acceptability of (13):

(13)?what was John being sold books about t at the bazaar?

It appears, then, that there are good grounds for rejecting (4) as a proposal for the syntactically relevant output of TH/EX.

   Next, consider (6), the proposal that the narrow syntax proceeds with a full copy of the moved phrase in the peripheral position, while phonological features are stripped from the phrase in its original position. Again, we can begin by drawing attention to the need for the relevant structures to reach LF in relevantly similar forms for languages that do and do not have TH/EX. Obviously, this requirement puts this suggestion under some strain, as it entails that a TH/EX language will present LF with some sort of non-trivial chain, where a non-TH/EX language has only the *in situ* phrase. It might be speculated that some principle or other could establish LF-equivalence of these objects, but that would be a complication, and to be avoided if at all possible.

   In fact, we do not need to be persuaded by the preceding paragraph, since it again transpires that consideration of *wh*-movement possibilities yields the conclusion that the

position to which a phrase is moved under TH/EX is inaccessible to this core syntactic process. In this connection, it is necessary to focus on extraction *from* a *wh*-phrase rather than on movement of the whole *wh*-phrase. To see this, consider unmoved *wh*-analogues of (1b, c):

(14)a. there were how many books on reptiles donated to the bazaar?

b. there were donated to the bazaar how many books on reptiles?

Application of *wh*-movement in these cases yields the ill-formed (15) (but see n8):

(15)*how many books on reptiles were there (t) donated to the bazaar (t)?

But, of course, as well as the putative sources in (14a, b), this could have as its source the ill-formed (1a), and so it is not possible to conclude anything about extraction from the sites to which phrases are moved by TH/EX on the basis of such examples.

Fortunately, it is easy enough to construct relevant examples, and we have already seen (11b), incorrectly used by Chomsky with respect to non-extraction from the pre-movement site of TH/EX. We can now recruit it correctly as indicating that it is not possible to extract a *wh*-item from the 'thematised' position resulting from TH/EX, and (16) serves to make the same point for the 'extraposed' position:

(16) *what are there being sold in Boston these days books about t?

In this same connection, Chomsky observes the contrast in (17) (his (33i, ii), 18)), noting that 'the data are less sharp than one would like.'

(17)a. ?who did they deliver to your office a picture of t?

b. *who was there delivered to your office a picture of t?

What (17a) shows is that familiar extraposition from the internal argument position of a transitive verb is not incompatible with *wh*-extraction from the extraposed phrase. However, some degradation in acceptability results if we seek to extract a *wh*-item from a phrase that has undergone the 'extraposition' option of TH/EX. If this latter phrase were available to the narrow syntax, as is proposed in (6), this contrast would be difficult to account for.

Finally, we turn to (7), the option that I believe Chomsky himself adopts. First, note that the relevant LF-equivalence of TH/EX and non-TH/EX languages follows naturally from this

suggestion. For a non-TH/EX language, we suppose that the relevant phrase remains *in situ* and its phonological features are stripped off at the first available strong phase. From then on, the relevant parts of the structure are identical for both TH/EX and non-TH/EX languages. Second, the various observations that have been made regarding the difficulties of *wh-*extraction, either of the whole phrase or of some part of the phrase, fall into place, so long as we adopt something along the lines of (18):

> (18) a syntactic object lacking phonological features is not accessible to movement.

Chomsky seeks to localise the source of (18) in the pied-piping component of movement, but, as it is not central to my concerns here, I shall not explore this matter further. What we have in (18) will be sufficient to raise the concern that I wish to consider in the remainder of this discussion.

The problem I now wish to focus on arises in an alarmingly direct way, if we adopt the set of assumptions in (19):

> (19) a. TH/EX is an obligatory operation of the phonological component of English.
>   b. TH/EX is triggered by the configuration $[_{vP} \, v - V - [x - n - y]\dots]$.
>   c. The syntactically relevant output of TH/EX is $[_{vP} v - V - [\, X - N - Y]\dots]$, where $[X - N - Y]$ is derived by stripping the phonological features from $[x - n - y]$, n a nominal.
>   d. A syntactic object lacking phonological features is not accessible to movement.

Of these assumptions, the only one that has not been explicitly discussed above is (19a), but it appears to be uncontroversial. Setting aside movement contexts, non-application of TH/EX in an appropriate configuration yields a structure which is 'barred' (15) in English, so it would appear that within the general framework of Chomsky (1998, 1999), there must be a feature or features, uninterpretable at the interfaces, which obligatorily require the application of a token of TH/EX if they are to be deleted. That this is consistent with Chomsky's intentions is indicated by his later reference to 'the obligatory TH/EX rule of English' (23).[10]

But now consider again the token of the triggering configuration in (4), repeated as (20):

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[10]   It should be noted that Chomsky (1999, 19) signals a difference between the 'thematisation' and 'extraposition' varieties of TH/EX when he says: 'The rightward variant of TH/EX is like extraposition in that it does not iterate, *perhaps a more general property of operations not driven by uninterpretable features, and/or phonological operations*' (my italics – MA). The reference to 'phonological operations' makes it difficult to reconcile this remark with the speculation (18) that 'a weak [vP] phase has a phonological counterpart to EPP,' a speculation that suggests that the *phonological* operation of 'thematisation' is feature driven. Whatever is responsible for driving TH/EX, its obligatoriness appears to be uncontroversial.

(20) [$_{vP}$ v – donated [several books on reptiles] to the bazaar]

Given the obligatoriness of TH/EX, this structure *must* be handed over to the phonology. Furthermore, as there should be no look-ahead in the system, this handing over should take place irrespective of whatever lexical resources are waiting in the numeration to be integrated into the structure. Following TH/EX, on the argument outlined above, the narrow syntactic derivation continues with (21):

(21) [$_{vP}$ v – donated [SEVERAL BOOKS ON REPTILES] to the bazaar]

In (21), SEVERAL BOOKS ON REPTILES has been voided of phonological content with the consequence that it is inaccessible to syntactic movement.

   But now suppose that (21) is extended by further steps in the derivation to (22):

(22) [$_{TP}$T be [$_{vP}$ v – donated [SEVERAL BOOKS ON REPTILES] to the bazaar]

In this structure, T can act as a probe and identify BOOKS as a goal, triggering a token of Agree. However, SEVERAL BOOKS ON REPTILES is not available to satisfy the EPP-feature of T, since, as a phonologically empty object, it falls under (19d). But, of course, (23) is completely unexceptionable:

(23) several books on reptiles were donated to the bazaar

It is of interest in this connection that in extending his discussion of TH/EX and seeking to strengthen the conclusion that it is a phonological rule, Chomsky (20) considers the examples in (24) (his (38)):

(24)a. there are expected to be caught many fish

   b. there are expected to be many fish caught

   c. there are many fish expected to be caught

   d. many fish are expected to be caught

Here, (24a, b) are presented as the results of TH/EX, the former involving vacuous extraposition, (24c) is the case that interests Chomsky, as it might be regarding as instantiating iterative TH/EX, something he wishes to argue against, and (24d) is

characterised as 'the unproblematic result of successive cyclic A-movement …'[11] But, as I hope to have shown very clearly above, successive cyclic A-movement is anything other than 'unproblematic' in this context. For (24d), the derivation reaches the stage schematised in (25):

(25)   [$_{vP}$ v – caught [many fish]]

At this stage, TH/EX is obligatory, and produces (26) for the narrow syntactic computation:

(26) [$_{vP}$ v – caught [MANY FISH]]

But now the phrase *many fish* is not accessible for any subsequent movement, and (24d) cannot be derived.

In conclusion, it appears that treating TH/EX as a phonological rule has the consequence that cyclic A-movement becomes unimplementable from passive/unaccusative complements.

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Author's Address:

Department of Language & Linguistics
University of Essex
Colchester CO4 3SQ
United Kingdom

Email: *matkin@essex.ac.uk*

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[11]   In connection with (24c), Chomsky argues that it is a 'true existential construction' with 'a different source' to (24a, b). This argument is not relevant to the issue I am exploring here.