The Prosody of Quantifier Stranding under WH-movement in West Ulster English

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NOTE

Introduction

The core phenomenon dealt with in McCloskey (2000) and also to be considered here is the following: there exists at least one variety of English (West Ulster English or WUE) in which alongside (1), questions like those in (2) are also permitted:

(1) a   <u>What all</u> did you get *t* for Christmas?

   b   <u>Who all</u> did you meet *t* when you were in Derry?

   c   <u>Where all</u> did they go *t* for their holidays?

(2) a   <u>What</u> did you get <u>all</u> for Christmas?

   b   <u>Who</u> did you meet <u>all</u> when you were in Derry?

   c   <u>Where</u> did they go <u>all</u> for their holidays?

The quantifier *all* in (2a–c) is construed with the interrogative pronoun and not with the subject. That is, the examples in (2) are synonymous with those in (1). The principle concern of McCloskey (2000) is to develop an understanding of the syntax of (2) and to draw some theoretical conclusions from that understanding.

Prosody

Examples like (2) in WUE have certain very distinctive prosodic characteristics. These characteristics are described briefly in McCloskey (2000) and they are appealed to at a number of points in trying to account for some of the subtler preferences which emerge when the data are examined closely. I want here to discuss these characteristics more closely, to propose an outline analysis and to consider some of the ramifications of that analysis.

   Consider (3).

(3) a   <u>What</u> did you buy <u>all</u> in the shops?

   b   <u>Who</u> did you see <u>all</u> up the town?

In these examples and in examples like them the sequence of verb and stranded quantifier (*buy all* in (3a) and *see all* in (3b)) are prosodic units whose most prominent element is the verb. There is a strong intonational break following this prosodic unit (i.e. immediately following

all). This break is marked by a slight pause and by a subsequent drop in pitch. These prosodic characteristics are emblematic of the construction and they require explanation.

The analysis developed in McCloskey (2000) takes as its starting point the clear syntactic parallels between phrases like *they all* and phrases like *who all*. If *what*, *who* and *where* are pronouns, as seems reasonable, then the syntax of these expressions is exactly analogous to that of *we all*, *them all* and so on. What is known of the syntax of such expressions? The order [Pronoun Quantifier] has been analyzed (at least since Postal (1974: 111)) as deriving from a structure in which the pronoun follows the quantifier (since non-pronominal co-constituents normally follow the quantifier):

$$\text{Quantifier Pronoun} \implies \text{Pronoun Quantifier}$$

Postal named the relevant operation 'Quantifier Postposing' and took it to be a rightward movement of the quantifier. In contemporary terms, it is most plausibly viewed as an operation which raises the pronoun from the complement position associated with the quantifier to its specifier position (see Koopman (1999) for a recent discussion and implementation). This rule in standard English seems to be optional (in overt syntax at least) for coordinate phrases and obligatory (in overt syntax) for pronouns:[1]

(4)
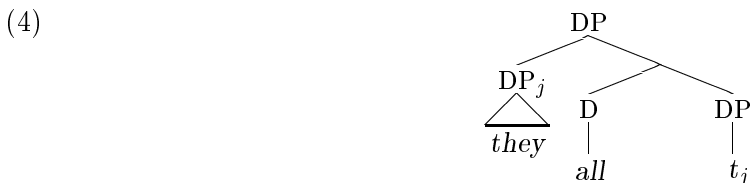
But if the phrase *they all* is to be so analyzed, then presumably the WH-variant *who all* is to be similarly analyzed:

(5)

That is, we assume that the requirement that pronouns raise from the complement to the specifier-position of *all* holds uniformly—for WH-pronouns and for non-WH-pronouns.

Given (5), phrases like *who all* have an internal structure in which a certain ambiguity of factorization will hold in any potential application of WH-movement. The lower DP (*who*) of (5) evidently bears a WH-feature. It should therefore be able to undergo WH-movement. But from the grammaticality of (1), we know that movement of the entire phrase *who all* also results in successful checking of the WH-feature. Let us for present purposes take the traditional view that this is possible because the WH-feature is instantiated both on the specifier *who* and on the dominating DP (*who all*), as in (6):

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[1] I will assume here and throughout that *all* and *both* are determiners (members of the category D) which take DP-complements. Other assumptions are of course possible and have been made (for instance that *all* and *both* belong to a distinct category of Q(uantifier), which has the option of taking a DP-complement). The choice between these alternatives is not, as far as I know, crucial for present concerns. However, if it is literally and strictly the D-feature which is required to satisfy EPP-requirements, rather than a broader class of nominal features (Chomsky (1995: 342)) then there might be reason to prefer the 'recursive DP' structures of the text discussion over the option of taking *all* and *both* to be Q-heads which select DP-complements.

(6)

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                              DP
                             [WH]
                  _____/        _____
               DP                            \
              [WH]ʲ         D              DP
              /\            |               |
            who           all             tⱼ
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If other conditions are met, then, both (1) and (2) should be possible. Prominent among these 'other conditions' are the locality requirements on movement. In the theory of locality of movement developed in Chomsky (1995: 38) a target K may not attract an element γ if there is an element α closer to K than γ, which could enter into a legitimate feature-checking relation if raised to K. 'Closeness' is defined in terms of asymmetric c-command—α is closer to K than γ if K c-commands α, α c-commands γ and γ does not c-command α. By this definition, neither one of the two WH-DP's of (6) is closer to the target of WH-movement than the other, since neither c-commands the other. Both should, then, be accessible to C. We can understand the possibility of both (1) and (2) (in this variety of English) in these terms.

But while it is surely right to treat the two phrase-types in (4) and (5) as being in essence identical in their internal syntactic make-up, there are also important prosodic differences between the two. In the case of *they all* (similarly with the other non-WH-pronouns), the quantifier *all* is the prosodically prominent element, and the pronoun is prosodically dependent on the quantifier. This prosodic dependency is presumably what gives rise to new pronouns like *y'all* in which the prosodic weakness of the pronoun has led to the loss of its syllabic nucleus and to the creation of a new monosyllable. In the case of *who all* on the other hand (and similarly for all the WH-pronouns), the reverse is true. The WH-pronoun is the prominent element, and *all* is weak.

Whatever gives rise to this important prosodic difference, it is reflected exactly in the different kinds of Quantifier Float that the two phrase-types support—stranding of the quantifier under A-movement in the case of (7b), and stranding under Ā-movement in the case of (7d):

(7) a <u>They all</u> have gone to bed.

   b <u>They</u> have <u>all</u> gone to bed.

   c <u>Who all</u> did you meet up the town?

   d <u>Who</u> did you meet <u>all</u> up the town?

In (7b) *all* is a prosodically strong element just as it in (7a). In neutral intonation, the main sentence stress in (7b) falls at the right edge of VP, and a strong secondary stress falls on *all*.

By contrast, examples like (7d) show, as we have just seen, a very different set of prosodic characteristics. Just as the quantifier *all* in (7c) is prosodically weak, and is dependent on the preceding pronoun, so the same quantifier is prosodically weak in (7d). It is prosodically dependent, just as it is in (7c), but, when stranded, it is dependent, not on the WH-pronoun of course, but rather on the preceding verb. The sequence *meet all* in (7d), as we have seen, is a prosodic unit whose strong element is the verb *meet* and which is followed by a strong intonational break.

The key to understanding these facts, I believe, lies in realizing that there is an XP-boundary in the stranding cases ((7b) and (7d)) which does not exist in (7a) or in (7c). This is an important difference, since at least one influential strand of current work on the syntax-prosody interface (see especially Selkirk (1984), Selkirk (1995), Truckenbrodt (1995), Truckenbrodt (1999)) holds

that the right boundary of an XP plays a crucial role in the mapping between syntactic representations and prosodic representations; it forces the presence of a phonological boundary of a particularly important kind—the right edge of a Phonological Phrase (sometimes abbreviated φ). On the analysis we have developed so far, *all* is a DP—a DP which has been voided of much of its content, but a DP nonetheless. When separated from its co-constituent by stranding, this isolated *all* will force the existence of a Phonological Phrase boundary. No XP-boundary will exist in that position in the cases in which *all* is not stranded, if we make the assumption (which seems to be universally accepted) that traces are invisible to the algorithms which compute prosodic configurations. It follows in turn that there will be an important difference in prosodic structure between, for instance, (8a) and (8b):

(8) a   All the children   have left.
      (   )$_\phi$ (   )$_\phi$

   b   The children   have all   left.
      (   )$_\phi$ (   )$_\phi$ ( )$_\phi$

It is also a widely accepted principle that the rightmost element of a Phonological Phrase in English is prosodically prominent (Prince (1983), Prince and McCarthy (1993), Selkirk (1995), Truckenbrodt (1995), Truckenbrodt (1999)) In (8b) then, *all*, since it falls at the right edge of the Phonological Phrase should be prominent, as indeed it is.

Contrast this situation now with our WH-Quantifier Float:

(9) a   <u>What all</u> did he get for Christmas?

   b   <u>What</u> did he get <u>all</u> for Christmas?

Once again, and for the same reasons, there will be a visible XP-boundary (determined by the presence of *all*) in (9b) but not in (9a). This will in turn determine the existence of a φ-boundary in (9b) which does not exist in (9a). The parsing will be as in (10):

(10)   What   did he get all   for Christmas?
       (   )$_\phi$ (   )$_\phi$ (   )$_\phi$

The rightmost constituent of the Phonological Phrase determined by *all* will once again be required to be prosodically prominent. But now a problem arises. We have already seen that the version of *all* which co-occurs with WH-pronouns is prosodically weak. If this is an intrinsic property, then the instance of *all* which appears stranded in (10) and the like will be incapable of bearing the prosodic weight required of it by its position. The result is that it is required to incorporate and form a phonological word with the preceding verb. Once this incorporation has been accomplished, the complex phonological word so formed can meet the requirement of Phrase Edge Prominence referred to earlier, which in the formulation of Selkirk (1995: 565) holds that: "The most prominent syllable of an edge constituent is more prominent than that of a constituent not located at an edge." In the case under consideration, the phonological word *get all* plays the role of edge-constituent for the second Phonological Phrase and its most prominent syllable (*get*) is indeed prosodically prominent in the required way.

If this general approach is on the right track,[2] then two factors will in general be relevant in determining the well-formedness of examples like (10)—the syntactic mechanisms sketched briefly here and discussed in detail in McCloskey (2000), and a prosodic mechanism (prosodic incorporation) which resolves the prosodic difficulties which must arise when *all* is stranded under WH-movement.

The proposal under development here is that WUE possesses a mechanism of prosodic incorporation which merges the stranded quantifier *all* with a preceding verb. This incorporation proceeds smoothly when *all* is immediately preceded by a verb (as in (2) and (3), which are as a consequence fully well-formed). But if material intervenes between the verb and stranded *all* incorporation will success to the extent that that material is light enough that it can itself be gathered up into the incorporation process. There is a great deal of variability and uncertainty concerning what is 'light enough' to be incorporable, and much of the variability in the data can be attributed to this factor. It emerges with particular clarity in the case of stranded prepositions. The paradigms in ('pall') are typical. Stranding of *all* in prepositional object position is slightly degraded when the preposition is adjacent to the verb:

(11) a ?<u>Who</u> did you talk to <u>all</u> (at the party)?

  b ?<u>Who</u> was he laughing at <u>all</u>?

When another complement intervenes between verb and PP-complement, the degree of ungrammaticality by comparison with (11) is more severe:

(12) a ?<u>Who</u> did you give tea to <u>all</u>?

  b <u>Who all</u> did you give tea to?

  c *<u>Where</u> did you move the books to <u>all</u>?

  d <u>Where all</u> did you move the books to?

Further, if a prosodically substantial preposition follows the verb, there is also a noticeable degradation as compared with (11):

(13) a <u>Who all</u> were you sitting beside?

  b ?*<u>Who</u> were you sitting beside <u>all</u>?

The contrasts among these various cases are almost certainly best understood in prosodic terms, in that the examples which are most consistently acceptable are those in which the material which intervenes between the verb and the element *all* is sufficiently insubstantial (in prosodic terms) that it can be incorporated into the verb along with *all*.

Besides providing an understanding of the more subtle variations in acceptability, it is possible that these considerations will provide an account of why stranding of *all* under WH-movement is possible in some kinds of English but not in others. It might be that the unavailability of the required incorporation mechanism is responsible for the unavailability of (2), (3), (11) and so on in many or most varieties of English. This is purest speculation, of course, but it is to be noted that WUE is very distinctive in its prosodic structure.

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[2] The proposals just sketched are unfortunately at odds with the conclusion of Truckenbrodt (1999) that only lexical (as opposed to functional) projections are relevant in the computation of prosodic structure. This would mean that only the right edge of NP (rather than DP) would be relevant for building phonological phrases. The crucial boundaries in the present case, though, seem to be DP-boundaries. I don't know how to resolve this tension.

Weighting the Contributions

Bringing these prosodic concerns into focus complicates certain analytical tasks considerably; for a given case of ill-formed stranding, in particular, it is often not straightforward to determine if ill-formedness should be attributed to prosodic factors, to syntactic factors, or to some combination of the two. However, it is undeniable that both kinds of factors in fact play a role, and the task of understanding their interaction can't be postponed forever. As it turns out, moreover, it is usually possible to make an argument about what the correct weighting of factors is in a given case.

In this section, I consider a range of such cases. They are of two types. Firstly, there are cases in which the prosodic requirement is met in an optimal way but in which the structure is still fully ungrammatical. Secondly, there is a class of cases where all syntactic requirements appear to be met, but in which the prosodic requirement is not met in an optimal way. The hallmark of this second class of cases is that we can hold the syntax constant while varying the prosodic weight of some crucial element and we can observe that acceptability varies correspondingly. Broadly speaking, this is the pattern which we would expect given the modular division of labor proposed.

Stranding of *all* is possible in a post-verbal subject position:

(14) a   <u>Who</u> spoke <u>all</u> at the meeting?

   b   <u>What</u> happened <u>all</u> at the party last night?

These cases can be understood if *all* is stranded in the thematic position and if there is short verb raising in English, perhaps to an Aspect-head above vP. On this interpretation, the examples in (14) meet all requirements. The syntax is as just described and the prosodic requirements are met in the optimal way, since stranded *all* immediately follows V.

More complexities arise in the case of transitive clauses. The facts are as in (15):

(15) a   <u>Who all</u> likes toffee?

   b *<u>Who</u> likes <u>all</u> toffee?

   c ?<u>Who</u> likes toffee <u>all</u>?

(16) a   <u>Who all</u>'d like tea?

   b *<u>Who</u>'d like <u>all</u> tea?

   c   <u>Who</u>'d like tea <u>all</u>?

(17) a   <u>Who all</u> was throwin' stones (around Butchers' Gate) (yesterday)?

   b *<u>Who</u> was throwin' <u>all</u> stones (around Butchers' Gate) (yesterday)?

   c   <u>Who</u> was throwin' stones <u>all</u> (around Butchers' Gate) (yesterday)?

   d *<u>Who</u> was throwin' stones around Butchers' Gate <u>all</u> yesterday?

   e *<u>Who</u> was throwin' stones around Butchers' Gate yesterday <u>all</u>?

The paradigm in (15)–(17) is explained in the following terms in McCloskey (2000). The relative well-formedness of (15c), (16c) and (17c) follows if *all* is in the thematic position (as in (14)) and if English has overt Object Shift. On this interpretation, the c-examples of (15)–(17) are fully well-formed as far as the syntax is concerned, but they fail to meet the prosodic incorporation requirement in the optimal way, since stranded *all* is separated from the verbal head. What of

(15b), (16b), and (17b)? These examples have the interesting property that they are optimal as far as prosodic requirements are concerned but are fully ungrammatical. It seems safe in these circcumstances to conclude that their deviance lies elsewhere—in the terms of McCloskey (2000), *all* is stranded in a position through which the larger phrase *who all* could not have passed in its derivational career.

   If this interpretation is correct, there is another expectation. Examples like (15c), (16c) or (17c) should vary in acceptability as one varies the prosodic substance of the material that intervenes between V and stranded *all*. This is exactly what we find:

(18) a   <u>Who all</u> read it this morning?

      b *<u>Who</u> read <u>all</u> it this morning?

      c   <u>Who</u> read it <u>all</u> this morning?

   Similar conclusions exactly derive from an examination of cases involving Raising to Object/ECM constructions. Consider (19):

(19) a   <u>Who all</u> did you want your mother to meet *t* at the party?

      b *<u>Who</u> did you want <u>all</u> your mother to meet *t* at the party?

      c ?<u>Who</u> did you want your mother <u>all</u> to meet *t* at the party?

      d   <u>Who</u> did you want your mother to meet <u>all</u> at the party?

(19a) and (19d) are unremarkable—these are respectively the case in which *all* is not stranded at all and the case in which it is stranded in its thematic position. The intermediate cases ((19b) and (19c)) are of more interest for present purposes. In (19b) the prosodic incorporation requirement is met optimally since stranded *all* immediately follows V; it is, however, competely impossible. In (19c), on the other hand, *all* is separated from V by intervening material and therefore is not optimal from a prosodic point of view. It is nevertheless relatively well-formed and once again the degree of well-formedness varies with the prosodic weight of the intervening material:

(20) a ?<u>Who</u> did you want the kids <u>all</u> to meet at the party?

      b   <u>Who</u> did you want him <u>all</u> to meet at the party?

   A broadly similar case is represented by the paradigm in (21):

(21) a   <u>What all</u> did you put in the drawer last night?

      b   <u>What</u> did you put <u>all</u> in the drawer last night?

      c ?<u>What</u> did you put in the drawer <u>all</u> last night?

      d *<u>What</u> did you put in the drawer last night <u>all</u>?

In (21a), there is no stranding; (21d) is fully ill-formed because *all* occupies a position in which the larger phrase *what all* could never licitly appear. Once again, the interesting cases are the intermediate ones—(21b) and (21c). (21b) is fully well-formed; (21c) is intermediate in status and reactions to it are variable and uncertain. The interpretation for this situation offered in McCloskey (2000) is that both (21b) and (21c) are syntactically well-formed. (21c) is the case in which *all* has been stranded in the VP-internal thematic position in which the phrase *what all* originates. (21b) is the case in which *all* has been stranded in the VP-external Object Shift position. The difference between them—(21b) fully well-formed, and (21c) variable and

uncertain—is attributed to the fact that the prosodic incorporation requirement is met in an optimal way in (21b) but not in (21c). Once again, we can vary the acceptability of this kind of case by varying the prosodic weight of the intervening material. (22) is palpably better than (21c):

(22)   <u>What</u> did you put in it <u>all</u> last night?

Consider finally the case of successive-cyclic WH-movement. The examples in (23) are fully well-formed:

(23) a   <u>What</u> did he say <u>all</u> (that) he wanted *t*?

    b   <u>Where</u> do you think <u>all</u> they'll want to visit *t*?

These are cases (according to McCloskey (2000)) in which *all* is stranded in the intermediate Spec,CP position through which the phrase *what all* or *where all* must pass. They are thus fully well-formed as far as the syntax is concerned. In addition, *all* is adjacent to V, and so both examples in (23) are prosodically optimal as well. But consider (24):

(24) a   <u>What all</u> did he tell him (that) he wanted *t*?

    b   *<u>What</u> did he tell <u>all</u> him (that) he wanted *t*?

    c   <u>What</u> did he tell him <u>all</u> (that) he wanted *t*?

    d   ?<u>What</u> did he tell his friends/Mickey <u>all</u> (that) he wanted *t*?

    e   *<u>What</u> did he tell <u>all</u> his friends/Mickey (that) he wanted *t*?

(25) a   <u>What all</u> did he say to him that he wanted to buy *t*?

    b   *<u>What</u> did he say <u>all</u> to him that he wanted to buy *t*?

    c   ?<u>What</u> did he say to him <u>all</u> that he wanted to buy *t*?

    d ?*<u>What</u> did he say to his friends <u>all</u> that he wanted to buy *t*?

    e   *<u>What</u> did he say <u>all</u> to his friends that he wanted to buy *t*?

(24a) and (25a) are the cases in which there has been no stranding. (24b,e) and (25b,e) are prosodically optimal in that *all* immediately follows V; yet they are fully ungrammatical. This is because *all* is in a position which cannot be one through which successive-cyclic WH-movement has passed. If movement proceeds from Spec,CP to Spec,CP, we understand (24b,e) and (25b,e). In (24c,d) and (25c,d) it is plausible to believe that *all* is in the specifier of CP, and they are, as a consequence, syntactically well-formed. But they are in violation of the requirements of prosodic incorporarion because *all* is separated from V. As a consequence they are not fully well-formed but are rather variable and uncertainly judged, as are all examples in this category. Once again, we can move the examples in the direction of full acceptability by reducing the prosodic substance of the intervening material. This last consideration is what accounts for the difference in acceptability between (24c), (25c) and the (much worse) (24d), (25d).

Closing Remarks

There is much here that remains uncertain. What one would really like would be instrumental rather than impressionistic measures of the prosodic effects discussed here. The situation seems clear enough though at least in outline. It is very clear that syntactic and prosodic factors both

play a role in shaping the subtle patterns of acceptability and unacceptability that we have to deal with.

It is strange that the prosodic effects considered here are variable rather than categorial. Nevertheless, the division of labor proposed here succeeds in providing an account of these rather complex patterns in a way that corresponds closely to expectation.

References

Chomsky, Noam. 1995. *The minimalist program.* Cambridge, Mass.: MIT Press.

Koopman, Hilda. 1999. The internal and external distribution of pronominal DP's. In *Beyond principles and parameters, essays in memory of Osvaldo Jaeggli*, ed. Kyle Johnson and Ian Roberts. Dordrecht: Kluwer.

McCloskey, James. 2000. Quantifier float and *wh*-movement in an Irish English. *Linguistic Inquiey*, 31:57–84.

Postal, Paul. 1974. *On Raising.* Cambridge, Mass.: MIT Press.

Prince, Alan. 1983. Relating to the grid. *Linguistic Inquiry*, 14:19–100.

Prince, Alan and John McCarthy. 1993. Generalized alignment. MS., University of Massachusetts, Amherst and Rutgers University.

Selkirk, Elizabeth. 1984. *Phonology and syntax: The relation between sound and structure.* Cambridge, Mass.: MIT Press.

Selkirk, Elisabeth. 1995. Sentence prosody: intonation, stress and phrasing. In *The handbook of phonological theory*, ed. John A. Goldsmith, 550–569. Cambridge Mass.: Blackwell Publishers.

Truckenbrodt, Hubert. 1995. Phonological phrases: their relation to syntax, focus, and prominence. Doctoral dissertation, MIT, Cambridge, Mass.

Truckenbrodt, Hubert. 1999. On the relation between syntactic phrases and phonological phrases. *Linguistic Inquiry*, 30:219–255.

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