

Two Ways of Pronouncing “Unpronounceable” QR

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1. Introduction

The scope phenomenon of natural language quantifiers has been one of the central research topics for biolinguists. The past proposals were diverse, but a consensus has been made that (at least some instance of) scope taking involves a *covert* operation that cannot be observed in surface phonetic forms of sentences. This operation is commonly referred to as *QR* since May (1977), which covertly dislocates quantifier phrases (QPs) to some higher position that corresponds to their relative scope within a given sentence.¹ A question remains with regard to *why* QR is covert, a fundamental question which I will tackle on in this paper. This paper is organized as follows: first, §2 will sketch the general assumption on the architecture of FL. §3 will propose that QR necessarily leads to a *Project Both* structure, where two labels coexist on one and the same node. §4 will point out that such a Project Both structure is primarily a trouble-maker for Phonology. §5 will propose that the known variety of natural languages exhibits (at least) two ways of pronouncing primarily unpronounceable QR. §6 will examine two classes of quantifiers, one that must, and one that need not, take scope by QR. §7 will conclude the paper.

2. Bare Phrase Structure and Labeling

The faculty of language (FL) is a natural object, consisting of Syntax

(computational component), Semantics (interpretive component that maps syntactic expressions to the Conceptual-Intentional (C-I) interface (LF)) and Phonology (externalization component that maps syntactic expressions to the Sensorimotor (SM) interface (PF)). As a framework, I adopt the *Bare Phrase Structure Theory* (BPST) of Chomsky (1995) and subsequent works, where a symmetric set-formation operation *Merge* ($\text{Merge}(\alpha, \beta) = \{\alpha, \beta\}$) is assumed to be the sole structure-building operation available in Syntax. This minimal assumption is tenable since BPST attributes the distinction between structure-building and transformation (movement) just to the mode of application of Merge, external or internal. Movement thus reduces to *internal Merge* or *remerge*. This reformulation is endorsed by the fundamental assumption of BPST that Merge, *by definition*, is subject to the *No-Tampering Condition* (NTC; a.k.a. the Extension Condition on Merge).

(1) No-Tampering Condition (NTC):

Merge of X and Y leaves the two SOs unchanged (Chomsky 2008).

Merge is always “to the edge,” and structure-building is always from “bottom-up,” yielding strict cyclicity of syntactic derivations. NTC forces us to replace the earlier (trace) theory of movement with the copy/remerge theory of internal Merge, since (internal) Merge cannot convert a node into another construct like empty node or trace, due to NTC. NTC further predicts that there can be no countercyclic SO-internal rearrangement like lowering or LF-covert movement in Syntax, a point to which I will return.

Since BPST eliminates X-bar theory, the head(ed)/nonhead distinction between Merge-mates is encoded by a distinct operation *labeling*.² I propose that labeling applies quite freely in Syntax (“Label- α ,” to wit; see also Chomsky 2008), but

resultant labels will necessarily yield interpretive consequences at LF (see Hinzen 2006, Fukui 2006, forthcoming).³ I propose that syntactic labeling triggers *selection* or *attraction* at LF, in the sense defined in (2):

- (2) If α is the label of $\{\alpha, \beta\}$, then α selects or attracts β at LF, where
- (i) α *selects* β iff α is a predicate that takes β as its argument, and
 - (ii) α *attracts* β iff α defines an occurrence of β (i.e., $\{\alpha, \beta\}$ is formed by internal Merge of β to the edge of α).⁴

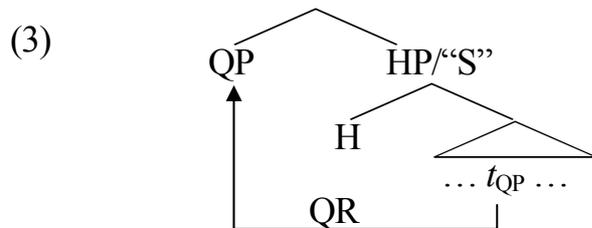
(2) articulates that labels, as such, emerge as optimal codes to delineate predicate-argument structures and chains. Underlying here is the hypothesis that interpretive properties of sentences are functions of their forms/structures, or that it is “as if syntax carved the path that interpretation must blindly follow” (Uriagereka 2002: 275), an emerging approach that can be called the *internalist program for naturalization of meaning*. See Hinzen (2006), Chomsky (2007:15) for such a view. See also Chomsky (2000b), Pietroski (2005, to appear), Narita (in progress).

There are proposals that try to capture the effect of (2) without just formulating (2) as a UG-axiom. Readers are referred to Chomsky (2008), Fukui (2006, forthcoming), and Narita (in progress). For reasons of space, however, I cannot discuss possible factorization of the broad empirical conjecture (2). I also have to put aside the discussion on adjuncts, but see Chomsky (1995, 2004) for proposals that adjunction arises as a distinct variety of Merge that by itself weaves the headed/adjunct asymmetry into the output structure. Hornstein and Nunes’s (2008) proposal that adjuncts are generated by labelless Merge is also suggestive (see note 6). See also Cinque (1999 et seq.) for the cartography hypothesis that all adjuncts are in fact selected Specs of some abstract functional categories. See Narita (in progress) for further discussion.

3. QR and Project Both

Note carefully that (2) *does not* guarantee that every SO is labeled unambiguously. In other words, (2) predicts that if there is some case of *Merge of selector and attractor* in the relevant sense, the Merge-result should be labeled by *both* of the Merge-mates, what Citko (2006) calls a *Project Both* structure. The core proposal of this paper is that QR is exactly this kind of Merge, and hence that QR necessarily leads to Project Both.

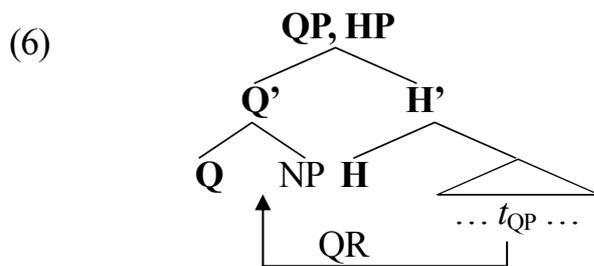
In order to articulate this view, we must first convince ourselves of the basic tenet of *Generalized Quantifier Theory* (GQT) (see Keenan 1996, Heim and Kratzer 1998, Glanzberg 2006 and references cited therein). According to GQT, quantificational determiners (Qs) in natural languages are second-order two-place functions/predicates that map two sets (one-place predicates) to truth-values. Cast in, e.g., Heim and Kratzer's (1998) terms, they are of type $\langle\langle e,t \rangle, \langle\langle e,t \rangle, t \rangle\rangle$.⁵ The first argument for Q is supplied by the restriction NP complement to Q, and the "second argument" by Q's nuclear scope. The theory of QR is a good bedfellow to GQT, in that (i) QR as a movement creates a gap (copy) of QP that eventually turns the sentential domain ("S" in (3)) into an open one-place predicate, and (ii) QR further dislocates Qs to positions where they can semantically select their sister (i.e., nuclear scope) as their argument (Heim and Kratzer 1998).



The GQ-theoretic semantics of Q and its mode of Fregean composition, in Heim and Kratzer's terms, are exemplified in (4) and (5), respectively.

- (4) a. $\llbracket \text{every} \rrbracket(\llbracket NP \rrbracket)(\llbracket S \rrbracket) = 1$ iff $\llbracket NP \rrbracket \subset \llbracket S \rrbracket$
 b. $\llbracket \text{most} \rrbracket(\llbracket NP \rrbracket)(\llbracket S \rrbracket) = 1$ iff $|\llbracket NP \rrbracket \cap \llbracket S \rrbracket| > |\llbracket NP \rrbracket - \llbracket S \rrbracket|$
- (5) a. $\llbracket \text{every boy danced with Mary} \rrbracket = \llbracket \text{every} \rrbracket(\llbracket \text{boy} \rrbracket)(\llbracket t_{QP} \text{ danced with Mary} \rrbracket)$
 $= 1$ iff $\{x: x \text{ is a boy}\} \subset \{x: x \text{ danced with Mary}\}$
 b. $\llbracket \text{John likes most girls} \rrbracket = \llbracket \text{most} \rrbracket(\llbracket \text{girls} \rrbracket)(\llbracket \text{John likes } t_{QP} \rrbracket)$
 $= 1$ iff $|\{x: \text{girl}(x)\} \cap \{x: \text{John likes } x\}| > |\{x: \text{girl}(x)\} - \{x: \text{John likes } x\}|$

It should be obvious that from a GQT perspective, QPs are special in that they semantically select their scope *at the position raised by QR*. I claim that it is this peculiar property of Q that in combination with the label theory (2) leads QR to Project Both. Suppose QR dislocates QP to the edge of an SO labeled by H. Since QR is an instance of movement/internal Merge, the attractor H must project according to (2) (since it defines an occurrence of QP). However, since at this very position Q semantically selects its nuclear scope as its argument, the selector Q also has to project by (2), leading to what Hornstein and Uriagereka (1999, 2002) call *reprojection*. Thus, both of the Merge-mates qualify as labels, yielding Project Both as shown in (6).



However, such a Project Both structure is a trouble-maker for Phonology, as I will argue in the next section.

4. Project Both and PF-Linearization

Recall that NTC (1) principally excludes the possibility of countercyclic covert

(i.e., post-Spell-Out) Merge, thus it must be the case that QR applies as cyclically as any instance of overt movement/internal Merge, conforming to NTC (see Nissenbaum 2000 for an earlier proposal). Why does QR not get pronounced at the higher QRed copy position? My answer is that the higher QR-copy does not get pronounced *because it cannot*. The reason lies in Project Both, an ambiguously labeled structure.

Phonology is the externalization component that maps input SOs to phonetic forms readable by SM systems. One of the necessary functions of Phonology is *linearization*, by which hierarchical structures are mapped to temporal sequences of lexical items. I would like to point out that although past proposals are diverse, the study of Phonology seems to have reached a consensus that human linearization process requires *asymmetrically labeled* syntactic input. To take a representative example, Kayne's (1994) LCA-based account of linearization resorts to asymmetric labels. Specifically, in order to let a Spec/adjunct of a head H to asymmetrically c-command its H'/HP-sister, Kayne's account must have relied on May's (1985) category/segment distinction on syntactic nodes, which in turn is made available by asymmetric labels (but see Uriagereka 1999). It is Fukui and Takano (1998) who show that the recourse to c-command can be eliminated from the Kaynean antisymmetry program, a proposal that further clarifies the crucial relevance of labels to linearization. Both Kayne's label-and-c-command-based antisymmetry program and Fukui and Takano's only-label-based one share the goal of deriving the effects of head-parameter from invariant UG axioms. In retrospect, Chomsky's (1981) head-parameter, which is adopted by a number of researchers even recently, was the first proposal that clearly expressed the crucial relevance of labels/headedness to linearization. All in all, it should be clear that all of the past proposals on linearization processes do rely on asymmetric labels. I take this to mean that the role of labels as an asymmetry-coding

device in linearization cannot be dismissed. Of course, the absence of convincing label-free proposals in the past alone cannot *prove* that it is logically *impossible* for UG to have a linearization mechanism that does not refer to labels at all, but we can at least say that it is unlikely. For this reason, I assume in what follows that it is a safe bet that Phonology requires labels, an empirical conjecture that is still in need of being substantiated by a successful proposal on the PF-linearization mechanism.

Note that labels can code asymmetry *only if* each syntactic node is associated with one and only one label. That is, the PF-linearizability condition requires *unambiguously labeled* input. However, Project Both overrides the antisymmetry-coding function of labeling, due to its label ambiguity. As for (6), the moved QP (or “Q” after reprojection) can be qualified both as the “Spec of HP” and as the “Q’ of QP,” speaking in informal X’-terms, hence Phonology has no solid cue for how to linearize the structure by whatever linearization mechanism is attributed to it. Thus, even if such a Project Both structure is ever generable in Syntax, as I claim it is, it necessarily violates the linearizability condition at PF, hence should be “unlinearizable” at PF.⁶

Does such PF-unlinearizability necessarily cause the syntactic derivation to crash? I propose not necessarily. If Project Both structures as in (6) yield legitimate interpretation at LF, as I assume, then Phonology is obliged to assign somehow an interpretation to the object, however “poorly designed” it is for linearization purposes. Chomsky (2008) proposes a conjecture that Syntax might be primarily well-designed for the C-I purposes, while mapping to the SM interface is “only an ancillary process.” That is, “the primary contribution to the structure of FL may be optimization of mapping to the C-I interface.” If this conjecture is on the right track, “we might discover that SMT⁷ is satisfied by phonological systems that violate otherwise valid

principles of computational efficiency, while doing the best it can to satisfy the problem it faces: to map to the SM interface syntactic objects generated by computations that are “well-designed” to satisfy C-I conditions.” (Chomsky 2008:136) I propose that this is exactly what happens when Phonology receives an SO like that in (6) as an input. Insofar as the structure conforms to legitimate C-I interpretation, the phonological system is obliged to do “the best it can to satisfy the problem it faces,” that is, the problem of mapping this phonologically “poorly designed” structure to some legitimate SM interface representation. If the Project Both status of (6) makes the constituent unpronounceable at PF but nevertheless legitimate at LF, Phonology is forced to impose some linearization on (6).

Then, how does Phonology treat Project Both created by QR?

5. Two Ways of Pronouncing “unpronounceable” QR

I claim that the known variety of natural languages in the world exhibits two possible ways to circumvent the dilemma of unlinearizability of QR Project Both. English and Hungarian are chosen as the representatives of these two varieties of languages.

5.1. Option 1: English-type Covert QR

The first option is entertained by the Phonology of, e.g., English: to pronounce QR-chains not at the highest copy position but at the lower copy position where the QP is dislocated from by QR, resulting in the apparent “covert movement” configuration (Fox and Nissenbaum 1999, Nissenbaum 2000, Fox 2002). This constitutes an instance of the *Pre-Spell-Out Covert* (PSOC) movement, several instances of which have been proposed by a number of researchers, e.g., Bobaljik

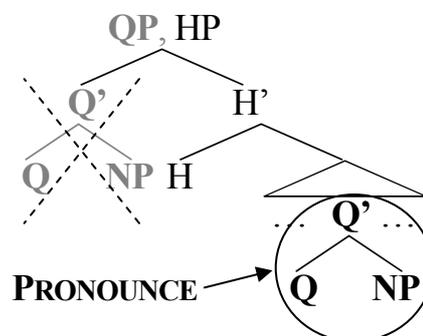
(1995), Bošković (2002), Kato (2004). PSOC movement is often characterized as a result of phonological “unpronounceability” of the topmost copy. For example, Bošković (2002) proposes that some instances of PSOC *wh*-movement in multiple *wh*-fronting languages result from respecting the PF-constraint against the consecutive homophonous *wh*-phrases (example (7) is drawn from Serbo-Croatian).

(7) *Serbo-Croatian*: (Bošković 2002)

Šta ~~šta~~_i uslovljava šta?
 what conditions what

The fundamental insight that Bošković and others pursue is that PSOC movement is a “last resort” strategy of Phonology that is undertaken in order to salvage otherwise legitimate syntactic structures from violations of PF-constraints (cf. Kato 2004). I propose that the same consideration is applicable to the cases of English QR as well: Phonology treats QR by the PSOC-strategy in order to circumvent the unpronounceability of Project Both. Thanks to the lower copy created by QR, Phonology can delete the topmost reprojected copy and reserve the lower copy for pronunciation, yielding an apparent covert movement configuration.

(8) at Phonology:



English provides ample evidence for covert QR: e.g., recall the inverse scope reading of sentences like *some boy loves every girl*; see also Nissenbaum (2000), Fox and Nissenbaum (1999), Fox (2002) for some discussion. English QR is always covert,

thus has been regarded as a showcase example of the LF-covert countercyclic movement, which however should be precluded insofar as NTC holds for Syntax. NTC leads us to reformulate QR rather as an instance of cyclic internal Merge, and consequently to ask why the resultant chain must always be pronounced in a PSOC-way. The answer lies in the unpronounceability of the higher copy created by QR, whose Q-label “loosely” reprojects, yielding the GQ interpretation. Here the unpronounceability of QR-chains is attributed to the interplay of the GQ-theoretic interpretation of Q and the general architecture of UG, which, I claim, sets a novel answer to the long standing question since May (1977) why QR is covert.

5.2. Option 2: Hungarian-type Overt QR

“Unpronounceable” Project Both by English QR is generated as a function of labeling (2) and NTC-obeying Merge, both of which are universal features of UG, and hence should allow no parametric variation across I-languages. Thus, it should be a “nonnegotiable” theorem of these UG-axioms that QR, if any, necessarily leads to unpronounceable Project Both crosslinguistically. However, many researchers working on Hungarian syntax claim that Hungarian is a language whose Phonology overtly pronounces QR-chains (Szabolcsi 1997, É. Kiss 2002, Brody and Szabolcsi 2003). They observe that the relative scope of preverbal QPs strictly respects surface word order in Hungarian.

(9) *Hungarian*: (Szabolcsi 1997:118, (27))

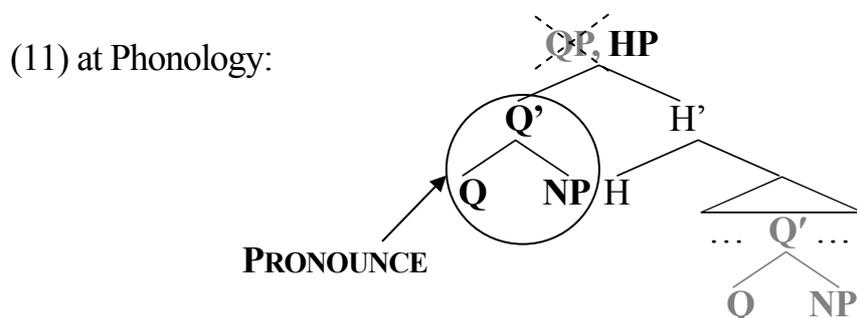
- a. *Sok ember mindenk-it fel-hívott.*
many man everyone-ACC up-called
“Many men phoned everyone.” ‘many’ > ‘everyone’, *‘everyone’ > ‘many’
- b. *Mindenk-it sok ember fel-hívott.*
everyone-ACC many man up-called
“Many men phoned everyone.” ‘everyone’ > ‘many’, *‘many’ > ‘everyone’

(10) *Hungarian*: (É. Kiss 1994:3)

- a. János **minden ételt** *többször* *is* meg-kóstolt.
 John every dish-ACC several.times even PREV-danced
 ‘every’ > ‘several’ “John tasted every dish several times.”
- b. János *többször* *is* **minden ételt** meg-kóstolt.
 John several.times even every dish-ACC PREV-danced
 ‘several’ > ‘every’ “On several occasions, John tasted every dish.”

If they are right in assuming that these data exhibit overt QR, then we are forced to conclude that the “unpronounceable” Project Both by QR can somehow be overtly pronounced in Hungarian. Then, why? Given the “nonnegotiable” theorem that QR leads to unpronounceable Project Both, deduced from the general architecture of FL, we are led to seek the source of the parametric variation in Phonology (assuming that variation in Semantics is implausible).

For these reasons, I propose that, whereas English Phonology can “forget” the higher copy of QR-chains, Hungarian Phonology differs in that it can rather “forget” the loosely reprojected Q-label. That is, even though Syntax generates Project Both, Hungarian is special in that it can delete the Q-label at Phonology (after Spell-Out) and pronounce QR-chains overtly, as schematically shown in (11).



Variation in workings of Phonology is conceivable in light of Chomsky’s (2008) conjecture that Phonology is just “doing the best it can” to pronounce what Syntax generates. Forgetting one label (as Hungarian Phonology does) is presumably as good

enough as forgetting a higher copy (as English Phonology does).

It is interesting in this context to note that *postverbal QPs*, unlike preverbal ones, can often take inverse scope in Hungarian. Thus the ambiguity in (12)-(13).

(12) *Hungarian*: (Brody and Szabolcsi 2003:22, (5)-(6))

Kevés film-et látott minden ember.

few film-ACC saw every man

“Every man saw few films.” (i) ‘few’ > ‘every’ (direct scope)

(ii) ‘every’ > ‘few’ (inverse scope)

(13) *Hungarian*: (É. Kiss 1994:74-75)

a. *Két tárgy-ból is meg bukott mindenki.*

two subject-from even PREV failed everybody

(i) ‘two’ > ‘every’ “In two subjects, everybody failed.”

(ii) ‘every’ > ‘two’ “Everybody failed in two (potentially different) subjects.”

b. *Meg bukott mindenki két tárgy-ból is.*

PREV failed everybody two subject-from even

(i) ‘two’ > ‘every’ “In two subjects, everybody failed.”

(ii) ‘every’ > ‘two’ “Everybody failed in two (potentially different) subjects.”

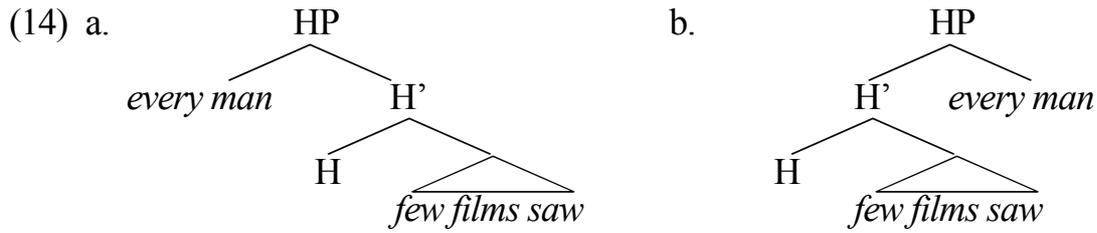
c. *Meg bukott két tárgy-ból is mindenki.*

PREV failed two subject-from even everybody

(i) ‘two’ > ‘every’ “In two subjects, everybody failed.”

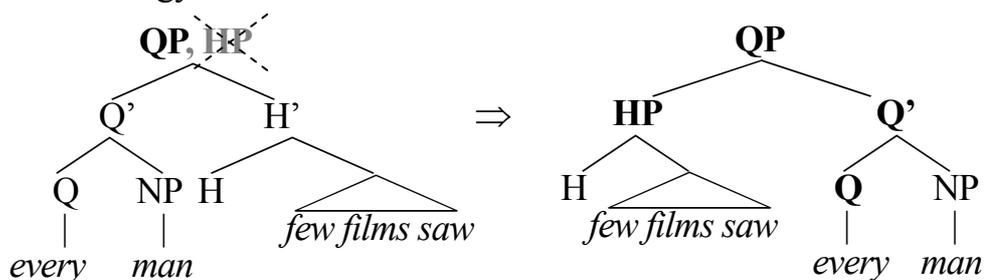
(ii) ‘every’ > ‘two’ “Everybody failed in two (potentially different) subjects.”

These facts have been puzzling to all the researchers who advocate the view that Hungarian QR is overt. To avoid the problem, Brody and Szabolcsi (2003), for example, are forced to stipulate that Hungarian Phonology can linearize HP-Specs⁸ occupied by QRed QPs either to the left or to the right of H', as schematized in (14), which corresponds to (12).⁹



This proposal amounts to a significant complication of the PF-linearization mechanism, presumably a UG-wired universal as suggested by Kayne (1994) and Fukui and Takano (1998). Thus, such a stipulation is better avoided unless thoroughly justified by empirical evidence. However, I would like to argue that our Project Both approach to QR can provide a better explanation for these data, without such *ad hoc* stipulations. Our proposal was that Hungarian Phonology has the ability to forget an extraneous label of Project Both. Forgetting the reprojected Q-label yields overt QR, as seen above (11). That said, then, without further stipulations, nothing precludes the possibility of *forgetting the other H-label* in (11), as far as I can see. Thus suppose this is indeed a viable option. Then, after deleting the H-label, Phonology comes to regard H' as "HP" in the "Spec of QP" for linearization purposes, and linearize it to the left of the QRed constituent, according to whatever linearization mechanism is attributed to it (all the past proposals say that any Spec precedes the head; head-parameter, Kaynean LCA, Fukui and Takano's Demerge). This account naturally derives the observed word order of postverbal QPs.

(15) at Phonology:



This account nicely captures the fact that the scope of preverbal QPs strictly respects linear order, while that of postverbal QPs does not. In fact, without further stipulations, any Hungarian-type overt-QR languages are predicted to exhibit such rightward QR, too, a crosslinguistic prediction whose confirmation I regrettably leave for future research for reasons of space.

To summarize, it is proposed that the syntax of QR is invariant across languages, while the proposed “parameter” is located in how Phonology in a given language is manipulated to “do the best it can” to overcome the unlinearizability problem imposed by the “poorly designed” Project Both. “The best” here is just a functional notion relative to the need for SM-externalization, and it is pretty natural to expect that any “good enough” solutions suffice. In this section we observed that English and Hungarian Phonologies¹⁰ representatively exhibit two ways of pronouncing QR: PSOC-pronunciation and partial label-deletion, respectively.

It is important to note that in this approach, the predicate-argument structure of quantifiers ceases to be an exception to the *Predicate-internal argument hypothesis* (PIAH) (originated from VP-internal subject hypothesis, offered by Koopman and Sportiche 1983, Fukui 1986, Sportiche 1988, Kuroda 1988), according to which every argument of a predicate P is generated within the projection of P. See Larson (1991), Larson and Segal (1995) and Hornstein and Uriagereka (1999, 2002) for earlier attempts. PIAH, in turn, naturally arises as a corollary of our conception of labels as obeying (2). Bilingualists are now entitled to pursue the strongest possible syntax-semantics transparency hypothesis that predicate-argument asymmetry is transparently carved by Syntax by the medium of labels, a welcome result both in terms of the minimalist program for linguistic theory and the internalist program for naturalization of meaning. See Narita (in progress) for discussion.

6. A Quick Note on Reconstruction

So far, we were concerned with how the GQ-theoretic interpretation of Q correlates with unpronounceable Project Both in interaction with the other UG-axioms. The account must be supplemented with a proposal regarding which QPs are subject to QR, a matter to which I now turn. It is predicted by my analysis that QPs to be interpreted as GQs must undergo QR and reprojection, whereas QPs which can be interpreted in a non-GQ way need not. This bifurcation seems to correspond to the distinction between *strong quantifier phrases* (SQPs) and *weak quantifier phrases* (WQPs). Generally speaking, SQs are definite Qs like *every, most, both, neither, each*, etc., while WQs are indefinite like *some, a, many, three, few*, etc. (see, e.g., Milsark 1974). While it is possible to assume a GQ-theoretic denotation for each WQ, they can also allow a non-GQ reading, where they are treated as one-place cardinality predicates. Thus observe that only WQs or QPs headed by WQs can appear in obligatorily predicative contexts like the following.¹¹

- (16) a. Hello, we are {three (students)/many (students)/few (students)/a punk band/some students from Harvard...}.
- b.* Hello, we are {every (student)/most (student)/both (students)/neither (students)/each (student)...}.
- (17) a. Hey, they considered us {three (students)/many (students)/few (students)/a punk band/some students from Harvard...}.
- b.* Hey, they considered us {every (student)/most (students)/both (students)/neither (students)/each (student)...}.

Thus, SQ(P)s can only be treated as two-place GQ predicates, a fact presumably related to their definite nature, whereas WQ(P)s can allow a non-GQ one-place cardinality predicate reading. If this observation is combined with my proposal, a

prediction can be made: SQPs obligatorily take their scope by QR and reprojection, whereas WQPs need not (see Hornstein and Uriagereka 1999, 2002 for essentially the same proposal; see also Reinhart 2006). I would like to argue that this prediction is in fact borne out by Boeckx’s (2001) observation on reconstructability:

(18) Boeckx’s generalization (Boeckx 2001):¹²

SQPs cannot scopally reconstruct into their copy positions, whereas WQPs can.

(19) exemplifies the relevant observation (Lasnik 1999, Bridget Samuels p.c.).

(19) a. Every coin is (3%) likely to land heads. (\forall >likely, *likely> \forall)

b. Some coin is (3%) likely to land heads. (\exists >likely, likely> \exists)

See Boeckx (2001) for more empirical data. It is important to note that actually a similar state of affairs seems to be observed in Hungarian as well. Thus, as Brody and Szabolcsi (2003) argue, in the following example, even though the WQP *valamit* ‘something’ is overtly preposed to a position preceding the SQP *mindenki* ‘everyone’, the former can scopally reconstruct into a position lower than the latter, as the ambiguity shows.¹³

(20) *Hungarian*: (Brody and Szabolcsi 2003:45)

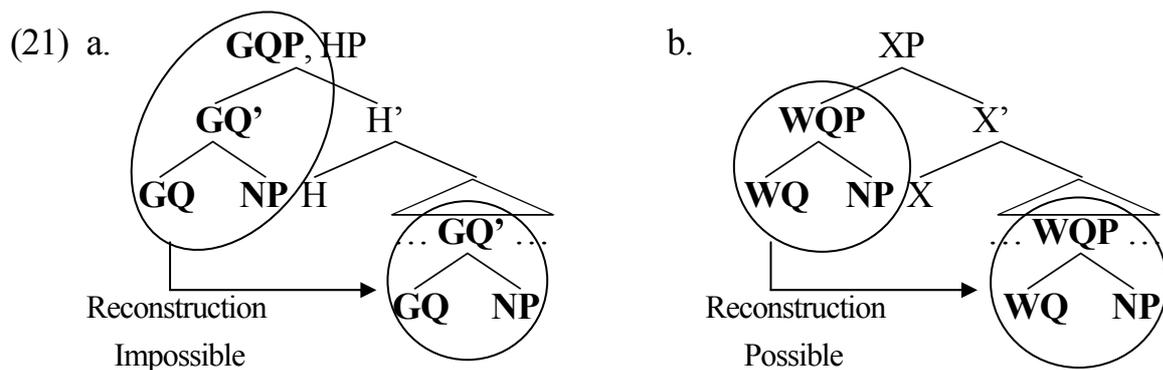
valamit **mindenki** kölcsönadott.

something.ACC everyone-NOM lent

‘Everyone lent something.’ ‘some’>‘every’, ‘every’>‘some’

What these data show is, I propose, that the scope of SQPs (and that of WQPs interpreted as GQs) is uniquely determined by their reprojected position reached by QR (covert in English, overt in Hungarian). Specifically, they cannot scopally

reconstruct into their unprojected copies, since the lower copy does not project, according to my analysis. By contrast, WQPs can just be *in-situ* ordinary argument DPs/NPs, where their head WQs serve as non-GQ cardinality predicates. These WQPs refrain from undergoing any “reshaping” like reprojection, thus all of their copies created by whatever movement operations they undergo (A-movement, *wh*-movement, etc) are “in the same shape,” thus share the same range of interpretative potentials, unless stipulated otherwise. I don’t see any reason to stipulate any such constraints, hence conclude that all copies of WQPs are eligible for scopal interpretation, which accounts for the reconstructability that SQPs lack.



Thus, the reconstructability of QPs is proposed to be closely related to their semantic interpretation at LF (as GQ or non-GQ), a desirable result that further substantiates our syntactic account of quantifier scope.

Note that this proposal only tells us about *how low/narrow* QPs can be scopally interpreted. The “unexpected wide scope phenomena” of WQPs (Ruys 2006) such as that in (22) are to be explained by other notions like specificity (Ruys 1992) or existential closure over choice functions (Reinhart 2006).

(22) Everybody thought that some/a certain teacher scolded John. ($\forall > \exists$, $\exists > \forall$)

7. Concluding Remarks

In this short paper, I argued that QR leads to “unpronounceable” Project Both. Since Project Both yields legitimate GQ interpretation at LF, Phonology is forced to pronounce this QR-driven Project Both in some way or the other. I argued that natural language Phonologies exhibit two ways of pronouncing unpronounceable QR, either English-type PSOC-pronunciation of QR-chains, yielding covert QR, or Hungarian-type partial label-deletion, yielding overt (leftward or rightward) QR. This analysis provides a uniform account of both ways of pronouncing QR without assuming any *ad hoc* parameters in Syntax. If correct, it constitutes a further corroboration of the Uniformity Hypothesis by Chomsky (2001), according to which Syntax is invariant across languages, while variation is restricted to easily detectable properties of utterances, externalized by Phonology (see note 10). Moreover, it was suggested that the GQ interpretation of QPs correlates with their (un)reconstructability.

It might be considered necessary to note that some researchers argue for the view that there is no syntactic QR, and the scope of QPs are rather calculated by some other devices outside of Syntax (e.g., type-shifting, Cooper storage; see Keenan 1996, Glanzberg 2006 and references cited therein). Readers sympathetic to such a non-QR view might doubt the significance of my argument presented in this paper. However, as noted in note 1, there seems little objection to the view that something covert is at stake in the domain of quantifier scope, thus the question of *why* scope calculation of natural language quantifiers requires some “unpronounceable” operation at all essentially remains the same. I can only hope to have shown that our choice of syntactic account of quantifier scope (QR) can attribute the covertness of GQs’ scope taking to the general architecture of FL, in such a way that it also provides a fresh look at other empirical observations on Hungarian-type overt QR and (un-)reconstruct-

ability among QPs in the same vein. But of course, whether we should be satisfied with such an approach or not is an empirical question to be tested in future research.

However, most importantly in my view, this analysis of QR, because of its strictly syntactic nature, can be readily (but of course need not be) cast in the internalist program for naturalization of meaning (Hinzen 2006, Chomsky 2000b, 2008, Pietroski to appear). Indeed, the GQ semantics of Qs, presumably uniquely human, is proposed to correlate transparently with syntactic Project Both structures. One can make sense of this correlation of forms and interpretation in (at least) two ways. On the one hand, one might regard forms (Project Both) as a function of interpretation (GQ semantics): according to this view, Qs have such special intrinsic interpretive properties that in effect force Syntax to set up (by QR and reprojection) the stage where they can exercise their own force. In this way, forms are (partially) explained by interpretation at C-I systems. On the other hand, one can also seek the opposite possibility of explaining interpretation in terms of forms, namely that the special GQ-theoretic interpretation by C-I arises as a result of special, but nevertheless humanly possible, Project Both forms generated by Syntax. This approach in fact flavors Chomsky's (2007, 2008) view that Syntax is quite unbounded, essentially blind to its interpretive consequences at LF and PF, executing Merge and labeling freely (i.e., Syntax is not "crash-proof"). Combination of free (internal) Merge and free labeling gives the possibility of Project Both, whose two labels, in combination with instruction (2), result in QR-chain-formation and Q's scope taking as interpreted by C-I, GQ-theoretic interpretation essentially. This amounts to regard the GQ semantics essentially as a function of forms generated by Syntax, natural objects "that we can study as such, even though we see them, somewhat miraculously, systematically condition properties of linguistic meaning that we can empirically attest" (Hinzen 2006:235, quoted by

Chomsky 2007:15). The latter approach, and I suspect only the latter approach, naturally conforms to the internalist program for naturalization of meaning. See Pietroski (2003, 2005: chapter 2, to appear) for essentially this line of approach to the reformulation of GQT.

One can read my proposal either one of these terms. Choice between the two is simply left open for future research. Thus, for now, I can only mention that there are indeed these two ways of pronouncing my analysis of QR, which, for the first time to my knowledge, provides a unified account of the two ways of pronouncing “unpronounceable” QR attested in the known variety of natural languages.

Notes

* I am grateful to Cedric Boeckx, Naoki Fukui, C.-T. James Huang, Aritz Irurtzun, Peter Jenks, Li Jiang, Hironobu Kasai, Takaomi Kato, Masakazu Kuno, Clemens Mayr, Dennis Ott, Paul Pietroski, Bridget Samuels, Yasutada Sudo, Hiroyuki Tanaka, Juan Uriagereka, Masahiro Yamada, Barry C.-Y. Yang, and the audience of TCP2008 for their valuable suggestions and encouragement. All remaining errors are mine.

¹ Some semanticists propose more complicated semantic rules (e.g., type-shifting, Cooper storage) that in effect capture scope shifting phenomena without resorting to syntactic QR. See Keenan (1996), Glanzberg (2006) and references cited therein. However, my point is that it becomes more or less widely accepted that some covert operation is at stake in accounting for quantifier scope phenomena.

² The necessity of labels in BPST is argued for by Boeckx (2008), Narita (in progress).

³ Chomsky (2000), in contrast, proposes that selection and attraction, seen as syntactic operations, are actual triggers of labeling in Syntax. Cf. Collins (2002).

⁴ Here I assume that occurrences of remerging categories are defined as a set of labels

of the target/attractor of each internal Merge (cf. Chomsky 2000, 2001, Boeckx 2008). An interesting consequence might be that one and the same label should not be able to define two occurrences of the same category, deriving *anti-locality* effects.

⁵ See Pietroski (2003, 2005: chapter 2, to appear) for an alternative formulation of GQ semantics in terms of his *Predicate Conjunctivism*. See also §7.

⁶ Note that if Hornstein and Nunes (2008) are right in claiming that adjunction is labelless Merge, one might expect that labelless adjunction structures should also be unlinearizable, due to the lack of label asymmetry. However, if adjuncts are introduced by a distinguished *asymmetric* Pair-Merge operation, as suggested by Chomsky (2004), it is not implausible to suppose that Phonology can utilize this asymmetry for linearization. Note that the Cinquean cartographic approach avoids this problem, since it eliminates the distinction between Specs and adjuncts (cf. Kayne 1994).

⁷ *The strong minimalist thesis*, which holds that language is an optimal solution to interface conditions that FL must satisfy (Chomsky 2001, 2004, 2008).

⁸ HP here corresponds to what Brody and Szabolcsi (2003) call Dist(ributive)P. The name of the category does not matter.

⁹ É. Kiss (1994) instead argues that there is a postsyntactic stylistic operation called Quantifier Postposing which can optionally dislocate preverbal quantifiers to the right of the sentence. See Brody and Szabolcsi (2003:45-46, fn.24) for some counterargument to this proposal.

¹⁰ Marked as plural due to my assumption that human Phonology might allow some parametric variations. I assume with Chomsky (2001) that there are no parametrically varying Syntaxes or Semanticises. *Lexicons* trivially exist.

¹¹ Of course, we are not interested in floating quantifier readings of *all*, *each*, *both*, etc.

¹² See also Hornstein and Uriagereka (1999), who already predicted the

unreconstructability of SQPs, which they argued constitutes the basis of Diesing's Mapping Hypothesis effects (Diesing 1992).

¹³ Here both QPs are preverbal, thus the possibility of rightward QR is excluded, according to the analysis sketched in §5.2.

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