

# 50 YEARS LATER

## REFLECTIONS ON CHOMSKY'S *ASPECTS*

### CONTENTS

EDITORS' INTRODUCTION <i>Ángel J. Gallego and Dennis Ott</i> .....	iii
FOREWORD <i>David Pesetsky</i> .....	v
PREFACE <i>Noam Chomsky</i> .....	vii
MIND THE GAP <i>Robert C. Berwick</i> .....	1
QUESTIONS WITH DECLARATIVE SYNTAX TELL US WHAT ABOUT SELECTION? <i>Jonathan David Bobaljik and Susi Wurmbrand</i> .....	13
THE SUBTLE DEPENDENCY BETWEEN COMPETENCE AND PERFORMANCE <i>Cristiano Chesi and Andrea Moro</i> .....	33
A SOURCE OF PARAMETRIC VARIATION IN THE LEXICON <i>Guglielmo Cinque</i> .....	47
RELATIVE CLAUSE DELETION <i>Chris Collins</i> .....	57
3 <sup>RD</sup> YEAR GRAMMAR <i>Stephen Crain and Rosalind Thornton</i> .....	71
RAISING THE SUBJECT OF THE 'OBJECT-OF' RELATION <i>Marcel den Dikken</i> .....	85
FROM <i>ASPECTS</i> ' 'DAUGHTERLESS MOTHERS' TO <i>POP</i> 'S 'MOTHERLESS SETS': A SELECTIVE HISTORY OF THE EVOLUTION OF SIMPLEST MERGE <i>Samuel D. Epstein, Hisatsugu Kitahara and T. Daniel Seely</i> .....	99
ON THE ALLEGED ABSENCE OF CERTAIN AMBIGUITIES IN FREE CONSTITUENT ORDER LANGUAGES <i>Gisbert Fanselow</i> .....	113
A NOTE ON WEAK VS. STRONG GENERATION IN HUMAN LANGUAGE <i>Naoki Fukui</i> .....	125
A NOTE ON ENGLISH SUBJECT CONTACT RELATIVES <i>Liliane Haegeman</i> .....	133

THE RATIONALISM OF GENERATIVE GRAMMAR <i>Norbert Hornstein</i> .....	147
ASPECTS AND BEYOND: THE CASE FOR GENERALIZED CONSTRUAL <i>Jan Koster</i> .....	159
ASPECTS OF THE THEORY OF PHRASE STRUCTURE <i>Howard Lasnik</i> .....	169
HOW TO TRIGGER ELEMENTS OF I-LANGUAGES <i>David W. Lightfoot</i> .....	175
THE GARDEN OF EDEN PERIOD FOR DEEP STRUCTURE AND SEMANTICS <i>Barbara H. Partee</i> .....	187
VOCABULARY MATTERS <i>Paul M. Pietroski</i> .....	199
LEIBNIZIAN LINGUISTICS <i>Ian Roberts and Jeffrey Watumull</i> .....	211
NOMINAL DECAY <i>Haj Ross</i> .....	223
FEATURES FROM <i>ASPECTS</i> VIA THE MINIMALIST PROGRAM TO COMBINATORY CATEGORIAL GRAMMAR <i>Neil Smith and Annabel Cormack</i> .....	233
MENTALISM AND UNIVERSALS IN <i>ASPECTS</i> <i>Tim Stowell</i> .....	249
ON <i>BY-PASSIVE</i> AND WHY UNACCUSATIVES DON'T PASSIVIZE <i>Tarald Taraldsen</i> .....	255
COMPLEMENTARITY IN LANGUAGE <i>Juan Uriagereka</i> .....	265
GENERALIZED TRANSFORMATIONS REANIMATED <i>Edwin Williams</i> .....	279
INPUT AND ITS STRUCTURAL DESCRIPTION <i>Charles Yang, Allison Ellman, and Julie Anne Legate</i> .....	285

## EDITORS' INTRODUCTION

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It is customary to refer to Noam Chomsky's *Aspects of the Theory of Syntax* as the founding document of Generative Grammar—and justifiably so. It was not Chomsky's first book, of course: his *The Logical Structure of Linguistic Theory* and *Syntactic Structures* had been completed almost a decade earlier. But the former only circulated in mimeographed form until it was finally partially published in 1975; and the latter was a rather informal write-up of lecture notes appearing with a small publisher in the Netherlands (as was the case with Chomsky's monograph *Current Issues in Linguistic Theory*, a year ahead of *Aspects*).

*Aspects*, in other words, was Chomsky's first thoroughly worked-out book-length articulation of the generative program and its significance to other fields, widely received thanks to the backing of a renowned publisher. Its groundbreaking first chapter on "Methodological Preliminaries" lucidly carved out the fundamentals of the nascent approach, defining the object of inquiry as "the ideal speaker's intrinsic competence" (dubbed *I-language* in Chomsky's later works) and thereby introducing the competence/performance distinction. It is not too far-fetched to say that this was the move that placed linguistics on scientific footing, by shifting the focus from the common-sense notion of "language" to a well-defined domain of inquiry.

Paving the way for Chomsky's philosophical follow-up *Cartesian Linguistics* (1966), this first part of *Aspects* is also an impressive defense of the rationalist view of language acquisition/growth—only on this conceptual foundation, Chomsky reasoned, can we feasibly aspire to *explanatory* (rather than merely observational or descriptive) adequacy. The rest is history: the quest for explanatory adequacy as defined in *Aspects* fueled the crystallization of the Principles & Parameters approach; and more recently, Chomsky launched the Minimalist Program as an attempt to go beyond this goal. Tempting as it is, we refrain at this point from going further into the profound impact this first part of *Aspects* had on the field; its lasting influence is aptly summarized in David Pesetsky's foreword to this volume.

The second part of *Aspects* moves beyond the conceptual level and develops certain technical details of the generative procedure in some detail. For the first time, *Aspects* presented a formal

model of grammar comprising transformationally related levels of representation, now fed by a lexicon. Some of the technical details, such as the use of features in subcategorization frames or the matching analysis of relativization, continue to figure prominently in the literature. Many others have, of course, been revised or replaced since—for instance, *Aspects*' shift away from Generalized Transformations in favor of a recursive base component and Chomsky's preference for concatenation over set formation have seen dramatic reversals in recent work, Chomsky's own in particular.

This volume is a celebration of *Aspects*' multifaceted impact on the field of linguistics, and a reflection on some of its leading themes 50 years into the game. As the reader will no doubt notice, the contributions in this volume differ quite significantly, ranging from short remarks to detailed technical analyses. We, the editors, deliberately chose not to counteract this heterogeneity, which bears testimony to the wide range of ideas and visions that *Aspects* continues to inspire. We hope that the volume persuades its reader to revisit *Aspects*, which we believe is a worthwhile exercise not only for historical reasons—after all, many of its central theses concerning the biological nature of language continue to be subject of debate, as Noam Chomsky points out in his preface to this volume. It's sometimes said that if you lose your way in the forest (a sensation that some of us may have nowadays in view of an increasingly fragmented field), it can be helpful to return to your starting point, from where you may be able to discern your original direction. In much the same vein, we believe, *Aspects* can serve as a reminder of where we were headed back in 1965, and still are today.

# FOREWORD\*

DAVID PESETSKY

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Rereading Noam Chomsky’s *Aspects of the Theory of Syntax* almost a half-century after its 1965 publication, I found myself equally startled by two contradictory observations: how breathtakingly modern this book remains, and how old-fashioned it has become.

*Aspects* was actually the second book by Chomsky to revolutionize the study of language. It was preceded in 1957 by *Syntactic Structures*, which showed how a small set of formal tools could provide a simple model for astonishingly complicated facts about English syntax (most of which had gone unnoticed until then). Thanks to a glowing review in the journal *Language*, *Syntactic Structures* was widely read. Overnight, Chomsky’s “transformational grammar” became an area of intensive research. The pace of discovery was extraordinarily rapid. Paper after paper presented brand-new discoveries about syntax, prompting many hotly debated revisions of the basic model.

But what was this new field actually all about? Why should we care about the best description of a group of verbs, or the position of an adjective? It was *Aspects* that offered some answers—so compelling and incisive that they continue to ground our research to this very day. *Aspects* set the following goals for linguistics:

1. Language makes “makes infinite use of finite means” (a phrase from Humboldt that *Aspects* made famous). The right theory of language “must describe the processes that make this possible.”
2. The minute one examines the facts of language, one is struck by the incredible complexity of linguistic phenomena—yet every normally developing child masters this complexity at a very young age, effortlessly. Compounding the puzzle is the inescapable fact of linguistic diversity. Languages differ enormously (different vocabulary, different word orders, a different array of constructions) yet any child can acquire any one of them. The right theory of language must therefore be “sufficiently rich to account for acquisition of language, yet not so rich as to be inconsistent with the known diversity of language.”

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\* This text was first published on MIT Press’ online blog (<https://mitpress.mit.edu/blog/1965-aspects-theory-syntax>) and is reprinted here with kind permission of MIT Press.

3. The devil is in the details. The right theory of language must be “perfectly explicit”—what Chomsky called a “generative grammar.” As in any science, linguistic hypotheses must predict, and therefore explain, the facts.

These are the goals that most of us in linguistics pursue to this very day, hence the breathtakingly modern feel of this great book. At the same time, although *Aspects* was the first work to articulate the central tension between the ease of language acquisition (explainable if much of language is innate) and linguistic diversity (explainable if much of language is not innate), and though Chomsky spent many pages “eating his own dog food,” by working out the details—I am also struck by how many of these details have been superseded and replaced by newer, better ideas.

But this is actually the most important sign of *success*, not failure, for this great book. The fact is, in 1965 very little was known about how children actually acquire language, and almost nothing was known about the extent and limitations of cross-linguistic diversity in syntax. In the wake of *Aspects*, the last half-century of linguistics has been marked by an enormous explosion of knowledge in both domains. And just as *Aspects* teaches us, this means that the details of our “perfectly explicit” theory had to change to match our new knowledge—with Chomsky himself in the forefront of many of these developments. The greatest works in science contain a timeless core, but if they are worth anything at all, they also contain the seeds of their own obsolescence—because the greatest works are those that launch a living field, and living fields do not stand still. So it is with *Aspects*.

# PREFACE

NOAM CHOMSKY

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*Aspects of the Theory of Syntax* was the first attempt to present a general framework for the work in generative grammar that had been developing since the late 1940s, with applications in a number of languages (in rough chronological order, Hebrew, English, German, Russian, Hidatsa, Turkish, Mohawk, Japanese, and some others, at varying levels of depth). It also discusses a variety of other problems of language, most of them still alive, even if in different forms. It was also one of several publications that sought to place these efforts within a larger context of earlier thinking about language and the mind that had been mostly forgotten or seriously misrepresented.<sup>1</sup>

This work was based on a number of assumptions that seem elementary but that departed from views that were prevalent at the time in the related disciplines. The first of these assumptions is that each language is a biological property of the individual language user, mostly parts of the brain. The biological framework was greatly enriched by Eric Lenneberg's seminal work (1967). A few years later the approach began to be called "the biolinguistic program," adopting a term suggested by Massimo Piattelli-Palmerini, who organized a major conference on these topics in 1974 bringing together biologists, linguists, philosophers and psychologists, held at MIT in conjunction with the Royaumont Center in Paris.

The second basic assumption had to do with the nature of language. Each language makes available an unbounded array of hierarchically structured expressions that have determinate interpretations at the interfaces with other internal systems: systems of thought and organization of action (the conceptual-intentional interface CI), and the sensorymotor system SM for externalization (production and perception); usually sound, though as is now known, other modalities are possible. We may call this core feature of language its Basic Principle.

The Basic Principle comprehends the entire computational aspect of language, syntax in the broad sense, including the narrow syntax that provides the expressions mapped to the interfaces and the mappings themselves, and of course the lexical atoms of computation and their various configurations.

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<sup>1</sup> See among others Chomsky (1964, 1966, 1968), Bracken (1984).

At the time, each individual language viewed from this perspective was called “a grammar,” in one of the uses of this systematically ambiguous expression. Adopting a later terminological suggestion, the system is an I-language, where “I” signifies individual, internal, and intensional (in that we are interested in the actual generative procedure, not some set of entities that it determines: a set of utterances, structures, etc.). The theory of an I-language is a (generative) grammar.

Languages can vary within the limits set by the genetic factors that specify the language faculty, called “universal grammar” (UG) in contemporary terminology. The general theory of language seeks to give an explicit account of UG, thus identifying the true nature of the Basic Principle.

Several goals for linguistic theory are discussed in *Aspects*. For particular grammars, the basic goal is essentially truth: to provide a correct theory of the I-language under consideration. To the extent that it does, the grammar meets the condition of descriptive adequacy. This is, needless to say, an extraordinarily difficult task, and even approximating it for a single language would be quite an achievement. We can regard a linguistic theory as descriptively adequate to the extent that it provides descriptively adequate grammars for every human I-language, real or attainable, and no others, thus determining exactly how the Basic Principle can be instantiated in human language. That is an even more far-reaching goal. But there is a deeper problem to be confronted as well: what is called *explanatory adequacy* in *Aspects*. A linguistic theory satisfies this condition to the extent that it shows how a descriptively adequate grammar for each I-language is selected on the basis of the data available (*primary linguistic data*), and thus shows how in principle languages can be learned, one crucial part of the biolinguistic program. From this point of view, the task of selection of a grammar is what came to be called “the logical problem of language acquisition.”

As in every domain of science, we seek the simplest theory, the one with the most far-reaching capacity for explaining phenomena, rather than just describing them.<sup>2</sup> But within the biolinguistic program, there is an additional reason to seek the simplest theory of UG. It must have evolved, and the more complex it is, the greater the obstacles to some eventual theory of the origin of language – and the word *eventual* should be stressed, though there are a few useful hints.

As soon as the first careful efforts were undertaken to construct explicit grammars for particular languages, it was discovered that very little was understood, contrary to widespread belief. Major problems appeared everywhere, many of them never noticed in the thousands of years of intensive and productive research into language. It was also quickly discovered that from the earliest stages of acquisition, language resembles other biological systems in that what is attained is vastly underdetermined by the evidence available. This is understood to be the merest truism in other domains of biology, and is therefore not dignified by a name. In the study of language, even what seem to be truisms are highly contested, so there is a name: Poverty of Stimulus (POS). Many illustrations are given in *Aspects* and earlier publications. Most have been ignored by those who contest the significance of POS for language. A few have been addressed, mostly rather marginal questions, but with very little success, to my knowledge.<sup>3</sup>

In accord with normal scientific practice, the study of an I-language should seek to sort out the many variables that enter into what is directly observed in order to focus on what is relevant

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<sup>2</sup> Surprisingly, this scientific truism is sometimes denied (Margolioash and Nusbaum, 2009), but on the basis of serious misunderstanding.

<sup>3</sup> One significant case has received considerable attention, structure-dependence of rules. Berwick et al. (2011) reviews every proposal that was clear enough to examine. All fail, irremediably, and in fact are asking the wrong question. More recent proposals, to my knowledge, suffer the same fate. There is a simple and well-confirmed answer, with interesting consequences, but it is never considered in this general literature. See Chomsky (2013) for a non-technical review.

for the purpose at hand. In the terminology of *Aspects*, research seeks to investigate an “ideal speaker-hearer,” putting to the side non-linguistic factors that enter actual performance (memory constraints, lapses of attention, etc.). A related notion is that inquiry should distinguish competence (roughly, what the person knows) from performance (what the person does in particular circumstances).

All of this should be – in fact is – second nature to every researcher. Thus in field work with an informant, the first step is transcription of utterances, which already involves high-level idealizations, disregarding non-linguistic factors and adopting non-trivial assumptions about the linguistic factors, thus abstracting to a postulated ideal speaker-hearer and distinguishing competence from performance. Any further inquiry simply carries the process further. The same holds for investigation of any biological system, in fact anything in the empirical world. Every experiment, for example, is based on essentially these distinctions, seeking to extricate the matter of interest from what is background noise for the purpose of the inquiry.

An elementary illustration in the domain of syntax is the widely discussed property of embedding – often confused with recursion. English permits such sentences as (1) but not (2):

- (1) a. If it’s hot then Bill will be happy  
       b. Either it’s hot or it’s winter  
       c. Days that Bill likes are rare
- (2) a. If it’s hot or Bill will be happy  
       b. Either it’s hot then it’s winter  
       c. Days that Bill likes is rare

Furthermore, these can be embedded in one another, as in (3), where (1b) is embedded in (1a):

- (3) If either it’s hot or it’s winter then Bill will be happy

Such embedding yields nested dependencies (if-then, either-or, plural-plural, etc.), and it is easy to show that unbounded nested dependencies cannot be accommodated by any of the theories of language proposed in the 1950s, the main reason why these structures received attention at the time.<sup>4</sup>

In 1963, George Miller and I observed that without external memory, people can understand repeated embedding up to about depth six. That is as expected, in the light of the general limits of short-term memory across species.<sup>5</sup> With external memory and time, of course, the limits can be exceeded, in principle indefinitely, much as in the case of arithmetical operations.

The rules of the I-language in the case of (1)-(3) are transparent. Plainly, it would be absurd to add to them a limit that happens to be the limit of short-memory, with some extra statement about how it can go on without limit when memory and other language-independent constraints are lifted.

Restating the observations in the terminology of *Aspects*, unbounded self-embedding (and nesting of dependencies) is part of the speaker’s competence, but performance is constrained by language-independent memory factors.

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<sup>4</sup> Another reason was that they fall within varieties of phrase structure grammar (PSG), though as the relevant publications of the time emphasized, all varieties of PSG fail on the crucial scientific grounds of explanatory adequacy, an observation summarized and extended in *Aspects*.

<sup>5</sup> Miller and Chomsky (1963), *Aspects* (p 195). Miller (1956).

All of this should be obvious. Nevertheless, these notions were highly contested at the time, and since.

The most far-reaching objection is to deny the Basic Principle, by now a very fashionable position, hence perhaps worth some attention. Perhaps the first explicit challenge was in a highly influential paper of Rumelhart and McClelland (1986), which introduced connectionist/neural net models of language. They deny that productivity is “of the essence of human computation” on the grounds that center-embedded sentences are hard to process – as indeed they are, just as large numbers are hard to multiply in one’s head. The argument is by now common. For example, Margoliash and Nusbaum (2009) write that “In reality, humans rarely achieve, and only awkwardly, even a recursive level of three when using center embedded sentences in natural speech.” They therefore propose that “embracing an infinite recursion from linguistics unsupported by corresponding data of actual human performance arises from an unfettered first-principle perspective” of the kind they condemn as ignoring the modern biological sciences. To take another case, Stephen Levinson (2013) reaches the same conclusion on the basis of the observation that center-embedding of even degree two is “vanishingly rare” in actual corpora, and degree three “almost never” appears.

The observations are correct, and explicitly refute the conclusions drawn from them. It is entirely true that for center-embedding beyond degree two, data are “vanishingly rare,” in fact virtually non-existent. Nevertheless, as noted earlier, it has been known for half a century that people can process up to the limits of short-term memory (6 or 7) with no external aids. It follows at once that without exposure to relevant data, children know the obvious rules and in particular that they have no bounds. It follows further that that the models proposed by those who reject the Basic Principle are radically incorrect for natural language. The conclusion is indeed based on “an unfettered first principle perspective,” namely the principles of rationality taken for granted in the modern biological sciences as elsewhere.

The analogy to arithmetic, just mentioned, brings out the essential point in an elementary and uncontroversial way. The arithmetical competence that appears to be a common human possession provides triples  $(x, y, z)$  where  $z$  is the product of  $x$  and  $y$ , but without external aids (memory, time, attention, life span,...) multiplication of large numbers is “vanishingly rare.” The same is true of everyone’s laptop. It’s possible to provide it with a calculator, but without access to external memory, it will have bounded performance. Lacking any such access, the system has to be redesigned for larger calculations. With such access, it needs no redesign. That is the familiar distinction between strictly finite automata and Turing architecture.

All of this is elementary. It suffices to show that the favorite example of those who reject the Basic Principle and the competence-performance distinction refutes their assumptions, and all that goes with them.

At least some of the objections to the general framework outlined in *Aspects* make sense on the assumption that there is nothing special about human language: it is just “more of the same.” In some versions, “the same” is human cognitive processes, in which case the properties of language reduce to the analogue of UG for these processes generally. In other versions, “the same” holds more broadly for non-human organisms as well. Under these assumptions, POS of course remains, as it must, but it is not specific to language.

Prima facie, this stand seems to be rather hard to sustain, if only because human language is so radically different from anything else observed in the natural world. Many more specific reasons were brought out in Lenneberg’s work on biology of language, in particular, the (double)

dissociations between language capacity and other cognitive faculties. By now there is rich data on these dissociations.<sup>6</sup> Such facts seem hard to reconcile with the “nothing special” assumptions.

Another reason is that a new-born infant at once selects language-relevant data from the “blooming buzzing confusion” with which it is confronted. Certain brain areas selectively react to human speech rather than other noises, becoming more specialized during the first few months of life.<sup>7</sup> After that, language development typically follows a regular course, on to full mature competence. In contrast, an ape with about the same auditory apparatus (or visual apparatus in the case of sign), does not take the first step, let alone those that follow. Again, it seems fairly evident that “something special” is involved.

The crucial questions however have to do with explanation of the properties of language that have been discovered. This is, of course, not the place to review that the status of these considerations. I will only express my personal view that the “more of the same” conception, despite its popularity, has very little to recommend it and is largely a recipe for continued failure to learn about the nature, use, and acquisition of language.

With some qualifications, the conclusion about these matters in *Aspects* seems to me to remain valid: “there is surely no reason today for taking seriously a position that attributes a complex human achievement entirely to months (or at most years) of experience rather than to millions of years of evolution or to principles of neural organization that may be even more deeply grounded in physical law.” The same holds if we replace “entirely” by “mostly.” The major qualifications have to do with the length of the relevant evolutionary process. There is by now considerable evidence that the relevant time frame may be very brief and recent. And there is increasing evidence that general principles of computational complexity, perhaps grounded in physical law, are of fundamental significance in acquisition of I-language.

As I mentioned, *Aspects* was a first attempt to develop a framework for theories of language that accommodated the Basic Principle within an emerging biolinguistic framework. While the general approach seems to me essentially correct, there have, of course, been very substantial developments since.

One crucial move was to revise the *Aspects* approach to selection of grammar given data. The format-and-evaluation approach of *Aspects*, which derived from work of the late 1940s, suffered from a serious defect, as recognized there: unfeasibility. In principle, it provided an answer, but only with astronomical amounts of computation. A solution to the problem was offered by the Principles and Parameters framework that crystalized in the early 1980s, opening what proved to be a highly successful research program. It revitalized the study of language acquisition, which has made impressive progress since. It opened the way to a vast explosion in range and depth of descriptive work on languages of great typological variety. There has also been very illuminating work on the structure and variety of parameters, with consequences for comparative and historical linguistics. It also made possible a deeper inquiry that seeks to reduce the architecture of I-language and the principles specific to UG to very simple forms while maintaining (and in some interesting cases, enhancing) explanatory adequacy, thus approaching what should be true of UG for the reasons indicated above.

This is not the place to try to review these developments, or the range of approaches that have been pursued. My own sense, for what it is worth, is that the basic approach outlined in *Aspects* remains generally viable and can serve as a framework for carrying forward today’s very lively and exciting research endeavors in the study of language and related domains.

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<sup>6</sup> See Susan Curtiss (2012).

<sup>7</sup> For some recent evidence, see S. Shultz et al. (2014).

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# QUESTIONS WITH DECLARATIVE SYNTAX TELL US WHAT ABOUT SELECTION?<sup>1</sup>

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## 1 Introduction

One of the many enduring themes of Chomsky's (1965) *Aspects* is the question of selection (broadly construed) and the distinction among syntactic and semantic properties (features) of linguistic expressions. In this brief contribution, we aim to reaffirm the role that syntactic selection plays in the domain of clausal embedding; that is, where verbs select for a complement of a particular syntactic type and a semantically (or pragmatically) equivalent utterance is sharply ungrammatical. Our specific focus is to synthesize a body of literature on the phenomenon of ‘optional’ (non-echo) *wh-in-situ* in *wh*-movement languages, arguing ultimately that syntactically, the phenomenon as such may not exist. What appears to be *wh-in-situ* in these languages may carry interrogative force as a speech act, but from a syntactic perspective is a declarative clause with a *wh*-expression in focus—a question with declarative syntax (DSQ). The key evidence for this claim comes from selection/subcategorization. The relevant facts have been noted for individual languages, including English, but we offer here a meta-study, of sorts, contending that the generalization in (1) holds systematically across all languages we have been able to examine, despite a wealth of variation along other dimensions.

(1) DSQ/*wh-in-situ* generalization:

If a language has *wh*-movement (to Spec,CP), then *wh*-movement is obligatory in indirect questions. Equivalently: If a *wh*-movement language allows ‘optional’ *wh-in-situ*, the *in-situ* construction is blocked in selected questions.

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<sup>1</sup> For examples from other languages we thank Meltem Kelepir (Turkish), Gísli Rúnar Harðarson (Icelandic), and the ARD and ZDF Mediatheken. The paper also greatly profited from feedback and discussions with Benjamin Girard-Bond, Željko Bošković, Jon Gajewski, Magdalena Kaufmann, Jairo Nunes, Lara Reglero, Koji Shimamura, Sandra Wood, and especially Cynthia Levart-Zocca.

The systematicity with which this holds, and the equally systematic absence of a restriction on embedding in *wh-in-situ* languages, provides a compelling argument, in our view, against analyses such as Cheng and Rooryck (2000) and Pires and Taylor (2007) which propose to assimilate the optional *wh-in-situ* facts of English, French or other languages to the *wh-in-situ* constructions of, say, Chinese, Japanese or Turkish. We suggest instead (partly in line with Ginzburg and Sag's [G&S] 2000 analysis of English) that DSQs are syntactically, if not semantically, akin to echo questions. In contrast to true *wh-in-situ*, DSQs involve no interrogative syntax (no question operator or interrogative C) and find an interpretation as a question in the pragmatics (for accounts of echo questions along these lines, see Artstein 2002, Poschmann 2010). True *wh-in-situ* by contrast (contra G&S) involves an interrogative complementizer,  $C_{WH}$ , and thus is syntactically typed as a question (Cheng 1991; whether this triggers covert movement in one form or another, or merely binds the *wh*-word is immaterial here). This  $C_{WH}$  allows (true) *wh-in-situ* questions to be selected by a higher predicate, forming indirect questions. Since DSQs lack  $C_{WH}$ , not only is there no *wh*-movement (overt or covert), but a DSQ clause cannot be selected as an interrogative, explaining the observed correlation. At its core, our explanation of (1) is thus that selectional compatibility reveals syntactic properties that are partially obscured in simple clauses by alternative ("pragmatic") strategies. In their syntax languages are either *wh*-movement or *wh-in-situ* (more accurately, *wh-in-FOCUS*) but no language (that we know of) truly mixes both constructions. As a syntactic corollary, we note that the generalization presented here supports an account where *wh*-movement, when it occurs, is the consequence of a property of C, and not triggered by a property inherent to *wh*-expressions forcing them to move (or to be syntactically licensed in any way). We sketch a formal account within the Reverse Agree framework of Wurmbrand (2012a, b, 2014) which supports the various assumptions we are led to from the broader, cross-linguistic considerations just sketched.

## 2 DSQs

English is routinely described as lacking *wh-in-situ*, and thus requiring movement of a *wh*-expression in contexts other than echo questions. This is an over-simplification. In English, it is possible to ask an information-seeking, non-echo *wh*-question without fronting the *wh*-word, as noted, for example, in standard descriptions (Huddleston and Pullum 2002: 973; hereafter *CGEL*) and occasionally in the theoretical literature (Postal 1972, G&S 2000, Pires and Taylor 2007, Zocca DeRoma 2011). Some examples are given in (2); none of these fit the defining criteria of echo questions in the contexts in which they occur.<sup>2</sup>

- (2) a. So, your boy's name is **what**? [McNulty, *The Wire*, season 1, episode 1]  
 b. Major, you want this stuff **where**? [unnamed officer, *The Wire*, season 2, episode 1]  
 c. A: All the creative people — our R&D, marketing, in-house ad staff — that's all done here in Jersey.  
 B: But the sneaks are made **where**? China? Malaysia? [Stabler, *Law and Order*]  
 d. Briscoe: What do you suspect?  
 Doctor: She was poisoned, by her own hand or someone else's.  
 Briscoe: And you know this **how**?

<sup>2</sup> Examples (2c,e) are from the collection of examples in Zocca DeRoma (2011).

- Doctor: Fresh needle mark on her left buttock. [*Law & Order*, season 10, episode 23]
- e. Mrs. Valentine: Good news, darling. Your father's spirit guide has allowed him to leave his crystals and meditation mat long enough to come to New York on business, and he wants to see you tonight.  
Drue: And this is good news on **what** planet? [*Dawson's Creek*, Season 4, Ep. 11]
- f. "Now," said Umbridge, looking up at Trelawney, "you've been in this post **how long**, exactly?" [*Harry Potter and the Order of the Phoenix*, Ch. 15]

Some German examples illustrating the same point are given in (3):

- (3) a. Und diese Teilhaber erreichen wir **wie**? German  
and these partners reach we how  
'And we can reach these partners how?' [Stark, *Schweinegeld / Tatort* ep. 746]
- b. Köhler: Ich hab nicht viel Geld. Herr Klarmann hat mir geholfen...  
Wilsberg: Und diese "Hilfe" dauert jetzt **wieviel** Jahre?  
'And this "help" has been lasting for how many years?' [Wilsberg, *Bullenball*]
- c. Du bist aus **welchem** Grund nach Patmos gefahren?  
you are for which reason to Patmos gone  
'You went to Patmos for what reason?' [Bayer 2006]

Though somewhat restricted to a colloquial register, examples of DSQs are not hard to find. They are distinct from echo questions, in that, for example, they occur in contexts that are not asking for repetition or clarification of an expression in a preceding utterance (see *CGEL*: 886-891).<sup>3</sup> The examples in (2a) and especially (2b,d), as is clear from the contexts they occur in, are genuine requests for information. The early literature identifies, as species of unmoved questions in English, at least *legalistic questions* (Postal 1972) which further a string of questioning such as (2a,c), and *quiz-show questions*, such as (4).

- (4) a. And now, for \$5,000, London is the capital of **which country**? (Cooper 1983:148)
- b. During the Korean War, the United Nations forces made largely of the troops of the United Nations and South Korea fought against the troops [of] North Korea and **what** [country] ? COCA
- c. Louis XIV was **how old** when he became King? studystack.com

Another context supporting such questions in English, noted by G&S 2000, is one in which further information is requested to flesh out a salient context, where there is no strict linguistic antecedent to count as an echo. Pires and Taylor (2007) illustrate with an example like (5a), while Poschmann (2010) and Kaufmann and Poschmann (2011) give (German) examples like (5b):

- (5) a. [Seeing somebody reading]: You're reading **what**?

<sup>3</sup> Echo questions repeat a prior utterance, substituting a *wh*-expression such as *what* for a part of that utterance, requesting repetition or clarification (or rhetorically expressing surprise). In response to A's utterance in (i), speaker B's responses in either (ii) or (iii) are echo questions. Note that the string replaced by *what* in an echo question may be smaller than a word (Cooper 1983:150, *CGEL*)—this is not generally possible in the (other) DSQs we consider.

- (i) A: I saw a sign in the market advertising "Grillhändchen."  
(ii) B: You saw a sign advertising WHAT?  
(iii) B: You saw a sign advertising Grill-WHAT(-chen)?

- b. [Discussing pot-luck plans]: Diane's baking a cake, Magda's buying bagels, and Harry's bringing **what**?

DSQs in English often have a sarcastic or disdainful edge to them and can be used as rhetorical questions. Examples (2c-f) illustrate this flavor, but this is neither obligatory nor unique to *wh-in-situ* and would be available to the corresponding fronted questions as well.<sup>4</sup>

In sum, despite their declarative (focus) syntax, DSQs are (or can be) genuine interrogative speech acts. In terms of their syntactic distribution, they are quite free. The apparently *in-situ wh*-word may be in an embedded clause, as in (6a), and even in an island (where the corresponding *wh*-movement would be impossible), as in the coordinate structure island in (6b) or the relative clause island in German (6c):

- (6) a. And the defendant claimed that he was standing **where**?  
 b. During the Korean War, the UN forces made largely of the troops of the UN and South Korea fought against the troops of [North Korea and **what** country] ?  
 c. Er hat den Mann, der **aus welchem Grund** nach Patmos gefahren ist, angerufen?  
 He has the man who out which reason to Patmos gone is called  
 'He called the man [who went to Patmos for what reason]?'

A prominent line of analysis (we discuss others below) treats DSQ in English, German, and other *wh*-movement languages as instances of the *wh-in-situ* constructions familiar from languages such as Chinese and Turkish:

- (7) a. Hufei mai-le **shenme**? Mandarin  
 Hufei buy-ASP what  
 'What did Hufei buy?' [Cheng 2003: 103]  
 b. Ozan **ne** oku-du? Turkish  
 Ozan what read-PAST  
 'What did Ozan read?' [M. Kelepir, p.c.]

For example, Cheng and Rooryck (2000), analyze French 'optional *wh-in-situ*' as involving a null interrogative complementizer that licenses the in-situ *wh*-expressions in French in a manner directly analogous to *wh-in-situ* licensing in Chinese. Pires and Taylor (2007) offer such a proposal for English (and analogous examples in Brazilian Portuguese). Noting the island-insensitivity, they adapt a familiar analysis of *wh-in-situ*, positing a null C which binds the *wh*-words in its domain, requiring no movement (neither overt nor covert). In these analyses, languages that allow 'optional' *wh-in-situ* have two interrogative complementizers, one that is associated with (overt) *wh*-movement, the other licenses the *wh*-word without overt movement, (either with covert movement of one sort or another, or via unselective binding or equivalently, Agree). G&S (2000) propose a very different syntactic treatment of English DSQs, yet share with the analyses above the general suggestion that DSQs in a language like English invoke the same grammatical pieces as standard interrogatives in a *wh-in-situ* language. In the next section,

<sup>4</sup> The text after (2f) draws this out: "Professor Trelawney scowled at her, arms crossed and shoulders hunched as though wishing to protect herself as much as possible from the indignity of the inspection. After a slight pause in which she seemed to decide that the question was not so offensive that she could reasonably ignore it, she said in a deeply resentful tone, 'Nearly sixteen years.'"

we show that despite their syntactic freedom, DSQs obey one strikingly robust restriction—they are infelicitous as indirect questions, which sets them apart from true *wh-in-situ*.

### 3 *Wh-in-situ* vs. *wh-in-situ*

A systematic point of difference between ‘optional’ and ‘true’ *wh-in-situ*, as far as we have been able to determine, lies in the possibility of occurring as the complement to a predicate that syntactically selects for an interrogative: DSQs cannot occur as indirect questions. In optional *wh-in-situ* languages, if a *wh*-phrase occurs in the complement of an interrogative-selecting predicate, *wh*-movement is obligatory in the embedded clause and unmoved variants are sharply ungrammatical or parsed as direct quotes. This is shown in (8) for English (see also G&S 2000; *CGEL*: 973), and (9) for German.<sup>5</sup>

- (8) a. \*He asked me your boy’s name is **what**.  
 b. \*I wonder I should put this stuff **where**.  
 c. \*Umbridge asked Trelawney she’s been in the post **how long**.
- (9) a. \*Stark hat gefragt diese Teilhaber erreichen wir **wie**?  
 Stark has asked these partners reach we how  
 ‘Stark asked we can reach these partners how?’  
 b. Stark hat gefragt **wie** wir diese Teilhaber erreichen.  
 Stark has asked how we these partners reach  
 ‘Stark asked how we can reach these partners.’

In true *wh-in-situ* languages, on the other hand, this restriction is not found, and indirect questions show the *wh-in-situ* configuration in the embedded clause:

- (10) a. Botong xiang-zhidao [ Hufei mai-le **shenme** ]? Mandarin  
 Botong want-know [ Hufei buy-ASP what ]  
 ‘Botong wants to know what Hufei bought.’ [Cheng 2003: 103]
- b. [ Ozan’in **ne** oku-dug-un-u ] merak ed-iyor-um Turkish  
 [ Ozan what read-NOM-POSS-ACC ] wonder do-IMPERF-1SG  
 ‘I wonder what Ozan read.’ [M. Kelepir, p.c.]
- c. [Masao-ga [CP Hanako-ga **dono hon-o** tosyokan-kara Japanese  
 [Masao-NOM [CP Hanako-NOM which book-ACC library-from  
 karidasita ka ] siritagatteiru ] koto  
 checked-out Q ] want-to-know ] fact  
 ‘the fact that Masao wants to know which book Hanako checked out from the  
 library’ [Saito 1992: 84, (33a)]

Facts such as these demonstrate that there is nothing in principle preventing a *wh-in-situ* clause from occurring as the complement to an interrogative-selecting predicate. If (true) *wh-in-situ* in-

<sup>5</sup> Since verb-second distinguishes main from embedded clauses, the direct quote parse of these examples, marginally available in English, is not an interfering factor in German (9a).

volves a null  $C_{WH}$ , then that  $C_{WH}$  (or the projection it heads) satisfies the selectional requirements of an embedding predicate. The question, then, is why the lack of movement in English and German correlates with an inability to host an indirect question construal. To the extent this question has been addressed, the general proposal (with the notable exception of Bošković 2000 on French, see below) is that the correlation is spurious – an accidental coincidence in English (G&S 2000) and French (Cheng and Rooryck 2000). A cross-linguistic survey (summarized below) shows instead that the correlation appears to be systematic, and thus in need of a principled explanation. A number of languages are syntactically like English and German, in that DSQs look, in their gross syntax, like declarative sentences. In all these languages, DSQs cannot serve as the complements to interrogative-selecting predicates.

Perfunctory inquiries suggest Dutch and Icelandic are like English and German in the relevant respects. For space reasons, we only include Icelandic examples here.<sup>6</sup>

- (11) a. (a classroom situation)  
 ...og Jón Sigurðsson fæddist **hvenær?**  
 ...and Jón Sigurðsson be.born when  
 ‘...and Jón Sigurðsson was born when?’  
 b. (a police questioning situation)  
 ... og þú varst **hvar** þegar Jóna keyrði útaf?  
 ...and you were where when Jóna drove out.of  
 ‘...and you were where when Jóna drove off the road?’

As in English, DSQs are possible in islands, such as coordination (12a) where overt *wh*-movement is robustly impossible (12b).

- (12) a. Sigur Rós hélt 14 tónleika í Bandaríkjunum og **hvaða landi?**  
 Sigur Rós held 14 concerts in USA and what country?  
 ‘Sigur Rós held 14 concerts in the US and what country?’  
 b. \***Hvaða landi** hélt Sigur Rós tónleika í Bandaríkjunum og ~~hvaða landi?~~  
 what country held Sigur Rós concerts in USA and ~~what country?~~  
 \*‘What country did Sigur Rós hold concerts in the US and ~~what country?~~’

And as in English, DSQs are possible as matrix questions, even in embedded clauses, as in (13a), but in indirect questions, fronting is obligatory (cf. (13b-c)).

- (13) a. Obama lét í ljós að hann hefði verið fæddur **hvar?**  
 Obama let in light that he had been born where  
 ‘Obama revealed that he was born where?’  
 b. \*Þingmaðurinn spurði Obama væri fæddur **hvar?**  
 senator.the asked Obama was born where  
 ‘The senator asked Obama was born where?’  
 c. Þingmaðurinn spurði **hvar** Obama væri fæddur?  
 senator.the asked where Obama was born  
 ‘The senator asked where Obama was born?’

<sup>6</sup> Our thanks to Gísli Rúnar Harðarson for these examples. DSQs are perhaps not as freely available in Icelandic as they are in English, but the relevant contrast is evidently sharp, just as it is in English.

Wood (2009) reports the same effects for American Sign Language (ASL). ASL is especially interesting since there is both leftwards and rightwards movement of *wh*-expressions with some debate as to the analysis (see Petronio and Lillo-Martin 1997, Neidle et al. 2000). Nevertheless, ASL is like English in allowing apparent optional *wh-in-situ* as non-echo interrogatives (14b), including in embedded clauses (15b), but this option is prohibited in selected questions (16b), where movement in the embedded clause is obligatory.

- (14) a. **WHO** JOHN SEE YESTERDAY?  
 b. JOHN SEE **WHO** YESTERDAY?  
 ‘Who did John see yesterday?’
- (15) a. **WHO** JOHN FEEL MARY KISS?  
 b. JOHN FEEL MARY KISS **WHO**?  
 ‘Who does John think (that) Mary kissed?’
- (16) a. JOHN ASK (MARY) **WHO** SEE?  
 b. \*JOHN ASK (MARY) SEE **WHO**?  
 ‘John asked Mary who she saw.’

Beyond Germanic and ASL, the Romance languages are well known for having apparently optional *wh-in-situ* to one degree or another, and there is a significant literature on this topic. Despite a wealth of interesting variation to which we cannot do justice, the core main/embedded asymmetry in (1) appears to hold wherever it is testable. Pires and Taylor (2007) and Zocca DeRoma (2011) discuss (Brazilian) Portuguese in comparison to English. They note that English is regularly described as having ‘obligatory’ *wh*-movement outside of echo contexts, while Portuguese is described as having optional *wh-in-situ*, as in (17):

- (17) a. **Quem** você viu?  
 who you saw  
 b. Você viu **quem**?  
 you saw who  
 ‘Who did you see?’

Yet closer inspection shows that the languages are essentially the same in their syntax, differing primarily in that the range of pragmatic contexts that permit DSQs. Important for our concerns is the observation that both languages disallow DSQs as indirect questions (18):<sup>7</sup>

- (18) a. O Pedro perguntou **quem** você viu?  
 The Pedro asked who you saw  
 ‘Pedro asked who you saw.’  
 b. \*O Pedro perguntou você viu **quem**?  
 The Pedro asked you saw who  
 ‘Pedro asked who you saw.’

<sup>7</sup> The one syntactic difference is that BP allows apparent matrix questions with an overt complementizer. DSQs are excluded in such cases. An explanation may be that these constructions involved a concealed embedding predicate.

Like English, there is no general prohibition on *wh-in-situ* in embedded clauses (19a), or even in islands—(19b) permits a reading of the adjunct *wh*-word as a modifier of the predicate in the adjunct clause (how did she fix it?), a reading that is impossible for an overtly moved *wh*-word (19c).

- (19) a. O João pensa que a Maria viu **quem**?  
 The João thinks that the Maria saw who  
 ‘John thinks Maria saw who?’
- b. O Pedro saiu depois que a Maria consertou o carro **como**?  
 The Pedro left after that the Maria fixed the car how  
 ‘Pedro left after Maria fixed the car how?’ (ambiguous)
- c. **Como** o Pedro saiu depois que a Maria consertou o carro?  
 How The Pedro left after that the Maria fixed the car  
 ‘How did Pedro leave after Maria fixed the car?’ (matrix ‘how’ only)

Pragmatically, Brazilian Portuguese is freer in the range of contexts in which DSQs are permitted. Zocca DeRoma collected examples from Brazilian TV shows (and other sources) including their contexts of occurrence, and it is clear that examples in BP are felicitous in contexts where they are not in colloquial English. Despite this pragmatic variation, there is no appreciable syntactic variation in the key properties of DSQs.

Given the overwhelming prohibition of *wh-in-situ* in embedded interrogative clauses, the DSQ/*wh-in-situ* generalization in (1) thus appears to be correct and we offer an account of this generalization in the next section.

## 4 DSQ: An account

### 4.1 The system

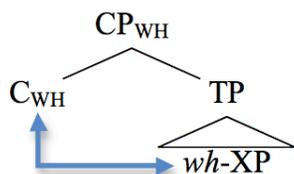
In this section, we provide a syntactic account within an explicit feature system which we show naturally derives the properties of DSQs as described in the previous section. In short, the following are the main claims we argue for:

- i. In all languages, a syntactic interrogative clause involves an interrogative  $C_{WH}$ . This element enters a dependency with (one or more) *wh*-expressions in a *wh*-question.
- ii. The difference between *wh*-movement and true *wh-in-situ* [TWhiS] languages involves the features of  $C_{WH}$ : in a *wh*-movement language,  $C_{WH}$  has features that require an overtly filled specifier whereas in a TWhiS language, the dependency between  $C_{WH}$  and a *wh*-expression may be satisfied without overt movement, either by covert movement (however that is understood) or via a binding dependency.
- iii. DSQs are (syntactically) declarative TPs or CPs which lack  $C_{WH}$  and in which the *wh*-XP is in focus (position); an interrogative interpretation is derived via pragmatics.

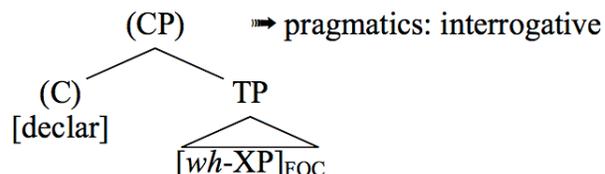
The general architecture of our proposal is given in (20). In all languages, true syntactic questions involve a dependency (to be specified below) between  $C_{WH}$  and a *wh*-XP. No such dependency exists in DSQs. Since there is no (movement) dependency in DSQs, the fact that DSQs are

possible in islands is expected. Furthermore, since DSQs are formally declaratives they cannot occur in contexts which syntactically select for an interrogative (i.e., an attempted DSQ such as *He asked me your boy's name is what* is excluded in exactly the same way the declarative *He asked me your boy's name is Leo* is).

(20) a. Syntactic interrogative



b. DSQ



The approach in (20) has some immediate consequences for the syntax of *wh*-phrases. Since there is no morphological difference between moved and unmoved *wh*-expressions, the null hypothesis is that *wh*-phrases in regular syntactic questions and DSQs are the same elements, that is, they are equipped with the same lexical features. We are not aware of any language, for example, in which moved and unmoved (DSQ) *wh*-expressions (which correspond to interrogatives) are morphologically distinct. On an account that would assign one class a feature that the other class lacked, the lack of an overt signal of this difference would be a strange coincidence. Since there is no *wh*-operator in the CP in (20b), *wh*-XPs must be syntactically independent of a C head; in other words, they cannot involve a feature which needs to be licensed by an interrogative C head or a feature that triggers movement of a *wh*-XP. We therefore propose that *wh*-phrases involve an *interpretable, valued wh-feature: iQ: wh*.<sup>8</sup> This has the advantage that no other Q feature must be in the structure to license a *wh*-XP, and DSQs are thus in principle possible, even in formally declarative contexts. Furthermore, being equipped with an interpretable interrogative feature, *wh*-XPs have the power to contribute an interrogative interpretation by themselves. This is what we suggest is the case in DSQs. Once set in an appropriate pragmatic and semantic context, *wh*-XPs can trigger an interrogative interpretation and yield a DSQ.

Regarding syntactic dependencies and feature licensing, we follow the view that the interpretability of features is independent of the notion of valuation (both interpretable and uninterpretable features can come as valued [*i/uF: val*] or unvalued [*i/uF: \_\_*]) and that licensing is established under Agree which is valuation driven (see Pesetsky and Torrego 2007, Bošković 2009). The definition of Agree we adopt is the Reverse Agree definition given in (21) from Wurmbrand (2014).

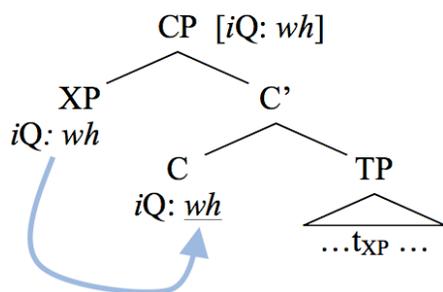
- (21) A feature F: \_\_ on  $\alpha$  is valued by a feature F: val on  $\beta$ , iff
- i.  $\beta$  c-commands  $\alpha$  AND
  - ii.  $\alpha$  is *accessible* to  $\beta$ . [*accessible*: not spelled-out]
  - iii.  $\alpha$  does not value {a feature of  $\beta$ }/ {a feature F of  $\beta$ }.

Let us see how this system derives syntactic interrogatives. As shown in (22), interrogative C is first merged with an unvalued, but crucially *interpretable* Q-feature. Given Agree as in (21), this feature needs to be valued by a c-commanding, valued Q-element, such as a *wh*-phrase. This re-

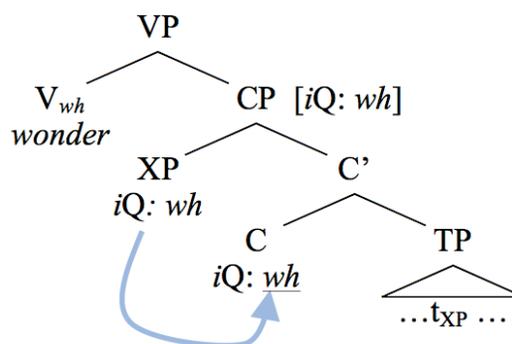
<sup>8</sup> We do, however, posit a featural difference between the interrogative and indefinite uses of *wh*-expressions in languages like German: interrogative *wh*-expressions involve an *interpretable wh-feature*, whereas the indefinite ones involve an *uninterpretable wh-feature* (see also Pesetsky and Torrego 2007).

quirement thus triggers movement of the *wh*-XP, which we assume is inherently valued as a *wh*-phrase (*iQ: wh*), to Spec,CP, a position from which it may value the unvalued *iQ: \_\_* of C. The result of this derivation (see (22a)) is an interrogative clause, that is, a CP typed as *iQ: wh*. Such a clause may subsequently be merged with a verb that selects an interrogative, such as *wonder* or *ask*, as in (22b). Merging an interrogative selecting verb such as *wonder* with a CP lacking *iQ: wh* is filtered out by however selection is implemented (see, among others, Adger 2003, Wurmbrand 2014 for feature based proposals). It is important to note that C<sub>WH</sub>, and thus the CP it heads, is unvalued until such time as the *wh*-XP moves to Spec,CP and values the *iQ: \_\_* of C<sub>WH</sub>. This property forces *wh*-movement to be overt in embedded interrogatives—prior to movement of the *wh*-XP, the CP is *iQ: \_\_* and thus not selectable by an interrogative-embedding predicate.<sup>9</sup>

(22) a. Matrix interrogative



b. Embedded interrogative



As noted above, we assume that TWhiS languages also involve a C–XP-*wh* dependency. Without delving into the many intricacies of this topic, it seems there are at least two broad families of analysis of TWhiS, plausibly reflecting two classes of phenomena or different language types (see, e.g., Cheng and Rooryck 2000, Bayer 1996, Cole and Hermon 1998). One type involves covert movement—a derivation essentially like (22), with the only difference that the *wh*-elements move covertly. There are a variety of ways of implementing this, including covert phrasal movement (Huang 1982, Pesetsky 2000), movement of an invisible feature or other subword element (Watanabe 1992, Pesetsky 2000, Cable 2007), or overt phrasal movement followed by pronunciation of the lower copy. For our purposes, all of these may be lumped together under the rubric ‘covert’ movement. In such a language, TWhiS should be subject to the same locality conditions as overt movement. A second strategy is (un)selective binding (see, e.g., Pesetsky 1987). In such languages/constructions, we propose that C can be inserted with a valued Q feature. If that feature binds another Q feature, the structure is interpreted as a *wh*-question. Like variable binding, unselective binding requires c-command, but is otherwise not sensitive to islands, which correctly characterizes certain TWhiS languages. Thus, while island-sensitivity is

<sup>9</sup> We leave open the possibility that one species of apparent *wh-in-situ* is derived by overt movement of the *wh*-phrase, but with the lower copy of that phrase pronounced (Bobaljik 1995). This cannot, on our view, be the derivation of DSQs, though, contra, e.g., Reglero (2007). Such a system does not discriminate between matrix and embedded interrogatives, and would incorrectly allow indirect questions without movement.

indicative of TWhiS, lack of island-sensitivity does not entail that the structure involves a DSQ—both DSQs and TWhiS established via unselective binding are possible in islands.<sup>10</sup>

Crucially however under our proposal, a DSQ does not involve a C–XP-*wh* dependency. For this reason—and this is the main difference between TWhiS and DSQs—DSQs may be interpreted as interrogatives, but lacking a CP marked as *i*Q: *wh* cannot be embedded by a predicate selecting a syntactically interrogative complement. Embeddability is thus indicative of TWhiS. Both covert movement and unselective binding produce CPs that are embeddable, thus we need not enter into debates about the merits of individual approaches to *wh-in-situ*; the crucial point for us is that we have provided a formal characterization of the central difference between DSQs and TWhiS.

## 4.2 DSQs with *wh-in focus*

The languages considered in section 3 share the property that DSQs resemble simple declarative clauses in their gross word order. These are all languages in which elements in focus may remain *in situ*. Since we propose that DSQs are focus constructions (cf. (20b)), in languages where focus constituents occupy dedicated positions, DSQs will be characterized by a *wh*-expression in focus, rather than necessarily *in situ*. Exactly such distribution is found in Spanish, among others.

DSQs in Spanish are similar to Brazilian Portuguese, but with the additional requirement, discussed by Uribe-Etxebarria (2002), and Reglero (2007) that the non-fronted *wh*-expression must be final in its intonational phrase. This order appears to be distinct from *wh-in-situ*, in that it does not always coincide with the unmarked order of post-verbal constituents, but as Reglero discusses in detail, this requirement holds independently of post-verbal focus constituents in Spanish. For example, while the unmarked order in Spanish is DO»IO, when the DO is an un-moved *wh*-expression, it follows the IO, reflecting the broader generalization that focused constituents come last in their intonational phrase:

- (23) [y] tú le diste a María (el) qué?  
 and you CL gave to Maria the what  
 ‘And you gave Maria what?’

The fact that Spanish *in situ wh*-expressions obey a word order generalization not evident in *wh*-movement languages is thus, as Reglero originally argued, not indicative of any syntactic difference about *wh-in-situ* among these languages, but is rather a consequence of the facts that DSQs involve *wh-in-focus*, and that the syntax (or perhaps prosody) of focus differs between Spanish and the languages described in section 3.

Cross-linguistic variation in the syntax of focus thus conspires to sometimes obscure the fundamental cross-linguistic similarity in the syntax of DSQs. This phenomenon is particularly important when considering DSQs in Slavic. It is widely recognized in the literature on multiple *wh*-fronting that not all fronted *wh*-expressions in Slavic undergo *wh*-movement—some occupy a lower, focus position (Bošković 1998). Focus movement (i.e., to a non-initial position) is possible for question formation even with a single *wh*-word. If these are instances of DSQs (and not binding by an interrogative C), then we expect that the non-initial fronting will, like other DSQs

<sup>10</sup> There is much more to be said here. As regards putative island-insensitivity in *wh-in-situ* languages, there is a substantial literature debating this point (see Cheng 2003, Bayer 2006 for overviews).

conform to (1). This is correct for Polish (Lasnik and Saito 1984) and Russian (Dyakonova 2009), at least: as shown in (24) for Russian, *wh*-expressions in matrix questions may either undergo *wh*-movement or focus movement, but in an indirect question, a *wh*-expression must front to the initial position.<sup>11</sup>

- (24) a. {**kogda**} Ivan {**kogda**} budet {**kogda**} vystupat'?  
 {when} Ivan {when} will {when} present  
 'When is Ivan going to present?' [N. Radkevich, p.c.]
- b. Boris sprašivaet **kogda** Ivan {\*kogda} budet {\*kogda} vystupat'.  
 Boris ask.PRES.3SG when Ivan {\*when} will {\*when} present  
 'Boris is asking when Ivan is going to present.' [Dyakonova 2009: 197]

In other words, exactly as in all the other languages examined above, it is possible to ask a question with the syntax of a declarative clause, where a *wh*-expression occurs in a focus position, but a clause with this syntax cannot be syntactically selected by a predicate that selects an interrogative complement. Such a predicate requires a complement that is not only interrogative in force, but is syntactically marked as such, for example, by (true) *wh*-movement.

Similarly for Polish, Lasnik and Saito (1984) contend that *wh*-expressions must occupy an A'-position at S-structure, but need not front overtly to Spec,CP (on their account, they may do so at LF). Thus, in (25a,b) the *wh*-word is in non-initial position in the embedded clause, but still yields a matrix question interpretation. Yet even in Polish, if an interrogative complement is selected (as by *wonder*), then a *wh*-word must be fronted to clause initial position (embedded Spec,CP), as in (25c).

- (25) a. Maria powiedziała, że **co** Piotr kupił?  
 Maria said that what Piotr bought  
 'What did Maria say that Peter bought?'
- b. Spotkałeś mężczyznę, który **jak** rozwiązał zadanie?  
 you.met man who how solved problem  
 'How did you meet the man who solved the problem *t*?'
- c. Zastanawiam się {**co**} Maria przyniesie {\*co}.  
 I.wonder REFL {what} Maria will.bring {\*what}  
 'I wonder what Maria will bring.' [Lasnik and Saito 1984]

As our system now stands, we must reject the characterization of languages like Polish, English or French, as having optional *wh-in-situ*, or optional fronting to non-initial A'-positions. The DSQs are crucially not simply limited instances of the *wh-in-situ* derivation that languages like Chinese use freely. Note again that TWhiS languages such as Mandarin happily allow cases exactly like (25c) (cf. (10)), thus there is no general ban on embedded TWhiS.

Instead we assume that Polish and Russian, like English, are *wh*-movement languages and that cases of unmoved *wh*-phrases (or rather cases where the *wh*-elements are moved to a focus position) are instances of DSQs and not TWhiS. This approach derives the distribution in (25). That these are DSQs is further suggested by the fact that (25a,b) are environments out of which overt *wh*-movement would be prohibited (Polish disallows *wh*-extraction out of finite comple-

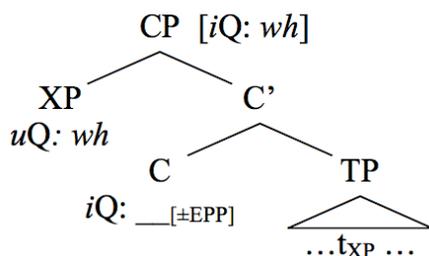
<sup>11</sup> It appears there is some variation in Russian as to whether the *wh*-expression (and focused expressions generally) may occur in post-verbal position in (24a) (see, e.g., Dyakonova 2009).

ments), and provides a principled account for why apparently optional *wh*-movement languages like Polish always lose the option of *wh-in-situ* in embedded contexts: in syntactic questions, movement is always obligatory; the apparent optionality arises as a result of the option of DSQs. As we have surveyed briefly in section 3, the option of DSQs to form matrix interrogatives shows varying degrees of pragmatic freedom cross-linguistically, but is syntactically always restricted to matrix interrogative interpretations.

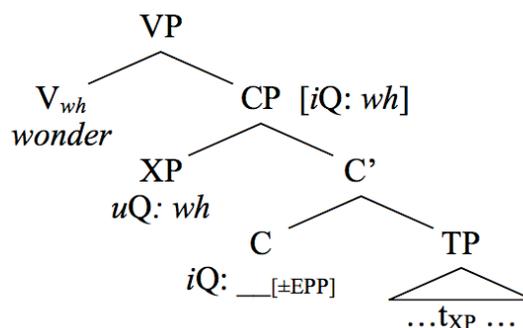
### 4.3 Alternatives?

In this section, we compare our feature valuation system with two other important proposals. Our assumption that *wh*-XPs are inserted with a valued Q-feature and C is inserted with an unvalued Q feature is identical to the feature assignment proposed in Pesetsky and Torrego [Pe&To] (2007). However, in contrast to our system, Pe&To follow an upward valuation approach to Agree. In derivations like (26), C probes downward until it finds a valued Q-feature, the *uQ: wh* of the *wh*-XP, and is then valued (upwards) by that XP. To derive movement of the *wh*-XP, C is equipped with an EPP feature in movement languages. The difference between movement and TWhiS languages could thus be encoded as the presence vs. absence of an EPP feature. To derive the properties of languages like Polish or BP, with (descriptively) optional *wh*-movement in matrix interrogatives, it would be necessary to have an optional EPP feature on matrix C, but an obligatory EPP feature on embedded Cs. While this technically yields the correct results, it raises the question of why embedded C must always involve an EPP feature in languages with an optional EPP feature on matrix C.

(26) a. Matrix interrogative



b. Embedded interrogative



Furthermore, this account does not explain why of the four possible EPP combinations only three seem to be attested. If both matrix and embedded Cs lack EPP features, a TWhiS language is derived (e.g., Mandarin); if both matrix and embedded Cs involve EPP features, an obligatory movement language is derived (e.g., English, though DSQs are then not accounted for; see also below); if matrix C involves no or an optional EPP feature, but embedded C involves an obligatory EPP feature, a language like Polish is derived. What is not attested is a language with an obligatory EPP feature on matrix C, but no or an optional EPP feature on embedded C. This would yield a language which involves obligatory movement in matrix clauses but no or optional movement in embedded clauses. Under a Pe&To feature system, there does not seem to be a

principled reason for why such languages are missing.<sup>12</sup> In our account, on the other hand, this is predicted: A language is either a TWhiS language or an obligatory movement language (matrix and embedded clauses always behave alike); all languages allow DSQs, however, DSQs are only possible in matrix questions. Hence, the only ‘mismatch’ between matrix and embedded clauses that is possible is cases in which a matrix clause involves no movement (due to DSQ), but the embedded clause requires movement (due to the unavailability of embedded DSQs).

Lastly, a Pe&To feature system does not readily extend to DSQs in a language like English. Since *wh*-XPs are specified as *uQ*: *wh*, they do not carry interrogative force and thus may not be able to license an interrogative interpretation by themselves. A possible solution may be to assume a special DSQ C which licenses the uninterpretable Q-feature of *wh*-XPs in DSQ contexts but by a means different from Agree. In this regard, Pe&To’s approach would become very similar to the proposal of Pires and Taylor (2007), where it is explicitly argued that DSQs must be licensed by a special Q operator. The following discussion thus applies to both proposals and similar ones involving a syntactic licensing requirement of *wh*-XPs in DSQ contexts (see for instance Cheng and Rooryck 2000, Zocca DeRoma 2011, among others). Pires and Taylor (2007) suggest that DSQs in English are cases of *wh-in-situ*, specifically, *wh-in-situ* involving the strategy of unselective binding.<sup>13</sup> As mentioned above, the main hurdle for such proposals is to block DSQs in embedded questions. Since TWhiS languages readily allow indirect questions with *wh-in-situ*, it is hard to see how the special DSQ C could be blocked from being selected, in a principled way. Why, for instance, can’t this special C be selected (it can in TWhiS languages)? Why is it that all languages, even ones that most persistently have been described as obligatory *wh*-movement languages (such as English) allow DSQs? If the special DSQ C is a lexical item, we would expect it to be absent in some languages. However, once we control for pragmatic factors, DSQs seem to be available cross-linguistically, exactly as expected under our approach where *wh*-XPs involve an interpretable Q-feature which licenses an interrogative interpretation even in the absence of an interrogative syntax. In sum, in approaches involving (or requiring) licensing of *wh*-XPs, the unembedability of DSQs becomes an accidental, idiosyncratic restriction arising only in (obligatory and optional) *wh*-movement languages, whereas it follows on principled grounds from our approach.

#### 4.4 A final note—French

Up to this point, we have put aside discussion of French, although it is one of the most widely discussed cases of ‘optional’ *wh-in-situ* in a *wh*-movement language. French is somewhat of a two-edged sword, in part as there are competing descriptions of the facts, and evidently variation among speakers. All analysts agree that French respects the basic contrast, consistent with the generalization in (1). *Wh-in-situ* is freely available to form non-echo questions in simple clauses, as in (27a), but such questions are strongly ungrammatical as an indirect question; *wh*-movement in the embedded clause is obligatory as in (27b,c).

<sup>12</sup> Compare verb movement (to C<sup>0</sup>), which across (most of) Germanic has exactly the property of being obligatory in matrix questions but impossible in indirect questions.

<sup>13</sup> Pires & Taylor also propose that the pragmatic restrictions on DSQs are attributable to (in some way or another) the presence of this special complementizer. But see Tieu (2011) for critical remarks.

- (27) a. Il parle de **quoi**?  
 He talks of what  
 ‘What is he talking about?’
- b. \*Je me demande tu parles de **quoi**.  
 I me ask you talk of what  
 ‘I wonder what you are talking about.’
- c. Je me demande de **quoi** tu parles.  
 I me ask of what you talk  
 ‘I wonder what you are talking about.’ [Obenauer 1994: 291-2; P. Schlenker, p.c.]

Beyond these poles, the French are disagreeable. Broadly speaking, there are at least three different characterizations of the data. An important starting point is Obenauer (1994) who offers an extended comparison of French and English. Under Obenauer’s characterization (see also Pollock 1998, Starke 2001), French is like English in allowing *wh-in-situ* in embedded (non-interrogative) clauses as in (28), and even in (weak) islands as in (29) and (30) (see also Starke 2001, Shlonsky 2012).

- (28) a. Tu veux que je le fasse **quand**?  
 you want that I it do when  
 ‘You want me to do it when?’ [Obenauer 1994: 319]
- b. Tu crois que Jean a acheté **quel livre**?  
 you believe that Jean has bought which book  
 ‘You believe that Jean bought which book?’ [Pollock 1998: 189]
- (29) a. Il s’est défendu [en accusant **qui** ]?  
 he REFL-is defended [by accusing who ]  
 ‘He defended himself by accusing who?’
- b. \***Qui** s’est-il défendu [en accusant **t** ]?  
 who REFL-is-he defended [by accusing t ] [Obenauer 1994: 296]
- (30) a. Vous connaissez des gens qui pourraient héberger **combien** de personnes?  
 you know of people who could host how.many people  
 ‘You know people who could host how many people?’ [Obenauer 1994: 297]
- b. \***Combien** de personnes connaissez-vous des gens qui pourraient héberger?  
 how.many people know-you of people who could host

However, unlike English, French on this characterization does obey various types of apparently syntactic locality conditions. On Obenauer’s characterization, embedding the islands in (29)-(30) still further yields unacceptability; later authors (Starke 2001, Shlonsky 2012) characterize this as a weak-strong island asymmetry. Many authors also contend that various quantificational elements, including negation, occurring above the *in-situ wh*-expression lead to degradation.

Chang (1997) (and following her Bošković 2000 and others) presents a much more restrictive variety than Obenauer (1994) and Starke (2001). In this variety, while the contrast in (27) obtains, *wh-in-situ* is significantly degraded in embedded clauses generally—these authors mark sentences like (28) as unacceptable. Thus while the generalization in (1) holds, it does for rather trivial reasons, as a special case of a broader generalization.

In the other direction, Starke (2001) presents a more permissive, colloquial variety of French than Obenauer. Starke's characterization is essentially similar to Obenauer's, noting the strong vs. weak island asymmetry, and also the intervention effect of elements such as negation, but Starke contends that these do not yield unacceptability per se. Rather, these sentences are limited in their contexts and intonation patterns; but when these variables are controlled for, *wh-in-situ* is seen to be acceptable even in strong islands and under negation and other putative interveners (Starke notes carefully that the relevant contexts are nevertheless distinct from echo questions).

We have neither the space nor the resources to sort out the French situation in the remaining pages of this short paper. We note on the one hand that all varieties of French thus far reported are consistent with the generalization in (1)—French thus supports our main contention that the lack of movement and unembeddability are intimately entwined. On the other hand, we note that most authors, cutting across the three varieties reported, argue for LF-movement of *wh-in-situ* and thus a covert version of the dependency with C that we reject on the basis of languages like English.

Of the competing accounts, Bošković (2000) analysis stands out in offering a proposal that restricts the construction to matrix questions. In brief, under Bošković's account (like those of its competitors), the French interrogative complementizer  $C_{WH}$  always triggers movement, but  $C_{WH}$  may be inserted into the derivation early, in which case movement is overt, or late (at LF), in which case the movement is covert (yielding apparent *wh-in-situ*). Given other assumptions of the framework in which Bošković (2000) is couched, the covert movement option is restricted to matrix clauses: because of the cyclicity of derivations, in order for  $C_{WH}$  to be inserted in an embedded clause it would need to be inserted overtly, prior to the merge of the embedded clause as complement to the matrix predicate. In this way, it is only in matrix questions that insertion of  $C_{WH}$ , and thus movement of the *wh*-expression, may be delayed until LF.

While Bošković's account thus meets the general desideratum we have set forth, relating the *in-situ* property to the inability to be selected, Bošković treats the numerous restrictions of the narrow variety of French as key support for his proposal: the inability of the *wh-in-situ* to be beneath negation or quantifiers, or to occur in embedded clauses at all, are taken as key evidence for the specific account he sets forth. Thus, as other authors have noted (Reglero 2007, Wood 2009, Zocca DeRoma 2011), the properties that support Bošković's account of the variety he describes keep that account from generalizing to languages that fail to show a general ban on embedding, that allow *wh-in-situ* under 'interveners' such as negation, and which allow *wh-in-situ* in islands. Thus, while Bošković's proposal provides an account of the language particular properties of one variety of French, it does not generalize. Conversely, an account such as ours, which focuses on the general property of DSQs, does so at the expense of the language-particular properties of various languages.<sup>14</sup>

## 8 Conclusion

Although we have left several loose ends, the landscape of DSQs can be characterized as follows. In all languages that we have investigated with classical *wh*-movement (i.e. to the leftmost periphery of the clause), an 'optional' interrogative strategy exists—even in non-echo contexts—

<sup>14</sup> Dyakonova (2009) claims that Russian patterns with the restrictive variety of French, but no other language we have investigated does. There are additional differences among individual languages which are not captured by our account. For example, Bayer (2006) notes that in German *warum* 'why' resists forming DSQ contexts, contrasting with the roughly synonymous *aus welchem Grund* 'for what reason'.

in which the clause has declarative syntax, with a *wh*-expression in focus position (i.e., *in-situ* where there is no special focus syntax). There is variation (both cross-linguistic and intra-speaker) in the pragmatic contexts in which this strategy is available, and, most strikingly in French, also in the syntactic contexts that tolerate DSQs. Despite this variation, there is one point of absolute stability: the *in-situ* construction is blocked in selected questions. The very systematicity of the last point constitutes an argument that ‘optional’ *wh-in-situ* in *wh*-movement languages should not be assimilated to the *wh-in-situ* strategy of TWhiS languages, which lack such a restriction. This property is theoretically important in that it speaks to the nature of what is selected; but it is also of interest in that it constitutes the one island of stability in a sea of other cross-linguistic variation in both the clause-internal syntax and overall distribution of DSQs. We have sketched a feature-based account that weds the unmoved nature of the *wh*-expression to its unembeddability, relating this centrally to the notion of syntactic selection set out in *Aspects*.

Finally, our approach leads us to expect that DSQs should be possible in principle in all languages with *wh*-expressions. In a TWhiS language, these will be very hard to distinguish from *wh-in-situ*. But not impossible. Under our approach, DSQs and TWhiS should both be possible as matrix questions, but DSQs should be impossible as indirect questions. To the extent there are TWhiS languages that show island effects, we thus predict a class of languages in which, as a matter of observation, island effects with *in-situ wh*-expressions are avoided in matrix question interpretations (which may be DSQs) but create violations when the intended interpretation is an indirect question (where DSQs are impossible). We do not know at this time whether such a class of languages exist, but leave this as an open conjecture.

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