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REALIZING GERMANIC INFLECTION: WHY MORPHOLOGY DOES NOT DRIVE SYNTAX*

Abstract: This paper examines and evaluates what may be called the "Rich Agreement Hypothesis" (RAH) in the domain of verb movement asymmetries in Germanic. The most prominent current accounts (e.g., Rohrbacher's 1999 *Morphology-Driven Syntax*) require inspection of the internal make-up of paradigms and take overt morphological variation to be the cause of syntactic variation. A survey of the literature shows that these proposals are empirically untenable in their strong (bi-conditional) form; there are numerous cases of syntactic variation attested in the absence of corresponding morphological variation. The strongest sustainable descriptive generalization is a one-way implication from rich morphology to verb movement. Though this has been noted before, its implications have not been adequately discussed. While morphology-driven approaches could have explained a strong RAH; when faced with the weaker, one-way implication they can provide no account of why that correlation should hold, and are thus at best incomplete. That is, they provide no insight as to why there are no languages with rich morphology, but in which the finite verb remains in the VP. The particular correlations that are attested, and in particular the absence of a certain class of languages, do however follow from a theory which takes morphology to be not the cause, but rather a reflection, of syntactic structure, in line with common theorizing in morphology. The inflection-movement correlations that do exist therefore challenge rather than supporting morphology-driven approaches to morphosyntax.

Keywords: (Rich) Agreement, Morphology-Syntax Interface, Late Insertion, Paradigms, Verb Movement

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0. INTRODUCTION

In certain Germanic languages including Icelandic, the finite verb in a subordinate clause obligatorily precedes a class of elements that includes sentential negation, floating quantifiers and certain other adverbs (1a). In the related (standard) Mainland Scandinavian languages, represented here by Danish, the opposite order is generally required in the same environments (1b).[1]

(1) a. … að hann **keypti** *ekki* bókina. (Icelandic)
that he bought not the.book
'… that he did not buy the book.'

b. … at han *ikke* **købte** bogen. (Danish)
that he not bought the.book
'… that he did not buy the book.' (Platzack 1986, p. 209)

The standard analysis of this contrast, first proposed in its essentials by Travis (1984, pp. 144-145), is that in Icelandic (1a) the finite verb moves to Infl while in Danish (1b) the verb remains in situ in the VP.[2] Under this account, the Icelandic versus Danish contrast in (1) is assimilated to the parallel contrast between French and English (2a-b) analysed by Emonds (1978) and subsequently by Pollock (1989) and Chomsky (1991).

(2) a. Jean **embrasse** *souvent* Marie. (French)
J. kisses often M.
'Jean often kisses Marie.'

b. John *often* **kisses** Mary. (Pollock 1989, p. 367)

Another difference between Icelandic and Danish concerns the inventory of endings ('morphemes' in a loose sense) in the inflectional paradigms of finite verbs in these languages. In Icelandic, verbs display tense marking and agreement for person and number with the subject (3a). In Danish the only distinction marked is between preterite (i.e., past) and non-preterite tense (3b).

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[1] Sources for paradigms where not explicitly noted are given in the appendix, along with a list of sources consulted in establishing the generalizations presented here.

[2] Examples showing verb movement are given only in embedded clauses, to control for the verb second effect in root clauses, which obscures the patterns examined here. Readers familiar with the literature on verb movement in Germanic will recognize that the Icelandic example in (1a) is arguably insufficient to demonstrate that the verb is in Infl, given the prevalence of embedded verb second in this language (i.e., the verb could be in C°). As demonstrated by Magnussón (1990) and Vikner (1995a), this can be controlled for by examining environments in which embedded verb second is impossible (such as indirect constituent questions). In such environments, the differences between Icelandic and Danish remain (for examples and discussion, see Bobaljik & Thráinsson 1998, p. 48).

(3)

	a. Icelandic: *heyra* 'hear'		b. Danish: *høre* 'hear'	
	Present	Preterite	Present	Preterite
1 psn sg.	heyr-**i**	heyr-**ði**	hør **-er**	hør **-te**
2 psn sg.	heyr-**ir**	heyr-**ði-r**	hør **-er**	hør **-te**
3 psn sg.	heyr-**ir**	heyr-**ði**	hør **-er**	hør **-te**
1 psn pl.	heyr-**um**	heyr-**ðu-m**	hør **-er**	hør **-te**
2 psn pl.	heyr-**ið**	heyr-**ðu-ð**	hør **-er**	hør **-te**
3 psn pl.	heyr-**a**	heyr-**ðu**	hør **-er**	hør **-te**

In the mid 1980s, the suggestion was put forward that the two observed differences (syntactic in (1) and morphological in (3)) were related, and causally so (see Kratzer 1984, Roberts 1985 and Kosmeijer 1986). Thus arose what we may call the Rich Agreement Hypothesis (RAH (4)). For the most extensive formulation of this hypothesis in its strong form, see Rohrbacher (1999).

(4) 'Rich' agreement is the cause of (overt) verb movement to Infl.

Corollary: The loss of rich agreement entails the loss of verb movement.

In the earliest presentations of the RAH, this hypothesis was typically interpreted in its strong form, i.e., 'Rich agreement *and only rich agreement* causes V-to-I movement' (hence the definite article in (4)). From this strong version of the hypothesis, it follows that a language with 'poor' inflectional morphology will not have verb raising to Infl. It also follows that if a language loses rich agreement over time, it will also lose V-to-I movement. For example, Platzack (1988, p. 216), in examining the development of Swedish, states that the loss of (the word order indicative of) verb raising to Infl "is an immediate consequence of the loss of agreement…" Diachronic evidence was offered to argue that this corollary is, in fact, correct (see below). In turn, the supposed accuracy of the biconditional was taken as support for a (strongly) lexicalist/ morphology-driven conception of grammar, in which properties of morphemes (as identified by their phonological matrices) determine the syntactic behaviour of the words in which they appear.

The RAH has also been taken to shed light on the issue of whether knowledge of language includes knowledge (memorization) of paradigms or just of the pieces that constitute paradigms. Approaches including Rohrbacher (1999) and Vikner (1997) not only postulate a biconditional RAH as in (4), they also argue that the definition of rich crucially makes reference to paradigmatic contrasts.[3] Rohrbacher's proposal is given here:[4]

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[3] Other approaches sharing a commitment to paradigmatic contrasts are Koeneman (2000) and Ackema (2001), though they differ from Rohrbacher and Vikner in accepting a weaker version of the RAH as in (5), below. For Koeneman (and Ackema to a lesser degree), the paradigmatic contrasts are represented in a feature geometry (cf. Williams 1994) and the relevant definitions appeal to the properties of these geometries. For a partial critique of the reification of paradigms in this manner, see Bobaljik (2001b).

[4] It is worth noting that any correlation between syntax and morphology along these lines constitutes a prima facie challenge to the version of the lexicalist hypothesis called the *Atomicity Thesis* in DiSciullo & Williams 1987, p. 49, according to which "[w]ords are 'atomic' at the level of phrasal syntax [… in that they] have 'features,' or properties, but these features have no structure, and the relation of these features to the internal composition of the

> "Agreement is [rich] (…triggering overt verb movement) in exactly those languages where regular subject-verb agreement minimally distinctively marks the referential agreement features such that in at least one number of one tense, the person features [1st] and [2nd] are distinctively marked."(Rohrbacher 1999, p. 138)

If such a view were substantiated, this would constitute a strong argument "that the notion 'paradigm' is linguistically relevant and psychologically real…" (Rohrbacher 1999, p.7), which he notes runs contrary to a common view in morphological theory (see Spencer 1991, p.12). In this way, the RAH and the accounts offered of it bore directly on two fundamental questions about the nature of grammar: the place of morphology (feeding or interpreting syntax) and the reality of paradigms.

It is now generally accepted that the strong version of the RAH is empirically untenable and must be replaced by the weaker, one-way implication in (5):

(5) If a language has rich inflection then it has verb movement to Infl.

Motivation for (5) over (4) comes from examples of verb movement (to Infl) in the absence of 'rich' morphology; such examples may be drawn from (i) dialect variation, (ii) intra-speaker variation (optionality), (iii) diachronic variation and (iv) language-internal, cross-construction variation. In section 1.2, I present a summary culled from the literature of examples in which the overt morphology is held constant across speech varieties, but the syntax varies. These are counter-examples to (4) but consistent with (5). These examples are chosen to demonstrate that it is not the proper formulation of 'richness' that is at stake, but the RAH itself. Importantly, all the counter-examples to (4) to be presented here reflect instances of verb movement in the absence of 'rich' morphology (in a structural sense to be made precise); there are (arguably) no examples of the lack of verb movement (i.e., V-in-situ) in the presence of structurally rich morphology (the one candidate case, Faroese, is discussed in section 1.3).

In light of these facts, the conclusions that were based on the (strong) RAH for the important questions of the organization of the grammar must be reevaluated. For example, since the diachronic corollary only follows from the strong (bi-conditional) interpretation of (4) the shift from (4) to (5) raises anew the question of why a language may lose verb movement and at the same time, why it may only do so after it has lost rich inflection. Additionally, the questions above remain as to whether (5) licenses an inference about the place of morphology in grammar, and about the existence of paradigms.

In this paper, I will argue that (5) does not support the morphology-driven conceptions of grammar in which it is frequently couched and that instead it supports a realizational or 'Late Insertion' view in which the syntax concatenates abstract morphemes which are subsequently provided with phonological exponents (also called VOCABULARY ITEMS) via post-syntactic vocabulary insertion or morpheme realization rules. Distributed Morphology (Halle & Marantz

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word cannot be relevant in syntax." It is precisely such a correlation between word-internal structure and syntactic structure that the theories discussed here seek to explain.

1993) is one such theory as were some of the earliest treatments of morphology in generative grammar (cf., Chomsky 1957, e.g., pp.32-33 with antecedents even earlier).[5]

One part of the argument will address another question that arises in connection with the RAH, specifically: why should there be any correlation between inflectional morphology and verb movement? On approaches that rely on counting overtly signalled contrasts in paradigms, this is somewhat mysterious. I will argue, following Johnson (1990) in spirit, and Bobaljik & Jonas (1993) more closely, that the correlations to be made in this domain do not in fact rely on paradigmatic contrasts, but rather appeal to structural complexity. That is, I will argue that the only extent to which there is a notion of morphological "richness" that is in any way related to syntax, is a notion of structural complexity distinguishing between languages that allow multiple inflectional morphemes on a single verb (corresponding, I will argue, to multiple inflectional heads in the syntax) and languages with a restriction to no more than a single such morpheme. Thus, I will argue that (6) and not Rohrbacher's proposal cited above forms the basis of the descriptive generalization in (5) which we seek to explain.[6]

(6) Verbal inflection is RICH iff finite verbs may bear multiple distinct inflectional morphemes.

The statement in (6), as I will show in sections 1.1 and 1.3 is entirely adequate for characterizing the languages under investigation and for grouping them into the right categories with respect to (5). By this criterion as well, Icelandic counts as having structurally rich inflection, in virtue of, for example, the first person plural preterite *heyr-ðu-m* 'hear-PAST-1PL'. By contrast, no Danish forms provide evidence for such structural complexity in that language. Since this distinction does not appeal to paradigms, if it adequately characterizes the same range of data as the paradigm-based theories do, the argument for paradigms consequently disappears.

What I will show in the remainder of this paper is (i) that overt morphology does not cause, drive, or project syntactic structure; rather, overt morphology is a reflection—sometimes imperfect, but nevertheless principled—of prior syntactic structure and (ii) that there is no argument for paradigms as a part of linguistic competence; those correlations which do obtain between overt inflectional morphology and syntactic structure can and should be explained without recourse to paradigms. At this point, it is important to make explicit one thing which is not being claimed in this paper. Specifically, the claim about causation is a claim about synchronic grammar. I am not claiming that a late insertion model of grammar prevents children from using overt morphology as cues for the acquisition of syntax. Similarly, in the realm of diachronic development, the approach developed here will have as a consequence that the loss

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[5] I will present the contrast here as between strongly morphology-driven and strongly realizational / late insertion. Various hybrid models of course exist, including late insertion models with filters (cf., Bobaljik 1997) and realizational constraint-based models (such as Ackema 2001). The main issue here is whether the syntax is projected from the morphology (early insertion), or whether the syntax must be known prior to determining what the morphology will look like (late insertion). See section 3 for further discussion.

[6] This is formulated as a biconditional for expository purposes, as I am using the terms rich and poor to refer to properties detectable by inspection, hence ignoring zero morphemes. As will become clear in sections 1.2-2, there are languages in which the verbs do not meet the criterion for the descriptive label 'rich', yet for which theoretical arguments entail a structural complexity masked by an abundance of zero morphemes.

of rich inflection is a necessary, but not a sufficient condition for the loss of verb movement to Infl—this will be seen to accurately reflect the available empirical evidence (I return to a discussion of these points in section 4.1 at the end of this article).

As a final clarifying remark, I will restrict the discussion below to the Scandinavian languages and English. Within Germanic, this restriction is made because there are no reliable diagnostics for the position of the finite verb in non-verb second environments in the verb-final languages (despite suggestive, but conflicting, proposals in the literature). For Yiddish, it is also difficult to determine whether or not there are non-verb second environments (see remarks in Bobaljik & Thráinsson 1998, p.49). Beyond Germanic, the picture is even more murky in important ways. On the Romance languages, for example, there is a strong literature on verb positions using comparable diagnostics to those discussed above, but there is less consensus on the characterization of the morphology and various authors have proposed treating subject clitics as agreement markers (see references in Rohrbacher 1999, p. 219). Beyond these well-studied languages, I believe it is fair to say that the verb movement patterns in particular are not well-enough understood to draw any firm conclusions.[7] One thing is clear, though, and that is that the proposals in this paper are universalist; if indeed (5) follows from properties of the architecture of grammar, there is little room for parametric variation.

1. THE RICH AGREEMENT HYPOTHESIS IN REVIEW

In this section, I will briefly review the major literature dealing with the development of the Rich Agreement Hypothesis. Section 1.1 presents cases which are less clear cut than the Icelandic versus Danish contrast in (3) but which nevertheless are consistent with a strong RAH and have been influential in the development of the theory. These are shown not to distinguish between the paradigmatic and structural approaches to richness. In section 1.2, I present a range of counter-examples taken from the literature which falsify (4) and lead to the postulation of (5). These have been selected such that the morphology is held constant, but the syntax is shown to vary . This establishes that the counter-examples are not simply a matter of the definition of richness. Note that I will use structural complexity as the measure of 'richness' (as in (6)), which I defend in section 2, though as it turns out, very little in establishing the descriptive generalizations will hinge on this choice. Finally, in section 1.3 I return to a variety of Faroese which has been claim recently to be a counter-example to (5). I will show that the assumptions required to make this claim are unmotivated, and thus that (5) remains as the strongest sustainable empirical generalization to be made.

[7] For example, while sentential negation appears to be a reliable diagnostic for the left edge of VP in (VO) Germanic, it is clear that the position of negation varies cross-linguistically and the simple observation of finite verbs following negation can not be used without further argument to justify claims about the position of the verb. In Russian, for example, the surface order negation>finite verb arises because sentential negation is always a pro-clitic on the verb. Another place where conclusions cannot be drawn at this point regards the nature of portmanteau morphology, absent an independent theory of such morphology.

1.1 Refining richness

The earliest formulations of something like the RAH in (4) for Germanic are to be found in Kratzer (1984) on German versus English, Roberts (1985) on diachronic change in English, and Kosmeijer (1986) on Scandinavian. These ideas are subsequently adopted and developed in a series of works by Holmberg and Platzack (see Holmberg 1988, Platzack 1988, Platzack & Holmberg 1989). In addition to the straightforward cases such as Icelandic and Danish, Platzack and Holmberg examine non-standard varieties of the modern Mainland Scandinavian languages. Among these, the Hallingdalen variety of Norwegian and the Älvdalsmålet variety of Swedish, given in (7), both mark fewer distinctions than Icelandic yet more distinctions than the modern standard Mainland Scandinavian languages (Danish, Norwegian and Swedish).

(7)

	Hallingdalen: *kjøyræ* 'to drive' (Trosterud 1989, p. 89)		Älvdalsmålet (weak verb endings) (Levander 1909, pp. 84-88)	
	Present	Preterite	Present	Preterite
1 psn sg.	kjøyr **-e**	kjøyr **-de**	**-(V)r**	**-d(e)**
2 psn sg.	kjøyr **-e**	kjøyr **-de**	**-(V)r**	**-d(e)**
3 psn sg.	kjøyr **-e**	kjøyr **-de**	**-(V)r**	**-d(e)**
1 psn pl.	kjøyr **-æ**	kjøyr **-de**	**-um**	**-d-um**
2 psn pl.	kjøyr **-æ**	kjøyr **-de**	**-ir**	**-d-ir**
3 psn pl.	kjøyr **-æ**	kjøyr **-de**	**-V** [=infin]	**-d(e)**

Consider first the Hallingdalen variety of Norwegian. In the present (and in the preterite of strong verbs)[8] the distinction between singular and plural subject is overtly signalled. Nevertheless, the language does not "distinctively mark" 1st or 2nd person in Rohrbacher's sense, nor does it display verb forms with more than one overt suffix. Thus, it fails both the paradigmatic and the structural definitions of 'rich' given above. Like standard Norwegian, Hallingdalen shows no evidence of verb movement to Infl (outside of verb second contexts). Thus, its subordinate clause word order is similar to Danish (compare (8b) to (1b)) and unlike Icelandic (compare (8a) to (1a)).

(8) a. *… at me **kjøpæ** *ikkje* bokje. (Hallingdalen No.)
that we buy not the.book

b. … at me *ikkje* **kjøpæ** bokje.
that we not buy the.book (Trosterud 1989, p. 91)

Next, consider the Älvdalsmålet variety of Swedish. While no person distinctions are signalled in the singular, the first person and second person endings are distinctively marked in the plural (in both tenses) satisfying the paradigmatic criterion for richness; similarly, in the

[8] The preterite of *taka* 'take' (a strong verb) is singular: *tok*, plural: *tok-o* (Trosterud 1989, p. 89). See section 1.3 and footnote 18 for other Scandinavian speech varieties that mark number distinctions in the preterite without having verb movement to Infl.

preterite tense there are discrete markers of tense (*-d-*) and agreement (e.g., *-um*) as in Icelandic, satisfying the structural criterion for richness. As expected, Älvdalsmålet differs from standard Swedish in that the former variety shows Icelandic-like word order (i.e., evidence for verb raising to Infl) in subordinate clauses. Two examples are given in (9).

(9) a. ba fo ðyæ at ig **wild** *int* fy om (Älvdal Sw.)
but because that I wanted not follow him
(= 'Just because I wouldn't follow him.')

b. ig i red an **kumb** *inte*.
I am afraid he comes not (Levander 1909, p. 123)

Early results of this sort were encouraging for proponents of the RAH. Optimism was bolstered by diachronic considerations (Roberts 1985 on English, Platzack 1988, Falk 1993 on Swedish). For example, Danish morphology changed quite strikingly between the 11th century (where it is essentially the same as Icelandic) and the 14th century (where, like modern Hallingdalen Norwegian, only number is signalled in the present, and the weak preterite is uniform). The relevant paradigms are given in (10), from Vikner (1997, p.206).

(10) *dœm-* 'judge' — 11th Century — 14th Century (Danish)

	11th Century		14th Century	
	Present	Preterite	Present	Preterite
1 psn sg.	dœm **-i**	dœm **-ð-a**	dœm **-ær**	dœm **-dæ**
2 psn sg.	dœm **-ir**	dœm **-ði-r**	dœm **-ær**	dœm **-dæ**
3 psn sg.	dœm **-ir**	dœm **-ði**	dœm **-ær**	dœm **-dæ**
1 psn pl.	dœm **-um**	dœm **-ðu-m**	dœm **-æ**	dœm **-dæ**
2 psn pl.	dœm **-ið**	dœm **-ðu-ð**	dœm **-æ**	dœm **-dæ**
3 psn pl.	dœm **-a**	dœm **-ðu**	dœm **-æ**	dœm **-dæ**

After the morphological change, the word order in subordinate clauses changed, from a distinctly Icelandic-like order in the older languages to the more modern word order illustrated in (1b). Platzack (1988) provides the minimal pair in (11) contrasting Old and Modern Swedish (which have paralleled Danish in their development; see also Haugen 1982 and Falk 1993).

(11) a. … at Gudz ord **kan** *ey* vara j honom. (Old Swedish)
that God's word can not be in him

b. … att Guds ord *inte* **kan** vara i honom. (Modern Swedish)
that God's word not can be in him (Platzack 1988, p. 222)

As it is stated in (4), the RAH is disarmingly simple and thereby presumably derives much of its appeal. It is worth noting in this context that the RAH was first proposed during the period in which there was substantial optimism concerning another proposed relationship between rich agreement and syntactic variation, namely, the Null Subject Parameter (see the papers and references in Jaeggli & Safir 1989). Considerations of the sort discussed in this section were widely taken to have established the empirical validity of the RAH and subsequent literature sought to provide a theoretical account of the correlation and a more refined definition of 'rich'. In addition to the references noted above, important developments to this line of research, all

sharing the basic assumption that the morphology determines the syntax though differing in their implementation, have been offered in Clahsen (1988), Platzack & Holmberg (1989), Holmberg & Platzack (1990, 1995), Vikner (1990, 1995a, 1995b, 1997), Roberts (1993, 1999), Falk (1993), Bobaljik & Jonas (1993), Rohrbacher (1994, 1999), Bobaljik (1995), Koeneman (1997, 2000), and Ackema (2001). These accounts can be contrasted with realizational approaches to inflection-movement correlations, proposed in Johnson (1990) and Bobaljik (1997).

1.2 Counter-examples

Counter-examples to (4) were noted even in the earliest investigations. With the apparent exception of Faroese (which I will argue in section 1.3 is indeed only apparent), the counter-examples are all of the form that some variety of some language has evidence of verb-movement to Infl, yet at the same time the morphology of this variety counts as poor by some metric. The most important cases are those in which two varieties can be directly contrasted in terms of their syntactic behaviour, but in which there is no notable morphological difference. The existence of such pairs directly refutes the strongest versions of a morphology-driven syntax: if morphological variation is the only cause of syntactic variation, then there can be no syntactic variation in the absence of a morphological trigger. Since such variation exists, it follows that morphological variation is not the only trigger of syntactic variation. Since the argument is straightforward, and the data are available in published sources, I will review these examples only superficially here.

Platzack & Holmberg (1989, p. 74) report that the variety of Swedish spoken in Kronoby, Finland displays the verb-negation order indicative of verb raising,[9] even though the "inflectional paradigm resembles the standard Swedish one … in the relevant aspects" (Rohrbacher 1999, p. 118), i.e., in that it "has no subject-verb agreement at all." (Vikner 1995a, p. 135). A parallel case is drawn from the Tromsø dialect of Norwegian as described in Iversen (1918). Fitting the schema discussed above, this variety has the same verbal inflection as the standard variety but contrasts minimally in permitting the Icelandic-like order indicative of verb movement to Infl (12). Vikner (1995b) gives a word-for word translation of this example into standard Danish (13), noting that this is unacceptable.

(12) Vi va' bare tre støkka, før det at han Nilsen **kom** *ikkje.* (Tromsø No.)
We were only three pieces, because that he Nilsen came not
'We were only three because Nilsen didn't come.' (Iversen 1918, p.83)

(13) *Vi var kun tre stykker, fordi (at) ham Nielsen **kom** *ikke.* (Danish)
We were only three pieces, because that he Nilsen came not
'We were only three because Nilsen didn't come.' (Vikner 1995b, p. 25)

[9] Additional examples, with qualifications, are given in Alexiadou & Fanselow (2001, pp. 2-3 of handout), attributed to Kristina Loef.

In Faroese also—as noted as early as Lockwood (1964)—one finds both the Icelandic (verb movement) and Mainland Scandinavian (verb in situ) word orders, as shown in (14).[10]

(14) a. Tey nýttu fleiri orð, sum hon **hevði** *ikki* hoyrt fyrr. (Faroese)
they used several words which he had not heard before

b. Tey nýttu fleiri orð, sum hon *ikki* **hevði** hoyrt fyrr.
they used several words which he not had heard before
'They used several words which he had not heard before.' (Barnes 1987, p. 4)

Importantly, despite the variation in the acceptability of the Icelandic-like word order in (14a), there are no relevant morphological differences. The basic Faroese paradigm is given in (15).

(15) Faroese: *kasta* 'throw'

	Present		Preterite	
1 psn sg.	kast	**-i**	kasta	**-ði**
2 psn sg.	kasta	**-r**	kasta	**-ði**
3 psn sg.	kasta	**-r**	kasta	**-ði**
1 psn pl.	kast	**-a**	kasta	**-ðu**
2 psn pl.	kast	**-a**	kasta	**-ðu**
3 psn pl.	kast	**-a**	kasta	**-ðu**

(Lockwood 1964, p. 76)

Faroese is important for two reasons. First, whatever one's theory of inter- and intra-speaker variation is, the side-by-side existence (for at least some speakers) of (14a-b) establishes a counter-example in principle to a strongly morphologically-driven theory, in the manner discussed at the beginning of this section. The second point is that, if Faroese morphology is poor, then the language violates the strong RAH in (4), but is consistent with the one-way implication in (5). On the morphological segmentation given in (15), Faroese morphology is poor by both criteria given above. I return to a justification of this segmentation in section 1.3.

Diachronic considerations also yield the conclusion that the correct empirical generalization is the one-way implication in (5). In the development of Danish illustrated in (10) above, the morphology becomes poor around the 14th century, but there is a lag of 100-200 years before the syntax changes (Vikner 1997, p. 207, Roberts 1999, p. 292). Likewise for English, as Lightfoot (1993) and Roberts (1993) note: "V-to-I persisted for some time after verb morphology had become impoverished and English had lost its rich system of subject-verb agreement" (Lightfoot 1993, p.207). The Middle Danish example in (16) illustrates the situation—the verb bears the inflectional suffix from the weak (modern) paradigm, but the word order is indicative of the

[10] There are intricacies involved in the distribution of the word order possibilities among speakers, and some (but not all) speakers find the Icelandic like order in (14a) 'literary'. A recent study (Petersen 2000) has indicated that the youngest (adult) generation strongly prefers the unmoved order in (14b). Nevertheless, corpus searches, elicitation work, and the intuitions of Faroese native-speaker linguists all confirm that there are speakers for whom the order in (14a) is acceptable (see Jonas 1996a, Petersen 2000, and Thráinsson et al. in prep, as reported by H. Thráinsson, personal communication, fall 2000).

older syntax, i.e., movement to Infl. In a theory which includes (or derives) (4), such a sentence should be impossible.

(16) Lader oß nu see om ui **haffuer** *nogen tid* hört guds ort […] (Mid Dan, 1543)
let us now see if we have any time heard god's words
'Let us now see if we have ever heard god's words…' (Vikner 1997, p. 206)

The available evidence is that Faroese, Tromsø and Kronoby are not isolated cases, and that over time, there have been many varieties of Scandinavian languages, acquired naturally by children, which stand in violation of the strong version of the RAH.[11]

The examples above all involve comparison of different varieties of Scandinavian languages, (across space and time, and within individual speakers in the Faroese case). A potential counter-argument to (4) can also be made by comparing constructions within a single language. One case in point is Icelandic infinitives. As demonstrated at least as early as Thráinsson (1984), some infinitival complements in Icelandic show evidence of verb raising out of the VP. In the complements of certain control verbs, the infinitive precedes the elements with which we have been diagnosing verb movement throughout, e.g., sentential negation, as illustrated in (17).

(17) a. María lofaði að **lesa** *ekki* bókina. (Icelandic)
Mary promised to read not the.book
'Mary promised not to read the book.'

b. *María lofaði að *ekki* **lesa** bókina.
Mary promised to not read the.book
Mary promised not to read the book.' (Sigurðsson 1989, p. 50)

As noted by Holmberg (1986, p. 156) this contrasts with ECM (18) and raising complements, which apparently do not show verb raising to Infl (see especially Sigurðsson 1989 and Thráinsson 1993 for subsequent discussion).

(18) a. *Ég tel Jón **hafa** ekki lesið bókina. (Icelandic)
I believe J. have not read the.book

b. Ég tel Jón *ekki* **hafa** lesið bókina.
I believe J. not have read the.book
'I believe Jón not to have read the book.' (Holmberg 1986, p. 156)

One thing that these examples illustrate is that verb movement out of the VP need not have an overt morphological trigger in Icelandic. The ungrammaticality of (18a) indicates that the verb cannot leave the VP in certain infinitival complements, whereas (17) demonstrates that the verb must do so in control complements. Importantly, there is no morphological contrast

[11] Some varieties of English which have been reported to pattern in this manner (verb movement to Infl without a morphological 'trigger') are: Shetland Dialect (Jonas 2001) and varieties spoken in Northern England and Scotland in the 14th through the 16th centuries (Roberts 1993, section 3.1.3) referred to as Middle Scots in Rohrbacher (1999).

between the infinitive verbs in the two types of complements.[12] Once again, a syntactic difference is attested in the absence of a corresponding morphological difference, and once again, the forms in question show verb movement to Infl in the absence of "rich" morphology.[13] The full force of these potential counter-examples depends on whether the verb moves to Infl in (17a) as argued by Thráinsson (1993) or to C° as suggested by Johnson & Vikner (1994). I will return to this point briefly towards the end of section 2 below.

Infinitives in Icelandic pose another potential problem for the strongest morphology-driven approaches, not noted before to the best of my knowledge. The problem is related to questions of paradigm structure and syncretism discussed in Williams (1994), Frampton (2000) and Bobaljik (2001b). One aspect of the Icelandic agreement paradigms that can be noted in (3a) is that the infinitive and the 3rd person plural present are identical: *heyra* 'to/they hear'. Third person plural present verbs behave syntactically like normal finite verbs (they always raise), whereas the behaviour of infinitives is variable, depending on their syntactic context, as we have just seen. On a strongly lexicalist approach, the feature that determines the syntactic behaviour of a given verb must come from a morpheme in that verb, hence, there must be some morphological difference between the third person plural and infinitive verbs. Now, it would be initially tempting to posit accidental homophony in this case, e.g., the infinitive suffix (*-a* in (3a)) simply happens to be homophonous with the third person plural present suffix (also *-a* in (3a)). Such a solution, though, would miss the fact that this syncretism is not a fact about the particular suffixes involved, but is systematic across verb classes, and holds even of irregular verbs such as *fá* 'get' and preterite presents such as *eiga* 'own' as illustrated in (19), ("á" in Icelandic orthography represents the diphthong [au]; the 1sg forms are given for comparison though it is worth observing that the 1sg forms of the verbs *skulu* 'shall' and *eiga* 'own' mitigate against a trivial implementation of homophonous zero-suffixes for infinitive and 3pl).[14]

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[12] Though note that the control complements have the infinitival marker *að* (homophonous with the complementizer), lacking in the ECM and raising constructions. Thráinsson (1993) argues that this is beside the point, noting that some raising constructions (in particular, with modal verbs—see Wurmbrand 1999, 2001) have the infinitival marker, yet still lack verb raising. The following minimal pair is offered by Thráinsson to indicate that the contrast is independent of the presence of *að* (though see Thráinsson 1993, p. 200, n.21).

(i)	Risarnir	lofa	[að	**éta**	*oft*	[$_{VP}$	t_{verb}	ríkisstjórnir].		(Icelandic)
	The.giants	*promise*	*"to"*	*eat*	*frequently*			*governments.*		
(ii)	*Risarnir	eiga	[að	**éta**	*oft*	[$_{VP}$	t_{verb}	ríkisstjórnir].		
	The.giants	*ought*	*"to"*	*eat*	*frequently*			*governments.*		(Thráinsson 1993, p. 199)

[13] For the morphology-driven approaches, the data in this section constitute a problem regardless of whether the verb movement parameter is set on the basis of individual (classes of) verbs—in which case (17) is a problem—or the parameter is set on the basis of the language as a whole—in which case (18) is problematic.

[14] The verb *vera* 'to be' is, not surprisingly, an exception, 3 pl: *eru*.

(19)	infinitive	heyra *hear*	fá *get*	skulu *shall*	eiga *own*	þvo *wash*	
	3 pl present	heyra	fá	skulu	eiga	þvo	
	1 sg present	heyri	fæ	skal	á	þvæ	(Einarsson 1949, pp. 73-104)

Morphological theories of various stripes posit underspecification in order to account for such patterns of syncretism.[15] At its core, underspecification is a tool for dealing with the observation that syntax may be sensitive to distinctions that are not systematically reflected in the overt morphology, exactly as we see in comparing the Icelandic infinitives vs. 3rd person plural present active indicative verbs. For example, in many languages (such as Russian) gender is marked only on 3rd person pronouns, but (past tense) verbs with 1st or 2nd person subjects nevertheless agree in gender. As recognized at least since Jakobson (1932/1984) (see also Anderson 1992), the logic of underspecification requires that the syntactic features of a word be determined prior to the choice of vocabulary item or exponent which realises these features, i.e., a realizational theory.[16]

In sum, it is well-established that the strong RAH in (4) is falsified in at least one direction. There are languages with poor morphology that nevertheless have verb movement to Infl. Before turning to the implications of the weaker generalization in (5) for the theory of morphology-syntax interactions, it is important to establish that (5) is indeed true, i.e., that there are no examples of languages with rich morphology and no verb movement to Infl. Among the languages discussed, it has been recently claimed that Faroese stands in violation of (5) and I therefore turn to an investigation of that claim.

1.3 Faroese revisited

In the previous section, Faroese was presented as a counter-example to the part of the RAH in (4) which entails that only languages with rich agreement will have verb movement to Infl. Based on the segmentation given in (15), and the structural definition of rich (more than one overt inflectional morpheme on a single verb) offered at the end of section 0, I concluded that Faroese is nevertheless consistent with the weaker, one-way generalization in (5). This

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[15] As Williams (1994) observes, in order to account for patterns of syncretism that extend beyond the individual vocabulary items, underspecification alone is insufficient. Williams develops a particular theory of paradigm structure in order to handle comparable facts in English and Latin; the analogue to Williams's proposals in Distributed Morphology is *Impoverishment* rules which delete syntactic features prior to the morphological realization (see Bonet 1995). This has the effect that syntactically distinct forms can be made to behave systematically indistinct from one another in the morphology. See Bobaljik (2001b) for an explicit comparison of Distributed Morphology with Williams's proposals and Frampton (2000) for a discussion of Germanic verbal inflection in this light.

[16] The point is one of principle, and I will not belabour it further here. In practice, most lexicalist theories that have addressed the matter are ultimately realizational in this manner. Williams (1994) is once again representative; on his theory the features which are transmitted to the syntax are not those of the overt "morphemes" (i.e., phonologically identified pieces, cf. also Wunderlich 1995), rather there is a prior abstract structure which contributes the syntactic features, relative to which underspecified insertion rules insert the appropriate phonological realizations. For a careful discussion of why underspecification / elsewhere rules implies realization, see Noyer (1997, chapter 0).

conclusion has been challenged by Rohrbacher (1999, p. 125) and Alexiadou & Fanselow (2000, p. 10); the latter authors suggest that the proper segmentation of the Faroese preterite should be that given in (20):

(20) a. Faroese preterite singular: kasta **-ð -i**
b. Faroese preterite singular: kasta **-ð -u**

The segmentation in (20), if valid for the grammars of those speakers whose verbs remain in situ in non verb-second environments, would constitute a direct counter example to (5). More importantly, it would establish that even within the Scandinavian languages, all four possible combinations of rich vs. poor inflection and verb movement to Infl or its absence exist. This would falsify any theory which predicted or derived any correlations.[17] There is however, an important step missing in concluding that (20) rather than (15) is the proper segmentation of Faroese.

Alexidaou and Fanselow appear to base their segmentation on the observation that "in [the] Faroese past tense, the verb clearly inflects for tense and [number -JDB] agreement, but no V-movement takes place in one of the two dialects of the language…" (Alexiadou & Fanselow 2000, p. 10). There is surely no dispute here as both weak and strong verbs in the preterite overtly signal a distinction between singular and plural, as shown in (21):[18]

(21) (Lockwood 1964, pp. 76, 81)

	Weak				Strong			
	kasta 'throw'				*strúka* 'stroke'			
1 sg.	kast	**-i**	kasta	**-ði**	strúk	**-i**	streyk	**-Ø**
2 sg.	kasta	**-r**	kasta	**-ði**	strýk	**-ur**	streyk	**-Ø**[19]
3 sg.	kasta	**-r**	kasta	**-ði**	strýk	**-ur**	streyk	**-Ø**
1 pl.	kast	**-a**	kasta	**-ðu**	strúk	**-a**	struk	**-u**
2 pl.	kast	**-a**	kasta	**-ðu**	strúk	**-a**	struk	**-u**
3 pl.	kast	**-a**	kasta	**-ðu**	strúk	**-a**	struk	**-u**

To inflect for tense and agreement is not a priori the same as bearing discrete morphemes marking tense and agreement, and Alexiadou & Fanselow (2000) do not offer a theory of morphology to justify such an inference. Consider in this light what a realizational approach to Faroese morphology might look like, on the assumption that there is a single suffixal inflectional position ("Q" in the sense of Halle 1990). Restricting discussion to the weak endings (present and preterite) as illustrated in (15), a realizational approach might posit the following inventory

[17] Including Alexiadou and Fanselow's own proposals, a point which they do not comment on.

[18] A number distinction in the past tense of strong verbs is also attested in the Hallingdalen variety of Norwegian discussed in (7a) above and in the Skelleftemålet and Pitemålet varieties of Swedish (Marklund 1976, Brannstrom 1993). Recall that none of these have evidence for verb movement to Infl (to the extent such data is available).

[19] Archaic *streykst*. The *–st* in the second person preterite singular of strong verbs is now a feature of the written language if used at all (Lockwood 1964, p. 81, Jonas 1996a, p. 118).

of vocabulary items, disjunctively ordered and thus ‘competing’ for insertion in the one inflectional suffix position.[20]

(22)

-ðu	⇔	preterite, plural
-ði	⇔	preterite
-a	⇔	plural
-i	⇔	1
-r	⇔	elsewhere

The motivation for considering the alternative segmentation in (20) seems clear enough: both of the weak preterite vocabulary items in (22), and only these two items, contain the interdental *-ð-* (cognate to English past *-d*). Also the form *-ðu* must be specified for two features, namely PRETERITE and PLURAL. It seems appealing therefore to further segment this into *-ð-* ‘weak preterite’ and *-u* ‘plural’. The problem with such an approach is that *-u* is not the plural marker; the vowel *-u* signals plurality only in the preterite tense. All the present tense plural forms in (22) end in *-a*. Hence, a form like *kastaðu* ‘we/you/they threw’ can not be correctly glossed as in (23a); if the consonant and vowel are taken to represent discrete morphemes, the analysis must be (23b) with the feature [PRETERITE] represented twice. For comparison, the segmentation implied by the analysis in (22) is that given in (23b).

(23) a. * kasta **-ð -u**
throw-[PRETERITE]-[PLURAL]

b. kasta **-ð -u**
throw-[PRETERITE]-[PLURAL, PRETERITE] (cf., Alexiadou & Fanselow 2000)

c. kasta **-ðu**
throw-[PRETERITE, PLURAL] (cf., Bobaljik 1995)

It is not any obvious metric of simplicity which would yield the result that the segmentation in (20) is superior to that which I have proposed above and elsewhere.[21] It can only be concluded

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[20] This analysis can be made more or less simple in various ways. The first two items may be collapsed into one with the vowel quality alternation captured by subsequent readjustment rule in the phonology, as suggested in Bobaljik (1997, p. 1046). That there are such phonological readjustment rules sensitive to number (also tense, person) but independent of the relevant suffixes is well established, if ablaut phenomena are to be treated in this manner, as illustrated for example by Austrian German dialects, cf.: *steabm* ‘die’: sg: *stiab-{Ø,st,t}* vs. pl: *steab-{m,ts,m}* (Bendjaballah & Haiden 2001, S. Wurmbrand, p.c., 3/2001). As they stand, none of the analysis presented in this section captures the fact that the third person plural present is systematically homophonous with the infinitive, though they can all be supplemented to accommodate this without affecting the main point presented here.

[21] Some evaluation metrics may even yield the result that the analysis I have offered is simpler. This may be true, for example, of the metric proposed by Halle (1997, p. 430): “The number of features mentioned in the Vocabulary must be minimized,” depending on many assumptions about feature structures and the particular analyses of Faroese that might be proposed. Contrast (22) with an analysis in the same framework that invokes two nodes Tense {-ð- ⇔ PRETERITE, Ø elsewhere} and Agr {-u ⇔ PRETERITE, PLURAL; -i ⇔ PRETERITE; -a ⇔ PLURAL; -i ⇔ 1; -r elsewhere}; this analysis has more features than that in (22) in covering the same range of data. Note importantly that the same metric that appears to favour the ‘single suffix’ analysis of Faroese nevertheless favours a split Tense

that there is at present no compelling motivation from a morphological perspective for deciding between the segmentations in (20) and (15), that is, neither in favour of the segmentation that I have proposed, nor that of Alexiadou and Fanselow. The data are indeterminate, as proposed originally in Bobaljik (1995, pp. 45-48). Accepting that the morphology provides no evidence for the proper segmentation of Faroese verbs, one can not draw from these verbs the conclusion that (5) is falsified. The statement above, that (5) is the strongest empirically sustainable generalization, remains an accurate characterization of what can be stated given current understanding. As a general point, we are thus faced with a choice between accepting (5) and seeking an explanation of it, or assuming that there are no generalizations to be stated, and treating the lack of clear counter-examples to (5) as accidental.[22] In the next sections, I will argue that (5) follows from properties of the organization of the grammar on a particular kind of realizational model, but is left unexplained on a morphology-driven model.

2. EXPLAINING A ONE-WAY IMPLICATION

In the preceding pages, I hope to have established that there is an empirically sustainable correlation to be made in the realm of verb movement to Infl and inflectional morphology, at least within the Germanic languages. I have reviewed the literature showing that this generalization is the one-way implication in (5) and not the stronger generalization in (4). That is, the empirical situation is as in (24); of the four logical possibilities, (24d) is unattested.

(24)	a.	multiple inflectional morphemes permitted, verb movement.	Icelandic
	b.	≤ 1 inflectional morpheme permitted, verb movement.	Tromsø, %Faroese
	c.	≤ 1 inflectional morpheme permitted, no verb movement.	English, Danish
	d.	multiple inflectional morphemes permitted, no verb movement.	* unattested

I take it as uncontroversial that, should this prove to be a general fact about languages and not an idiosyncratic property of Germanic, an adequate theory will not only accommodate the attested language types but will also predict the absence of the type in (24d). In this section, I will show how a realizational (or Late Insertion) theory has the relevant properties to do just that. In the next section I will argue that a morphology-driven model cannot derive this result.

The essential components of a Late Insertion theory of Germanic inflection and verb movement were originally sketched in Johnson (1990) and the theory was elaborated in Bobaljik (1995, chapter 5), and Bobaljik & Thráinsson (1998). The starting point for this theory is Pollock's (1989) proposal to split the traditionally doubly-headed IP (25a) into a series of functional projections, giving agreement and tense separate status as X'-theoretic heads, and requiring that each projects to a full maximal category, as in (25b).[23] Almost immediately, other

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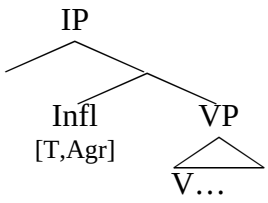
and Agreement analysis of the corresponding Icelandic paradigm in (3a) thus making the correct splits among the languages investigated in this paper (see handout from Bobaljik 2001a, p.15).

[22] This is the position put forward in van Gelderen (1997, p. 13).

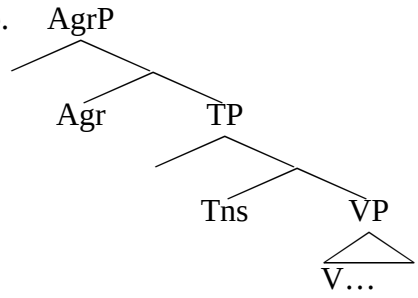
[23] Pollock had the agreement head below the tense head. Other functional projections were also proposed by various authors, including an object agreement head placed between T and VP in (25b) in Chomsky (1991), which is the structure adopted by Bobaljik & Thráinsson (1998). The differences among these proposals do not affect the main

authors suggested that the inventory of functional projections in the IP domain could be subject to cross-linguistic variation (see the response to Pollock in Iatridou 1990) and that (25b) does not replace (25a) within UG but rather instantiates another possibility.

(25) a.



b.



Johnson (1990), adopting an early version of Distributed Morphology, suggested that this type of variation in the inventory of functional projections can yield a principled account of inflection-movement correlations in Germanic. Specifically, he proposed that some languages have various functional heads quite high in the tree that other languages lack. The verb movement differences could then be described as a matter of how high the verb moved in a given language, and the morphological differences would follow from the syntactic differences—if a language lacked a particular (high) syntactic projection (such as person agreement phrase), there would be no movement to that projection and there could be no overt morphology instantiating the head of that projection.

Bobaljik (1995), Thráinsson (1996) and Bobaljik & Thráinsson (1998) continue the line of investigation initiated by Johnson (1990), suggesting in essence that the difference between (25a) and (25b) constitutes what they call the *Split Infl Parameter* (henceforth SIP).[24] They propose that Icelandic exemplifies the rich structure in (25b), while Danish and English are examples of languages with the simple IP structure in (25a). Bobaljik & Thráinsson (1998) argue for this by noting that there are a series of fairly straightforward consequences of assuming such a parameter, both for the syntax and for the morphology. These can be divided into three types:

(26) a. More specifier positions in (25a) than (25b)
b. More syntactic terminal nodes (heads) in (25a) than (25b)
c. Non-local relations among “Infl-type” heads in (25b)

These consequences may play out in a variety of ways. Consider first (26a). On the assumption that each phrase has maximally one specifier position, a language with a simple IP structure as in (25a) should have only one specifier position in the IP domain, i.e., the region between CP and VP. This contrasts with languages that have the more articulated IP structure in (25b); all else being equal, the latter type of language should allow more arguments to appear in the IP domain. Bobaljik & Thráinsson (1998) claim that this is the correct interpretation of the

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points to be made in this section (though they raise interesting questions) and I will ignore them here.

[24] The term is originally Thráinsson’s and corresponds to the *Free Agr Parameter* in Bobaljik (1995). In some subsequent work, this has come to be known as *Bundling Theory*, reflecting the idea that the inventory of features (person, number, tense) is the same among the two language types, what differs is only whether agreement is bundled together with tense in a single inflectional head.

evidence for multiple subject positions in, e.g., Icelandic (and German) as compared with the Mainland Scandinavian languages and English, as presented in Diesing (1992a) for German and Bobaljik & Jonas (1996) for a wider range of languages. By using a class of adverbial elements taken to diagnose the left edge of TP these authors have shown that subjects may surface in one of two positions in Icelandic and German (with interpretive consequences to the difference), while this is not true of, e.g., English or the standard Mainland Scandinavian languages (Danish, Norwegian and Swedish). In essence, as the Icelandic examples below illustrate, subjects reflecting old information occur to the left of a TP-adverb, in Spec,AgrP (27a), while those reflecting new information occur to the right of such an adverb (27b) yet still external to the VP.[25]

(27) a. Í gær kláruðu {þessar mýs} sennilega *{þessar mýs} ostinn. (Ice.)
yesterday finished these mice probably these mice the.cheese
'These mice probably finished the cheese yesterday.'

b. Í gær kláruðu {?margar mýs} sennilega {margar mýs} ostinn.
yesterday finished many mice probably many mice the.cheese
'Many mice probably finished the cheese yesterday.'
(Bobaljik & Jonas 1996, p. 196)

A special case of the alternation seen in (27b) is the Transitive Expletive construction (TEC), illustrated in (28).

(28) Það hefur einhver köttur étið mýsnar. (Icelandic)
EXPLETIVE has some cat eaten the.mice
'A cat has eaten mice' (Bobaljik & Thráinsson 1998, p. 56)

In this construction, the logical subject (or associate) must occur in the lower of the two subject positions identified in (27), and is restricted to the interpretations available to an NP in that position. See Bobaljik & Jonas (1996) for arguments that this position is Spec,TP in a structure similar to (25b). If this analysis is correct, it follows that in order to license a TEC, a language must have this lower subject position available to subject NPs. This predicts that only languages with a split IP structure will allow TEC constructions and, as Bobaljik & Thráinsson (1998) show, this is correct. Thus, Norwegian and English, which both allow expletive constructions in principle, do not allow such constructions with transitive verbs.

[25] There is a good deal more to be said here. In particular, it can demonstrated fairly straightforwardly that the lower subject position is, indeed, VP-external on the relevant assumptions. This was first noted by Jonas (1992). See Bobaljik & Jonas (1996), Bobaljik & Thráinsson (1998) and references cited therein for further discussion. This is presumably related to the definiteness effect in English, though it is not the same. The range of NPs that may occur as associates in TECs in Icelandic is less restricted than it is in English expletive constructions (see Vangsnes 2002) and it is freer still in German where even proper names may occur as the associate in a TEC.

(29) a. *Det har en katt ete mysene. (Norwegian)
EXPLETIVE has a cat eaten the.mice
'A cat has eaten mice' (Bobaljik & Thráinsson 1998, p. 56)

b. *There has eaten a cat mice. / *There has a cat eaten mice.

Most telling in this regards is Faroese. Below, I will show how verb movement differences can be made to follow from the SIP, such that all and only those languages with the structure in (25b) will have verb movement in the relevant contexts. Recall that there is variation in Faroese in the distribution of verb movement in this language, as shown in (14), above. Jonas 1996a reports (see also Petersen 2000) that the variation in verb movement among speakers correlates with variation in the acceptability of TECs: "Those speakers who accept verb movement in the [relevant JDB] types of embedded clauses … also accept TECs … whereas the speakers of … the dialect without generalized embedded verb movement do not." (Jonas 1996a, p. 106). This is striking evidence that a parameter is at work, linking the two properties, as proposed in Bobaljik & Thráinsson (1998).[26]

As noted above, Bobaljik & Thráinsson (1998) not only take subject agreement to be split from tense, heading its own projection, but they also posit a distinct AgrOP, following Chomsky (1991). Hence, they also take the cross-linguistic distribution of Object Shift (of full DP arguments) to be evidence of a split IP, thereby subsuming the primary content of the Spec-TP Parameter of Bures (1993), Bobaljik & Jonas (1996) and Jonas (1996b). The reader is referred to Bobaljik & Thráinsson (1998) for details.

Consequence (26b) plays out in the morphology to yield the following. On the assumption that no more than a single overt morpheme may be inserted into a single syntactic terminal node,[27] it follows that languages with a single inflectional head will never permit more than one overt inflectional morpheme on a single verb (i.e., there simply isn't room for more than one). Languages with the more complex syntactic structure in (25b) will allow correspondingly more inflectional morphemes. This appears to make the correct cut among the languages under investigation, in particular, Icelandic—which was taken to display one syntactic consequence of a Split IP in (28)—is the canonical example of a language which allows more than one overt inflectional morpheme, the observation with which we began the paper. From this perspective, it is the syntax that is responsible for licensing structurally rich agreement in some languages, and for prohibiting it in others. It is this property of the theory that allows the inference from the presence of rich agreement to the structure in (25b).

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[26] To the extent that English and some Mainland Scandinavian languages allow variation in adverb-argument word orders on the surface similar to (27), these do not correlate with interpretation. On the assumption that structural position correlates systematically with interpretation via some sort of Mapping Hypothesis (see Diesing 1992b and Tsai 1994 for refinements), this suggests that (27) indicates that the arguments themselves occupy different positions in Icelandic, while English examples must arise from variation in the surface position of the adverb.

[27] This is the null hypothesis, though departures are countenanced within the framework of Distributed Morphology, under the rubric of Fission (see Noyer 1997 and Halle 1997). If fission does exist, it must be constrained so as not to be able to apply in the cases under investigation. Solid arguments for fission, though, are difficult to come by and many apparent cases of extended exponence (i.e., multiple surface morphemes spelling out a single syntactic feature) can be productively subsumed under contextual allomorphy as Carstairs (1987) discussed (see Bobaljik 2000 for some concrete examples).

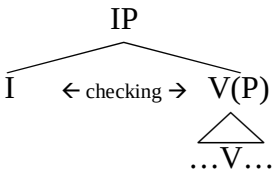
Consider now the situation regarding a language that has structurally poor inflectional morphology, that is, a language that never shows any more than one overt inflectional morpheme on a given verb stem. Given the possibility of zero morphemes, the structures in (25) constrain only the maximal number of overt inflectional affixes which may surface on the finite verb in a given language; no implications are made as to the lower bound. If a particular verb form (say the Icelandic first person singular present)—or for that matter all the verb forms in some language, say Faroese—have zero or one *overt* inflectional morpheme, it is in principle impossible to determine which of the possible underlying structures in (25) that particular verb form instantiates. For Icelandic, where the structure is known independently to be complex, this amounts simply to the required evidence for positing a zero suffix for the 1st person singular agreement. For a language like Faroese however, the situation from the morphological perspective is indeterminate and the SIP can therefore only be set on the basis of syntactic evidence.

At this point, I have established only that a realizational theory can predict a situation in which the presence of rich morphology can serve as an unambiguous clue to syntactic structure (for which independent evidence can be found); while poor inflectional morphology will be indeterminate. Thus a split IP (25b) is taken to be the syntactic property that licenses rich morphology. The next step is to show that this property can form the basis for a theory of verb movement. A theory that has the relevant properties was put forward in Bobaljik (1995, chapter 5) and Bobaljik & Thráinsson (1998) and the reader is referred to those works for more detail. The core of the theory is the combination of the following assumptions:

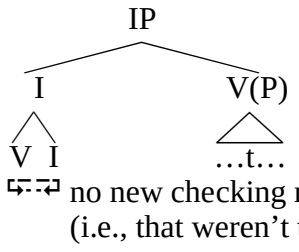
(30) a. Last Resort: movement is driven only by the need to check features
b. Locality: sisterhood is an eligible relation for feature-checking[28]
c. Features: Inflectional heads have features to check against verbs

Putting these assumptions together yields the following situation. First, if a language has the simple IP structure in (25a), there will be no motivation for movement of the verb to Infl in that language. This situation is illustrated in (31). Since (a projection of) the verb is the sister of Infl, checking requirements may be satisfied without movement. Movement is thus prohibited by Last Resort since it creates no new checking configuration.[29]

(31) a.



b. *



no new checking relations
(i.e., that weren't there prior to movement)

[28] The second assumption is in part a departure from, e.g., Chomsky (1995).

[29] I assume that in such a situation, the combination of the inflectional affix and the verb stem is achieved post-syntactically, by a merger operation at PF (ultimately Affix-Hopping). See Bobaljik (in press) for an explicit proposal for the languages investigated here.

The situation in a language with a split IP is different. While Tense may check features against the verb without movement, the higher inflectional head (Agreement) is not in an appropriately local configuration with any projection of the verb. Movement of the verb is therefore mandated.[30] Note that this theory extends straightforwardly to verb-second, even in languages (like the Mainland Scandinavian languages) in which the verb does not raise out of the VP in embedded contexts. If C˚ has some feature to be checked against a verb akin to what inflectional heads bear, then the derivation of a V2 clause in, for example, Danish will be exactly parallel to what happens in a non-V2 environment in Icelandic, with C(P) substituted for Agr(P) in (25b).

Adding the assumption that verb movement must be overt,[31] what we have now derived is the following. The structure in (25b) entails verb movement, allows for the insertion of multiple inflectional morphemes, and is independently detectable by syntactic effects of multiple specifier positions. The structure in (25a), by contrast prohibits verb movement (by Last Resort) and is incompatible with the insertion of any more than one inflectional morpheme. This state of affairs admits the following types of languages:

(32)	a.	multiple inflectional morphemes, verb movement.	(25b)
	b.	≤ 1 inflectional morpheme, verb movement.	(25b), + zero morphemes
	c.	≤ 1 inflectional morpheme, no verb movement.	(25a)

The fourth possibility, namely multiple inflectional morphemes but no verb movement is excluded. Multiple inflectional morphemes are only possible in the structure in (25b), but that structure forces verb movement. To the extent the details of the relevant theory can be filled in, this section has demonstrated that a realizational/late-insertion theory has the potential to explain the observed distribution of properties, that is, to derive the descriptive generalization in (5). Having a Split IP projection is a syntactic characteristic that distinguishes some languages from others, and which has both morphological and syntactic consequences. It is syntactic (structural) differences that underlie morphological differences (again structural, not paradigmatic), and not the other way around. In the next section I will turn to an argument that this result, which follows automatically from the assumptions noted above, is not possible within a strongly morphology-driven conception of grammar, and that to the extent it can be mimicked within a weakly lexicalist grammar, it does so only by abandoning contentful theses of lexicalism. This state of

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[30] Questions of implementation arise at this point. It would seem either that the verb should be prevented from skipping Tense on its way to Agreement (which would be in violation of the Head Movement Constraint), or that movement of the verb to Tense would be sufficient to bring it close enough to Agr to check features (although this requires a certain amount of feature percolation). In Bobaljik (1995, chapter 5), I opt for the former approach exploring the parallels to successive cyclic movement; Bobaljik & Thráinsson (1998) take a somewhat different tack providing empirical considerations that suggest that the finite verb in Icelandic non-verb-second environments may in fact occupy T˚ and not Agr˚. I leave the matter open at this point.

[31] This is not forced by the logic of the theory and amounts to an important stipulation. It is perhaps relevant that putative covert verb movement is motivated by assumptions of uniformity: if the verb moves to position X in some language, it must move to that position in all languages. This makes verb movement qualitatively different from covert XP movement which can be motivated on semantic grounds such as scopal requirements for quantifiers.

affairs thus weighs in favour of late insertion models of grammar such as that codified in the framework of Distributed Morphology. Before proceeding to the next section, I will consider one additional avenue of potential support for the claim that it is differences in syntactic structure, and not morphological differences, that drive variation in verb movement .

This additional support might be drawn from the Icelandic infinitival constructions discussed in section 1.2. Recall that complements of control verbs were seen to have obligatory verb movement out of the VP (17), while complements of ECM and raising verbs prohibit such movement (18). Recently, Wurmbrand (2001) has provided extensive evidence (from German and other languages) that infinitival complements differ in the amount of functional structure they contain (if any) above the VP. Excluding some intermediate constructions, her arguments show that control complements have a full functional structure above the VP, while other infinitivals such as the complements to modal verbs are bare VPs. When combined with the proposals in this section, Wurmbrand's hypothesis leads us to expect essentially the Icelandic contrast in VP (17)-(18); control complements have the same functional structure as finite clauses, and thus show the same syntax (verb movement); but in bare VP complements the functional structure responsible for movement is lacking, and no movement occurs. Extending the hypothesis to the Mainland Scandinavian languages (and adapting Wurmbrand's inventory of functional projections to the one proposed here), we do not expect parallel differences to emerge in infinitival constructions in these languages. As in Icelandic, we expect the verb to remain in the VP in the small, VP infinitives, but unlike Icelandic, finite clauses in these languages have an impoverished inventory of functional projections (25a) hence the expectation that control infinitives will behave like finite clauses amounts to the assumption that this class of infinitives will also lack movement. This is indeed what we find.[32]

3. AGAINST A MORPHOLOGY-DRIVEN APPROACH

In the preceding section I have shown how a late insertion model of grammar, specifically that put forward in Bobaljik & Thráinsson (1998), can explain a clustering of properties among certain Germanic languages, including specifically the absence of one of the four possible combinations presented in (24). The next step in the argument is to show that such an approach is not only adequate but that it fares better than alternative, morphology-driven approaches to the same data.

There are two independent points on which current morphology-driven approaches differ from the late-insertion proposal sketched above. One such point of difference is in whether the proper but between language types in the morphology is made on a paradigmatic or a structural view of richness. The structural perspective has the advantage that it may answer the question of why there should be any correlation at all between morphology and syntax—the correlation emerges as a simple correspondence between terminal nodes in the syntax (with their attendant projections and consequences) and discrete morphemes. Under the view presented above, this correspondence is detectable on inspection, up to the occurrence of zero morphemes. The paradigmatic approaches shed little light on the 'why' question. Although the paradigmatic

[32] Johnson & Vikner (1994) offer an alternative characterization of these facts. Their arguments are inconclusive and we must consider the matter open.

approach is inconsistent with a late-insertion model, the reverse is not true, and accepting that the proper characterization of richness is structural does not in and of itself distinguish among theory types.

A more fundamental point of difference , then, is the place of morphology in the theory. Recall that Rohrbacher (1999) explicitly rejects the 'strongly lexicalist' approach of, e.g., DiSciullo & Williams (1987) (see footnote 4). Nevertheless, Rohrbacher (1999) and Vikner (1997) share with lexicalist theories the perspective that the morphology determines—and is prior to—the syntax. Since both authors rely crucially on identifying overtly signalled distinctions, it seems that morphology for these authors is taken to mean 'overt morphemes,' i.e., as identified by their phonological content. Such early-insertion models could provide an account for a bi-conditional (strong) version of the RAH, as in (4). By having overt morphology constitute the input to syntax, the absence of a particular class of distinctions (or morphemes) can correlate directly with the absence of some syntactic property. (This is of course possible on a realizational approach as well and does not decide the issue either way, it is only the mismatches between morphology and syntax that are truly interesting.) As we have seen, though, the strong RAH in (4) appears to be empirically unsupportable. The strongest sustainable generalization is instead the one-way implication in (5). Since syntactic variation occurs in the absence of overt morphological variation, the latter cannot be the only cause of the former, contra the RAH.

Various authors have recognized this point and proposed weaker versions of morphology-driven approaches. These include Platzack & Holmberg (1989), Koeneman (2000) and Ackema (2001).[33] On such approaches, it is taken that rich morphology causes verb movement to Infl in those languages that have rich inflection (e.g., Icelandic and Älvdalsmålet Swedish). In those languages that lack rich inflection but have verb movement (i.e., those discussed in section 1.2) the movement must have a different cause. For example, Platzack & Holmberg (1989 p. 74) discussing the Kronoby variety of Swedish, propose the following (cf., Koeneman 2000, p. 83, Roberts 1999, p. 293):

> "The evidence required, in the absence of overt (person) agreement, to set the [verb movement] parameter right is precisely sentences like [the Kronoby analogue of (12)]: given reasonable assumptions it can only be analysed as having the finite verb moved to [Infl]."

Advocates of such a view claim that, for languages with poor morphology, V in situ is an unmarked option, and that verb movement is marked, sometimes taking the relatively low number of such languages in the sample as support for this view.[34] Laying aside objections to this type of "markedness" argument (see Newmeyer 1998 for discussion), this general approach

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[33] Vikner (1995a) can be added to this list, though in this work he erroneously concludes that languages with poor agreement and no verb movement are predicted by his system (Vikner 1995a, p. 135). In subsequent work (Vikner 1995b, 1997) Vikner follows Rohrbacher in elevating the condition to the bi-conditional in (4).

[34] Ackema (2001) presents an Optimality-Theoretic approach to the issue of the inflection-movement correlations under discussion, and is quite explicit about noting that nothing inherent in his approach excludes the unattested languages (p. 255). As it stands, their absence for him must be stipulated, though he goes on to suggest a means of encoding typological markedness (as measured by rarity of instantiating grammars) within his system.

leads quickly down a slippery slope, threatening to undermine the content of a morphologically-driven RAH. Thus, Rohrbacher (1999) notes repeatedly (n.17, p. 151, see also pp. 119, 142):[35]

> "If examples of V to I raising in the input are sufficient to trigger the acquisition of V to I raising, it is unclear why the morphological richness of person or any other agreement should play any role at all in this process."

In other words, since the correct generalization is a one-way implication, it must be that there are causes of verb movement other than rich agreement; if these causal factors are also present in languages with rich agreement, then appeal to agreement in the cases where it is rich plays no role in the explanation.[36] If word order alone (evidence for verb movement to Infl) is a relevant clue for the verb movement parameter, and if it may be (and apparently is, see section 4.1) acquired before the agreement paradigm, then surely children exposed to a language with verb movement to Infl and rich inflection might also set their parameter on the basis of evidence for verb movement. Having done so, it is unclear what role is left for the morphology to play, and even less clear in what way the morphology can ever be said to be causally linked to verb movement as a matter of synchronic grammar. More generally, if verb movement itself can be a syntactic parameter that is not uniquely a consequence of morphology, then the syntax is not morphology-driven. Current morphology-driven proposals are either empirically inadequate (deriving (4)) or fall prey to Rohrbacher's criticism and do not in fact explain the role of morphology in the observed correlations, i.e., they do not exclude (24d).[37]

4. CONCLUSION

In conclusion, I have argued in this paper that the weakening of the RAH from a bi-conditional such as (4) to the one-way implication in (5) is not only empirically correct, but also has important ramifications for the overall architecture of the theory. In particular, the correctness of the weaker generalization (as Rohrbacher 1999 recognized) provides a prima facie argument that a theory relying uniquely on overt morphological variation to drive syntactic variation is

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[35] For the same reason, Rohrbacher (1999, p. 119) ultimately rejects an analysis of the Kronoby facts which appeals to Finnish influence to establish verb raising in the absence of rich morphology. He is thus forced to leave the Kronoby data as "an unresolved problem for [his] approach" (Rohrbacher 1999, p. 120).

[36] This assumes that the evidence for verb movement is more or less equally detectable in all languages, which is probably not the case. For Icelandic in particular, word orders directly indicative of verb movement to Infl occur in only a restricted class of clauses, see note 2.

[37] It should be possible to mimic the late insertion account in weakly lexicalist approaches, for example, in the checking theory of Chomsky 1993 in which verbs are inserted fully inflected and check features with functional heads that do not correspond to morphemes. Like the atomicity thesis discussed in footnote 4, and unlike Distributed Morphology, there is no expectation on this theory that there will be any correlation whatsoever between overt morphology and syntactic structure. Thus, any observed correlation must simply be stipulated; moreover, there would be no principled reason on this view why the stipulated correlation would turn out to correspond to exactly the prediction made by the late insertion account. See Halle & Marantz (1993, pp. 166-170 for careful discussion of this point).

insufficient. Syntactic variation is attested in the absence of morphological variation (section 1). What is at issue is that there is a partial correspondence between syntactic structure and overt morphological signals. It is in addressing the partiality of the correpondence which sets Distributed Morphology apart from morphology-driven approaches . A one:one correspondence could be directly modelled on either approach, and the absence of any correspondence (e.g., if all four patterns in (24) were attested) would mean that there was simply nothing to explain. The research program which Distributed Morphology instantiates takes correspondence between syntactic structure and morphological structure to be the basic case, with deviance from this correspondence seen as the object of inquiry to be explained. Taking the syntactic structure to be prior to the morphology within the grammar (the late insertion hypothesis) and recognizing that not every syntactic terminal node receives overt morphological instantiation admits of a range of possible correlations between syntax and morphology, but predicts the absence of one language type, specifically (24d)—structurally complex agreement in the absence of verb movement. This appears to be correct, empirically, and is not predicted by competing, morphology-driven accounts. I have given the argument here somewhat schematically, further work will determine whether or not certain promissory notes in the details of the theory of verb movement can be worked out in a non-stipulative manner.

Before closing, a few additional remarks are in order.

4.1 Diachrony and acquisition

The evidence presented above constitutes a strong argument for a grammatical model which includes the 'Late Insertion' assumption. Overt morphology does not cause, drive, or project syntactic structure, rather, overt morphology is a reflection—sometimes imperfect, but nevertheless principled—of prior syntactic structure. Syntax puts abstract morphemes together, morphology spells them out. This is what has been claimed here about how grammar works, synchronically. What has not been claimed is that a late insertion model of grammar prevents children from using overt morphology as cues for acquisition of syntax. Some of the apparent confusion in the literature might stem from the conflation of these two types of causality, namely the chain of causation in acquisition and that in synchronic grammar. In section 2, I demonstrated that on the Late Insertion approach, structurally complex morphology (multiple inflectional morphemes) is plausibly licensed by the same syntactic property that forces verb movement to Infl (namely, a Split IP). The causation here runs uniquely from a syntactic property to morphology. Nevertheless, if this follows from UG principles, then a child exposed to structurally rich inflectional morphology in the input would in principle be licensed to conclude that the target grammar must have the property that licenses such morphology, namely, a Split IP. Since this same syntactic property forces verb movement to Infl, then the child would be able to legitimately deduce that the target language has verb movement to Infl. In this scenario, the causal chain in acquisition proceeds from the observation of rich morphology through UG to the learning of verb movement.[38] In this way, morphology may provide a cue to

[38] It is possible to read the view I am advocating into the work of various authors cited above, meaning that the gap between the approaches is narrower in practice than it is in principle. I believe this is most clearly true of Roberts (1999, pp. 292-293), who casts his discussion in terms of the setting of parameters based on acquisition cues and gives a strong V feature in Infl as the cause of verb movement. Roberts does not, however, give any suggestions as

the child about the Split IP Parameter, but the morphology does not cause the syntax. Note that the morphology is one of many potential cues for the Split IP Parameter; any of the other effects of the Split IP Parameter mentioned above should suffice (including verb movement to Infl, which here is not a parameter in and of itself, but a consequence of a deeper structural parameter). In sum, there is a single syntactic parameter (the SIP) with various syntactic and morphological consequences. Some data is uninformative and tells nothing about the state of the parameter in a given language. For example, verb-second sentences provide no clues as to whether or not the verb must move to Infl independently; likewise, surface-poor inflection provides few clues as to whether or not zero morphemes are lurking in the abstract structure. Other data, however, provides unambiguous clues as to the parameter setting. Structurally rich (i.e., complex) morphology is one such unambiguous clue, another is the position of the verb relative to a certain class of elements in a certain type of clause. I see no a priori reason to believe that children exposed to different languages that share a common value for the SIP will take the same path to reaching their target state, with for example Icelandic children fixing their SIP value on the basis of the agreement morphology while Swedish children in Kronoby use a syntactic cue. [39]

In a similar vein, if morphology is a cue to the underlying syntactic variation, then the loss of morphological distinctions does not entail the loss of verb movement (the empirical evidence is quite clear on this point), but it does mean that there is one fewer cue to the next generation of learners. On the approach developed here, it follows without further assumptions that the loss of rich inflection is a necessary, but not a sufficient condition for the loss of verb movement to Infl.[40]

The preceding paragraphs notwithstanding, it is in fact highly questionable to what degree (if any) children use morphological cues in setting syntactic parameters. Lardiere (2000) provides a concise review of the literature on the acquisition of verb movement and reaffirms the conclusion reached by various researchers that "developmental data from much child language acquisition research suggest that children know extremely early whether verbs raise or not in the language they are acquiring, almost certainly long before they've acquired the myriad relevant morphological distinctions required under either Rohrbacher's or Vikner's analysis" (Lardiere 2000, p. 106). Particularly important is work described, for example, in Meisel (1993) which presents evidence that both French and German children 'acquire' (i.e., use) 3rd person singular finite forms significantly prior to their use of any other forms. Moreover, as soon as they reliably use such finite forms, they are used in the correct word order, i.e., having undergone movement

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to why a strong V feature in Infl should show any correlation with overt morphology, hence his discussion is compatible with either a morphology-driven or a realizational approach. Holmberg (1988) also presents a discussion in terms of a syntactic parameter with morphological consequences—this is cited and developed in this direction in Johnson (1990)—although subsequent work such as Holmberg & Platzack (1990) takes an explicitly morphology-driven perspective.

[39] Contrary to Roeper & Weissenborn (1990) I see no principled reason to prohibit multiple cues for a parameter that has multiple effects in the grammar, especially if the cues are unambiguous.

[40] The assumption that licenses this conclusion is that the acquisition process is the product of the interaction of input data and UG and nothing else. Contrast, for example, Alexiadou & Fanselow (2001) who claim explicitly that there are 'laws of diachrony' that have an existence independent of UG and add additional constraints on the process of language acquisition.

(to Infl in French, to C˚ in German). Meisel's conclusion can be stated in this way: When French children acquire their first finite verb form, it is the 3rd person singular and it is moved to Infl. When German children acquire their first finite verb form, it is the 3rd person singular, and it is moved to C˚. In both cases, it is some months later before the children learn any contrast beyond ±Finite. While there are various open questions about the interpretation of the acquisition data, one thing that is clear is that the data do not support any approach which takes paradigmatic contrasts to be a necessary (or even useful) cue to the child in establishing the correct setting for whatever syntactic parameter determines the position of the finite verb in their language.

4.2 Directions for future research

The predictions are clear and thus one of the concerns for future work will lie in the testing of the empirical generalization in (5) beyond the Germanic languages. This is not trivial and will involve refinements in our understanding of verb movement, both in terms of developing new diagnostics and in terms of refining the inventory of functional projections in the IP domain (surely, for example, the binary distinction encoded as the SIP is too blunt). At our current level of understanding, there are two outcomes of such an investigation that can be foreseen. One possible outcome would be that (5) is falsified—given the distinctions between rich and poor morphology and between verb moving languages and verb-in-situ languages, all four possibilities exist, and the differences do not correlate with any other variation. From a theoretical perspective, it is hard to consider such an outcome interesting, as there would be nothing to explain. Far more interesting is the possibility that something like (5) will be borne out; there is a definable class of languages which we will never find. This is more interesting because it is only on this latter outcome that questions of explanatory adequacy arise. I have suggested here that a realizational approach holds the potential to make progress in this regard, specifically, that some approach like that sketched in Johnson (1990) or Bobaljik & Thráinsson (1998) can predict the non-existence of languages that have rich inflectional morphology but lack verb movement out of the VP.

APPENDIX I: SOURCES

The historical data and characterizations of the standard varieties of the Scandinavian languages have been drawn from the theoretical literature as noted. Additional sources considered in establishing the validity of the generalization in (5) are:

Icelandic:	Einarsson 1949, H. Thráinsson p.c.
Faroese:	Lockwood 1964, Barnes 1987, Jonas 1996a, Petersen 2000, H. Thráinsson p.c., D. Jonas p.c.
Langelandsk (Da):	Gotfredsen 1955
Gräsömålet (Sw):	Schagerström 1949
Kronoby (Sw):	examples reported in Platzack & Holmberg 1989, and Alexiadou & Fanselow 2001
Pitemålet (Sw):	Brannstrom 1993
Skelleftemålet (Sw):	Marklund 1976 (morphology only)
Älvdalsmålet (Sw):	Levander 1909 (supplemented by Trosterud 1989)
Hallingdalen (No):	Trosterud 1989
Tromsø (No):	Iversen 1918 (also P. Svenonius, p.c., 4/2001)

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