One law for the rich and another for the poor: The Rich Agreement Hypothesis rehabilitated

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Abstract
The generalization that V-to-I movement is conditioned by rich subject agreement on the finite verb, generally referred to as the Rich Agreement Hypothesis, has since the 1980s been taken as an indication for a tight connection between syntax and morphology. In recent years, the Rich Agreement Hypothesis received a lot of bad press, both on empirical and theoretical grounds. In this article, we demonstrate that all the empirical arguments against this hypothesis are incorrect and that it therefore must be rehabilitated in its strongest form. Moreover, we argue that the correlation between syntax and morphology is not direct (morphology does not drive syntax) but follows from principles of language acquisition: only if language learners are confronted with particular morphological contrasts do they postulate the presence of corresponding formal features that in turn drive syntactic operations. More concretely, we demonstrate that only if language learners can infer that argumenthood is formalized in their target language are they able to postulate a particular functional projection in the extended *v*P to which the finite verb must move. Finally, we show that this explanation of the Rich Agreement Hypothesis makes correct predictions with respect to language variation, change and acquisition.

Keywords: V-to-I movement, (rich) agreement, syntax-morphology relation, argumenthood, learnability.

1 Introduction: the Rich Agreement Hypothesis

The generalization that V-to-I movement is conditioned by rich subject agreement on the finite verb, generally referred to as the Rich Agreement Hypothesis (henceforth RAH), has since the 1980s been an important argument in favor of a direct connection between syntax and morphology (Kosmeijer 1986, Pollock 1989, Platzack & Holmberg 1989, Holmberg & Platzack 1991, 1995, Roberts 1993, Rohrbacher 1994, Vikner 1995, 1997, Bobaljik 1995, Bobaljik & Thráinsson 1998 and others). In more recent years, the RAH has been disputed on both empirical and theoretical grounds. Empirically, data have been put forward that seem to suggest the existence of language varieties that are poorly inflected but still display V-to-I movement (e.g. Jonas 1995 for Faroese, Rohrbacher 1994 for French and Bentzen et al. 2007 for Regional Northern Norwegian varieties), as well as varieties that do not display obligatory V-to-I movement despite being richly inflected (e.g. Bailyn 1995 for Russian, Bentzen et al. 2007 for Icelandic and Garbacz 2010 for Älvdalen Swedish).

Theoretically, under lexicalist approaches (cf. Chomsky 1995), the tight connection between rich agreement and V-to-I movement has been taken as a strong

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argument in favor of the idea that morphology drives syntax (cf. Rohrbacher 1994, Vikner 1995, Koeneman 2000). However, in more current generative models of grammar, morphological insertion is assumed to take place after the syntactic computation (cf. Bonet 1991, Marantz 1991, Noyer 1992, Bobaljik 2008), suggesting that morphology can have no direct influence on the syntactic derivation.

Two lines of response have been formulated to the empirical problems. One is to abandon the RAH altogether (cf. for instance Bentzen et al. 2007 for a recent assessment). The other has been to weaken the generalization by assuming that the RAH only applies in a uni-directional fashion (cf. Thráinsson 1996 Bobaljik & Thráinsson 1998). Generally speaking, examples showing that V-to-I may take place in the absence of rich agreement have always appeared stronger than examples suggesting that languages with rich agreement lack V-to-I movement. If so, this at least allows one to maintain a weak version of the RAH: if the language has rich agreement, it must have V-to-I movement but no prediction is made for languages without rich agreement (cf. also Rohrbacher 1994, Vikner 1995, Koeneman 2000).

The abandonment of the RAH does no longer presuppose any correlation between morphology and syntax and is thus fully in line with recent ideas on post-syntactic spell-out of morphology. However, as Bobaljik (1995), Thráinsson (1996) and Bobaljik & Thráinsson (1998) have pointed out, the idea that morphological insertion takes place after syntax does not entail that any correlation between morphology and syntax becomes unstatable. For them, rich inflection may motivate the presence of more functional projections and it is this extra structure that triggers verb movement.

In this article we provide novel arguments showing that both of these approaches are on the wrong track and that, contrary to current ideas, the RAH should be reinstalled in its strongest, bi-directional form. The reasons for this are twofold.

First, we demonstrate that all the empirical arguments provided hitherto with the aim of showing that the RAH is (at least partially) incorrect are at best incomplete and quite often just wrong. Secondly, we argue with Bobaljik and Thráinsson that morphological richness reflects a rich(er) functional structure. Contrary to Bobaljik and Thráinsson, though, we argue that rich morphology does not merely reflect but also determines functional structure: rich morphology forms the only possible cue for language learners to postulate those formal features that can project this richer functional structure in the first place. In this way, even though morphology does not drive syntax in the linguistic model, morphology does determine syntax through acquisition, causing a tight connection between the two.

Let us provide our proposal in a nutshell. V-to-I parametrization, and the specific definition of richness required, do not have to be stipulated but can be derived from the following, new observation: the lower bound of what counts as rich agreement is identical to the lower bound of what may constitute the poorest pronominal systems in the world's known languages (Greenberg's universal 42). In terms of a featural system, all languages in the world show at least featural distinctions with respect to [speaker], [participant] and [plural] in their pronominal systems (cf. Greenberg 1963, Harley & Ritter 2002, Cysouw 2003). Thus, if a verbal paradigm contains affixes with similar featural distinctions, this can be taken as evidence that these affixes are argumental in nature and base-generated as a separate head. By contrast, if in a verbal paradigm these featural distinctions are not represented, there is no evidence for the language learner that argumental features must be hosted in a separate functional projection. In fact, as we demonstrate, such features cannot be acquired as part of the formal feature inventory of such a language. Therefore, the

structural difference between languages with rich agreement and poor agreement is that only the former but not the latter type have a functional position. This position is standardly referred to as I° but we will propose that it is a projection of the feature [Argument]. Movement to this position can then simply be taken to result from application of the Stray-Affix Filter (Lasnik 1981, 1995, Baker 1988) or any reimplementation of it.

The empirical scope of this paper is limited to the set of languages that have thus far been used to confirm or disconfirm the RAH. This is a conscious choice. Before one embarks on a large-scale typological investigation to test any existing cross-linguistic hypothesis, the (in)validity of such a hypothesis must first be established for those languages that have thus far proven to be problematic for it. Now, it has taken scholars more than 25 years to establish whether the RAH holds for these languages alone, showing that the data and their interpretation have turned out not to be as straightforward as initially envisaged. In this contribution to the discussion, we argue that all languages that initially looked like counter-examples to the RAH are actually in compliance with it, while those languages that already supported the RAH still do. Therefore, we conclude that the hypothesis is valid for at least all those languages we have been discussed in the context of the RAH in the past decades; the next step should then be to evaluate the RAH on the basis of larger set of preferably unrelated languages, a subject of further study.

This article is set up as follows. In section 2, we provide our definition of richness and the basic foundation of the RAH. In section 3, we discuss the counter-examples to the RAH and conclude that none of them shows that the RAH in its strong form is wrong. It ends with an evaluation of an alternative definition of richness (by Bobaljik & Thráinsson 1998), which we show runs into problems. The correlation between rich agreement and verb movement is explained in section 4. Section 5 discusses the consequences of our proposal: (i) consequences for V-to-T movement (ii) consequences for OV and VSO languages (iii) diachronic consequences and (iv) acquisitional consequences. Section 6, finally, concludes.

2 The correlation between richness and V-to-I movement

In its classical conception, the RAH states that a language is rich, and therefore has V-to-I raising, if and only if the regular present tense paradigm shows a significant number of morphological distinctions (cf. Roberts 1993, Rohrbacher 1994, Holmberg & Platzack 1995 and Koeneman 2000 for concrete implementations).

In this article we propose a motivation for defining richness in terms of the number of morphological contrasts in a paradigm by directly linking the building blocks of verbal paradigms to the building blocks of pronoun inventories. We start from the observation that even the most minimal pronominal systems in the world have at least forms distinguishing between (i) speaker and non-speaker (ii) participant and non-participant and (iii) plural and non-plural (cf. Greenberg 1963, Harley & Ritter 2002). An example of such a minimal system is Kuman, spoken in Papuan New Guinea (cf. Cysouw 2003):

(1) Kuman

	SG	PL
1st	*na*	*no*
2nd	*ene*	
3rd	*ye*	

As is shown in (2), these morphological contrasts motivate three featural distinctions, [±speaker], [±participant] and [±plural].[2]

(2) *na* → [+speaker], [-plural]
no → [+speaker], [+plural]
ene → [-speaker], [+participant]
ye → [-speaker], [-participant]

We propose that the lower bound on featural distinctions in pronominal systems is identical to the lower bound on featural distinctions in the regular verbal paradigms of those languages that display V-to-I movement. This leads us to the following novel definition of richness:

(3) A language exhibits rich subject agreement iff agreement involves at least the same featural distinctions as those manifested in the smallest (subject) pronoun inventories universally possible.

Note that under this definition of richness, what counts is the number of *feature distinctions*, not the number of *form differences*. Also note that this definition does not hinge on a particular choice of these features. What is crucial is that the feature distinctions minimally underlying pronominal systems also minimally underlie regular verbal paradigms of languages displaying V-to-I movement.[3]

Let us provide some examples (the data in this section are mostly from Rohrbacher 1994). According to (3), the Icelandic and Yiddish paradigms, displayed in (4), count as rich, since a proper formal description of these paradigms requires the three featural distinctions that were also necessary to describe the Kuman pronoun inventory, as is shown in (5).

[2] It is our purpose here to highlight which featural distinctions these morphological contrasts give rise to. For the sake of exposition we denote these featural distinctions in terms of ±values of the respective features. These contrasts, naturally, could also have been represented by showing only privative features. However, here we are not committed to the exact feature system that underlies the contrast (this question will become relevant in section 4).

[3] An anonymous reviewer wonders whether marking first person plural as [participant] would entail that a first person plural pronoun gives rise to an inclusive and not an exclusive reading. Harley and Ritter (2002) propose that it is the presence or absence of the feature [addressee] that makes the appropriate distinction. A morpheme that is marked as [participant; speaker], for them, is interpreted as exclusive unless the feature [addressee] is added. However, other feature systems deriving the inclusive-exclusive distinction have been proposed as well (cf. Sauerland 2008). As stated in the previous footnote, the definition in (3) is not dependent on a particular choice for a feature system but rather states that any choice for features that can describe the distinctions in (3) counts as rich .

(4) a. Icelandic
inf. *seg-ja* ('to say')

	SG	PL
1st	seg-i	seg-jum
2nd	seg-ir	seg-ið
3rd	seg-ir	seg-ja

b. Yiddish
inf. *loyf-n* ('to run')

	SG	PL
1st	loyf-ø	loyf-n
2nd	loyf-st	loyf-t
3rd	loyf-t	loyf-n

(5) a. Icelandic:
-i → [+speaker], [-plural]
-ir → [-speaker], [-plural]
-jum → [+speaker], [+plural]
-ið → [-speaker], [+participant], [+plural]
-já → [-participant], [+plural]

b. Yiddish:
-ø → [+speaker], [-plural]
-st → [-speaker], [+participant], [-plural]
-t → [-speaker], [-participant], [-plural]
-n → [+plural][4]
-t → [+plural], [-speaker], [+participant]

By contrast, Danish and English, whose present tense paradigms are listed below, count as poor according to (3).

(6) a. Danish
inf. *kast-e* ('to throw')

	SG	PL
1st	kast-er	kast-er
2nd	kast-er	kast-er
3rd	kast-er	kast-er

b. English
inf. *sing-ø*

	SG	PL
1st	sing-ø	sing-ø
2nd	sing-ø	sing-ø
3rd	sing-s	sing-ø

(7) a. Danish
-er → [+fin]
b. English
-s→[-participant], [-plural]
-ø → elsewhere

Now, the RAH can be reformulated as in (8):

(8) *The Rich Agreement Hypothesis* (preliminary version)
A language exhibits V-to-I movement iff the regular paradigm manifests featural distinctions that are at least as rich as those featural distinctions manifested in the smallest pronoun inventories universally possible.

[4] Note that in this characterization of the Yiddish paradigm both *–n* and *–t* are competitors for 2nd person plural, whereas only the latter surfaces as 2nd person plural affix. We take this to result from Kiparsky's *elsewhere principle* (Kiparsky 1973), which states that in such cases of competition the most specified item wins. Note, though, that our analysis does not hinge on this principle. An alternative representation could take *–n* to be ambiguous between [+plural, +speaker] and [+plural, -participant].

According to (8), both Icelandic and Yiddish should display V-to-I movement, a prediction that is correct. In (9)a, the (italicized) V_{fin}'s appearance to the left of alleged *v*P boundaries marked by (boldfaced) frequency adverbs or negation, shows that the verb has undergone V-to-I movement. Note that the pattern V_{fin}-Neg cannot be analyzed as *ekki* constituent-negating the object. In (9)b, V_{fin} still precedes negation but *ekki* cannot constituent-negate the object. Hence, the generalization is that all finite verbs must cross *v*P adverbs.[5]

(9) a. Ég spurði hvort Jón sæi **ekki** myndina *Icelandic*
I asked if John saw not the.movie
'I asked if John didn't see the movie.'
b. Ég spurði hvort Jón *hefði* **ekki** séð myndina
I asked if John had not seen the.movie
'I asked if John had not seen the movie.'

(10) Ikh veys nit ven di ku *iz* **nit** geshtanen in tsimer *Yiddish*
I know not when the cow is not stood in.the room
'I do not know when the cow didn't stand in the room.'

By contrast, Danish and English, whose present tense paradigms count as poor according to (3), are expected not to display V-to-I movement. Again, this is correct. Placing V_{fin} to the left of sentential negation or another *v*P-boundary adverb leads to an ungrammatical sentence, as evidenced by (11).[6]

(11) a. *Gad vide om John fik ikke set filmen *Danish*
I wonder if John saw not the movie
'I wonder if John did not see the movie.'
b. *Gad vide om John fik ofte set filmen
I wonder if John saw often the movie
'I wonder if John often saw the movie.'

(12) a. *I wonder if John *saw* **often** the movie. *English*
b. I wonder if John has often seen the movie.[7]

Since the RAH is taken to apply universally, it is expected to even give rise to syntactic differences between varieties of one and the same language that minimally differ in terms of richness. This is indeed the case. Take for instance Standard and Älvdalen Swedish. Whereas the first has a poor paradigm, the second variety still counts as rich (see (13)). In full accordance with the RAH, Standard Swedish lacks V-to-I movement (cf. (14)b, from Julien 2007), but Älvdalen Swedish does not do so, as shown in (14)b.[8]

[5] The examples are all with subordinate clauses in which V-to-I movement cannot be superseded by V-to-C movement in these languages, i.e. embedded questions and relative clauses (cf. Wiklund et al. 2009 and Heycock et al. 2010 for more details).

[6] We thank Kristian Madsen, Maria Melchiors and Nomi Shir for providing, and cofirming the status of, the examples in (11).

[7] In English, modal and auxiliary verbs appear to the left of adverbs and negation, but as the (a)-example shows English does not display V-to-I movement in general. We will come back to this issue in section 5.3.

[8] One may wonder whether, given the lack of pronoun systems with only form differences in the plural, the existence of agreement paradigms such as the Älvdalen Swedish paradigm would point against a

(13) a. Standard Swedish
inf. *bit-a* ('to bite')

	SG	PL
1st	bit-er	bit-er
2nd	bit-er	bit-er
3rd	bit-er	bit-er

b. Älvdalen Swedish
inf. *kast-a* ('to throw')

	SG	PL
1st	kast-ar	kast-um
2nd	kast-ar	kast-ir
3rd	kast-ar	kast-a

(14) a. Min granne frågade om jag **inte** *ville* komma över *Standard Swedish*
My neighbor asked if I not would come over
'My neighbor asked if I wouldn't come over.'

b. Eð ir biln so an *will* **int** åvå *Älvdalen Swedish*
It is car that he wants not have
'It is the car that he does not want to have.'

The RAH also predicts that changes in the verbal syntax and changes in the verbal paradigm should be closely related: morphological deflection should trigger the loss of V-to-I movement. This prediction is confirmed by diachronic data. Take, for instance, Old Swedish (cf. Falk 1993) and Middle English (cf. Roberts 1993). Both are richly inflected, since the paradigms in (15) meet the definition in (8). Both also display V-to-I movement, as expected (see (16)).

(15) a. Old Swedish
inf. *älsk-a*

	SG	PL
1st	älsk-ar	älsk-um
2nd	älsk-ar	älsk-in
3rd	älsk-ar	älsk-a

b. Middle English
inf. *sing-en*

	SG	PL
1st	sing-e	sing-en
2nd	sing-est	sing-en
3rd	sing-eð	sing-en

(16) a. æn han *sivngær* **ægh** thigianda messu *Old Swedish, 1290*
if he sings not silent mass

b. By thy thanks I *set* **not** a straw *Middle English*

As we have already seen, both languages underwent a process of deflection and now no longer have this verb movement.[9]

In this section, we have discussed the empirical foundation of the RAH and shown that it accounts for contrasts between languages, contrasts between subvarieties, as well as contrasts between different stages of the same language. In the next section, we will discuss some presented counterevidence against the RAH and show that this evidence, contrary to what has often been assumed, actually does not undermine this hypothesis.

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connection between pronoun features and agreement features, as one anonymous reviewer suggests. We do not think that that is the case. Apart from the fact that agreement paradigms such as the Älvdalen Swedish one are typologically extremely rare, we presume that the reason why pronoun systems are different in this sense lies in the facts that featural distinctions in the pronoun system always give rise to a semantic effect (different pronouns receive a different interpretation), whereas agreement systems only display uninterpretable features. In general, agreement systems allow more syncretic patterns than pronoun systems do (for instance the 1-3 syncretism in the German plural).

[9] It should be pointed out, though, that verbal deflection was not immediately followed by the loss of V-to-I movement, an issue we take up in section 5.3.

3 Rehabilitating the RAH: weak isn't strong enough

The correctness of the RAH has been disputed both on empirical and theoretical grounds.

Empirically, two classes of counterexamples have to be distinguished. One class consists of language varieties that have rich agreement but nevertheless do not seem to always move the verb. These are the most serious cases, as they would falsify even the weak version of the RAH, thereby stripping the hypothesis of its content. The second class consists of language varieties that are poorly inflected but nevertheless seem to move the verb. These potentially falsify the strong version of the RAH, making it possible to maintain a weak version: rich agreement entails V-to-I movement but no predictions are made for language varieties with poor agreement. In sections 3.1 and 3.2, we will show what these counterexamples to the weak and strong RAH look like respectively, and how after more careful scrutiny all counterevidence disappears.

In section 3.3, we will address two theoretical concerns against the RAH. The first is that the RAH seems to imply that morphology drives the syntax, which is informulable in more recent frameworks that take morphology to be post-syntactic. The second is that the RAH seems to require inspection of the whole paradigm in the course of the derivation. We will show that both concerns are unwarranted.

3.1 Arguments against the weak RAH

There are three language varieties that have featured prominently as examples against the weak formulation of the RAH, namely Icelandic, Älvdalen Swedish and Russian. We first look at Icelandic and Älvdalen Swedish, and then at Russian.

3.1.1 Icelandic and Älvdalen Swedish

In a recent assessment of the strength of the RAH, Bentzen et al. (2007) have argued that even the weak RAH is too strong, since some languages, albeit optionally and in some particular constructions only, do not exhibit V-to-I movement, even though the paradigms in these languages are rich. The relevant constructions have a so-called "V3 order", in which the verb follows after the subject and some adverb, suggesting that V-to-I movement is not obligatory. An example is given in (17), in which the finite verb follows the adverb *oft* 'often'.

(17) Mér fannst skrýtið þegar hann **oft** *lék* hróknum *Icelandic*
I found strange when he often moved rook.the
'I thought it was strange when he often moved the rook'

For Bentzen et al. these examples imply that even the weak RAH is still too strong and the RAH should therefore be rejected. Garbacz (2010) makes a similar claim for Älvdalen Swedish, which also has rich agreement and where V_{fin} can either precede or follow sentential negation (3). In this subsection we provide novel data and arguments that demonstrate that this conclusion is wrong.

These SU-ADV-V_{finite} orders in Icelandic are only problematic for the RAH if the finite verb stays in situ. Another logical possibility, however, is that the V-to-I diagnostic (the adverb and the negation marker respectively) appears higher than its unmarked position, either by movement or higher base-generation. If these adverbs are for instance adjoined to IP and if the subject subsequently moves across the higher

adverb to some higher position, then the data are also compatible with an analysis in which V-to-I takes place, as in (18).

(18) $[_{FP}$ SU $[_{IP}$ ADV/NEG $[_{IP}$ t_{SU} V_{finite} $[_{vP}$ t_{SU} $t_{Vfinite}$]]]]]

For Icelandic, such an analysis is in fact proposed in Angantýsson (2007) and Thráinsson (2009). For Angantýsson (2007), the main reasons for adopting the high adverb analysis is that this so-called V3 order is (i) severely restricted and heavily marked; (ii) requires the adverb to be stressed; and (iii) requires the subject to be an unstressed pronoun.

Hence, there are two competing analyses of data like in (17), one with optional V-to-I movement and one where V-to-I movement always takes place. Apart from the arguments provided by Angantýsson (2007) and Thráinsson (2009), we argue that the latter analysis is superior for the following empirical and theoretical reasons.

First, empirically, speakers of Icelandic who accept "V3 orders" also accept examples as in (19) (Ásgrímur Angantýsson, p.c.). Here, the finite verb following the adverb at the same time precedes an object that has undergone object shift across negation. Under the standard assumption that the object shifts out of *v*P, V_{fin} must have subsequently moved across the object, countering Bentzen et al.'s claim that the verb is in situ in V3 orders. (for additional argumentation in the same direction, see Thráinsson 2009).

(19) Mér fannst skrýtið þegar hann **oft** *lék* hróknum **ekki** í tímahraki
I found strange when he often moved rook.the not in lack.of.time
'I thought it was strange when he often didn't move the rook through lack of time'

Note that the fact that the finite verb is able to appear to the left of negation at all (in contrast to English and standard versions of Mainland Scandinavian) is what provides the evidence for V-to-I movement.

Second, theoretically, if so-called V3 constructions are analyzed as V_{fin} in situ, then *not* moving the verb causes the adverb to be in focus. In the alternative analysis, however, placing the adverb in a higher position causes that adverb to be in focus. In the latter analysis, the constituent receiving a special syntactic treatment and the constituent obtaining a specific information-structural property are identical. In the former analysis, it needs to be explained by what kind of mechanism absence of (verbal head) movement leads to focus assignment to some FP.

Additionally, these "V3 constructions" require that not only the adverb, but also the subject has specific information-structural properties. To obtain full grammaticality, the subject must be an unstressed pronoun, indicating that the subject must realize old information, a necessary condition for topichood. As is fairly well established, information-structurally, a topic needs to precede a focus (cf. Prince 1981, Reinhart 1981, 1995, 2006, Vallduví 1992, Lambrecht 1994, Hajičová et al. 1998, Tomioka 2007, Neeleman & Van de Koot 2008). Thus in order to be topical the subject will have to move across the focused adverb, either by adjoining to IP again or by moving to the specifier of a higher functional projection, presumably some TopP.

Hence, the three main characteristics of these V3 constructions are accounted for under the alternative analysis: (i) the fact that they are heavily marked (ii) the fact

that the adverb has to be stressed and (iii) the fact that the subject has to be an unstressed pronoun.[10]

Similar V3 effects are found with sentential negation. Some examples are provided for Icelandic in (20) and for Älvdalen Swedish in (21):

(20) Ég veit hvaða mynd Jón <*hefur*> **ekki** <*hefur*> séð *Icelandic*
I know which film Jón (has) not (has) seen
'I know which film Jón has not seen.'

(21) a. Eð ir biln so an **int** *will* åvå. *Älvdalen Swedish*
it is car.def. that he not wants-to have
'It is the car that he doesn't want to have.'
b. Eð ir biln so an *will* **int** åvå.
it is car.def. that he wants-to not have
'It is the car that he doesn't want to have.'

Garbacz (2010) concludes from the contrast in (21) that Älvdalen Swedish optionally allows the verb to remain in situ, despite being richly inflected. However, the facts presented do not call for such an analysis. Instead, such constructions should be taken to show that the negation surfaces in a higher position in (21)a than in (21)b. Evidence for this comes from the fact that negation in this language can be optionally base-generated in an even higher position, preceding the subject. This is shown in (22).

(22) a. Eð ir biln so **int** an *will* åvå.
it is car.def. that not he wants-to have
b. Iett land i Europa so **int** kullą mąi *ar* werið i.
A country in Europe that not daughter mine has been in
'A country in Europa that my daughter hasn't been too'

Since it has to be independently assumed that negation can be inserted in a higher position in the first place, it is predicted that negation may appear in intermediate phrasal positions too. Phrasal negative adverbs such as Älvdalen Swedish *int* are semantically flexible; consequently positions for negative adverbs in languages with such markers are not syntactically fixed (see Zeijlstra 2004 and Penka 2010 for more discussion).

In short, there is no empirical argument in favor of optional V-to-I movement in Älvdalen Swedish. Negation can be generated in at least three positions in Älvdalen Swedish, and only if it occurs in the lowest position, adjoined to *v*P, does it functions as a diagnostic marker for V-to-I movement:

[10] However, the question remains open as to why the two instances of movement are related. In fact, it is impossible to leave the subject in Spec,IP if a focused adverb is adjoined to IP, as is shown by (i) from Angantýsson (2011):

(i) **Jón segir að* ***ekki /oft/ aldrei/alltaf*** *hann þurfi peninga*
John says that not/ often/never/ always he needs money

We do not have a proper answer to this question, though we note that this question also arises under Bentzen et al.'s proposal and is thus not a specific problem for the alternative analysis.

(23) (**NEG**) SU (**NEG**) V+I (**NEG**) V

Note that in order to function as a sentential negation the negation marker cannot be generated in lower positions than in its position adjoined to *v*P (cf. Aquaviva 1997, Zeijlstra 2004, Penka 2010). Therefore, the possibility of having V_{fin}-NEG orders in Älvdalen Swedish at all, as opposed to Standard Swedish, forms the crucial contrast showing that the former but not the latter variety displays V-to-I movement.

3.1.2 Russian

Bailyn (2005) argues that in Russian, a language with rich agreement morphology, no V-to-I movement takes place. The reason for his conclusion is that in Russian the finite verb (both in the perfective and the imperfective) follows manner or frequency adverbs:

(24) a. My **vnimatel'no** *pročitali* pravila *Russian*
we carefully PERF.read rules
'We have carefully read the rules'
b. My **často** *čitali* pravila
We often IMP.read rules
'We read the rules often

If these adverbs are taken to indicate the *v*P boundary, this would suggest that in these clauses the verb remains in situ, as in (25)a. An alternative possibility, however, is that in Russian these adverbs must occupy a higher, *v*P-external position and cannot be adjoined to *v*P, as in (25)b. Hence, the option that was attested in Icelandic and Älvdalen Swedish would then be the rule in Russian.

(25) a. $[_{IP}$ My $[_{vP}$ **vnimatel'no** *pročitali* pravila]]
b. $[_{FP}$ My $[_{IP}$ **vnimatel'no** $[_{IP}$ *pročitali* $[_{vP}$ $t_{Vfinite}$ pravila]]]]

Under the first analysis, the adverb functions as a diagnostic for V-to-I movement, as it indicates where the *v*P-boundary is. The conclusion would then be that Russian does not display V-to-I movement, thereby falsifying the weak RAH. Under the second analysis, the adverb is too high to function as a diagnostic and it cannot be shown whether Russian has V-to-I movement or not. The conclusion would then be that Russian neither falsifies nor confirms the weak RAH. Although Russian would already cease to be a serious counterexample once (25)b cannot be rejected, there is actually reason to believe that this analysis has to be accepted (thus rejecting (25)a).

Evidence for high placement of adverbs in Russian, as in (25)b, comes from negative sentences. As is well known, one of the differences between Russian and the Scandinavian languages is that the negative marker in Russian occupies some head position Neg° in the clausal spine. In Scandinavian, on the other hand, negation is phrasal and does not occupy a head position in the clausal spine; rather, sentential negation is an adverb that in its lowest position adjoins to *v*P (cf. Zeijlstra 2004, Penka 2010 for extensive discussion). Since it is a requirement for sentential negation that at least the entire *v*P must be in the scope of a negative operator, the template of Russian negative clauses must minimally contain NegP > *v*P. A related difference is that the negative head, being a syntactic clitic, in Russian has to attach to the verb. Evidence

for this head movement to Neg°, comes from the fact negation moves along with the verb if the latter moves to C, as in negative imperatives or negative questions, as shown in (26); such movement would be impossible if the verb did not first have to head-adjoin to Neg° (27).

(26) a. Ne pey vodku často!
Neg drink vodaka often
'Do not often drink wodka'
b. Ne p'eš li ty vodku často?
Neg drink Q you wodka odten?
'Don't you often drink wodka'

(27) $[_{CP}\ [\text{ne-}V_i]_j\ [_{NegP}\ t_j\ [_{vP}\ t_i]]]$

Now, suppose that adverbs could adjoin to *v*P, thus functioning as a diagnostic for V-to-I movement. Then the predicted order of a negative clause containing an adverb 'often' should be as in (28). Such sentences, however, are seriously degraded if not just ungrammatical, as shown both for imperfective and perfective verbs. The only possible way to include an adverb in a sentence where the negative marker left-attaches to the finite verb is either (29), in which the adverb adjoins to a phrase that contains the negated verb, or (30), in which the adverb appears in a clause-final position.

(28) a. ??/*Ty ne pročitala vnimatel'no pravila
You NEG PERF.read carefully rules
'You haven't read the rules carefully'
b. ??/*Ty ne čitala často pravila
You NEG read often rules
'You haven't read the rules carefully'

(29) a. Vnimatel'no ty ne pročitala pravila
Often you NEG PERF.read rules
'You haven't carefully read the rules'
b. Často ty ne čitala pravila
Often You NEG IMP.read rules
'You haven't often read the rules'

(30) a. Ty ne pročitala pravila vnimatel'no
You NEG PERF.read rules carefully
'You haven't carefully read the rules '
b. Ty ne čitala pravila často
You NEG read rules often
'You haven't often read the rules '

Hence, the fact that in negative sentences V_{fin} has to move out of *v*P for reasons entirely unrelated to V-to-I movement, combined with the observation that in those sentences the adverb cannot occur between V_{fin} and the object, shows that *v*P is not a

proper left-adjunction site for these adverbs.[11] Since they must be adjoined higher in the structure instead (or right-adjoined), we obtain the orders in (24). Irrespective of their exact adjunction site, these adverbs cannot be used as V-to-I diagnostics and Russian therefore ceases to form a counterargument against the weak RAH.

3.1.4 Concluding remarks

In section 3.1, we have reviewed the existing arguments against the weak version of the RAH. The data from Icelandic and Älvdalen Swedish displaying so-called V3 orders (i.e. orders in which V_{fin} follows the element taken to indicate the left edge of the *v*P) have been taken to show that V-to-I is not obligatory. We have shown, however, that Icelandic is only a counter-example if an implausible analysis is adopted, in which V-to-I movement is taken to be optional and the marked interpretation of an adverb is a consequence of not moving the verb. In the alternative analysis, V-to-I is obligatory and the marked reading a direct consequence of fronting the adverb. Hence, the verb is not exceptionally low but rather the classical V-to-I diagnostic markers exceptionally high. For Älvdalen Swedish, this claim is independently supported for sentential negation by the fact that this element can even precede the subject. Since negative adverbs can be (exceptionally) base-generated in a higher position, neither variety poses any counterevidence to the (weak) RAH. For Russian, it was shown that the position of V_{fin} with respect to frequency and manner adverbs is not a proper diagnostic for V-to-I movement and that the Russian data, despite previous claims, are fully compatible with an analysis of Russian verb placement in terms of V-to-I movement.

Since, the major pieces of counterevidence presented in the literature against the weak RAH prove to be either incorrect or indecisive, it can be concluded that at least the weak RAH still stands strong. In the next section, we show that such a weak RAH is not strong enough and that the arguments against the strong version also do not hold up. The consequence is that there is no argument against reinstalling the RAH in its strong form.

3.2 Arguments against the strong RAH

In the previous two sections, we have discussed varieties that, despite exhibiting a rich agreement paradigm, appear not to raise the verb to I°. We have concluded that in these cases verbal movement actually does take place but can be invisible due to optional higher placement or movement of the relevant diagnostics (Icelandic and Älvdalen Swedish) or that (absence of) V-to-I movement cannot be determined due to obligatory higher placement of the diagnostics (Russian). In this section, we investigate the opposite pattern displayed by poor agreement varieties in which the

[11] Of course the question arises as to why adverbs may not adjoin to *v*P in Russian. While we do not have a conclusive answer to this question, we suggest that the reason lies in the fact that in Russian (in contrast to the languages discussed earlier), verbs may be prefixed by all kinds of aspectual morphology (such as repetitive or cumulative aspectual morphology), which according to Dyakonova (2009), basing herself on Svenonius (2004), must be generated *v*P-externally. As such morphemes must always be in the scope of a frequency or manner adverb, the possibility to adjoin adverbs to *v*P would give rise to the reverse scope orderings. Adjoining adverbs to IP (or any other higher functional projection) would guarantee that the adverb is always in the proper scopal order. Note by the way that an analysis in which negation and aspectual affixes are prefixed to a verb that is still in its base position (and therefore cannot have moved to I) is problematic given the data in (26).

verb seems to nevertheless move to I°. There are three language varieties that have been used as evidence against the strong version of the RAH, Regional Northern Norwegian (ReNN) dialects, Faroese and Colloquial French (and in the same vein Brazilian Portuguese). We will discuss these in turn and show that these varieties either do not display V-to-I movement or have been misanalysed as being inflectionally poor.

3.2.1 Regional Northern Norwegian

There are Regional Northern Norwegian Dialects (ReNN) that have no agreement paradigm, like standard Norwegian, but according to Bentzen et al. (2007) nevertheless optionally allow V_{fin} to occur to the left of most adverbs (31).

(31) …ettersom nån studenta <**sannsynligvis**> *leverte* *ReNN*
… as some students probably handed.in
<**sannsynligvis**> oppgaven
probably assignment.the
'… as some students probably handed in the assignment'

These data show, according to Bentzen et al., that in ReNN V-to-I movement may take place optionally. In cases where the finite verb precedes adverbs, they assume that the verb has moved out of *v*P.

One aspect seriously undermines this analysis. The finite verb cannot raise across negation, as shown by the following examples (from Bentzen et al.), in contrast to other known V-to-I movement varieties.[12]

(32) … ettersom nån studenta <**ikke**> *leverte* <***ikke**> oppgaven
… as some students not handed.in not assignment.the
'… as some students {not handed in / didn't hand in} the assignment'

In order to account for this fact, Bentzen et al. propose that the following clausal template underlies ReNN, where negation is externally merged above AgrP:

(33) NegP > AgrP > High adverbs > TP > Low adverbs

Hence, the finite verb in ReNN may optionally move to Agr, thereby crossing high adverbs, but cannot reach a higher head position, thereby crossing over negation.

However, the assumption that sentential negation in ReNN occupies a position above the high adverbs proves to be untenable.[13] First, in clauses containing a high adverb, such as 'probably', the negation obligatorily follows such an adverb. In fact, sentential negation can even follow low adverbs like 'often' (Kristine Bentzen, p.c.):

[12] The same pattern (verb movement across sentential adverbs but not across sentential negation) is found in Kronoby Swedish (cf. Bentzen, to appear), another language variety that has functioned as a counter-example to the RAH in the literature (cf. Platzack & Holmberg 1989).

[13] Note that an alternative analysis where the ban on verbal movement across the negative marker follows as a result of the Head Movement Constraint (Travis 1984), cannot be correct either since finite verbs in ReNN may precede *ikke* in matrix clauses (i.e. they freely undergo V-to-C movement).

(34) Jeg vet hvorfor John ofte ikke vet svaret
I know why John often not know answer-the
'I know why John often does not know the answer.'

This already shows that negation cannot be obligatorily placed in the NegP position in (33). More generally, the idea that negation is obligatorily (rather than optionally) base-generated higher than TP-adjoining adverbs is strongly at odds with the basic characteristics of negation in Germanic, where sentential negation may always take scope from a position at least as low as *v*P (i.e. in a *v*P adjunct position). These characteristics of Germanic are fully in line with the idea that in order to express sentential negation, the negative marker should be able to at least outscope *v*P (cf. Acquaviva 1997, Zeijlstra 20004, Penka 2010). (Recall that also in Icelandic and Älvdalen Swedish negation can appear in a high position, but the low *v*P-adjoined position is always available as well.)

The question now rises as to how the orderings in (31)-(34) should be accounted for. Given the fact that the finite verb may never appear to the left of the negative marker, whilst expressing sentential negation, any account of ReNN that posits the finite verb in a *v*P-external position is untenable. We conclude, therefore, that adverbs can be base-generated in a *v*P-internal position and be adjoined to VP, with the exception of the negative marker *ikke*, which in order to induce sentential negation must be based in a *v*P-external position. Thus, the underlying structure of (31) should be as follows:

(35) [ettersom nån studenta$_i$ <**sannsynligvis**> [$_{vP}$ t$_i$ *leverte* [$_{VP}$ <**sannsynligvis**> [VP]]]

The contrast between (31) and (32) now follows. Since the negative marker cannot induce semantic negation from a *v*P-internal position, it is correctly predicted that the finite verb may not appear to the left of the negation but can appear to the left of a low attached *sannsynligvis* 'probably' by means of V-to-v movement.[14] One may wonder how a sentential adverb like 'probably', which outscopes *v*P, can be base-generated within *v*P. The answer is that this adverb, being a quantifier over possible worlds, can always undergo (covert) QR. This is in contrast to negation, which is not quantificational in nature (cf. Penka 2010 for argumentation) and therefore must always be interpreted in its base position.[15]

Strong additional evidence for this analysis comes from the interpretation of indefinite subjects. As Bentzen et al. observe, whenever the finite verb appears to the left of adverbs such as *sannsynligvis* 'probably', the subject always receives a specific interpretation (36). By contrast, when the adverb precedes the finite verb, the subject is ambiguous between a specific and a non-specific reading (36).

(36) …ettersom nån studenta levere sannsynligvis opgaven
as some studentes hand.in probably assignment.the
i. '…as some specific students probably hand in the assignment.'
ii. *'…as some students or other probably hand in the assignment

[14] This predicts that even infinitives in ReNN can precede *sannsynligvis* 'probably' but not negation. This is indeed the case (cf. Bentzen et al. 2007).

[15] Note that this makes the empirically testable prediction that those high adverbs that may follow the finite verb in ReNN are all quantificational adverbs, We have not been able to test this prediction as of yet.

(37) …ettersom nån studenta sannsynligvis levere opgaven
as some studentes probably hand.in assignment.the
i. '…as some specific students probably hand in the assignment.'
ii. '…as some students or other probably hand in the assignment.'

The different interpretations in (36) and (37) follow from two facts. First, we follow Diesing (1992), who argues that the non-specific interpretation for indefinite subjects generally follows from subject-reconstruction to Spec,*v*P at LF. Subjects that lower to Spec,*v*P at LF may give rise to both a specific and a non-specific interpretation, whereas subjects that remain at a high LF position give rise to specific interpretations only. Therefore, the interpretation of the sentence in (37), where the adverb precedes the finite verb, is ambiguous because the subject can reconstruct to a position under the modal adverb.

Second, we argue that in (36) the adverb is adjoined to VP. This means that even in the lower subject position, spec,*v*P, the subject still c-commands the modal adverb. At LF, therefore, the subject can only take wide–scope with respect to this adverb, resulting in the subject receiving a specific interpretation only. A non-specific interpretation of an indefinite in a modal construction is only possible if the indefinite takes narrow scope with respect to the modal (cf. Iatridou & Sichel 2012 and references therein). The absence of the non-specific reading of indefinite subjects in ReNN constructions like (37) thus naturally follows from the lower adverb placement.

Note that if there is no such adverb present this analysis predicts that a sentence with an indefinite subject is always ambiguous between a specific and a non-specific interpretation, a prediction that is indeed born out.

In Bentzen et al.'s analysis the specific reading follows from an interaction of the indefinite subject and the finite verb. They argue that an indefinite subject gets a non-specific interpretation in spec,TP and a specific interpretation in spec,TopP. In a construction with adverb-V ordering, the subject moves to spec,TP to check the EPP-feature, obtains a non-specific interpretation and moves on to spec,AgrP, crossing *sannsynligvis*. In a construction with V-adverb ordering, a remnant *v*P containing only the finite verb moves to spec,TP to check T's EPP-feature and from there moves on to spec,AgrP, crossing *sannsynligvis*. The subject can no longer move to spec,TP and therefore cannot obtain a non-specific interpretation. It moves instead to spec,TopP, where it receives a specific interpretation. These two derivations are illustrated below.

(38) a. $[_{TopP}\ [_{AgrP}\ subject_i\ [_{TP}\ sannsynligvis\ [_{TP}\ t_i\ [_{vP}\ leverte\ ]]]]]$
b. $[_{TopP}\ subject\ [_{AgrP}\ [_{vP}\ leverte\ ]_i\ Agr°[_{TP}\ sannsynligvis\ [_{TP}\ t_i\ [T°\ t_i\ ]]$

The principal difference between Bentzen et al.'s and our analysis is the following. In our analysis, the specific interpretation for the indefinite subject in the V-adverb order follows directly from the interaction of the indefinite subject and the adverb, two scope-taking elements. In Bentzen et al's alternative, reference to the position of the verb is necessary, and the verb is not (necessarily) a scope-taking element. Hence, the different interpretations are not accounted for in any direct way and must be encoded into the (functional) structure.

To conclude, for ReNN to be a counter-example to the strong RAH, an implausible analysis must be adopted, in which V-to-I movement must be an optional process and negation must be generated higher in the structure than adverbs that it can actually follow. Our alternative states that adverbs in ReNN can be placed *v*P-

internally, a claim that is independently supported by the interpretation of indefinite subjects in this variety.

Given this conclusion, one can now formulate a rather straightforward and strong generalization over the Germanic data, including ReNN: if and only if a variety has a rich agreement paradigm, the finite verb is able to cross the negative adverb that induces sentential negation in non-V2 environments. This was true for all the counter-examples; Icelandic, Älvdalen Swedish and ReNN. Hence, phrasal negative adverbs are a more reliable diagnostic for V-to-I movement than adverbs such as 'probably' or 'often'. Applying this more reliable diagnostic, it can be safely concluded that the strong version of the RAH makes all the right predictions for the varieties discussed above.

3.2.2 Faroese

For Faroese, it is claimed by Jonas (1995) that there is variation among speakers about the acceptance of orders in which the verb precedes sentential adverbs as well as negation. This is shown in (39):

(39) Hetta er brævið, sum Elin <%*hevur*> **ikki** <*hevur*> lisið *Faroese*
This is letter-def that Elin (%has) not (has) read
'This is the letter that Elin has not read'.

She claims that speakers that allow it have a grammar with optional V-to-I movement. Now, all speakers of Faroese have the same agreement paradigm, namely the one in (40), which qualifies as poor according to our definition.

(40)

	Faroese I & II inf. *kast-a*	
	SG	PL
1st	kast-i	kast-a
2nd	kast-ir	kast-a
3rd	kast-ir	kast-a

Hence, speakers that allow optional V-to-I movement are unexpected, and their judgments constitute a counter-example to the strong RAH.

Heycock et al. (2010), however, show that Faroese lacks V-to-I movement in all of its varieties. In short, they demonstrate that, to the extent that Faroese speakers allow V-negation orders, these are indicative of V-to-C movement rather than V-to-I movement. They observe that verb second takes place in embedded clauses much more freely than in the Mainland Scandinavian varieties and that it resembles Icelandic in allowing V2 in complements of non-bridge verbs like *doubt*, *deny* and *be proud*. As in Icelandic, there are contexts in which verb second is ungrammatical, namely in indirect questions. It is precisely in these contexts that V-negation orders are judged to be ungrammatical too, and rejected as much as Danish speakers do. Hence, when no embedded V2 can take place, no verb movement across negation is possible at all. Heycock et al. additionally observe that some Faroese speakers allow the verb to cross epistemic or frequency adverbs and they therefore conclude that the grammar of these speakers looks very much like the one of ReNN.

In short, Heycock et al. conclude that there is no evidence for V-to-I movement among speakers of Faroese. What they do not observe is that this conclusion has important consequences for the hypothesized correlation between V-to-I movement

and rich morphology. Since all speakers have poor agreement inflection, we expect none of them to have V-to-I movement. Whereas judgments of some speakers were problematic for the strong version of the RAH, it now in fact turns out that all speakers behave exactly as expected.

3.2.3 Colloquial French and Brazilian Portuguese

Already in Rohrbacher (1994, 1999), it was argued that Colloquial French is inflectionally poor, given that the *-e*, *-es* and *–ent* affixes are phonetically identical (41). Also according to our definition Colloquial French has a poor paradigm, as only two featural distinctions ([±plural] and [±addressee]) are sufficient to categorize the agreement paradigm (42).[16]

(41) Colloquial French[17]

	inf. *parl-er*	
	SG	PL
1st	parl-[ə]	parl-[ə]
2nd	parl-[ə]	parl-[e:]
3rd	parl-[ə]	parl-[ə]

(42) [e:] → [+addressee, +plural]
[ə] → elsewhere

Nevertheless, Colloquial French displays V-to-I movement (43).

(43) Jean (ne) *mange* **pas** des pommes. *French*
Jean eats not apples

Although we agree that the agreement suffixes on the verb poor agreement according to our definition in (3), nothing in our definition requires that it must be the verbal paradigm that must be rich. French only counts as a poor agreement language if it never exhibits rich inflectional subject agreement. This, we argue, is not the case however. As is shown in (44), French allows subject clitics to pop up in a sentence that already contains an overt (pronominal or non-pronominal) subject.

(44) a. (Moi) je viens
I I come
'I'm coming'
b. (Toi) tu viens
you you come
'You're coming'

[16] This runs against Harley & Ritter's (2002) assumption that the presence of [ADDRESSEE] entails the presence of [PARTICIPANT], which would render French effectively rich. Note that, although we do not share this assumption (for reasons that become clear in section 4), nothing crucial hinges on this. If Colloquial French is rich, it is no counter-example against the RAH, since French exhibits V-to-I movement anyway.

[17] The 1st person plural in spoken French is not *(nous) parl-[õ]* but *(on) parl[-ə]*, making French observationally as poor as Modern English.

c. Hier, Jean (/) il est parti
Yesterday, John he is left
'Yesterday, John/he left'

Although, traditionally, the examples in (44) have been analyzed as cases of clitic-left-dislocation, a growing number of scholars have shown that such subject clitics rather function as agreement markers, which appear to the left of the finite verb (Muller 1984, Roberge 1986, Hulk 1986, Auger 1992, Zribi-Hertz 1993, De Wind 1995, Ferdinand 1996, Legendre et al. 2004 and others).

As Rohrbacher (1994, 1999) has argued, if such instances of subject-doubling in Colloquial French are taken to be instances of subject-verb agreement rather than clitic-left-dislocation, then Colloquial French counts as a rich agreement language again and is in fact expected to display V-to-I movement.

In this section, we demonstrate that several independently observed facts show that Rohrbacher's original conjecture is correct and that therefore all varieties of French count as rich in terms of (3). These facts involve the frequency, prosody and distribution of subject doubling constructions.

The first argument in favor of an agreement analysis of subject doubling is that subject doubling is an extremely frequent phenomenon in Colloquial French. According to an old estimation (Sankoff 1982) subject doubling occurs in 80% of the sentences. This is unexpected if subject doubling involves the relatively infrequent phenomenon of clitic-left dislocation, but follows naturally if those doublers are agreement markers.

Second, no intonational break is required between the subject and its doubler, a fact that remains unexplained if subject doubling is an instance of clitic-left dislocation.

Third, in some colloquial varieties subject-doubling occurs with indefinite subjects and negative quantifiers, whereas such constituents are generally excluded from clitic-left dislocation constructions.

(45) Personne i(l) m' aime (Zribi-Hertz 1993)
Nobody he.3sg me-cl. loves
'Nobody loves me'

Fourth, evidence from corpus studies further strengthens the idea that these subject doublers are agreement markers. Ashby (1980), Miller (1991), Pierce (1994) and Fonseca-Greber & Waugh (2003) find that the clitic appears every time the finite verb is repeated in coordination (46)a or after a false start ((46)b from Fonseca-Greber & Waugh), showing their obligatory presence.[18]

(46) a. Et après elle-la-prend et elle-la-grille
And afterwards she-it-takes and she-it-grills
'And afterwards she takes it ad grills it'
b. Et pis jch-j-mais jch-crois que ya une tendance
And then I-th-I-but I- think there's a tendency
'And then I, but I think there is a tendency'

[18] Cournane (2010) confirms that this property not only holds for Colloquial European French, but also applies to a number of different varieties of Quebec French, Pied Noir French and North Italian dialects.

Such obligatoriness of markers is a general diagnostic for subject agreement. Subject clitic-left dislocation, by contrast, is optional. [19]

Fifth, Fonseca-Greber & Waugh report that in spoken French especially 1st and 2nd person clitics are hardly ever left out in doubling constructions and conclude that the reanalysis of these clitics is as good as complete.

Sixth, Coveney (2002) and De Cat (2007b) find that examples of clitic-verb inversion are vanishingly rare (cf. Culbertson 2010 for a summary of several corpus studies), confirming that clitics are not independent syntactic constituents anymore.

Given this body of evidence, one may conclude that subject clitics function as agreement markers in colloquial versions of French. This, in turn, entails that French is a rich agreement language. It therefore should not come as a surprise that this language has V-to-I movement. If that is correct, the examples in (44) actually display agreement between the real subject and the additional agreement marker. The interpretable phi-features on the real subject agree with a matching uninterpretable feature on the agreement marker, as is illustrated for (47) a below:

(47) Moi je viens
[i1SG] [u1SG]
└──────┘

Note that, if this analysis is indeed correct, it has one serious consequence: examples where only a pronominal doubler is used, such as the ones in (48), show that French must count as a *pro-drop* language, as the agreement markers does not necessarily agree with an overtly realized subject, again a property normally attributed to rich agreement languages.

(48) a. *Pro* je viens
1.SG come
'I'm coming'
b. *Pro* tu viens
2.SG come
'You're coming'
c. *Pro* il est parti[20]
3.SG is left
'He has left'

[19] It is important to realize that the agreement status of clitics does not necessarily entail that the agreement marker is obligatory in all contexts. Cournane (2010) observes that, whereas subject doubling and repetition in coordination structures is a property shared by all colloquial French varieties she looked at, not all varieties can have a clitic in relative clauses and WH-clauses, or as a doubler of bare quantifiers, indefinites or question words. Although the shared behavior of these varieties (doubling and repetition in coordination structures) is enough to reveal the agreement status of clitics, other factors may determine how widely they are used. It is for instance very conceivable that in initial stages after the reanalysis of the subject clitic into an agreement marker, it not only spells out phi-features but also definiteness, thereby inheriting a property of the previous clitic-left-dislocation stage. This makes doubling of bare quantifiers, indefinite and WH-DPs impossible.

[20] Whereas *je*, *tu*, *on* and *vous* occur in a position preceding a finite verb in 100% of the cases, according to Fonseca-Greber & Waugh (2003), the percentages for 3rd singular and plural person pronouns are 91.5% and 93.6%, respectively. This means that the latter pronouns sometimes remain absent. For the purposes of our analysis, this is irrelevant. Our definition of richness hinges on the presence of morphological person and number contrasts, where a morphological null form can provide evidence for a particular feature as much as an overt form can.

Another variety amenable to the same analysis is Brazilian Portuguese (BP). As noted by e.g. Rohrbacher (1994), this variety has an agreement paradigm that qualifies as poor when compared to European Portuguese (EP):

(49) a. European Portuguese

Inf. compr-ar 'to sell'		
	SG	PL
1st	compr-o	compr-amos
2nd	compr-as	compr-am
3rd	compr-a	compr-am

b. Brazilian Portuguese

Inf. fal-ar 'to speak'		
	SG	PL
1st	fal-o	fal-a
2nd	fal-a	fal-am
3rd	fal-a	fal-am

As can be established, two featural distinctions capture the morphological contrasts in the BP verbal paradigm ([±speaker] and [±plural]), so that the BP verbal paradigm does not meet our definition of richness, whereas a third feature is needed to describe the morphological contrasts between 2nd and 3rd person in EP. Hence, the initial expectation is that Brazilian Portuguese has lost V-to-I movement.[21] Galves (1994) and Costa (1996), however, show that in EP and BP alike V_{fin} is able to precede or follow the same adverbs:

(50) a. O João <frequentemente> beija <frequentemente> a Maria.
the João (often) kisses (often) Maria
'Joao often kisses Maria.'

b. As crianças <todas> beijam <todas> a Maria.
the children (all) kiss (all) Maria

Costa & Galves (2000) argue that in both varieties the verb undergoes verb movement to T. Adverbs are adjoined to either *v*P or TP, so that V_{fin} precedes or follows them. The subject resides in a position higher than TP, which accounts for the non-obligatory adjacency between subject and V_{fin}.

Hence, both EP and BP have verb movement out of *v*P, it seems. On the basis of the paradigms in (49), we expect this for EP but not for BP. Interestingly, however, Duarte (1995) observes that BP differs from EP in robustly allowing subject doubling. Doubling in BP can occur in out-of-the-blue contexts (51)a and in an embedded context (51)a, making the lexical DP unlike left-dislocated topics:

(51) a. O Edmilson, ele está? (BP/*EP)
Edmilson he is?
'Is Edmilson there?'

[21] There are two contrasts between EP and BP that initially seem to support this view: (i) BP lacks VSO orders, which EP allows, and (ii) EP has enclitics where BP has proclitics. Under the assumption that in EP V_{fin} crosses vP-internal subjects and vP-external clitics, the facts in BP follow under the assumption that V_{fin} stays within vP. However, neither of these diagnostics turns out to be very telling. Mexican Spanish, for instance, does not allow VSO orders, although it has rich inflection and agreement-related verb movement (cf. Gutierrez-Bravo 2005), showing that the loss of VSO can be an unrelated development. Second, as spoken French already shows, V-to-I movement can co-occur with proclisis, showing that there is no strong correlation between verb movement and enclisis to begin with. In fact, EP also has proclitis, namely in embedded clauses (cf. Rouveret 1989), which under the hypothesized proposal would entail that EP only has V-to-I movement in main but not in embedded clauses.

b. Eu acho que o povo brasileiroi elei tem uma grave doença. (BP/*EP)
I think that the people brazilian he has troubles
'I think that the Brazilian population has troubles.'

It will be clear that these observations are very reminiscent of spoken French. We therefore tentatively conclude, pending the kind of research that was executed on spoken French, that BP is moving into the same direction and should be qualified as a rich agreement language. Hence, both EP and BP are well behaved with respect to the strong RAH in displaying V-to-I movement.

3.2.4 Concluding remarks

We have argued in section 3.2 that also the empirical arguments against the strong version of the RAH are not convincing. For Regional Northern Norwegian dialects, we have argued that they do not display verb movement because V_{fin} cannot cross negation. Although V_{fin} can cross other adverbs, these adverbs are adjoined to VP and not to vP. Evidence for this claim comes from the fact that indefinite subjects cannot receive a non-specific interpretation in SU-V_{fin}-Adverb orders due to the fact that the subject can never reconstruct to a position lower than the adverb. For Faroese, Heycock et al. have already shown that the movement of the verb across adverbs and negation constitutes V-to-C movement. In contexts where V2 cannot occur, the order V_{fin}-Neg/Adverb cannot occur either. Hence, Faroese lacks V-to-I movement, as expected on the basis of its poor agreement paradigm. For French, we have argued that this language has rich subject agreement but that rich agreement is not expressed by verbal suffixes but by subject clitics preceding V_{fin}. We have summarized the evidence for this analysis. The consequence is that V-to-I movement in Colloquial French is expected, since this language is richly inflected after all.

To conclude, all the empirical evidence against any version of the RAH has now disappeared. In the next section, we will turn to the two conceptual problems for the RAH.

3.3 Conceptual problems

Apart from the empirical arguments raised against the RAH, Bobaljik (2003) mentions two conceptual problems for any RAH-type of approach in which richness is defined on the basis of morphological agreement distinctions within the paradigm. If such a notion of richness is to explain differences in syntactic verb movement, it requires that morphology can drive the syntax. This has two undesirable consequences. First of all, in the standard conception of the grammar, morphological items, including affixes, are inserted after the syntactic derivation, thus rendering it impossible for inflectional affixes to drive verb movement. Second, these proposals require reference to the paradigm as a whole, since a verb with a particular affix on it can only be identified as rich, and therefore require V-to-I movement, if the grammar has access to the whole paradigm, even in the course of the derivation.

In this section we discuss an alternative version of the (weak) RAH that explicitly aims at solving these two conceptual problems, namely one that is developed in Bobaljik (1995), Thráinsson (1996) and Bobaljik & Thráinsson (1998). We will demonstrate here that, despite its conceptual merits, this alternative proposal runs into two empirical problems that our own proposal does not run into. In addition,

it faces a new conceptual problem related to the theory of AGREE. This leads us to reject this alternative.

Bobaljik (1995), Thráinsson (1996) and Bobaljik & Thráinsson (1998) adopt the weak RAH on empirical grounds and argue for a conception of richness that refers to the co-occurrence of tense and agreement morphology. Given that morphology takes place after syntax, the only possible way to derive the correlation between richness and verb movement is by alluding to a non-paradigmatic, i.e. a syntagmatic definition of richness. Bobaljik & Thráinsson argue that richness should be defined as the co-occurrence of different tense and agreement affixes on a single verb stem. Icelandic counts as rich, given the present and past tense paradigms given below, in contrast to English, which counts as poor.

(52) a. Icelandic

Inf. *kasta* 'to throw'

	Present	past
1st SG	kasta	kasta-ð-i
2nd SG	kasta-r	kasta-ð-ir
3rd SG	kasta-r	kasta-ð-i
1st PL	köst-um	köstu-ðu-m
2nd PL	kast-ið	köstu-ðu-ð
3rd PL	kast-a	köstu-ðu

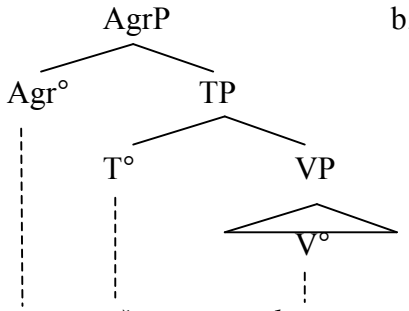
b. English

inf. *tremble*

Present	past
tremble	tremble-d
tremble	tremble-d
tremble-s	tremble-d
tremble	tremble-d
tremble	tremble-d
tremble	tremble-d

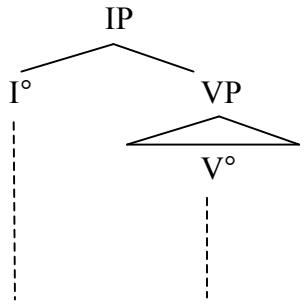
The Icelandic 2nd person singular in the present and past tense (*kastar* and *kastaðir* respectively), shows that different tense and agreement markers can be distinguished for this inflected verb: *kasta-ð-ir*. This is in contrast to e.g. English, where we observe in the 3rd person singular (*tremble-s* and *tremble-ed*) that the agreement affix *–s* cannot occur in the past tense (**tremble-(e)d-s*). The co-occurrence of overt tense and agreement morphology is indicative of a richer functional domain, Bobaljik & Thráinsson propose. Whereas Icelandic has a functional domain in which AgrP and TP occur as separate projections, English has an unsplit IP. The fact that tense and agreement morphemes do not co-occur in English then follows from the restriction that a terminal head can only be spelled out as a single morpheme. The difference between Icelandic and English for them looks as follows:

(53) a.



2nd plural:

b.



*-eds

According to Bobaljik & Thráinsson, in (53)a, the agreement features in Agr° are not local enough to stand in an AGREE relation with V°, due to the intervention of the T°-head. In order to establish a checking relation between the agreement features in Agr° and those of V°, the verb has to move up to at least T°. In English, by contrast, no

intervention effect shows up, so the verb can remain in situ and still check its features with the features in Agr°.

One important property of their analysis is that, although (53)b can only occur in languages in which no tense and agreement morphology co-occur, nothing excludes a language with the structure in (53)a but poor morphology. After all, nothing forces a head to be spelled out independently: two heads can be realized by one single morpheme. One of the central motivations that prompted this analysis was the conclusion that the strong RAH was untenable in the light of languages that display poor agreement but V-to-I movement. Hence, the proposal derives the weak RAH: there can be languages with poor agreement and V-to-I movement but not the other way round. Note also that the two conceptual problems raised against other RAH proposals do not arise here. First of all, rich morphology does not drive the syntax but is merely a reflection of it. Second, after syntax, morphology simply picks the form from the available lexicon that most faithfully spells out the features residing in a functional head. As a richer syntax allows a richer morphology, a correlation between syntax and morphology is derived without letting the grammar access paradigmatic information during the derivation.

However, three problems arise. First, as discussed in 3.2, the RAH turns out to be correct in its strongest, bi-directional form. This means that Bobaljik & Thráinsson's analysis offers a solution to a problem that in fact does not exist: if there are no languages with poor agreement and V-to-I movement, their proposal suddenly overgenerates, since it allows for a possibility that must now be excluded. Related to this, they predict the possibility of an acquisition stage in which verb movement to the relevant functional head is acquired before the inflection associated with that head is acquired. We will discuss this point in more detail in section 5.4.

Second, Faroese constitutes a counter-example, as noted by Alexiadou & Fanselow (2000), as it has rich agreement under this definition but, as we saw, no V-to-I movement (recall that the movement possible for some speakers of Faroese is V-to-C movement rather than V-to-I movement).

(54)

a.	Faroese (present tense)		b.	Faroese (past tense)	
	SG	PL		SG	PL
1st	kast-i	kast-a	1st	kasta-ð-i	kasta-ð-u
2nd	kast-ir	kast-a	2nd	kasta-ð-i	kasta-ð-u
3rd	kast-ir	kast-a	3rd	kasta-ð-i	kasta-ð-u

As can be observed, Faroese has distinct tense and number morphemes in the past tense. This requires a structure as in (53)a and V-to-I movement is predicted to arise, contrary to fact. Bobaljik (2003) acknowledges this problem and argues that the tense and agreement information is expressed by single affixes, *-ði* in the singular and *-ðu* in the plural. Under that analysis, Faroese can still be analyzed as a poorly inflected language with an unsplit-IP and V-to-I movement can remain absent.

Allowing this solution, however, renders the theory unfalsifiable, as by the same logic the Icelandic paradigm can be considered poor as well. In his analysis of Faroese, *–ð* is not a separate morpheme, so the fact that /ð/ occurs in both the singular and plural part of the past tense paradigm is not captured by the analysis and therefore coincidental. Along the same lines, the fact that in the Icelandic paradigms /*r*/ occurs in the 2nd person singular in both the present and the past tense can be taken as coincidental, too. If so, Icelandic *-ðir* can be analyzed as a single affix. This logic can be extended throughout the Icelandic paradigm, making the language effectively poor.

The only criterion for Bobaljik & Thráinsson to distinguish the Icelandic and Faroese paradigm in terms of richness is to capture the correlation with V-to-I movement. What is lacking is an independent algorithm that determines whether an inflectional ending is morphologically simplex or complex.

Third, a necessary ingredient for Bobaljik & Thráinsson's analysis is that AGREE may not take place across intervening heads. Therefore, agreement can take place between I and V in (53)b but not between Agr and V in (53)a. However, it is unclear how such locality constraints on agreement can be implemented in any of the current versions of AGREE (cf. Chomsky 1995, 2000, 2001, Pesetsky & Torrego 2004, 2007, Boskovic 2007, a.o.), where AGREE can be applied across intervening (non-phase) heads.

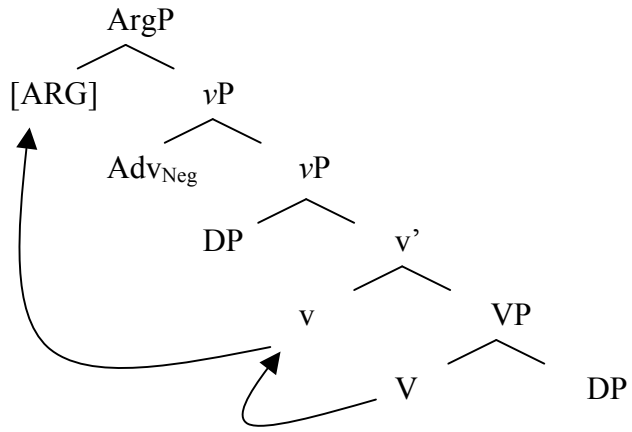
To conclude, Bobaljik & Thráinsson's analysis faces two serious empirical problems, as well as a theoretical one (involving AGREE). We realize, however, that we now commit ourselves to developing a proposal that must minimally address the conceptual problems raised against earlier versions of the RAH based on paradigmatic contrasts, and that must also be in compliance with current proposals regarding AGREE.

In the next section we show that even though it should be impossible for the grammar to have access to paradigmatic knowledge during the derivation, the conclusion that richness therefore cannot be defined paradigmatically is too strong. Also, we argue in the next section that even though morphology cannot drive the syntax in any direct sense, the conclusion that morphology can have no effect on the syntax is too strong as well. As we will show in the next section, these conceptual problems disappear once we bring in the factor of language learnability.

4 Explaining the RAH

As has been established in the sections above, verbal movement to some position in the IP domain takes place if and only if a language exhibits subject agreement with respect to all those grammatical features that are minimally required to constitute pronominal subject arguments. In this section, we argue that only in a language with rich subject agreement can a superfeature [ARG(UMENT)], comprising the subfeatures [PLURAL], [PARTICIPANT] and [SPEAKER], be adopted, which projects *v*P-externally and which realizes agreement morphology. If this agreement morphology is affixal in nature, the verb must in turn move to this head position. In languages with poor subject agreement, no such feature can be acquired and therefore no vP-external functional projection exists that realizes subject agreement morphology. Consequently, poor agreement features must be realized *v*P-internally.

(55)



This leads to the following three questions: (i) why is the feature [ARGUMENT] that heads ArgP only present in rich agreement languages; (ii) what determines the structural position of ArgP and (iii) why is it the case that in languages with ArgP the verb moves to its head? We will address these questions in consecutive sections 4.1-4.3.

4.1 Determining the nature of [ARGUMENT]

As stated in the introduction of this section, we propose that languages with rich agreement contain a formal feature, [ARGUMENT], whereas languages with poor agreement do not. The question is then how this formal feature enters such languages. Before we can answer this question, we need to determine how formal features can be acquired more generally. Here, we follow Zeijlstra (2008), who argues that grammatical doubling is what drives the acquisition of formal features. Formally, he puts it as in (56):

(56) *Flexible Formal Feature Hypothesis* (FFFH, after Zeijlstra 2008):
- a. If and only if there are doubling effects with respect to a semantic operator OP_F in the language input, all features of F can be formal features [i/uF].
- b. If there are no doubling effects with respect to a semantic operator OP_F in the language input, all features of F must be semantic features.

The reasoning behind (56) is the following: since there is no way to distinguish an interpretable formal feature from a semantic feature, the only evidence that the language input can contain for a language learner to decide whether to adopt some formal feature or not is the presence of uninterpretable features. As uninterpretable features can only occur in a grammatical sentence if they are checked against matching interpretable features, the presence of agreement phenomena is the only possible cue for formal feature acquisition.

According to this FFFH, in Faroese, the only *uninterpretable* phi-features present pertain to speakerhood and plurality, since these features give rise to doubling effects (see (40)). The plural marker *-a* manifests an AGREE relation between its uninterpretable [u: PLURAL] feature and the interpretable [i: PLURAL] feature present on the subject. Along the same lines, the Faroese speaker will adopt a formal feature [SPEAKER], since *–i* manifests an Agree relation between the [u: SPEAKER] feature on the verb and the [i: SPEAKER] feature on the agreeing subject.

[PARTICIPANT], or [FEMININE] are features that are also part of the pronominal semantic feature inventory (e.g. to distinguish between masculine and feminine pronouns), but never give rise to any syntactic doubling (i.e. agreement) effects. Consequently, there is no evidence that these features should be part of the formal feature inventory of Faroese: there is only a semantic [PARTICIPANT] feature, but no corresponding formal [u: PARTICIPANT] and [i: PARTICIPANT] features, and also [FEMININE] has no interpretable and uninterpretable counterparts. [PARTICIPANT] and [FEMININE] only play a role in the lexical semantics of the language (cf. Heim 2008, Sauerland 2008).

Poor agreement languages can thus never give rise to the acquisition of formal [u/i: SPEAKER] *and* [u/i: PARTICIPANT] *and* [u/i: PLURAL] features. In contrast, languages with rich agreement, by definition (3), do display doubling effects with these three features. Speakerhood, participanthood and plurality are all formal features in these languages, with interpretable and uninterpretable counterparts: [u/i: SPEAKER], [u/i: PARTICIPANT] and [u/i: PLURAL].

Thus far, it follows from the FFFH that languages that count as rich agreement languages have three formal ϕ-features at their disposal ([u/i: SPEAKER], [u/i: PARTICIPANT] and [u/i: PLURAL]), whereas languages that count as poor agreement languages do not exhibit all these three formal ϕ-features. But when a learner has acquired these three features, it has also acquired a superfeature of them, namely [ARGUMENT], since these three features semantically constitute a single semantic class of argumenthood. The reason for this is that we established that these three semantic features are the same features that minimally constitute pronominal systems across the world's languages.[22] This means that in a richly inflected language all semantic features that are necessary to constitute pronouns are also reflected in subject-verb AGREE relations, whereas this is not the case in poor agreement languages.

But if all features of a single semantic class are formalized, so is the semantic class itself. Take tense as an example: suppose that some language only exhibits past tense morphology and never present tense morphology and that this tense morphology must be analyzed as being semantically uninterpretable (cf. Von Stechow 2005, Pesetsky & Torrego 2007 among many others). Such a language only provides evidence for the presence of a formal past tense feature [i/u: PAST]. If a language exhibits both semantically uninterpretable past tense and present tense morphology, there is not only evidence for formal past and present tense features [u/i: PAST] and [u/i: PRESENT]. Now, there is also evidence that the semantic feature [TENSE] is formalized. The presence of [i/u: PAST] and [u/i: PRESENT] naturally allows language learners to posit [u/i: TENSE] features with PAST and PRESENT as different values. Values of a feature are subfeatures of a superfeature and if all formal subfeatures are acquired, so is the superfeature.[23]

Applying this to argumenthood, it holds that if [u/i: SPEAKER], [u/i: PARTICIPANT] and [u/i: PLURAL] are acquired, [u/i: ARGUMENT] is acquired with SPEAKER, PARTICIPANT, PLURAL as its values. Consequently, all rich

[22] The reason why the set of semantic [SPEAKER], [PARTICIPANT] and [PLURAL] features jointly constitutes argumenthood and not, for instance, pronounhood, is that both pronominal and non-pronominal arguments are always specified for having [SPEAKER], [PARTICIPANT] and [PLURAL] or not. So, therefore this set of features pertains to arguments in general.

[23] We take the assumption of superfeatures to be a more general strategy through which learners create functional categories, which can subsequently play a role in the clausal spine. Take for instance C, a syntactic postion that can be filled by a verb or a complementizer. Whatever the precise nature of C is, it must be a feature that abstracts over verbs and complementizers.

agreement languages have [u/i: ARGUMENT] features as part of their formal feature inventory, but in no poor agreement language can this be the case.

4.2 Determining the structural position of ArgP

In the previous section, we have argued that rich agreement languages have a formal feature, [ARGUMENT], that is absent in languages with poor agreement. In this section, we will outline the syntactic consequences of this proposal. There are two questions to address: (i) why should the functional projection hosted by [ARGUMENT], ArgumentP (henceforth: ArgP), be in a *v*P-external position in the clausal spine and (ii) why can [ARGUMENT], but not any of its subfeatures, host such a *v*P-external projection? We will address these questions in turn.

As for question (i): ArgP is a formalization of the notion argumenthood, which may therefore only occur in a position in the syntactic structure where arguments can be interpreted. The uninterpretable argument feature, [u: ARGUMENT] with some SPEAKER, PARTICIPANT and/or PLURAL value, must be checked by its interpretable counterpart, namely some argument (which always carries an interpretable [i: ARGUMENT] feature) in its specifier position. Consequently, the exact locus of ArgP is determined by the checking argument: if the subject checks off the uninterpretable [ARGUMENT] feature, the subject must be in Spec,ArgP; if an object checks off the uninterpretable [ARGUMENT] feature, the object must be in Spec,ArgP.[24] Since the subject position cannot be part of the complement of *v*°, the consequence is that in languages with rich subject verb agreement ArgP, must be in a *v*P-external position. Any language with rich subject-verb agreement, thus exploits a *v*P-external ArgP, whose uninterpretable features in the head are spelled out as the agreement morphology, whose specifier is the subject and whose complement contains *v*P. Although irrelevant for our purposes, this also entails that if a language has rich object agreement, it must have a *v*P-internal ArgP (presumably intervening *v*P and VP) with the object in its specifier (and if it has both rich subject and rich object verb agreement, it has two ArgPs, one *v*P-external, one *v*P-internal).[25]

As for question (ii), we propose that, whereas [ARGUMENT] plays the role of functional head that can project ArgP in the clausal spine, the features [SPEAKER], [PARTICIPANT] and [PLURAL] by contrast cannot. The reason for that is the following. The major difference between a formal [ARGUMENT] feature and its subfeatures ([PLURAL], [PARTICIPANT] and [SPEAKER]) is that [ARGUMENT] reflects a semantic operation that applies to predicates, whereas its subfeatures do not. This makes that a functional projection headed by [ARGUMENT], ArgP, shares an important property with all other possible functional projections in the middle field (TP, NegP, AspP, etc.), namely that their relative position is semantically motivated.

[24] For our purposes, it is crucial that [ARGUMENT] feature checking takes place under a spec-head configuration. We remain neutral, however, with respect to what exact AGREE mechanism derives this requirement (for instance, agreement always takes place under spec-head agreement (cf. Koopman 2006), downward probing with an additional [EPP] feature present on Arg° (in the sense of Chomsky 2002), or upward AGREE (cf. Zeijlstra 2012)).

[25] Note that our system allows multiple ArgPs, one outside *v*P, hosting rich subject agreement, and outside VP, hosting rich object agreement (and perhaps even more if the *v*P is taken to be some Larsonian shell existing of more than multiple V-layers). Thus, the locus of an ArgP is determined by whether the language in question has rich subject or object agreement: there is nothing in our system that forces AgrP to be outside *v*P if there is only one AgrP present. The question why subject agreement is more common than object agreement, or the question why most (but not all) languages with object agreement also exhibit subject agreement, is an independent question.

Tense, negation, aspectual operators and arguments all stand in a semantic relation with predicates, denoted by a constituent minimally containing *v*P. This enables us to conjecture that all functional projections have a semantic function in the clausal spine (hosting semantic tense, negation, mood, and also argumenthood). If so, there cannot be a functional projection FP in the clausal spine, whose semantic contribution lies outside functional application of predicates. Or, to put it more formally: a syntactic structure FP > *v*P can only exist if the semantic function F is applicable to the denotation of *v*P (or the other way round), and a structure GP > FP > *v*P can only exist if the semantic function G is applicable to the denotation of FP or vice versa. In that sense, the clausal spine is a reflection of a (non-strict) subset of semantic functions that apply to a predicate denoted by *v*P. The direct consequence of this is that, since speakerhood, participanthood and plurality do not apply to predicates, but only to arguments (i.e. they constrain their potential referents), a PartP, a SpeakerP or a NumP can only be potential functional projections in an extended NP, but never in an extended *v*P. Hence the major difference is that languages exhibiting a formal feature [ARGUMENT] may project this feature within the clausal spine, whereas languages that lack such a feature can never have any agreement feature being hosted in a functional projection that is part of the extended *v*P domain.

Finally, we like to point out that even though our proposal of a *v*P-external ArgP, present in languages with rich agreement only, may be reminiscent of Agr_SP. (as in Chomsky 1995), there are two important differences between ArgP and Agr_sP. First, Agr_sP is morphologically motivated, whereas ArgP is semantically motivated. We think there is a strong conceptual argument for choosing ArgP over Agr_sP. Under the latter proposal, the reason why there can be a *v*P-external Arg_SP must follow from general morphological requirements. We do not know what requirements that could be. ArgP, by contrast, is semantically motivated. Therefore, the fact that Arg selects a complement containing *v*P must be derived from a property that must be part and parcel of the semantic component. The relevant property is straightforward, namely the fact that an argument must always be a sister of (a constituent containing) the predicate in order to be legible for semantic interpretation.[26] Second, as already discussed, Agr_sP is subject-specific but ArgP is not.

4.3 Deriving the strong Rich Agreement Hypothesis

Let us now turn to the final question: why does Arg° trigger verb movement? Answering this question then derives the strong RAH. Here, we hardly deviate from proposals in the literature stating that verb movement is essentially triggered by the Stray Affix Filter (Baker 1988) or any reimplementations of it (cf. Rohrbacher 1994, 1999). Since at least in those languages we have looked at the values of Arg° are spelled out by an affix, or any other agreement marker that needs to attach to the verb (see Colloquial French), Arg° needs to end up in a position adjacent to the verb. This becomes an issue when some constituent (e.g. an adverb or negation) intervenes between Arg° and *v*°.[27,28] For those cases, the literature provides two means of

[26] Cinque (1999) already noted that the assumption of a semantically unmotivated Agr_SP is at odds with the observation that all other known functional projection in the clausal spine do have semantic import.

[27] A prediction that this analysis makes is that if the morpho-phonological realization of Arg in some language is by some phonologically independent element, verb movement is no longer required or triggered (a point brought up by Jeff Parrott, p.c.).

[28] When the affix or clitic in Arg° is already adjacent to V in case no adverb intervenes, more options become possible, such as Morphological Merger (Marantz 1988). Since there is no diagnostic for verb movement in these cases, there is no way of excluding this option. As a general alternative to verb

ensuring adjacency; (i) by moving the verb in the syntactic component (as has been traditionally proposed, (see also Lechner 2004, Matushansky 2006, Roberts 2010 for some recent proposals along this line) or (ii) by moving the verb post-syntactically (cf. Chomsky 2000, Zwart 2001, Boecks & Stjepanovic 2001, Platzack 2012 among others). Since our proposal does not hinge on the correctness of either approach, and is fully compatible with both, it does not force us to make a principled choice here.

Finally, the question arises what happens with those instances of agreement that do not count as rich. Why do lexical verbs in Faroese not move out of *v*P in non-V2 contexts? For instance, plural *–a* in Faroese still spells out [PLURAL], but cannot project an ArgP anymore for the reasons explained above. Neither can it give rise to another functional projection, say NumP, that is part of the clausal spine (and that could thus provide a *v*P-external landing site for the finite verb), since NumP may never be part of the clausal spine for semantic reasons: only those functional projections may be part of an extended domain if they can semantically affect the constituent that they immediately dominate.

Consequently, poor agreement markers must be analyzed as the realization of some feature(s) that reside in *v*° (cf. Rohrbacher 1994 for a similar claim). These features then agree with the subject in its *v*P position in exactly the same way as subjects in Spec,ArgP agree with agreement markers that are realized in Arg°.[29]

Now it follows that only in languages with rich subject agreement, the verb must always move to a *v*P-external position, dubbed ArgP, whereas this requirement is absent in languages with poor subject agreement. This, then, derives the strong RAH.

5 Consequences

So far, we have given an explicit account of V-to-I movement and argued that this operation is crucially related to (rich) agreement properties of a language. This immediately raises the question: what about V-to-T movement? At first sight, the proposed analysis seems to predict that languages with overt tense markers should also trigger V-to-T movement, contrary to fact. Section 5.1 explains why tense morphology is not expected to correlate with verb movement.

Above, we focused solely on VO languages where V-to-I movement is always visible. In section 5.2, we discuss what our analysis would have to say about for OV and VSO languages.

Diachronically, the strong version of the RAH predicts that, once a language changes from a rich to a poor agreement language, V-to-I movement should no longer occur. In section 5.3, we demonstrate that this is indeed correct but that our proposal predicts four pathways of syntactic change resulting from verbal deflection.

In section 5.4, finally, we discuss how acquisition evidence can be used to support the strong RAH.

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movement, however, such an operation is insufficient, since adjacency between the verb and affix/clitic is not guaranteed (but see Bobaljik 1995 for an approach in which adverbial interveners are invisible for morphological operations). This may be different in OV languages, an issue we take up in 5.2.

[29] The question may arise how to deal with cases where English does seem to exhibit V-to-I movement (e.g. in cases involving *do*-support). These cases will be dealt with in section 5.3.1, where the diachronic developments with respect to rich agreement and verb movement in English are discussed.

5.1 V-to-Arg and V-to-T movement

One question that emerges concerns the predictions this analysis makes for V-to-T movement. The discussion so far shows that V-to-Arg movement is fully dependent on subject agreement and that tense inflection is irrelevant (pace Bobaljik & Thrainsson 1998, 2003, Biberauer & Roberts 2010). If subject-marking affixes carrying [ARG] must be base-generated in Arg°, the question arises, though, why tense morphemes, such as English *-ed*, should not be base-generated in T° and trigger V-to-T movement as well. If so, our proposal would collapse.

The answer to this question is that the syntactic and semantic properties of tense morphemes require *v*P-internal first merger, at least in languages that exhibit so-called Sequence of Tense readings, whereas rich subject agreement must be externally merged.

The reason for this is the following. Absolute tense operators, such as absolute past tense operators, which denote that some event takes place prior to speech time,[30] must apply to fully saturated argument structures (i.e. full *v*Ps) and therefore be hosted in a *v*P-external position, just like elements hosted in ArgP. But, crucially, a tense marker, such as English past tense marker *-ed*, does not denote an absolute past tense, rather it is a relative non-future that in turn must be in the scope of a covert absolute past tense operator. To see this, take the following example:

(57) John said Mary was ill

The most salient reading of the example above is the one where the saying event and the state of illness temporally overlap, i.e. the illness could have been either before the moment of saying or simultaneously to it; the illness could never have started after the saying time. These examples therefore show that English is a Sequence of Tense language, in which subordinate tense is dependent on matrix tense (Abusch 1997, Heim 1994, Ogihara 1995, 1996, von Stechow 1995, 2003, 2005, Kratzer 1998, Schlenker 1999 and Sharvit 2003, a.o.). In (57), Mary's illness may take place either prior to or simultaneous with John's reporting of it.

The interpretation of the subordinate tense in English is dependent on the interpretation of matrix clause tense. Subordinate tense morphology, therefore, cannot induce an absolute semantic tense of its own. This already suggests that verbal tense morphology does not directly encode the semantics of past tense and that, instead, semantic past tense is induced by a different, covert operator located in TP (cf. Von Stechow 2003, 2005; Pesetsky & Torrego 2007).

That *-ed* is not an absolute past tense operator is also confirmed by (58), taken from Von Stechow (2003):

(58) Wolfgang played tennis on every Sunday

The only available reading of (58) is the one where in some time interval in the past it was the case that on every Sunday Wolfgang played tennis. In this reading, the past tense operator outscopes the distributive adverbial quantifier *on every Sunday*, which in turn outscopes the lexical verb. This reading can never be derived if *–ed* is taken to denote the past tense operator itself, as it would be impossible to have this past tense

[30] Ignoring counterfactual interpretations of past tense (cf. Iatridou 2000).

operator outscope *every Sunday* from its position inside *v*P. However, this reading can be accounted for it *-ed* agrees with some higher covert tense operator.

Although *-ed* does not denote absolute past tense but rather agrees with some covert past tense operator, this does not mean that *-ed* is semantically vacuous. The readings of the sentences in (57) are not only fine with a simultaneous reading, but also with a so-called backward shift reading, in which the illness takes place prior to the saying event. If past tense morphology were semantically vacuous, these readings would be impossible to account for. For this reason, Zeijlstra (2012) argues that Sequence of Tense readings are the result of (i) a semantic denotation of *-ed* as a relative non-future ("no later than") and (ii) the fact that all past tense morphemes carry a single [uPAST] feature that is checked by an absolute OP_{PAST} in the matrix clause, as represented in (59) below.

(59) $[_{TP}\, OP_{PAST[iPAST]}\, [_{TP}$ John $[_{vP}$ say-ed$_{[uPAST]}$ $[_{CP}$ Mary be-ed$_{[uPAST]}$ ill]]]]

(59) then denotes that Mary's illness did not start after John's saying something about it. This saying event, in turn, does not take place after some contextually denoted time-interval prior to the time of utterance. This is the exact reading of (57) and allows both a simultaneous and backwards shift interpretation.

Now, OP_{PAST} is an absolute past in a *v*P-external position (TP), but *-ed* is a relative tense that only agrees with OP_{PAST}. However, since relative tenses do not apply to an entire *v*P as their semantic complement, but only to a verb itself (cf. Zeijlstra 2012 and references therein), such relative tenses must be base-generated *v*P-internally. The reason for this is that a relative tense replaces the tense variable of a verb by another tense variable, whereas an absolute tense operator existentially binds such a variable. The semantic contents of *-ed*, i.e. that of a relative tense, thus require it to be base-generated inside *v*P (attached to V).

To conclude, no V-to-T movement is required to spell-out past tense morphology in Sequence of Tense languages. Hence, it is predicted that in languages exhibiting Sequence of Tense, tense morphology itself does not trigger V-to-T movement, a prediction that to the best of our knowledge is borne out. If in such languages a tensed verb appears in a *v*P-external position, it is not because the tense marker drives this movement, but rather something else, such as rich subject agreement, or another trigger (such as a requirement to attach to particular aspectual morphology as is the case in Slavic languages) or, auxiliaryhood, which as we will see in section 5.3 forces English verbal auxiliaries to move out of *v*P.

5.2 Non-SVO languages

In this section we discuss the implementations of our proposal for languages that do not display SVO orderings. First, we discuss OV languages (section 5.1), then we discuss VSO languages (section 5.2).

5.2.1 OV languages

A question may arise as to the consequences that our strong RAH hypothesis has for OV languages, like Dutch and German. The problem is not so much that the wrong predictions are made but the fact that the predictions are untestable: In an OV-language, ArgP (if necessary because of rich agreement) can be head-final, like the *v*P it dominates, so that verb movement will always be string-vacuous. In fact, one may

wonder if verb movement is necessary at all. Recall that we take V-to-I movement to be triggered by the Stray-Affix filter (in any of its guises). For this Stray-Affix filter to apply, it suffices that the verb always appears in a position sting-adjacent to Arg° at PF. In VO languages this cannot be guaranteed without alluding to verb movement (due to possible intervening adverbs), but in OV languages, if ArgP is head-final, it is. So, following Bobaljik (1995) the affix can be spelled out on the verb in an OV-language without the verb moving to it, since V and the affix are string-adjacent at PF, as illustrated in (60): [31]

(60) $[_{\text{ArgP}} [_{\underline{\text{vP}}} [_{\text{VP}} \quad \textit{subject} \quad \textit{object} \quad \textit{V}] \underline{\text{v}}] \textit{affix}$ Arg°]

As a consequence, one does not need to be committed to (rightward) verb movement in OV languages with rich subject agreement, though nothing in our analysis pleads against it either. In order to stay neutral in this respect, but still have a generalization that applies to both VO and OV languages, we slightly adjust the generalization in (3) as in (61):

(61) *The Rich Agreement Hypothesis* (definite version)
A language must realize the finite verb in a position string-adjacent to Arg°, where Arg° is postulated iff the regular verbal paradigm manifests featural distinctions that are at least as rich as those featural distinctions manifested in the smallest pronoun inventories universally possible.

5.2.2 VSO languages

It is generally agreed upon that the dominant VSO order in the Celtic languages must be derived from an underlying SVO order by a verb movement operation whereby the finite verb moves across the subject. The discussion is about what type of movement is involved, V-to-I or V-to-C movement. Some have held that VSO should be derived by V-to-C movement (Deprez & Hale 1986, Stowell 1989, Hale 1989, Malone 1990, Huybregts 1991, Koeneman 2009), whereas others take the movement to be an instance of V-to-I movement (Chung and McCloskey 1987,McCloskey 1991, Koopman & Sportiche 1991, Guifoyle 1990, Rouveret 1990). Focusing on Modern Irish, our proposal predicts that this language cannot have V-to-I movement because it lacks rich subject agreement.

Modern Irish has two finite verbal forms, a synthetic and analytic one. Synthetic forms are used in 1st and 2nd person singular and 1st person plural and express person and number features. Analytic forms are used elsewhere. This is shown in (62) with the synthetic forms boldfaced.

[31] Note that this means that with Bobljik (1995) we deviate from proposals, such as Julien (2002) or Jayaseelan (2010), who after Kayne (1995) take OV-Infl orders to be derived from VO orders.

(62) *tuig* 'understand'

	Present	Imperfect	Future
1P.Sg	**tuigim**	**thuiginn**	tuigfidh
2P.Sg	tuigeann	**thuigte´a**	tuigfidh
3P.Sg	tuigeann	thuigeadh	tuigfidh
1P.Pl	**tuigimid**	**thuigimis**	**tuigfimid**
2P.Pl	tuigeann	thuigeadh	tuigfidh
3P.Pl	tuigeann	thuigidis	tuigfidh

One might argue that the synthetic and analytic forms together yield a paradigm that would constitute as rich according to our definition: the synthetic forms generate the features [SPEAKER] and [PLURAL], and since 1st and 2nd person endings can be distinguished from the analytic form used in 3rd person contexts, [PARTICIPANT] is motivated, too.

However, Irish shows a complementary distribution with respect to synthetic forms and subject pronouns, unlike pro-drop languages like Italian. Whenever a synthetic verb form is used, a subject pronoun must be absent.[32] This is shown in (63).

(63) a. Chuirf-inn isteach ar an phost sin — Irish
put.cond.1sg in on the job that
'I would apply for the job.'

b. *Chuirf-inn mé isteach ar an phost sin
put.cond.1sg I in on the job that
'I would apply for the job.'

There are two main analyses that capture this complementarity principle. One is to analyze the inflection on the verb as a syntactically incorporated pronoun (Anderson 1982) or a pronoun that has undergone reanalysis with the verbal stem in the post-syntactic morphological component (Diertani 2011). The other is to analyze synthetic morphology as suppletive forms that spell out the verb and the subject pronoun together with one morphological element (Doron 1988). Under both approaches Irish synthetic forms should not be taken into account when determining whether its subject verb morphology is poor or rich, as they are not involved in an agreement relation with another constituent. If only analytic forms should be considered, Irish, despite appearance, is a language with poor subject agreement.

Consequently, our proposal predicts that VSO languages like Irish that count as poor agreement languages are the result of V-to-C movement.

5.3 Diachronic consequences

Diachronically, all Germanic languages counted as rich agreement languages. At the same time, all these languages displayed V-to-I movement as well. In that sense, they also nicely fitted in the RAH pattern. However, a substantial number of them lost their rich agreement during a process of morphological deflection. Deflection of verbal agreement over time under our analysis leads to a paradox for language learners who acquire the language in the era of verbal deflection. Since rich agreement is lacking, the language learner, on the one hand, can no longer acquire the feature

[32] This complementary distribution is not absolute and deviations from this pattern are found in Welch, Munster Irish and Breton. As shown in Koeneman (2009), however, these do not undermine the need to account for the general pattern.

[ARGUMENT] (as the cue for that feature has disappeared) and consequently the projection to which the verb used to move has become unacquirable. Yet, on the other hand, the language learner is still confronted with massive evidence of V-to-Arg movement in the language input. Under our analysis (and opposed to all weak versions of the RAH, including Bobaljik & Thráinsson's proposal), verb movement across the established V-to-I movement diagnostics itself cannot function as a cue to postulate the [ARGUMENT] feature that projects the relevant Arg° head.

In order to solve this paradox, at least four possible diachronic solutions suggest themselves: (i) V-to-Arg movement disappears in spite of the massive presence of V-to-Arg movement in the language input; (ii) V-to-Arg movement is reanalyzed as a different type of head movement (e.g. V-to-C movement); (iii) diagnostics for V-to-Arg movement (such as *v*P-boundary adverbs) get lowered (i.e. will be base-generated in a lower position), so that V-to-Arg movement is only apparent; and (iv) morphological evidence for V-to-Arg movement shows up elsewhere in the grammar so that the movement can be retained. In the following four subsections, it will be shown that each of these diachronic pathway are attested, thus proving the validity of the conclusion that V-to-Arg movement by itself really cannot act as a cue for V-to-Arg movement. We discuss them in turn.

5.3.1 Drop of V-to-Arg movement

In languages like Danish, Norwegian, Swedish and English, at least in the standard varieties, V-to-Arg movement is lost after the loss of rich agreement (cf. Roberts 1993, Platzack & Holmberg 1989, Holmberg & Platzack 1991, 1995, Rohrbacher 1994, and references therein). This strong correlation between deflection and subsequent loss V-to-Arg movement is well predicted by our analysis (and other analyses that predict that the RAH should be defined in its strong version), albeit it that sometimes a time gap between the two changes has been attested (see section 5.3.5 for discussion): the cue for the movement was gone. However, one question remains open: why is it that in languages like English (that lost general V-to-Arg movement), still some verbs do seem to undergo V-to-Arg movement, such as modal auxiliaries, and forms of *have*, *be* and *do*?

English in this sense is a general problem for any theory of verb movement. Whether a theory states that there is a correlation with rich inflection or not, it needs some additional assumption to capture the fact that in English only a subclass of the verbal heads moves/stays in situ (cf. Baker 1991 for discussion). Since the verbal heads that under no circumstances can be inflected are precisely the heads that always precede negation (the modal verbs), it follows that modals (and in their slipstream finite forms of *have*, *be* and *do*) cannot undergo V-to-Arg movement. Instead, the child acquiring English is forced to postulate a functional head that, like was the case for Arg°, must be directly derivable from the elements occurring in that position. Such a functional head must be projected by exactly that feature that all fronted verbs share and all non-fronted verbs do not. The only possible candidate for this feature is [AUXILIARY]. Therefore, this functional head must be Aux°.[33,34]

[33] A question that may come up is whether modals and forms of *be*, *have* and *do* are heads spelling out Aux°, or whether these are heads base-generated below negation and move to Aux° in the syntax. Both positions have been defended in the literature (cf. Roberts 1993 and Iatridou & Zeijlstra 2010 respectively) and nothing in our analysis hinges on a choice between them.

[34] Note that this does not explain why non-finite auxiliaries do not always move out of *v*P (as in *to not have read the book*), a question that Peter Ackema (p.c.) pointed out to us.

5.3.2 V-to-Arg is reanalyzed as V-to-C movement

Faroese also underwent a change from a rich agreement to a poor agreement language and consequently V-to-Arg movement virtually disappeared.[35] However, as opposed to the languages discussed in the previous section, Faroese also allowed V2 in embedded clauses, albeit in a very restricted sense (only under bridge verbs, cf. Heycock et al. 2010 for details). Therefore, not every subordinate clause, previously exhibiting V-to-Arg movement, was doomed to leave the verb in situ. Alternatively, the verb could remain in a higher C position.

Since Faroese allowed for an alternative reanalysis of V-to-Arg movement (namely as V-to-C movement), two possible pathways of diachronic change opened up. Either, language learners could give up V-to-Arg movement after deflection, or language learners could retain verbal movement, but had to liberate the conditions under which embedded verb second can take place, so that previous instances of V-to-Arg movement could be reanalyzed as V-to-C movement.

These two possible pathways of diachronic change are reflected in contemporary Faroese: whereas some varieties only allow restricted embedded V2 and leave the verb in situ in all other subordinate clauses, other varieties allow V-to-C movement less restrictedly: they also allow it under non-bridge verbs like *doubt*, *deny* and *be proud* but not in embedded questions, basically what is attested in Icelandic. The current variation with respect to verb movement that is attested amongst regional varieties of Faroese thus naturally follows.

*5.3.3 V-to-Arg movement is reanalyzed as v*P*-internal word order variation*

The diachronic trajectories outlined above are not the only possible pathways of diachronic change that may open up after the emergence of verbal deflection. When the learner of a deflected language is still confronted with data in which the finite verb appears to the left of a verb movement diagnostic, in principle s/he may either reanalyze the structural position of the finite verb or reanalyze the position of the verb movement diagnostic. The first is what has happened in one variety of Faroese, where V-to-Arg movement got reanalyzed as V-to-C movement.

In ReNN, the second possibility emerged. Rather than postulating a different higher target position for the finite verb, the learner reassigned a subclass of the verb movement diagnostics to a *v*P-internal position. Under the assumption that nothing principled forbids sentential adverbs to be adjoined to VP rather than *v*P (cf. Nilsen 2003), as long as some mechanism ensures that they take scope from the proper position at LF, V-to-*v* movement suffices to give rise to a V-adverb order. Evidence for this difference between Faroese and ReNN comes from the fact that in ReNN verb movement across negation is forbidden (as opposed to the Faroese varieties).

5.3.4 V-to-Arg movement is retained

If the input no longer provides evidence for rich agreement but still provides data that are compatible with a V-to-Arg analysis, the learner can resolve the paradox by retaining V-to-Arg movement on the basis of morphological richness that is present elsewhere in the grammar. This is what we observe in spoken/colloquial French and Brazilian Portuguese. Although verbal suffixes have seriously eroded and can no longer be used as a basis for the postulation of V-to-Arg movement, the movement can be maintained if subject clitics are reanalyzed as agreement markers. As we have shown in section 3.2.3, the evidence for the agreement status of these clitics is robust.

[35] See Heycock at al. (2011), who show that the Faroese development is currently nearly complete, with only a very small residue left.

Fonseca-Greber & Waugh (2003) note that there are two processes in colloquial French that are simultaneously nearing completion. One is the obligatory presence of subject clitics and the other is the disappearance of the use of *nous* in 1st person plural contexts. If these processes indeed take place in tandem, from the perspective of our proposal, they can be causally related: the replacement of *nous* as a subject in 1st person plural contexts by *on* is exactly what turns colloquial French from a rich into a poor agreement language. Compare the following two paradigms, in which the agreement affixes are realized in their phonetic form.

(64) a. Standard French

inf. parl-[e]

	SG	PL
1st	parl-[ə]	parl-[õ]
2nd	parl-[ə]	parl-[e]
3rd	parl-[ə]	parl-[ə]

[õ] → [SPEAKER, PLURAL]
[e] → [PARTICIPANT, PLURAL]
[ə] → elsewhere

b. Colloquial French

inf. parl-[e]

	SG	PL
1st	parl-[ə]	parl-[ə]
2nd	parl-[ə]	parl-[e]
3rd	parl-[ə]	parl-[ə]

[e] → [ADDRESSEE, PLURAL]
[ə] → elsewhere

Replacement of *nous* by *on* makes the feature [SPEAKER] unacquirable. As a consequence, the language becomes poor and Arg° can no longer be postulated on the basis of verbal affixes. Hence, under the assumption that subject clitics are used as the trigger for postulation of Arg° and consequently for V-to-Arg movement, it is predicted that the reanalysis of clitics as agreement markers, and their obligatory occurrence, correlate with the disappearance of *nous*.

5.3.5 Concluding remarks

What we have seen above is that at least those four diachronic pathways that are predicted to be available after the emergence of verbal deflection in rich agreement languages with V-to-Arg, are indeed attested (and nothing excludes more possible pathways). Hence, our proposed analysis does not only make correct predictions in synchronic terms (as shown in section 2 and 3) but is also backed by strong diachronic evidence. Note that most other analyses of the correlation between rich agreement and verbal movement (both analyses that take the RAH to be uni-directional and those that claim that no such correlation exist) do not predict the attested diachronic facts.

It has been observed, as a critique on the RAH, that there can be a significant time gap between the loss of the relevant agreement inflection and the loss of V-to-I/Arg movement. Swedish becomes poor just after 1500, whereas V-to-I is lost slowly over the next century (Falk 1993). The development in Danish may have even been slower (Vikner 1997, Sundquist 2003). For English, Lightfoot (1993) and Roberts (1993) have observed a similar gap. Given the existence of several diachronic pathways after deflection rather than just one (only loss of V-to-Arg movement), such time gaps are, however, not at all unexpected. Such diachronic transition phases are very common in language change and the fact that the loss of verbal inflectional is not always immediately followed by the loss of V-to-I/Arg movement does not undermine the RAH. Under our proposal, it may very well be the case that language learners first reanalyze V-to-Arg movement as another type of movement, before it is finally dropped. Note in this respect that Falk adds up the counts of Subject-V_{fin}-Adv orders in all types of embedded clauses, making it hard to see if Swedish has gone through an

embedded V-to-C phase, like we see for varieties of Faroese today. In English, the diachronic development is further complicated by the rise of an auxiliary paradigm and *do*-support (cf. Rohrbacher 1999 for details). Only if in a particular phase of the language V-to-Arg movement was undoubtedly present in full absence of rich subject agreement can it be concluded that such a phase falsifies the RAH.

5.4 Acquisitional consequences

Our proposal predicts that the acquisition of agreement distinctions is a prerequisite for the acquisition of V-to-Arg movement. In this section, we will show how acquisitional evidence can distinguish between the weak (or no) and strong RAH and argue that an argument can be construed in favor of the latter.

For Bobaljik & Thrainsson (1998) and Bobaljik (2003), proponents of the weak RAH, the child has in principle two triggers for the acquisition of a split-IP and subsequent verb movement: (i) the co-occurrence of agreement and tense affixes, and (ii) the fact that the verb can precede negation. The first trigger is an unlikely one, as children generally acquire the present tense agreement paradigm, as well as verb movement, before they acquire the past tense. Pierce (1992), for instance, shows that French children place the verb to the left of negation whenever the verb is finite (and leave infinitives inside the VP) but do this before the past tense is acquired. In an overview of verbal morphology used by Italian children, Caprin & Guasti (2009, p. 30 ff.) do not mention the use of any past tense forms by children up to 35 months (by which verb movement is in place), although they do use agreement-inflected forms (the present indicative and the *passato prossimo*, the compound present perfect tense) productively.

This leaves us with trigger (ii), which is a necessary ingredient for any theory that adopts the weak, or in fact no, RAH. Whereas under the weak RAH V-to-Arg movement is in principle acquirable without morphological cues, under the strong RAH the acquisition of rich morphology is a prerequisite for the acquisition of V-to-Arg movement: without rich agreement [ARGUMENT] is not postulated and consequently no V-to-Arg movement can be triggered.

Some acquisition evidence supports the strong rather than the weak RAH but before we get to that, we must clear one issue. It has been repeatedly observed that the acquisition of *some* inflectional morphology (i.e. the morphological distinction between an infinitive and a non-infinitive, or in short: finiteness) and the acquisition of verb movement in general go hand in hand, suggesting that one is a prerequisite for the other. We must, however, be careful to distinguish the two canonical verb movements. For V2 languages, the correlation between V-to-C movement and inflectional morphology is robust (cf. Clahsen 1984, 1988, Clahsen & Penke 1992 for German, Blom 2003 for Dutch, among many others), but note that the acquisition of V-to-C movement hinges on finiteness or other clausal properties and not on rich agreement (at least not in our proposal) and furthermore masks the acquisition of V-to-Arg movement, which we argue *does* hinge on rich agreement. Hence, the fact that research has shown that V-to-C movement is acquired before rich agreement (cf. Poeppel & Wexler 1993, Verrips & Weissenborn 1992, among others) is irrelevant for the discussion, although it is often mentioned as an argument against proposals like ours that define richness on the basis of the present tense agreement paradigm (e.g. Bobaljik 2003).

In order to establish a correlation between rich agreement and V-to-Arg movement in acquisition, we must turn to non-V2 languages.[36] An insightful language in this regard is spoken French. Recall that for this variety we adopt the view that subject clitics count as agreement markers. This predicts that the acquisition of V-to-Arg movement should go hand in hand with the acquisition of subject clitics. This prediction is indeed confirmed by Verrips & Weissenborn (1992), who show that French children go through an initial stage in which Neg-V_{fin} orders occur but V_{fin}-Neg orders are not yet attested. Crucially, the absence of V_{fin}-Neg orders at this stage correlates with the absence of subject clitics. Meisel (1990) explicitly shows that the acquisition of subject clitics coincides with the first occurrences of V_{fin}-Neg orders. Lacking from the data - but allowed by any proposal that adopts the weak or no RAH - is a stage in which V_{finite}-Neg orders occur in the absence of subject clitics, which would reflect V-to-Arg movement prior to the acquisition of rich agreement.

To conclude, proposals that deny the RAH or adopt the weak version of it must allow a (partial) disconnection between acquisition of V-to-Arg and the acquisition of agreement. This predicts an acquisition stage that does not seem to occur, but we immediately acknowledge that more detailed research is required to settle this issue.[37]

6 Conclusion and discussion

In this paper, we have argued that there is a strong correlation between V-to-I movement (in our terms, V-to-Arg movement) and rich agreement morphology. We show that for the languages that have generally been part and parcel of the discussion about the RAH, the generalization holds without exception in its strong, bi-directional form. We therefore propose, in opposition to current tendencies, that there is a strong bi-directional correlation between syntax and morphology. However, contrary to previous assumptions, we argue that morphology does not drive syntax directly but via acquisition: children only move the verb if they acquire the formal feature [ARGUMENT] that drives this syntactic operation; the evidence for this feature, in turn, solely relies on the presence of sufficient morphological contrasts in the language, which should at least mirror the morphological contrasts found in the poorest pronoun systems attested in human language. In this sense, the distinction between poor and rich agreement languages lies in the absence or presence of a functional projection that results from the formalization of argumenthood. We investigated the synchronic,

[36] Another environment to look at is clause types in Germanic where V2 does not occur. Bentzen (2003) reports on one learner of ReNN that sometimes erroneously places the finite verb to the left of negation in V2-resistant clause types (adverbial clauses, relative clauses and wh-clauses) before settling on the adult grammar, which only allows the verb to occur to the left of adverbs (see section 3.2.1). She takes this as evidence for the possibility of V-to-I movement in the absence of rich inflection. Since Northern Norwegian is also a V2 language, however, it is impossible to tell whether V_{fin}-Neg orders reflect the erroneous postulation of V-to-I movement or the erroneous postulation of V-to-C movement in contexts that do not allow it.

[37] It is important to spell out what exactly is required. The absence of an acquisition stage in which V-to-Arg takes place without any agreement occurring on the verb fully complies with our expectation, but the occurrence of such a stage would not immediately falsify our proposal. After all, it is possible that children have fully analyzed and comprehended the agreement system before they can fully produce it: comprehension can precede production of morphology (cf. Polišenská 2010 for explicit evidence). Likewise, it may be conceivable that children have acquired the past tense before they use past tense morphology, in which case the evidence against Bobaljik & Thráinsson's proposal is weakened. Before such research on the comprehension of morphology is completed, acquisition evidence for or against any position may at most be indicative but never convincing.

diachronic and acquisitional consequences of our proposal, showing that evidence from these areas supports and sometimes even confirms the proposal.

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