Suffixation under structural adjacency The case of Icelandic *the*-support*

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1. Introduction

A series of recent studies presents evidence for two definite articles across languages and language families (Schwarz 2009; Arkoh & Matthewson 2013; Simonenko 2013). A weak article D_{weak} expresses situational uniqueness and a strong article D_{strong} anaphoricity.

This paper argues that evidence from Icelandic supports the reality of the $D_{\text{weak}}/D_{\text{strong}}$ distinction in a novel way. Furthermore, Icelandic D_{weak} shows a morphological interaction, *the*-support, which is similar to English *do*-support. The implications of this are that theories of suffixation under structural adjacency should consider Icelandic *the*-support and English *do*-support as related phenomena at a deep abstract level.

The core data of the paper involve a comparision between Standard German and Modern Icelandic. In German, certain $P+D_{weak}$ combinations contract but $P+D_{strong}$ does not contract. Here, uniques like 'the moon' licence D_{weak} but second mention licenses D_{strong} .

- (1) a. Armstrong flog als erster [PP zum Mond].

 Armstrong flew as first one [PP to-theweak moon].

 'Armstrong was the first one to fly to the moon.' (Schwarz 2009:29)
 - b. (Previous discourse: Hans interviewed a writer and a politician.)

 Er hat [PP von dem Politiker] keine interessanten Antworten
 He has [PP from thestrong politician] no interesting answers
 bekommen
 gotten

'He didn't get any interesting answers from the politician.' (Schwarz 2009:23)

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The Icelandic definite article, whether D_{weak} or D_{strong} , is usually a suffix. Note that in the following examples from Icelandic, the context is given in English.

- (2) a. (Context: First mention of the World Wide Web)
 Tim Berners Lee introduced the world to ...
 - ... √[DP veraldarvef-**num**]
 - ... $\sqrt{[DP]}$ world.wide.web-**the**_{weak}]
 - b. (Previous discourse: Mary talked to a writer and a politician.) She got no interesting answers from ...
 - ... √[DP stjórnmálamanni-**num**].
 - ... $\sqrt{[DP]}$ politician-**the**_{strong}].

However, Icelandic D_{weak} is realized as a free form hi-nn when certain suffixation-blocking elements, including evaluative adjectives, intervene between D/n (3a). In contrast, the free form article is never a realization of D_{strong} ; it is never anaphoric (3b). Note that I will refer to the position to the left of the evaluative adjective as pre-evaluative.

(3) a. (Context: First mention of the World Wide Web)
Tim Berners Lee introduced the world to ...

... √ [DP **hinum**

Tim Berners Lee introduced the world to ...

ótrúlega

- ... √ [DP HI-**the**weak amazingevaluative world.wide.web]
- b. (Previous discourse: Mary talked to a writer and a terrible politician.) She got no interesting answers from ...

veraldarvef]

- ... # [DP hinum hræðilega stjórnmálamanni].
- ... # [DP HI-the_{strong} terrible_{evaluative} politician].

Because demonstratives are anaphoric, D_{strong} can be paraphrased with a demonstrative, but D_{weak} cannot. Thus, when definiteness is licensed by anaphoricity and an intervening evaluative blocks D/n suffixation, a demonstrative is used in the pre-evaluative position.

(4) a. (Context: First mention of the World Wide Web)

Tim Berners Lee invented ...

- ... # [DP **þennan** ótrúlega veraldarvef]
- ... # [DP **this** amazing_{evaluative} world.wide.web]
- b. (Previous discourse: Mary talked to a writer and a terrible politician) She got no interesting answers from ...
 - ... $\sqrt{[DP]}$ **þessum** hræðilega stjórnmálamanni].
 - ... $\sqrt{[DP]}$ this terrible_{evaluative} politician].

The proposed syntactic analysis is that evaluative adjectives are introduced in the specifiers of functional projections and therefore block D/n locality in a similar manner as negation

blocks T(ense)/ ν (erv) locality in English do-support. In contrast, restrictive adjectives are adjoined to nP and thus retain D/n locality and permit suffixation.

The paper is organized as follows. Section 2 introduces the weak and strong definite articles. Section 3 describes definite articles in Icelandic. Section 4 compares the two articles in German and Icelandic. Section 5 gives an analysis of Icelandic *the*-support. Section 6 considers the implications for the theory of suffixation. Section 7 concludes.

2. Weak and strong definite articles

This section gives a brief theoretical and empirical introduction to weak and strong definite articles. The meaning of the definite article has been debated for a long time. One hypothesis is that definite articles express uniqueness (Russell 1905; Frege 1892; Strawson 1950). This view works well for unique uses of *the* like in *the sun*. However, in the absence of global uniqueness, contextual domain restriction is needed, which is arguably the same mechanism as needed elsewhere in natural language (Neale 1990). For example, the following does not normally refer to everyone in the world.

(Not everyone in the world)

Another approach maintains that definite articles express anaphoricity/familiarity (Heim 1982; Kamp 1981) as demonstrated in the following example.

(6) John bought a book and a magazine. The book was expensive.

The anaphoricity hypothesis works well for previously mentioned discourse referents. However, in the absence of a previous mention, one needs to appeal to global familiarity of referents like *the sun* or admit some kind of accommodated familiarity.

The third view, to be adopted here, is that there are two definite articles in natural language, D_{weak} for uniqueness and D_{strong} for anaphoricity (Schwarz 2009). A weak article expresses situational uniqueness (Schwarz 2009:264), whereas a strong article includes an additional anaphoric index argument.

(7)
$$[\![D_{\text{weak}}]\!] = \lambda s_r . \lambda P . \iota x . P(x)(s_r)$$

(8)
$$[D_{\text{strong}}] = \lambda s_r \cdot \lambda P \cdot \lambda y \cdot \iota x \cdot P(x)(s_r) \& x = y$$

The two article approach fails to reduce all definite articles to either uniqueness or anaphoricity but it is supported empirically by systematic morphological correlates with the two interpretations cross-linguistically.

In addition to the contrast studied by Schwarz in German and the Icelandic data under examination in the present paper, parallel phenomena have been observed in several studies. Ebert (1971) studied a contrast between *a*-form articles and *d*-form articles in Fering Frisian. Simonenko (2013) bases her study on reduced and full articles in Austro-Bavarian. Furthermore, Arkoh & Matthewson (2013) find a similar contrast in Akan, thus reaching beyond Germanic. Schwarz (2013) discusses further potential cross-linguistic manifestations of the D_{weak}/D_{strong} distinction and Jenks (2015) pursues an analysis in which

numerical classifier languages manifest the weak/strong distinction even if they do not have definite articles in the Germanic sense. Additionally, ongoing work is investigating the $D_{\text{weak}}/D_{\text{strong}}$ distinction in Mainland Scandinavian (Goodwin Davies 2016) as well as American Sign Language (Irani 2015; Irani & Schwarz 2016).

To summarize, D_{weak} is licensed by situational uniqueness and D_{strong} by anaphoricity. This difference in interpretation is systematically reflected in different phonological exponents of D across languages and language families.

3. Icelandic definite articles

This section gives an empirical overview of Icelandic definite articles. Icelandic has a suffixed article and a free form article; the free article looks suffixed to *hi*- as shown below.¹

(9) The suffixed definite article in Icelandic

		hestur 'horse'	nál 'needle'	barn 'child'
		MASC	FEM	NEUT
SING	NOM	hestur-inn	nál-in	barn-ið
	ACC	hest-inn	nál-ina	barn-ið
	DAT	hesti-num	nál-inni	barn-inu
	GEN	hests-ins	nálar-innar	barns-ins
PLUR	NOM	hestar-nir	nálar-nar	börn-in
	ACC	hesta-na	nálar-nar	börn-in
	DAT	hestu-num	nálu-num	börnu-num
	GEN	hesta-nna	nála-nna	barna-nna

(10) The free form definite article in Icelandic

		MASC	FEM	NEUT
SING	NOM	hi-nn	hi-n	hi-ð
	ACC	hi-nn	hi-na	hi-ð
	DAT	hi-num	hi-nni	hi-nu
	GEN	hi-ns	hi-nnar	hi-ns
PLUR	NOM	hi-nir	hi-nar	hi-n
	ACC	hi-na	hi-nar	hi-n
	DAT	hi-num	hi-num	hi-num
	GEN	hi-nna	hi-nna	hi-nna

The free article is only grammatical if certain elements intervene between D/n:

¹The description and analysis of the old and modern Icelandic noun phrase and definite article has a long history, including Nygaard (1905); Delbrück (1916); Noreen (1923); Magnússon (1984); Delsing (1993); Julien (2005); Thráinsson (2007); Harðarson (2014); Pfaff (2015). Morphological segmentation varies and the present analysis would be unaffected by splitting *hi-nn* as *h-inn*, except it would require different statements about allomorphy and/or morphophonology.

(11) * hinn bíll the car

D/n interveners include at least evaluatives, which I focus on, and cardinals (c.f., Julien 2005). Evaluatives suffice for distinguishing D_{weak} vs. D_{strong} , but see Pfaff (2015) for further discussion of modifiers in the context of an alternative analysis of Icelandic modifiers. The free article is sometimes described as literary, bookish, etc. (Sigurðsson 1993; Sigurðsson 2006) but it has emerged that the free form correlates with semantic properties. Given the right structure and discourse context, the free article is in fact used in any register.

The present proposal is that the $D_{\text{weak}}/D_{\text{strong}}$ meaning distinction is crucial to the distribution of *hinn*. Previous observations about the semantics of free form *hinn* involve the proposal that *hinn* is incompatible with "deictic reference" (Delsing 1993) and that some instances of the *hinn* are "false definites" (Jónsson 2000; Thráinsson 2007:326) and escape the definiteness effect for existential constructions (Milsark 1977). Furthermore, the meaning of adjectives matters for *hinn*, e.g. restrictive adjectives are not compatible with it in the absence of interveners like evaluative adjectives (Árnason 1983; Thráinsson 2007; Pfaff 2015). Because the current study crucially involves the $D_{\text{weak}}/D_{\text{strong}}$ contrast which has been studied most thoroughly in German, we turn to a comparative study of German and Icelandic.

4. Comparing German and Icelandic

The aim of this section is to show that German and Icelandic D_{weak}/D_{strong} pattern the same. First consider D_{weak} . The parallelism between German and Icelandic is summarized below.

(12) Empirical generalization for situational uniqueness in Icelandic

Icelandic:

The following examples compare a contractable P+D in German and an Icelandic DP with an evaluative adjective. The first example shows a globally unique entity in each language, 'the moon' and 'the world wide web'. The German examples are from Schwarz (2009).

- (13) a. Armstrong flog als erster [PP zum Mond]. Armstrong flew as first one [PP to-theweak moon]. 'Armstrong was the first one to fly to the moon.'
 - b. Tim Berners Lee kynnti heiminn fyrir [DP hinum ótrúlega
 Tim Berners Lee introduced world.the to [DP HI-theweak amazingevaluative
 veraldarvef]
 world.wide.web]
 "Tim Berners Lee introduced the world to the amazing World Wide Web"

Contraction takes place in German and Icelandic uses the free weak article. The same holds for reference to kinds, below. Kinds are another uniqueness context discussed by Schwarz.

- (14) a. [PP Am Zebra] kann Mann sehen dass die Natur symmetrisch ist [PP on-theweak zebra] can one see that the nature symmetrical is 'The zebra shows us that nature is symmetrical.' (Schwarz 2009:41)
 - b. [DP Hinn dularfulli sebrahestur] sýnir okkur að náttúran [DP HI-theweak mysteriousevaluative zebra] shows us that nature.the er samhverf.
 is symmetrical
 'The mysterious zebra shows us that nature is symmetrical.'

Unique dates are another context for D_{weak} in both languages. The following example shows that P+D contracts in German with a unique date and Icelandic uses the free article in the pre-evaluative position with the same date.

- (15) a. Die Mauer fiel [PP am 9. November 1989]. the wall fell [PP on-theweak 9th November 1989] 'The wall fell on November 9th 1989' (Schwarz 2009:19)
 - b. Múr-inn féll [DP **hinn** eftirminnilega 9. nóvember 1989]. Wall-the fell [DP HI-**the**weak memorable_{evaluative} 9. November 1989] 'The wall fell the memorable November 9, 1989.'

In sum, the examples above support the view that German and Icelandic have the same weak article although the two languages realize this object in a different manner.

The strong article is used when definiteness is licensed by anaphoricity. The following generalization states that when German uses the strong article which does not contract, Icelandic uses a demonstrative in the pre-evaluative position, but not the free article.

(16) Empirical generalization for anaphoricity in Icelandic

 $\begin{array}{c} & \text{Icelandic:} \\ \text{German D}_{\text{strong}} & \Longleftrightarrow \text{\#free article} \\ & \checkmark \text{demonstrative} \end{array} \quad \text{(in pre-evaluative position)}$

The canonical case of anaphoric use involves a linguistic antecedent. The example below shows that German uses uncontracted *von dem* rather than contracted *vom* on second mention and Icelandic cannot use the free weak article for second mention so the demonstrative *bessi* 'this' is used instead.

- (17) a. (Previous discourse: Hans interviewed a writer and a politician.)

 Er hat [PP von dem Politiker] keine interessanten Antworten
 He has [PP from thestrong politician] no interesting answers
 bekommen
 gotten

 'He didn't get any interesting answers from the politician.' (Schwarz 2009:23)
 - b. (Previous discourse: Mary talked to a writer and a terrible politician.)

Hún fékk engin góð svör frá [DP #hinum/√ þessum hræðilega She got no good answers from [DP #HI-the/√ this terrible_{evaluative} stjórnmálamanni]. politician].

'She got no good answers from the terrible politician.'

The second mention in question does not have to involve the exact same noun phrase. A more general description can be used to refer back to a more specific description as shown below for 'ornithologist'/'the man' and 'movie star from America'/'this famous artist' in German and Icelandic, respectively. Such usage licenses definiteness in an anaphoric manner and thus German also uses uncontracted *von dem* and Icelandic the demonstrative.

- (18) a. (Previous discourse: Maria has invited an ornithologist to the seminar.)

 Ich halte [PP von dem Mann] nicht sehr viel.

 I hold [PP of thestrong man] not very much.

 'I don't think very highly of the man.' (Schwarz 2009:25)
 - b. (Previous discourse: Mary sent a fan letter to a movie star from America.)

 Að mínu mati er [DP #hinn/√ þessi frægi listamaður] ekki
 To my opinion is [DP #HI-theweak/√ this famousevaluative artist] not
 mjög áhugaverður.
 very interesting.

'In my opinion, the famous artist is not very interesting.'

The data in this section show that German and Icelandic pattern the same with respect to D_{weak/strong} contexts. The discourse contexts which trigger P+D contraction in German, trigger *the*-support in Icelandic. Non-contracting discourse contexts in German are not compatible with Icelandic *the*-support.

5. Icelandic *the*-support

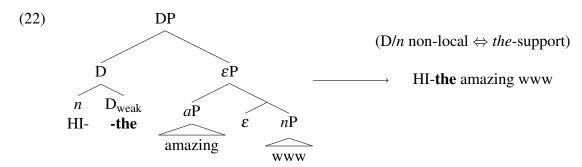
This section develops an analysis of definite articles and *the*-support in Icelandic. Icelandic D is usually a suffix. I assume that D suffixes onto the local noun immediately to its right.

(19) bíll-**inn** car-**the**weak/strong

 D_{weak} is realized with *the*-support (i.e., the free article) when interveners (like evaluatives) block D/n locality. For such cases, I assume that evaluative adjectives are introduced in

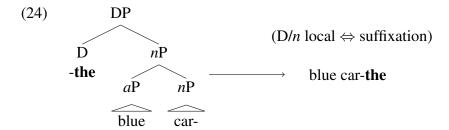
Spec, ε . Therefore, D/n are non-local and suffixation cannot take place. Instead, the support morpheme hi- is merged with the definite article.

(21) **hinn** ótrúlegi veraldarvefur HI-**the**_{weak} amazing_{evaluative} world.wide.web



D is realized as a suffix when it is local to the noun and this includes noun phrases where there are no adjectives or where there are only restrictive adjectives like 'blue' below. The analysis of such cases is that restrictive adjectives are adjoined to nP. Thus, D/n are local.

(23) blái bíll-**inn** blue_{restrictive} car-**the**_{weak/strong}



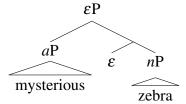
Motivation for the adjunct/specifier structural contrast comes from the fact that it is often possible to use the same adjective in a restrictive manner or in a manner which encodes a richer meaning like evaluative usage. The structural contrast proposed here alleviates the need for lexical ambiguity in such cases. Restrictive adjectives adjoin to nP and their denotation combines directly with nP in the semantic component of the grammar. Added meaning like 'evaluative' is contributed by functional projections like ε which expresses that the specifier is the opinion of the speaker about the referent of DP in some situation.

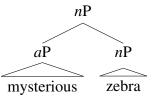
This structural distinction is also a possible partial answer to the question whether Icelandic (or Scandinavian, etc.) adjectives are adjoined phrases (Svenonius 1994), heads (Sigurðsson 1993, c.f., Abney 1987), or specifiers (Julien 2005, c.f., Cinque 1994). Here, adjectival structure reflects interpretation.

The account predicts that we should find contrasts like the following because an adjective like 'mysterious' can be understood to be evaluative or restrictive.

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(25) 'mysterious by the standards of the (26) 'in the set of mysterious individuals' speaker' (evaluative) (restrictive)





The prediction is borne out because *mysterious*_{evaluative} triggers *the*-support, but *mysterious*_{restrictive} does not. Consider first the evaluative reading:

- (27) [DP **Hinn** dularfulli sebrahestur] sýnir að náttúran er samhverf. [DP HI-**the**weak mysterious_{eval.} zebra] shows that nature.the is symmetrical 'The mysterious zebra shows that nature is symmetrical.'
 - ⇒ 'The species zebra is mysterious'

The free article above is only grammatical if the adjective is evaluative and the zebra nP denotes uniquely, giving rise to a kind reading. Evaluative adjectives express the commitment that they describe the opinion of the speaker and therefore it is infelicitious here to continue "... but I do not consider it mysterious."

The restrictive reading of 'mysterious' does not trigger the-support:

(28) [DP Dularfulli sebrahestur-inn] hvarf á miðnætti. [DP mysterious_{restrictive} zebra-the_{weak/strong}] disappeared at midnight 'The mysterious zebra disappeared at midnight.' ⇒ 'One of the zebra individuals is mysterious.'

The suffixed article above is only grammatical if the adjective is restrictive, giving rise to an individual reading. Note also that restrictive adjectives do not have to express the opinion of the speaker; thus it is possible here to continue "... but I do not consider it mysterious." For example, most people might find some zebra mysterious because it has been gaining weight, but this is not mysterious to the speaker who has been secretly feeding this zebra.

The core of the analysis presented in this section is that D/n-intervening adjectives are introduced in specifiers that express additional meaning contribution while the denotation of adjoined restrictives combines directly with nP.

6. Suffixation under adjacency

Let us now clarify the notion of 'local' for the purpose of suffixation. This section compares Icelandic and English, starting with an introduction of English *do*-support:

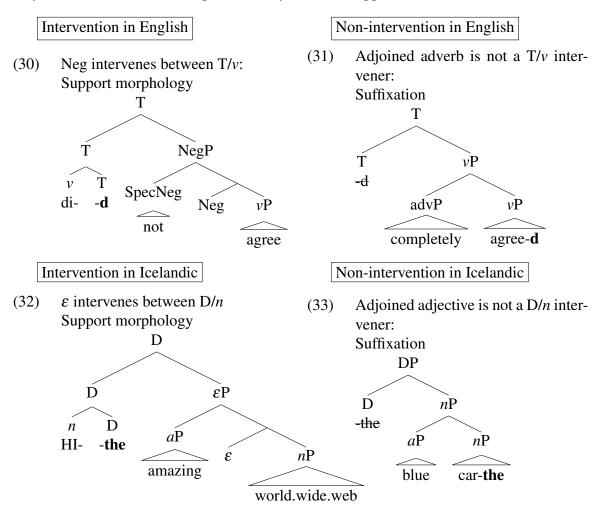
(29) a. John agree-**d**. (T(ense) is a suffix)

b. * John not agree-**d**. (Negation is an intervener for suffixation)

c. John di-**d** not agree. (In which case, *do* is inserted)

d. John completely agree-d. (*v*-adjoined adverbs are not interveners)

T(ense) is usually a suffix on the noun in English as shown in (29a). However, suffxation is blocked when negation intervenes between T/v and therefore (29b) is ungrammatical. Instead, *do*-support is used to express the intended meaning (29c). Interestingly, adjuncts like the *v*-adjoined adverb *completely* are not interveners for suffixation and therefore the suffixed form of T is used in (29d). The similarities between English and Icelandic are schematized below by showing an analysis of *do*-support which is adapted from Embick & Noyer (2001:587) next to the present analysis of *the*-support.



Here, the English and Icelandic phenomena look similar and treating them as the same at a deep abstract level is the obvious null hypothesis. If they are in fact of the same nature, evidence from *do*-support may inform the anlysis of *the*-support and vice versa.

A key question that arises now is: What counts as immediately local for suffixation? Embick & Noyer (2001) discuss two types of analyses for English. First, they consider head-to-head lowering where T lowers onto its ν complement at PF. In this case, adjuncts do not affect the head-complement relation between T/ν but Neg does. Second, the suffixation might be analyzed in terms of local dislocation under linear adjacency. In this case, T suffixes onto the ν which is linearly to its right and adjuncts do not count as interveners for the relevant type of PF adjacency (see Bobaljik 1995). Adjuncts might for example be

invisible due to a countercyclic adjunction mechanism (see Lebeaux 2000; Stepanov 2001). Interestingly, these two analyses are hard to distinguish empirically in English but Icelandic may offer further clues in order to select the most proper treatment of such phenomena.

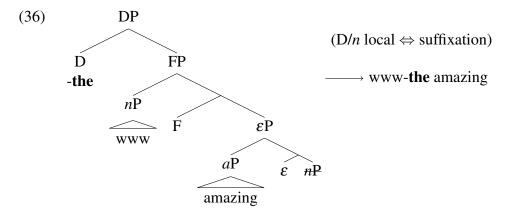
Observe below that Icelandic nP can move to the left of evaluatives:²

(34) veraldarvefur-**inn** ótrúlegi world.wide.web-**the**weak amazingevaluative 'the amazing world wide web'

Importantly, the free article is ungrammatical with nP in this position:

(35) * hinn veraldarvefur ótrúlegi HI-the_{weak} world.wide.web amazing_{evaluative} Intended: 'the amazing world wide web'

This looks like an effect of linear adjacency. To the extent that English and Icelandic are the same, the Icelandic distribution favors reducing both to Local Dislocation under linear adjacency. The proposed analysis of (34) is that nP moves to the specifier of some functional projection Spec,FP above ε . D suffixes onto the n immediately to its right.

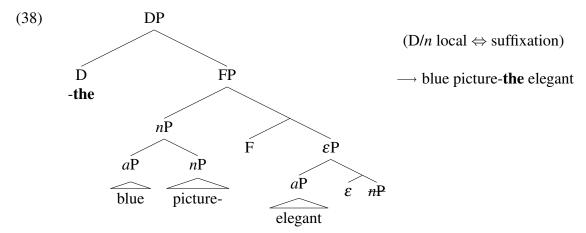


Although this displacement looks like it might be driven by head movement, there is independent evidence for phrasal nP movement. Restrictives move with nP (see Vangsnes 1999:144–146) as shown below.

- (37) (Context: There is a blue and a yellow picture in the situation. First mention.)
 - a. **hin** glæsilega [$_{nP}$ bláa mynd] HI-**the**_{weak} elegant_{evaluative} [$_{nP}$ blue_{restrictive} picture]
 - b. $[_{nP}$ bláa mynd-**in**] glæsilega $[_{nP}$ blue_{restrictive} picture-**the**] elegant_{evaluative} 'the elegant blue picture'

²A similar pattern appears with cardinals which are also between D/n and pattern as 'amazing' in (34-35). To account for this, a part of the noun phrase moves leftward in Vangsnes (1999:144–146), Julien (2005), (Harðarson 2014) and (Pfaff 2015). Magnússon (1984:104) assumes rightward movement of adjectives. Sigurðsson (1993) applies a head movement analysis.

The analysis of (37b) is that nP moves with its aP adjunct. As in other cases, D suffixes onto the adjacent noun 'picture'. Adjuncts are invisible for the relevant kind of adjacency, e.g., due to late/countercyclic adjunction.



Furthermore, the Spec,FP position accounts for the postnominal material in (39a) (see also Harðarson 2014 on postnominal material). I assume that extraposition to the edge of DP accounts for the pattern in (39b).

- (39) a. $[_{nP}$ blúa mynd-**in** $[_{PP}$ af honum]] glæsilega $[_{nP}$ blue_{restrictive} picture-**the** $[_{PP}$ of him]] elegant_{evaluative}
 - b. $[_{nP}$ bláa mynd-**in**] glæsilega $[_{PP}$ af honum] $[_{nP}$ blue_{restrictive} picture-**the**] elegant_{evaluative} $[_{PP}$ of him] 'the elegant blue picture of him'

Pattern (39a) is also evidence that *n*P movement to Spec,DP is not sufficient to explain suffixation without PF operations like local dislocation. Example (39b) is treated as PP extraposition because a heavy PP must be DP-final, a typical pattern for heavy elements:

- (40) a. * mynd-in [PP af öllum nemendunum i bekknum] glæsilega picture-the [PP of all students in class] elegant_{evaluative}
 - b. mynd-in glæsilega [PP af öllum nemendunum i bekknum] picture-the elegant_{evaluative} [PP of all students in class]

One issue that remains open at this point is the reason for *why* there is no *the*-support with the strong definite article. One possibility is that support morphology is expensive and only used when it is needed. If that is the case, demonstratives express the meaning of the strong definite article quite well and paraphrasing with a demonstrative may satisfy economy considerations better than *the*-support. Another possibility is that the strong article and the demonstrative are related in their feature composition, both being anaphoric, and that the demonstrative is the morphological spell-out of D_{strong} in the relevant contexts. I leave further investigations into this matter for future work.

To summarize the section, English *do*-support and Icelandic *the*-support look suspiciously similar and it is a useful null hypothesis to treat them the same. The linear nature

of *the*-support speaks in favor of reducing head-to-head lowering to local dislocation under linear adjacency with non-intervening adjuncts.

7. Conclusion

The D_{weak}/D_{strong} distinction of Schwarz (2009) is supported by my comparison between German and Icelandic. Furthermore, Icelandic *the*-support can inform the theory of suffixation under adjacency because of its striking similarities with English *do*-support.

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