

# When covert modality sneaks into your grammar: *wh*-infinitives in American Norwegian

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[journals.sagepub.com/home/slr](https://journals.sagepub.com/home/slr)**Michael Putnam** 

Pennsylvania State University, USA &amp; The University of Greenwich (CREL), UK

**Åshild Søfteland**

Høgskolen i Østfold, Norway

## Abstract

American Norwegian (AmNo), a moribund heritage variety of Norwegian spoken predominantly in the Upper Midwest of the US, licenses *wh*-infinitives (i.e. indirect questions), which are structures that are not acceptable in either standard Norwegian Bokmål or Norwegian dialects. Adopting a spanning-account of syntax (Blix, 2021; Julien, 2021; Svenonius, 2016), we propose that *wh*-elements in AmNo can encode covert modality (similar to what is found in English indirect questions). We discuss these results and their impact on our understanding of the nature of syntactic change and the interaction of spanning in combination with *A'*-movement in heritage language syntax.

## Keywords

filler-gap dependency, heritage Norwegian, modality, syntax–semantics interface, *wh*-infinitive

## 1 Introduction

The syntax of heritage languages continues to be the focus of intense research with the general consensus being that where ‘core’ elements remain largely unaffected through the lifespan of individuals, ‘peripheral’ interface phenomena can, and do, occasionally show signs of attrition and restructuring (Lohndal, 2021; Montrul, 2016; Polinsky, 2018). The majority of these studies have focused on the phonological realization of morphosyntactic

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### Corresponding author:

Michael Putnam, Pennsylvania State University, 239 Burrowes, University Park, PA 16802-1503, USA.

Email: [mike.putnam@psu.edu](mailto:mike.putnam@psu.edu)

categories, i.e. exponence, and word order variation. One domain that has received considerably less attention in this literature involves A'-movement phenomena; i.e. instances of filler-gap dependencies such as *wh*-movement. Seminal studies by Cuza (2013, 2015); Cuza and Frank (2011); Cuza, Miller, and Ortiz (2016) and Hopp, Putnam, and Vosburg (2019) suggest that these structures of heritage language syntax can – at least to some degree – be affected. One particular domain that necessitates deeper inquiry involves whether or not heritage languages can adopt A'-movement behavior that is not found in any related baseline; for related discussion, see also Polinsky (2018: section 6.4). We base this assertion not only on the relatively low number of studies that focus exclusively on these related phenomena, but also on the fact that multiple grammatical and extra-grammatical factors can shape the acceptability of structures resulting from A'-movement; for an extensive overview, see Chaves and Putnam (2020).

In this article we investigate the structure of a particular subtype of A'-dependencies in American Norwegian (AmNo), namely *wh*-infinitives (also known as indirect questions).<sup>1</sup> AmNo is the language of Norwegian immigrants spoken predominantly in the American Upper Midwest since the 1860s. Because of the different dialectal backgrounds of the speakers, the language contains a mixture of features from multiple varieties of Norwegian, with a predominant influence from Southeastern Norwegian dialects (particularly from Gudbrandsdalen) (Hjelde, 2015; Johannessen and Laake, 2012).<sup>2</sup> Today AmNo is moribund.

English and Norwegian exist in complementary distribution with regard to the licensing of *wh*-infinitives. Whereas English licenses these structures (1a), they are not possible in homeland Norwegian (1b); where they must be expressed with a finite complement clause (1c); see also Faarlund (2019: section 8.2.2) for an overview of interrogative clauses in Mainland Scandinavian. Homeland Norwegian is illustrated with the written standard Bokmål (BM).

- (1) a. I don't know [what to do.] [English]  
 b. \*Jeg veit ikke [hva å gjøre.]  
 I know not what INF do  
 'I don't know what to do.' [Norwegian Bokmål (BM)]  
 c. Jeg veit ikke hva jeg skal/kan/må gjøre.  
 I know not what I shall/can/must do  
 'I don't know what I should do.'

In this study we show that AmNo seems to have largely adopted the English-like strategy of licensing *wh*-infinitives; see the examples in (2).

- (2) a. i læRde i skuR'n hásst å snakke enngelst  
 I learnt in school.DEF how INF speak English  
 'I learnt how to speak English in school.' (Hatton-01gm)  
 b. menn e leRde aller áss'n å læsa nåssjt  
 but I learnt never how INF read Norwegian  
 'But I never learnt how to read Norwegian.' (CoonValley-08gm)

The data above in (2), extracted from the open access Corpus of American Nordic Speech (CANS), housed at the University of Oslo (Johannessen, 2015),<sup>3,4</sup> evince that *wh*-infinitives appear to be acceptable in AmNo.

The remainder of this article attempts to answer a *how*- and a *what*-question respectively:

- Can we model *how* this syntactic change took place (since these structures are not possible in homeland varieties of Norwegian)?, and
- *What* does this say about the status of A'-dependencies in AmNo specifically and heritage syntax more generally?

Turning our attention to the *how*-question first, which will be the principle focus of this article, requires a more refined understanding of both the syntax and semantics of *wh*-infinitives. Indirect questions, in particular those exhibiting a *wh*-item, license 'covert modality', which can be understood as modality that is present but not directly associated with the structure we are interpreting (Bhatt, 1999; Groenendijk and Stokhof, 1982; Portner, 1997). To explicate this point, consider example (1a), repeated here as (3), which is understood to entail covert modality.

- (3) I don't know [what to do.]  
 (≈ I don't know what I *should* do.)

From a syntactic perspective, the left-periphery of clauses, i.e. the CP-layer (Rizzi, 1997), represents a highly vulnerable domain for attrition and syntactic change due to its interface with information structure and propositional semantics (Platzack, 2001). With data from CANS serving as the empirical foundation, we develop an analysis that utilizes both syntactic (Sabel, 2020) and semantic information (covert modality) to account for this apparent syntactic change that has taken place in AmNo. Adopting a non-lexicalist, spanning approach to syntax (Baunaz and Lander, 2018; Putnam, 2019, 2020; Starke, 2009; Svenonius, 2016), we propose that *wh*-elements in English and AmNo can encode, i.e. lexicalize, covert modality. Our analysis also touches on the *what*-question we introduced above. The adaptation of *wh*-infinitives in AmNo requires the introduction of a covert element (modality) into the heritage grammar, which is incorporated into the *wh*-item itself, forming a complex syntactic element, or a span. This analysis avoids the postulation of a silent, or empty, head, which is generally dispreferred in heritage language syntax (Laleko and Polinsky, 2017).

The structure of this article is as follows: In Section II we outline the syntactic and semantic properties of indirect questions that exhibit *wh*-infinitives, with a focus on the role of covert modality. Although they are not the principle empirical focus of this article, here we mention a related structure as well; namely, 'infinitival relatives', that also license covert modality. We introduce the AmNo data in Section III, demonstrating the English-like pattern that has emerged in these A'-constructions. We introduce our spanning analysis of covert modality in these structures in Section IV, and discuss the impact these findings have for (further) research on A'-dependencies in AmNo, and for heritage language syntax more generally, in Section V.

## II The syntax and semantics of *wh*-infinitives

In this section we outline the core properties of *wh*-infinitives, with an empirical focus on English, Norwegian Bokmål, and AmNo respectively. The (in)ability of languages to license *wh*-infinitives, and as we will see, infinitival relatives, is tied to other syntactic properties of the CP-layer and the syntax–semantics interface pertaining to the licensing and realization of (covert) modality. Here we introduce the basic theoretical assumptions and machinery that are immediately relevant for our analysis of *wh*-infinitives in AmNo.

As laid out in the introduction, English and (homeland) Norwegian starkly contrast with one another regarding their ability to license *wh*-infinitives. Compare the examples from English (4) and their translational equivalents in (5) below (illustrated with the Norwegian written standard Bokmål (BM)):

- (4) a. I know [what to say]. [English]  
 b. I know [who to ask].  
 c. I know [where to find you].  
 d. I know [which car to take].

Although English licenses *wh*-infinitives – as shown immediately above in (4) – these structures are ungrammatical in homeland Norwegian:

- (5) a. \*Jeg vet [hva å si].  
 I know what INF say  
 ‘I know what to say.’ [BM]  
 b. \*Jeg vet [hvem å spørre].  
 I know who INF ask  
 ‘I know who to ask.’  
 c. \*Jeg vet [hvor å finne deg].  
 I know where INF find you  
 ‘I know where to find you.’  
 d. \*Jeg vet [hvilken bil å ta].  
 I know which car INF take  
 ‘I know which car to take.’

In homeland Norwegian, the modal semantics entailed in indirect questions is lexicalized on a modal verb. In addition to the modal verb, the overt subject appears, as in (6a) and (6b); compared to (5a) and (5b):

- (6) a. Jeg vet [hva jeg må si].  
 I know what I must say  
 ‘I know what I must say.’ [BM]  
 b. Jeg vet [hvem jeg kan spørre].  
 I know who I can ask  
 ‘I know who I can ask.’

Sabel (2020) establishes an important connection between languages that lack both *wh*-infinitives and infinitival relatives; in languages where both are impossible, the left periphery of the infinitive cannot be occupied by a phonetically realized element in its highest projection. As expected, English and Norwegian also contrast with respect to the (in)ability to license infinitival relatives. In Norwegian (as well as in English), relatives can be licensed when the verb is finite and the modal is overtly expressed, like (7d) and (8d). For infinitival relatives it is a bit more complicated in Norwegian when compared with English. Although a detailed treatment of infinitival relatives warrants an independent study, in the remainder of this article we mention them in connection with *wh*-infinitives when it concerns the licensing of covert modality. Norwegian (in general) shows a contrast in its ability to license subject vs. object infinitival relatives. Subject infinitival relatives are ungrammatical (7b), while non-subject infinitival relatives are acceptable (8b) (more details below).<sup>5</sup> English examples from Bhatt (1999) compared to Norwegian Bokmål follow here:

- (7) a. The man to fix the sink is here. [English]  
 b. \*[Mannen å fikse vasken] er her.  
 man.DEF INF fix sink.DEF is here [BM]  
 c. \*[Mannen til å fikse vasken] er her.  
 man.DEF PREP INF fix sink.DEF is here  
 d. [Mannen som skal fikse vasken] er her.  
 man.DEF REL shall.MOD fix sink.DEF is here  
 ‘The man who shall fix the sink is here.’
- (8) a. Jane found [a book to draw cartoons in] for Sara. [English]  
 b. Jane fant [en bok å tegne tegneserier i] til Sara.  
 Jane found a book INF draw cartoons in to Sara [BM]  
 c. Jane fant [en bok til å tegne tegneserier i] til Sara.  
 Jane found a book PREP INF draw cartoons in to Sara  
 d. Jane fant [en bok (som) man kan tegne tegneserier i] til Sara.  
 Jane found a book (REL) one can.mod draw cartoons in to Sara  
 ‘Jane found a book (that) one can draw cartoons in for Sara.’

Non-subject infinitival relatives similar to (8) are quite common in Norwegian (OBJ, ADV, extraction from PP), especially with extracted indefinite nominal phrases; see Faarlund et al., 1997: 1062–63:

- (9) Eg leitar etter [ei bok å lese].  
 I search after a book INF read  
 ‘I’m looking for a book to read.’ [Norwegian Nynorsk (NN)]
- (10) De hadde ikke [noe å snakke om].  
 they had not anything INF talk about  
 ‘They didn’t have anything to talk about.’ [BM]

- (11) Han lengta etter [nokon å gi roser (til)].  
 he longed after someone INF give roses (to)  
 ‘He was longing for someone to give roses to.’ [NN]
- (12) Han prøver å finne [et passende land å tilbringe alderdommen i].  
 he tries to find a suitable country INF spend old-days.DEF in  
 ‘He’s trying to find a suitable country where he can spend his old-days.’ [BM]

We briefly revisit these structures in Section III.3 due to their connection with our treatment of *wh*-infinitives concerning the licensing of covert modality in AmNo.

Returning to *wh*-infinitives, although *wh*-items cannot appear in the left periphery of non-finite clauses in homeland Norwegian, non-finite clauses are selected in this language, and prepositions such as *for* ‘for’, *med* ‘with’ and *til* ‘to’ can appear in the left periphery:

- (13) Terje bestemte seg [for å selge vogna.]  
 Terje decided REFL for INF sell wagon.DEF  
 ‘Terje decided to sell the wagon.’ [BM]
- (14) Mari sleit alltid [med å stå opp om morgenen.]  
 Mari struggled always with INF get up in morning.DEF  
 ‘Mari always had a hard time getting up in the morning.’
- (15) Barna fikk lov [til å spise godteri.]  
 children.DEF got permission to INF eat candy  
 ‘The children were allowed to eat candy.’

Based on the assumption that A'-movement involves binding with an Op(erator) as well as movement of the *wh*-item to Spec,CP (in languages that license overt *wh*-movement) by a feature (let's call it [+wh]), the underlying structure of both *wh*-infinitives and infinitival relatives are structurally very similar ((16); from Bhatt (1999: 14)).

- (16) a. Hafdis knows [**who**<sub>*i*</sub> C [pro to talk to *i* at the party]].  
 b. The people [**Op**<sub>*i*</sub> C [pro to talk to *i* at the party]] are Magnus, Herb, and Penna.

These empirical facts make a solid case for the theoretical proposal that the differences between languages like English and Norwegian cannot be reduced to idiosyncratic lexical difference and are syntactic in nature. In addition to these syntactic differences, we have to address the semantic issue of modality. Both *wh*-infinitives and infinitival relatives license covert modality (Bhatt, 1999; Geisler, 1995; Groenendijk and Stokhof, 1982; Kjellmer, 1975; Pesetsky and Torrego, 2001; Portner, 1997). Bhatt (1999: 15) proposes that the source of modality in these constructions is located in the *wh*-item itself.<sup>6</sup>

- (17) C[+wh,+inf] is interpreted as the modal  $\diamond D, \rightarrow$

The modality in *wh*-infinitives is somewhat variable; in some cases it can be paraphrased with an existential modal (e.g. *could*), in other environments a paraphrase with a universal modal (e.g. *should*) is appropriate. Deontic and bouletic readings are possible in a limited set of environments, whereas epistemic readings are not possible. Since the particular flavors of modality do not bear on our treatment of *wh*-infinitives in AmNo, we do not discuss them further in this article.

In an attempt to parameterize the underlying differences of combinatorial possibilities of languages and their ability to license *wh*-complements ([± *wh*]) and (non -)finite-complements, Sabel (2020) proposes the Wh-infinitive Generalization (WHIG):

(18) The Wh-infinitive Generalization (Sabel, 2020: 146):

If a language has *wh*-movement to Spec,CP in infinitives, then this language has the option of filling the C-system of this (type of) infinitive with an overt complementizer.

The WHIG proposal delivers the following feature typology of possible languages and their relation to these parameters.

- (19) a. [+Op-in-SpecCP<sub>infP</sub> +Comp<sub>infI</sub>]  
 b. [-Op-in-SpecCP<sub>infP</sub> -Comp<sub>infI</sub>]  
 c. [+Op-in-SpecCP<sub>infP</sub> -Comp<sub>infI</sub>]  
 d. [-Op-in-SpecCP<sub>infP</sub> +Comp<sub>infI</sub>]

The first type (19a) represents languages such as English that do not require overt infinitive complementizers, while languages with the feature specification in (19b) have this requirement (such as Norwegian).<sup>7</sup> We return to Sabel's (2020) WHIG proposal in Section IV.2, where we operationalize this proposal along the lines of our spanning analysis. Next we turn to the AmNo data, which functions as the empirical base of this study.

### III American Norwegian (AmNo)

AmNo is a moribund heritage language spoken in the Upper Midwest of the US, predominantly in Minnesota and Wisconsin. AmNo emerged from the language of speakers who immigrated to this region around the 1860s, and is a conglomeration of various dialects. The empirical data analysed for this study were extracted from the Corpus of American Nordic Speech (CANS) (Johannessen, 2015). CANS (version 3.1) includes spontaneous speech of 268 informants with Norwegian (246) and Swedish (22) heritage, in total 774,625 tokens. The main base of the corpus consists of recordings made in 2010–16 (170 speakers), but it also includes recordings made by Arnstein Hjelde in 1987–92 (5 speakers) and has recently been extended with several tapes from Einar Haugen's recordings from 1942 and 1935–36 (84 speakers) and Seip and Selmer's recordings from 1931 (4 speakers). We based our analyses on the Norwegian heritage recordings from 2010–16 – including a total of 614,613 tokens from 152 speakers (57 females and 95 males).

The moribund status of AmNo alongside the fact that the empirical data for this study originate solely from CANS present certain challenges. Most notably, the sheer number of occurrences of constructions such as *wh*-infinitives will be low. In our search for the string [word beginning with *hv*- in Bokmål] + [1-3 words] + [non-finite verb form], followed by (control) searches for specific *wh*-items (*hva* ‘what’, *hvem* ‘who’, *hvor* ‘where’, *hvorfor* ‘why’, *hvordan* ‘how’, *åssen* ‘how’, *hvilke(n)* ‘which’, *når* ‘when’ and *om* ‘whether, if’), we found 22 clear examples of English-like *wh*-infinitives, produced by 21 speakers (all born in and around the 1930s, 2nd–4th generation of immigrants).<sup>8</sup> (Additionally, we found two examples in the 1942 recordings, informants born in 1883 and 1902.)<sup>9</sup> These 21 speakers represent approximately 14% of the population in the part of the corpus from 2010 to 2016 ( $n = 152$ ).<sup>9</sup> Twenty-two examples uttered by 21 different AmNo speakers may not appear to be a significant number of tokens from a corpus this size, but we content that this amount – and the fact that different speakers produce them – is non-negligible. As recently suggested by D’Alessandro, Natvig, and Putnam (2021), the low frequency of an occurrence of a particular feature or construction in a moribund heritage grammar does not diminish its importance or relevance in a thorough analysis of the grammar under investigation (see also Kupisch and Polinsky, 2022). The robust nature of the contrast between the production of *wh*-infinitives in AmNo, and the non-acceptability of these in homeland Norwegian, supports the relevance of this investigation.

We searched through the (modern) Norwegian part of the Nordic Dialect Corpus (NDC, approximately 2 million tokens) and the ‘LIA – Corpus of older Norwegian dialect recordings’ (LIA, approximately 3.5 million tokens) to investigate whether or not *wh*-infinitives can be found in spoken homeland Norwegian.<sup>10</sup> Our search efforts turned up only one single example in (20) exhibiting a *wh*-infinitive.

- (20) de var innj somm drev å så lærd opp høssdænn å sættj opp svannsjer  
 it was one who did and so taught up how INF set up tractor-forks  
 ‘There was one who was teaching how to set up tractor-forks.’

[LIA: aamot-0103]

The overwhelming lack of evidence of *wh*-infinitives beyond this single example affirm the rarity of this construction in spoken homeland Norwegian.

In this regard, research on moribund heritage varieties that relies primarily (if not exclusively) on previously collected corpus data shares certain affinities with work in historical syntax and linguistic reconstruction (Walkden, 2014). In this context, linguists extract data (previously from only (hand-)written sources, but now also from digital corpora) and advance proposals about mental representations and instances of language change based on said data. In our analysis, we primarily compare AmNo examples with standard written Norwegian – and additionally with spoken Norwegian found in corpora such as LIA and NDC, since these, especially the LIA, serve as reasonably good approximations of a ‘baseline’ for AmNo.<sup>11</sup> Again, this caveat notwithstanding, the contrast between AmNo and the data from these aforementioned sources evinces that some change has taken place in the AmNo grammar to allow the production of *wh*-infinitives.



Before taking a closer look at AmNo *wh*-infinitives, we find it relevant to mention that infinitive markers in AmNo can occasionally vary. Although the standard Norwegian *å* is the most common form attested in the CANS corpus, there are a substantial number of tokens in which the infinitival marker is realized as *te*, as in (21).

- (21) remm læRde uss **te** snakke nåRsk (Bokmål: **å** snakke)  
 they learnt us INF speak Norwegian  
 ‘They taught us **to** speak Norwegian.’ (CANS: Sunburg-03gm)

As noted by Putnam and Søfteland (2021), this should not be misconstrued as cross-linguistic influence from English due to the fact that they are common in certain dialects of Norwegian, as in example (22).<sup>12</sup>

- (22) me lærde no **te** lesa ætt måroværss (Bokmål: **å** lese)  
 we learnt now INF read a morning-verse  
 ‘We learnt **to** read a morning verse.’ (LIA: lindaas-uib-0101)

### 1 AmNo *wh*-infinitives

Here we provide a detailed overview of the examples of AmNo *wh*-infinitives found in CANS. As previously noted, all of these structures resemble an English pattern for indirect questions that is ungrammatical in homeland Norwegian, such as (23a) and (23b), (both with *te* as the infinitive marker):<sup>13</sup>

- (23) a. e veit ikke **håss’n te** snakke så gått nåRsk  
 I know not how INF speak so good Norwegian  
 ‘I don’t know how to speak Norwegian very well.’ (Harmony-01gk)  
 (Bokmål: Jeg veit ikke åssen jeg skal snakke så godt norsk.)
- b. e veit tje **hå te** prat omm  
 I know not what INF talk about  
 ‘I don’t know what to talk about.’ (Sunburg-02gk)  
 (Bokmål: Jeg veit ikke hva vi skal/kan prate om.)

These are representative examples of indirect questions licensing an adverbial and an object (of a particle verb) *wh*-item respectively. The Bokmål translations of the examples in (23) demonstrate that these A’-dependencies cannot be licensed in non-finite clauses in homeland Norwegian. Admittedly, it is difficult to establish a one-to-one translation of these utterances found in AmNo to corresponding homeland Norwegian structures, however these glosses represent as close approximations as possible.

Many of the *wh*-infinitives co-occur with *te* (or *ti*) infinitive markers (around 50 %), and many occur with (different dialectal variants of) the *wh*-word ‘what’ (e.g. *va*, *hå*, *kå*). Examples (24), (25) and (26) occur with *veit* ‘know’ as the finite verb in the matrix clause – *visste* (preterite), *veit* (present) – and the *wh*-item as an object (for the non-finite verbs ‘do’ (*jørra*, *jæra*) and ‘believe’ (*tru*)):<sup>14</sup>

- (24) menn ho visste **va ti jørra**  
 but she knew what INF do  
 ‘But she knew what to do.’ (Saskatoon-01gk)  
 (Bokmål: Men hun visste hva hun måtte/kunne gjøre.)
- (25) e visst ikk **hå te tru** omm detti hær  
 I knew not what INF think about this here  
 ‘I didn’t know what to think about this.’ (SpringGrove-07gm)  
 (Bokmål: Jeg visste ikke hva jeg skulle tru om dette her.)
- (26) ja veit issje **hå å jæra** mæ re  
 yes know not what INF do with it  
 ‘Yes, (I) don’t know what to do about it.’ (Sunburg-10gm)  
 (Bokmål: Ja, (jeg) veit ikke hva jeg skal gjøre med det.)

Example (27) shares similar properties with those above, however in this example we find the regular colloquial construction *ha greie på* ‘find out’ in the matrix clause:

- (27) måtte ha greie på **hå te jøra** mæ re  
 must have knowledge on what INF do with it  
 ‘. . . had to find out what to do about it.’ (Ulen-03gm)  
 (Bokmål: . . . måtte ha greie på hva man skulle/kunne gjøre med det.)

Example (28) reveals that the *wh*-infinitive in AmNo can also be part of a relative clause expressed in the passive voice:

- (28) me mådde jæra **kå** me va fortallde **te jærra**  
 we must do what we were told INF do  
 ‘We had to do what we were told to do.’ (Starbuck-01gk)  
 (Bokmål: Vi måtte gjøre det (som) vi ble fortalt at vi skulle gjøre.)

Approximately half of the *wh*-infinitives occur with the common infinitival marker *å*, appearing here (again) with factive matrix predicates such as *vite* ‘know’, now with adverbial *wh*-items *hvor* /*henn*/ ‘where’ in (29) and *hvordan* /*køss*/ ‘how’ in (30):

- (29) ja vesst itte **henn å værr**  
 yes knew not where INF be  
 ‘Yes, (I) didn’t know where to be.’ (Westby-07gk)  
 (Bokmål: Ja, (jeg) visste ikke hvor jeg skulle være.)
- (30) e veit issje **køss å lære** de de  
 I know not how INF learn you it  
 ‘I don’t know how to teach you that.’ (Sunburg-05gk)  
 (Bokmål: Jeg veit ikke hvordan jeg skal/kan lære deg det.)

In our corpus search we also found four examples with the infinitive marker *å* following the matrix verb *lære* ‘teach’ (all occurring in the simple past tense (preterite), all with a

*wh*-item meaning ‘how’) – see (31) and (32) – and one equivalent with the matrix verb *glømme* ‘forget’ (33):

- (31) og hann tå- læRte hann **áss’n á** *arrbeide* på de ee structural steel  
and he tau- taught him how INF work on that uh structural steel  
‘And he taught him how to work on that, uh, structural steel.’ (Chicago-01gk)  
(Bokmål: Og han lærte han ássen han skulle arbeide med/på ‘structural steel’.)
- (32) sámm lært **vorrn á** *snakke* trommsødialækk  
who learnt how INF speak Tromsø-dialect  
‘. . . who learnt how to speak Tromsø-dialect.’ (Minneapolis-01uk)  
(Bokmål-i: . . . som lærte hvordan man kan snakke Tromsø-dialekt.)  
(Bokmål-ii: . . . som lærte á snakke Tromsø-dialekt.)
- (33) sá da glemmer du **hass’n á** *jøre* de  
so then forget you how INF do it  
‘So then you forget how to do it.’ (Harmony-01gk)  
(Bokmål: Så da glemmer du ássen du kan/skal gjøre det.)

Another alternative infinitive marker in spoken Norwegian, *á ssá* – derived from the adverb *ogsá* ‘also’ or the combination /á/+sá/ ‘and so’ – appears in the CANS corpus; see example (34) with an adverbial *wh*-item *hvordan* /*vorrdan*/ ‘how’:

- (34) á visste **vorrdan ássá** *overføre*  
and knew how INF transfer  
‘. . . and knew how to transfer.’ (Spokane-03gk)  
(Bokmål: . . . og visste hvordan man skulle/kunne overføre.)

Finally, we find *wh*-infinitives that exhibit a combination of the particle *te* and the infinitive marker *á* (see Putnam and Søfteland, 2021), again occurring with factive matrix predicates:

- (35) vet issji **va te á** *snakk* omm  
know not what PRT INF talk about  
‘(I) don’t know what to talk about.’ (Saskatoon-07gk)  
(Bokmål: (Jeg) vet ikke hva jeg/vi skal/kan snakke om.)
- (36) hann veit ikkje **ká fãrr ein te á** *setta* fysis  
he know not what for one PRT INF put first  
‘He doesn’t know which one to put first.’ (Sunburg-01gm)  
(Bokmål: Han veit ikke hva for en han skal/bør sette først.)

## 2 AmNo finite indirect questions

In the CANS corpus (2010-2016 recordings) we also searched for finite indirect questions with *wh*-items, i.e. the corresponding construction with modal verb and subject; see (6a) and (6b). We have found 45 examples of forms with an overt modal verb, produced by 39 different speakers.<sup>15</sup> Among the 21 speakers who produce *wh*-infinitives, there are

10 who also produce corresponding finite constructions (see Appendix 1). Again, whereas both options are licit in English, only one is grammatical in homeland Norwegian. One of the AmNo speakers producing both, is Outlook-07gk:

- (37) je veit itte håssen je ska si de  
 I know not how I shall say it  
 ‘I don’t know how I should say it.’ [Outlook-07gk]
- (38) je veit ikke håss å si de  
 I know not how INF say it  
 ‘I don’t know how to say it.’ [Outlook-07gk]

In summary, AmNo appears to display the same sort of optionality as found in spoken English, i.e. the production of both *wh*-infinitives and finite subordinate clauses with *wh*-items in the presence of overt modal verbs.

### 3 AmNo infinitival relatives

Before providing our theoretical treatment of *wh*-infinitives in AmNo, we offer brief remarks here on infinitival relatives. We do so since both structures require covert modality, but we wish to point out that any detailed account of infinitival relatives in AmNo would require an individual study. Whereas both English and homeland Norwegian license object infinitival relatives, subject infinitival relatives are not acceptable in the latter. The AmNo examples found in (39)–(40) are representative and highly frequent constructions with non-subject infinitival relatives that would be found in homeland Norwegian as well:

- (39) mannge mil å gå  
 many miles INF go  
 ‘. . . many miles to go.’ (Webster-02gm)
- (40) vi e go te ha noen ting te jøre  
 we are good INF have some things INF do  
 ‘We are good at finding things to do.’ (Saskatoon-14gk)
- (41) å så hadde vi kkje så mykkje penng å levva åv  
 and so had we not so much money INF live of  
 ‘And so we didn’t have much money to live by.’ (Sunburg-04gk)

Although we did not locate any (English-like) subject infinitival relatives in our corpus search, examples (42) and (43) are perhaps worth noting. They are not acceptable in written Bokmål (with infinitive marker *å*), but they occur in some dialects (with infinitive marker *te*).<sup>16</sup> These examples also illustrate the point mentioned in Section II; namely, that Norwegian could add either (i) the preposition/particle *til* or (ii) a relative particle *som* to make structures like this grammatical:

- (42) de va inngen inni huse **te** fikkse mat  
 it was no-one inside house.DEF INF fix food  
 ‘There was no one inside the house **to** fix food (for us).’ (Sunburg-12gk)  
 (Bokmål-i: Det var ingen inni huset **til å** fikse mat.)  
 (Bokmål-ii: Det var ingen inni huset **som kunne** fikse mat.)
- (43) hann far hann byggde hann hadde føRRK **te** bygge hose  
 he father he built he had people INF build house.DEF  
 ‘(My) father hired people **to** build the house (for him).’ (CoonRapids-01gm)  
 (Bokmål-i: Han far, han hadde folk **til å** bygge huset.)  
 (Bokmål-ii: Han far, han hadde folk **som kunne/skulle** bygge huset.)

It does not appear that infinitival relatives have been affected in the way that indirect questions have in AmNo.

#### 4 Section summary

We have evidence that 21 different speakers from the CANS recordings in 2010–16 – approximately 14% of the speakers from these field trips whose natural speech has been transcribed – produce *wh*-infinitives ( $n = 22$ ). Based on this fact, we can see that *wh*-infinitives have become a viable option in AmNo. We now turn to how this change may have taken place, and why its development is generally interesting for future work on heritage language syntax.

## IV Analysis

The AmNo data in the previous section establish the following:

- Whereas English licenses *wh*-infinitives and both subject and object infinitival relatives, homeland Norwegian does not.
- AmNo has adopted the English properties of *wh*-infinitives (regarding covert modality), and can license this option as well as overt modality.

In this section we explicate what this state of affairs contributes to our broader understanding of language change in heritage language grammars. In the AmNo data examined here, we are dealing with a probable instance of permanent change in the grammar (i.e. at the level of mental representations) rather than temporary effects of cross-linguistic influence. We capture these effects in a version of generative grammar that adopts a One Feature-One Head-architecture (OFOH) (Kayne, 2005; Putnam, 2020), where each functional head in the syntax is headed by a singleton functional feature. One of the key desideratum of our proposal, which is consistent with the literature reviewed in Section II that classifies the semantics of these structures as instances of covert modality, is that modality can be encoded in *wh*-items in AmNo (and English) in *wh*-infinitives via a process known as spanning (Svenonius, 2016); see Section IV.1. There is an additional consequence to

the lexicalization of (covert) modality in the *wh*-items in AmNo which enables this heritage grammar to license *wh*-infinitives: The lack of an overt modal – which also licenses tense (T) – eliminates the need for the (co-)occurrence of an overt complementizer in C (Chomsky, 2000, 2001, 2008; Sabel, 2020), a point we return to in Section IV.2.

### 1 Spanning: The basics

The OFOH-architecture eschews the need for bundles of features in syntactic representations. To illustrate this point, consider the organization of features as an unordered bundle in (44a) vs. their representation as an ordered sequence in (44b); from Dékány, 2009, 51):

- (44) a. Unordered bundle (i.e. symmetrical relation)  
 [ X, Y, Z ]  
 b. Ordered sequence (i.e. asymmetrical relation)  
 [ <sub>XP</sub> X [ <sub>YP</sub> Y [ <sub>ZP</sub> Z ] ] ]

Individual functional heads serve as indices for semantic interpretation and the identification of morphophonological exponents. This latter operation is commonly referred to as Spell-Out, according to which individual functional heads can be combined into larger units that are semantically well-formed (and, hence, interpretable) and can be assigned appropriate exponents, or, more appropriately, these larger units can be lexicalized. Following Svenonius (2016), we refer to a contiguous string of functional heads that are semantically well-formed and can be lexicalized as a span<sup>17</sup>:

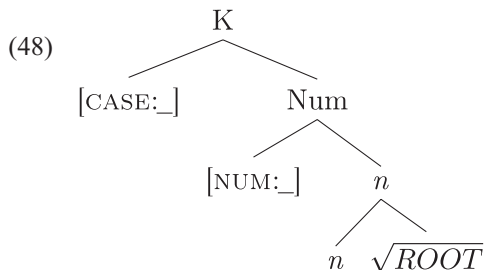
- (45) SPAN: A span is a contiguous sequence of heads in a head-complement relation (Svenonius, 2016)

A consequence of the OFOH-architecture is that the combinations of functional heads (i.e. features) into larger syntactic objects can span over multiple terminal nodes. This situation can be illustrated with the following data; from Baunaz and Lander (2018: 16–17):

- (46) a. karhu-lle  
 bear-ALL  
 ‘onto the bear’  
 b. karhu-i-lle  
 bear-PL-ALL  
 ‘onto the bears’ [Finnish]
- (47) puell-ā s  
 girl-ACC.FEM.PL  
 ‘girls.ACC’ [Latin]

Finnish (46) and Latin (47) represent the canonical distinction between agglutinating and fusion languages respectively. As an agglutinating language, Finnish realizes its individual syntactic–semantic features with individual exponents; *-i* is the plural morph while *-lle* marks allative case. In contrast, in Latin, case, gender, and number are realized

as one (complex) exponent,  $-\bar{a} s$  (also known as a portmanteau). Viewing this phenomenon through the lens of a syntax that adopts the OFOH-architecture, let's assume the following structure in (48) in which  $K$  represents case and  $Num$  stands for number.



Although a one-to-one mapping is possible between functional heads and the case and number features in Finnish, in Latin the span encapsulates both case and number, resulting in a portmanteau exponent.<sup>18</sup>

(49) [Case:ACC, Gen:FEM, NUM:PL] ↔  $/-\bar{a} s/$

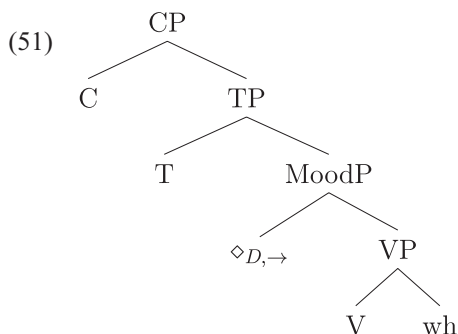
The spanning-operation will play a central role in our analysis of the apparent change that has taken place in AmNo. As we illustrate below, spanning allows *wh*-items to ‘absorb’ modality, which further participate in an  $A'$ -movement operation to Spec,CP.

## 2 Lexicalizing covert modality (via spans)

We provide a sketch of a spanning analysis of covert modality and how this further impacts this instance of  $A'$ -movement in the AmNo grammar. This approach to the divergent development of heritage grammars across generations is consistent with recent theoretical proposals that eschew reliance on parameters in favor of the combinatorial properties of features (Lightfoot, 2020; Putnam, 2019; Putnam, Perez-Cortes, and Sánchez, 2019). Let's start our analysis by adopting Bhatt's (1999) proposal that in both *wh*-infinitives as well as infinitival relatives, the functional head  $C$  is interpreted as expressing modality; see (17), repeated below for the reader as (50).<sup>19</sup>

(50)  $C[+wh, +inf]$  is interpreted as the modal  $\diamond D, \rightarrow$

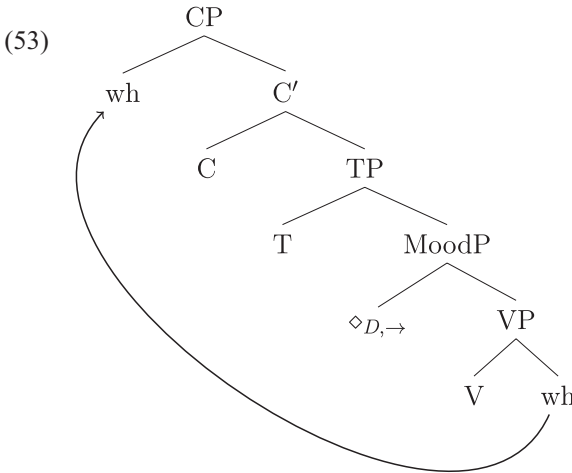
Schematically we can represent these features in a tree structure such as (51).<sup>20</sup>



Recall that homeland Norwegian requires that modality be spelled-out, or lexicalized, as a modal verb; example (6a) is repeated below as (52) for the sake of the reader.

- (52) Jeg vet [hva jeg må si].  
 I know what I must say  
 ‘I know what I have to say.’ [Norwegian Bokmål]

In this context, the *wh*-item that undergoes A'-movement does not entail modality, it represents a simple instance of A'-movement, as illustrated in (53). To be explicit, the instance of A'-movement represented in (53) (*wh* → Spec,CP) does not entail (covert) modality. Rather, the head of MoodP remains in situ.



The Vocabulary Items in (54) illustrate the realization of the *wh*-item that has undergone A'-movement, *hva* ‘what’, and the modal verb, *må* ‘must’, as separate, individual exponents. The Vocabulary Item in (54a) represents the A'-chain of (*wh* → Spec,CP), which again does not lexicalize (covert) modality into this chain. This forces the head of MoodP to be realized as a unique exponent – a singleton span – as represented in (54b). Instances of covert modality do not require the formation of a complex span involving the *wh*-item and (covert) modality.

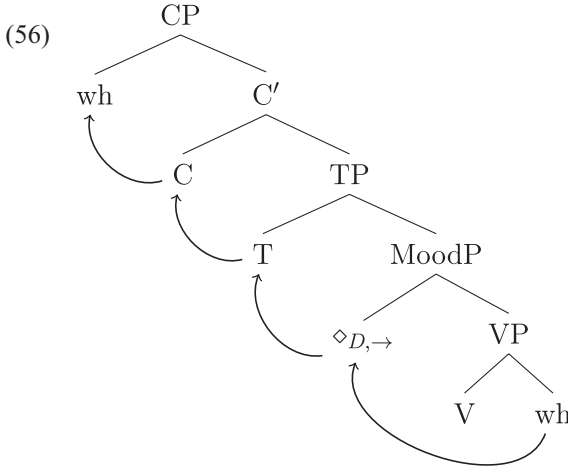
- (54) a. C[+wh] ↔ /hva/  
 b. [ $\diamond D, \rightarrow$ ] ↔ /må/

We now turn to English and AmNo, which unlike homeland Norwegian can license *wh*-infinitives, and as a result of this fact, covert modality. These instances of A'-movement include *wh*-items that constitute more complex spans that entail (covert) modality. We illustrate this point by taking a closer look at (26), repeated below as (55).

- (55) ja veit issje hå å jæra mæ re  
 yes know not what INF do with it  
 ‘Yes, (I) don’t know what to do about it.’ (Sunburg-10gm)



Covert modality lexicalized in the *wh*-item requires the modal entailment to be ‘absorbed’, or lexicalized, in the span that represents the *wh*-item. We capture this state of affairs in (56). Admittedly, this derivation is markedly more complex than the previous one proposed for overt modality. The *wh*-item forms a complex span (via a sequence of roll-up movements to capture/license modality) that includes the functional heads  $\diamond$ ,  $D, \rightarrow$ , T, and C, on its way to Spec,CP. Therefore, in addition to typical A'-movement, we also observe the creation of a span that incorporates modality in the *wh*-item.



The result of this complex chain is a *wh*-item that lexicalizes modality and does not require the realization of an independent modal verb, resulting in a complex syntactic object. The Vocabulary Item for this span is stated in (57). An important point worth mentioning here is that the formation of a complex syntactic object via spanning can still take place in further operations, such as A'-movement. For example, Gallego (2016) proposes that such (complex) elements are ‘frozen’, i.e. cannot be further decomposed, once lexicalized (i.e. pronounced). Although we do not discuss the consequences of his proposal in detail here, it suffices to say that our analysis supports these claims.

(57)  $\langle C, T, \diamond D, \rightarrow \rangle \leftrightarrow /h\hat{a}/$

The ability to lexicalize covert modality in *wh*-items in *wh*-infinitive structures as complex spans in AmNo forces the clause it appears in to be non-finite. The lack of an overt modal/auxiliary verb results in the additional ‘failure’ of Tense being overtly realized. To explicate this point, we need to recognize that modal verbs also inflect for tense. As such, the span of functional heads that realize overt modal verbs involves both MoodP and TP:

(58)  $[Tense:, \diamond D, \rightarrow] \leftrightarrow /(\text{tensed}) \text{ modal verb}/$

The absence of an overt modal/auxiliary, due to it being ‘absorbed’ into a larger span (57), results in the clause being non-finite.<sup>21</sup>

Although one could conceivably argue that the presence of (some types of) infinitival relatives in AmNo (and homeland Norwegian) in combination with constant exposure to English aided in a facilitative change, the nature of the structure that has been assimilated into the AmNo is somewhat unique in the literature on heritage language syntax to date. The morphosyntax and semantic properties of modality have a profound effect on the nature of the clause that contains them.<sup>22</sup> Whereas other generative analyses may refer to the change that has taken place as an instance of feature transmission (Aboh, 2015), we capture these effects through spans. In our approach, AmNo has assimilated to the spanning properties of English with respect to adopting the ability to license covert modality in *wh*-items in *wh*-infinitives via complex spans. The proposal that *wh*-items can lexicalize covert modality and undergo A'-movement supports a version of representation economy (Scontras, Polinsky, and Fuchs, 2018) that avoids 'silent elements' (Laleko and Polinsky, 2017). At the same time, the occurrence of complex spans such as these are not as simplex as one-to-one feature-exponent mappings, which also seem to be preferred in heritage language (morpho)syntax (Lohndal and Putnam, 2021). The existence of spans such as these in heritage language syntax certainly raise interesting questions concerning how best to understand exactly what 'representational economy' and complexity in these systems mean. As recently proposed by Lohndal and Putnam (to appear), the tendency to minimize morphosyntactic complexity in agglutinating heritage languages (e.g. Hungarian and Turkish) via 'expanded structures' such as span could be viewed as a benefit since it reducing the number of mappings between spans and exponents. Taken together, these findings lend further support to the view that even moribund heritage grammars continue to develop complex grammatical nuances (Bousquette and Putnam, 2020).

## V Conclusions

The lexicalization of covert modality in *wh*-items via spans that include the functional heads of T, C, and  $\diamond D, \rightarrow$  in AmNo has led to the licensing of *wh*-infinitives in this heritage language grammar. These structures are ungrammatical in homeland Norwegian, thus supporting the hypothesis that they are likely nuanced innovations due to extended exposure to English and a lack of use of the heritage language (Putnam and Sánchez, 2013). Critically, AmNo has adopted the English-like strategy of lexicalizing modality within *wh*-items under certain contexts (i.e. in non-finite clauses), while also allowing for the expression of overt modality (thus nullifying the infinitival context). In the conclusion of this article, we return to the *how*- and *what*-questions that we posed in the introduction (repeated here for the sake of the reader):

- Can we model *how* this syntactic change took place (since these structures are not possible in homeland Norwegian)?, and
- *What* does this say about the status of A'-dependencies in AmNo specifically and heritage syntax more generally?

Regarding the *how*-question, we made the case in the previous section that in an OFOH-architecture, the size of spans (i.e. syntactic objects) can vary considerably. The key difference between languages that license *wh*-infinitives – such as English and AmNo – vs. those that do not – such as (homeland) Norwegian – can be reduced to whether or not

modality can be lexicalized in the spans that represent *wh*-items which then further participate in A'-movement operations. The realization of these complex spans that encode modality on the *wh*-item leads to a snowball effect of depriving Tense of an environment to be realized, followed in turn by the lack of a need for an overt complementizer, resulting in a non-finite clause.

As for the *what*-question, these data challenge certain received notions concerning the nature of heritage language syntax. First, the lexicalization of covert modality in the *wh*-items in AmNo *wh*-infinitives represents an instance of the absorption of covert, or 'silent' elements in spans. The strategy of generating complex spans avoids postulating 'empty heads' in syntactic structure, which are dispreferred in heritage language syntax (Laleko and Polinsky, 2017). Adopting a view of syntactic structure that interprets syntactic objects as spans, or any system that adopts a late-insertion approach, can avoid unwanted 'silent elements', albeit it at the expense of creating more complex syntactic objects. According to this line of reasoning, the size and (feature) content of syntactic objects (i.e. spans) would be 'bigger' in certain situations where the trade off might result in an ease of communication or parsing (Lohndal and Putnam, to appear).<sup>23</sup> Second, these findings further confirm that non-finite clauses (Putnam and Søfteland, 2021), the (morpho)syntactic expression of modality (Putnam et al., 2019), and A'-dependencies more generally (Cuza, 2013, 2015; Cuza and Frank, 2010, 2011; Cuza et al., 2016; Hopp et al., 2019; Montrul, Foote, and Perpiñan, 2008) in heritage language grammars can be affected over their course of development. Both of these aforementioned elements of syntax involve syntax-semantic interface congruence, which provides further support to the long-held assumption that whereas the core elements of syntax remain consistent and unscathed, those involving any sort of interface mapping (e.g. in the case involving both the syntax-semantics and syntax-morphology interfaces) may be subject to alterations of both feature- and pattern-level shifts (Aboh, 2015), conceptualized here as spans.

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## ORCID iD

Michael Putnam  <https://orcid.org/0000-0002-7758-8266>

## Notes

1. For studies on similar structures in Heritage Spanish, see Cuza and Frank, 2010, 2011; Perpiñan, 2011.
2. For a discussion of the extent to which AmNo can be classified as a *koiné*, see Hjelde, 2012.
3. <http://tekstlab.uio.no/norskiamerika/english/corpus.html>
4. Hatton-01gm, CoonValley-08gm etc. are the 'informant codes' from the corpus, informing about where the recording was made, age group, and gender (gm = older man; gk = older woman). The data from CANS will be presented in its orthophonic transcription (i.e. phonetic with regular orthography; for details, see corpus webpage), but often with pauses and hesitations left out for clarity for the reader.
5. Note that example (8) is grammatical both with and without the preposition *til* 'to' in front of the infinitive marker *å* 'to', as in (8c). Infinitival relatives 'can have the added preposition *til* (> *til å*) when the construction expresses *purpose*' (Faarlund, Lie, and Vannebo, 1997: 1063, our translation). (Original quote: 'Når infinitivskonstruksjonen uttrykkjer eit føremål, kan han føyast til med preposisjonen *til*.')
6. Of course, the denotation provided in (17) is an abstraction that does not address additional semantic readings that are manifest when C[+wh, +inf] functions as an interrogative complementizer; for an exhaustive treatment, see Bhatt, 1999: chapter 4.
7. Although we do not concern ourselves with the latter two types of languages, it is interesting to note that Sabel (2020) suggests that only the third type (19c) is not attested.
8. As pointed out to us by Terje Lohndal (personal communication), another reason why so few questions of this sort are found in the CANS corpus is due to the conversational nature of the dialogue found in these speech samples.
9. There also exists anecdotal evidence from field linguistics involved in these data collections, that such structures can be heard from time to time in AmNo, which we simply mention here.
10. For details, see references and corpus webpages: Johannessen et al., 2009; <http://www.tekstlab.uio.no/nota/scandiasyn/index.html>; LIA norsk – korpus av eldre dialektopptak (2019) <http://tekstlab.uio.no/LIA/index.html>.
11. For a more detailed treatment of the difficulties of establishing a baseline for 'endangered' heritage language speakers such as these, see Polinsky, 2018: chapter 8.2.
12. As pointed out by an anonymous reviewer, although we do not have a suitable 'control group', we do have older data from the LIA corpus which provides a better approximation of a baseline than what is found in many studies involving heritage languages.
13. Throughout Section III.1 we mark the *wh*-element and the infinitive marker with boldface, and the infinitive with italics.
14. For a theoretical treatment of dialectal variation in *wh*-questions in Norwegian, see Westergaard and Vangsnes, 2005.
15. In these numbers we have included examples that exhibit different subjects or different tense markings between the matrix and subordinate clause, but still could be translated into English in the form of a *wh*-infinitive without substantially altering the meaning of the sentence. Example: *Jeg veit ikke åssen du kan si det*. 'I don't know how you/one can say it.' ⊕ I don't know how to say it. However, we have not included occurrences that are not (directly) translatable into English as a *wh*-infinitive, such as *Jeg fortalte dem hvor jeg kunne grave*. 'I told them where I could dig'. ≠ I told them where to dig.
16. One example found in the LIA corpus is: *folk te ha med det å gjøre* (Arna-uib-2002) 'people to deal with that'. (Bokmål: *folk som kunne ha med det å gjøre* 'people who could deal with that'.) Some further details can be found in Putnam and Søfteland, 2021; Søfteland, Putnam, and Hjelde, 2021.

17. For recent formulations of the concept of span, see also Blix, 2021; Julien, 2021.
18. Here we do not discuss the operations that are responsible for determining the proper linear order of these exponents.
19. For a rich typological overview of the interaction of modality and subordinators, see Nordström, 2010.
20. All non-essential nodes have been omitted in this tree and the remainder of those that appear in this section.
21. The lack of an overt (tensed) modal prevents C from sharing its  $\phi$ -features with T, resulting in the requirement that the clause be non-finite (due to T being ‘defective’) with a non-overt complementizer in C (Chomsky, 2000, 2001, 2008; Pesetsky and Torrego, 2001). It is difficult – if not impossible – to disentangle causation from correlation here, but the most likely scenario envisages that the lexicalization of *wh*-items in AmNo *wh*-infinitives functioning as the catalyst of change. This state of affairs also effectively captures Sabel’s (2020) WHIG proposal; see, for example, (18) introduced in Section II.
22. For a related study on the effects of irrealis and modality in Heritage Spanish and their relation with the (in)ability to license Exceptional Case-Marking (ECM) structures, see Putnam et al., 2019.
23. We thank an anonymous reviewer for pointing out the relevance of this point to our analysis.

## References

- Aboh EO (2015) *The emergence of hybrid grammars: Language contact and change*. Cambridge: Cambridge University Press.
- Baunaz L and Lander E (2018) Nanosyntax: The basics. In: Baunaz L, De Clercq K, Haegeman L, and Lander E (eds) *Exploring nanosyntax*. Oxford: Oxford University Press, pp. 3–56.
- Bhatt R (1999) Covert modality in non-finite contexts. Unpublished doctoral dissertation, University of Pennsylvania, Philadelphia, PA, USA.
- Blix H (2021) Spans in South Caucasian agreement: Revisiting the pieces of inflection. *Natural Language and Linguistic Theory* 39: 1–55.
- Bousquette J and Putnam MT (2020) Redefining language death: Evidence from moribund grammars. *Language Learning* 70: 188–225.
- Chaves RP and Putnam MT (2020) *Unbounded dependency constructions: Theoretical and experimental perspectives*. Oxford: Oxford University Press.
- Chomsky N (2000) Minimalist inquiries: The framework. In: Martin R, Michaels D, and Uriagereka J (eds) *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*. Cambridge, MA: MIT Press, pp. 89–155.
- Chomsky N (2001) Derivation by phase. In: Kenstowicz M (ed.) *Ken Hale: A life in language*. Cambridge, MA: MIT Press, pp. 1–52.
- Chomsky N (2008) On phases. In: Freidin R, Otero CP, and Zubizarreta ML (eds) *Foundational issues in linguistic theory*. Cambridge, MA: MIT Press, pp. 133–66.
- Cuza A (2013) Cross-linguistic influence at the syntax proper: Interrogative subject–verb inversion in heritage Spanish. *The International Journal of Bilingualism*, 17, 71–96.
- Cuza A (2015). On the role of experience and age-related effects: Evidence from the Spanish CP. *Second Language Research*, 31, 3–28.
- Cuza A and Frank J (2010) *The acquisition of double que questions in heritage and L2 Spanish*. In: Heijl M (ed.) *Proceedings of the 2010 Canadian Linguistics Association Annual Conference (CLA 2010)*. Montreal: McGill University, pp. 1–13.
- Cuza A and Frank J (2011) Transfer effects at the syntax–semantics interface: The case of double-que questions in heritage Spanish. *Heritage Language Journal* 8: 66–89.
- Cuza A, Miller L, and Ortiz M (2016) On the production of differential object marking and *wh*-question formation in native and non-native Spanish. In: Alba de la Fuente A, Valenzuela E,

- and Martínez-Sanz C (eds) *Language acquisition beyond parameters: Studies in honor of Juana Liceras*. Amsterdam: John Benjamins, pp. 187–209.
- D'Alessandro R, Natvig DA, and Putnam MT (2021) Addressing challenges in formal research on moribund heritage languages: A path forward. *Frontiers in Psychology* 12: 700126.
- Dékány É (2009) The nanosyntax of Hungarian postpositions. Unpublished doctoral dissertation, University of Tromsø, Tromsø, Norway.
- Faarlund JT (2019) *The syntax of Mainland Scandinavian*. Oxford: Oxford University Press.
- Faarlund JT, Lie S, and Vannebo KI (1997) *Norsk referansegrammatikk [Norwegian reference grammar]*. Oslo: Universitetsforlaget.
- Gallego A (2016) Lexical items and feature bundling: Consequences for microparametric approaches to variation. In: Eguren L, Fernández-Soriano O, and Mendikoetxea A (eds) *Rethinking parameters*. Oxford: Oxford University Press, pp. 133–69.
- Geisler C (1995) Relative infinitives in English. Unpublished doctoral dissertation, Uppsala University, Uppsala, Sweden.
- Groenendijk J and Stokhof M (1982) Semantic analysis of *wh*-complements. *Linguistics and Philosophy* 5: 175–233.
- Hjelde A (2012) 'Folkan mine, dæm bære snakka norsk': Norsk i Wisconsin frå 1940-talet og fram til i dag [My people, they only speak Norwegian]. *Norsk lingvistisk tidsskrift* 30: 183–203.
- Hjelde A (2015) Changes in a Norwegian dialect in America. In: Johannessen JB and Salmons JC (eds) *German heritage languages in North America: Acquisition, attrition, and change*. Amsterdam: John Benjamins, pp. 283–98.
- Hopp H, Putnam MT, and Vosburg N (2019) Derivational complexity vs. transfer effects: Long distance *wh*-movement in heritage and L2 grammars. *Linguistic Approaches to Bilingualism* 9: 341–75.
- Johannessen JB (2015) *The corpus of American Nordic speech*. In: Megyesi B (ed.) *Proceedings of the 20th Nordic Conference of Computational Linguistics NODALIDA 2015*. Vilnius: NEALT Proceedings Series 23.
- Johannessen JB and Laake S (2012) Østnorsk som fellesdialekt i Midtvesten [Eastern Norwegian as a common dialect in the Midwest]. *Norsk Lingvistisk Tidsskrift* 30: 365–80.
- Johannessen JB, Priestley JP, Hagen K, Åfarli TA, and Vangsnes ØA (2009) *The Nordic dialect corpus: An advanced research tool*. In: Jokinen K and Bick E (eds) *Proceedings of the 17th Nordic Conference of Computational Linguistics NODALIDA 2009*. NEALT Proceedings Series 4.
- Julien M (2021) Deconstructing North Sámi sensitive verbs. *Glossa* 6: 82.
- Kayne R (2005) *Movement and silence*. Oxford: Oxford University Press.
- Kjellmer G (1975) Are relative infinitives modal? *Studia Neophilologica* 47: 323–32.
- Kupisch T and Polinsky M (2022) Language history on fast forward: Innovations in heritage languages and diachronic changes. *Bilingualism: Language and Cognition* 25: 1–12.
- Laleko O and Polinsky M (2017) Silence is difficult: On missing elements in bilingual grammars. *Zeitschrift für Sprachwissenschaft* 36: 135–63.
- LIA norsk: Korpus av eldre dialektopptak (2019) [LIA Norwegian: Corpus of older dialect recordings (2019)]. University of Oslo. Available at: <https://www.hf.uio.no/iln/tjenester/kunnskap/sprak/korpus/talesprakskorpus/lia/index.html> (accessed June 2022).
- Lightfoot D (2020) *Born to parse: How children select their languages*. Cambridge, MA: MIT Press.
- Lohndal T (2021) The syntax of heritage languages. In: Polinsky M and Montrul S (eds) *The Cambridge handbook of heritage languages and linguistics*. Cambridge: Cambridge University Press, pp. 644–67.
- Lohndal T and Putnam MT (2021) The tale of two lexicons: Decomposing complexity across a distributed lexicon. *Heritage Language Journal* 18: 1–29.

- Lohndal T and Putnam MT (to appear) Expanding structures while reducing mappings: Morphosyntactic complexity in agglutinating and polysynthetic heritage languages. In: Polinsky M and Putnam MT (eds) *Formal complexity in heritage language grammars*. Berlin: Language Science Press.
- Montrul S (2016) *The acquisition of heritage languages*. Cambridge: Cambridge University Press.
- Montrul S, Foote R, and Perpiñan S (2008) *Knowledge of wh-movement in L2 learners and heritage speakers*. In: Bruhn de Garavito J and Valenzuela E (eds) *Selected proceedings of the 2006 Hispanic Linguistics Symposium*. Somerville, MA: Cascadilla Press, pp. 93–106.
- Nordström J (2010) *Modality and subordinators*. Amsterdam: John Benjamins.
- Perpiñan S (2011) Optionality in bilingual native grammars. *Language, Interaction and Acquisition* 2: 312–41.
- Pesetsky D and Torrego E (2001) T-to-C movement: Causes and consequences. In: Kenstowicz M (ed.) *Ken Hale: A life in language*. Cambridge, MA: MIT Press, pp. 355–426.
- Platzack C (2001) The vulnerable C-domain. *Brain and Language* 77: 364–77.
- Polinsky M (2018). *Heritage languages and their speakers*. Cambridge: Cambridge University Press.
- Portner P (1997) The semantics of mood, complementation, and conversational force. *Natural Language Semantics* 5: 167–212.
- Putnam MT (2019) The (in)stability of grammars. *Studies in Second Language Acquisition* 41: 275–78.
- Putnam MT (2020) One feature – one head: Features as functional heads in language acquisition and attrition. In: Guijarro-Fuentes P and Suárez-Gómez C (eds) *New trends in language acquisition within the generative perspective*. Dordrecht: Springer, pp. 3–25.
- Putnam MT and Sánchez L (2013) What’s so incomplete about incomplete acquisition? a prolegomenon to modeling heritage language grammars. *Linguistic Approaches to Bilingualism* 3: 478–508.
- Putnam MT and Søfteland Å (2021) Mismatches at the syntax–semantics interface: The case of non-finite complementation in American Norwegian. *Nordic Journal of Linguistics* 1–38.
- Putnam MT, Perez-Cortes S, and Sánchez (2019) Language attrition and the Feature Reassembly Hypothesis. In: Schmid MS and Köpcke B (eds) *The Oxford handbook of language attrition*. Oxford: Oxford University Press, pp. 18–24.
- Rizzi L (1997) The fine structure of the left periphery. In: Haegeman L (ed.) *Elements of grammar*. Oxford: Oxford University Press, pp. 281–337.
- Sabel J (2020) P and the emergence of the Infinitival Left Periphery. In: Garzonio and Rossi S (eds) *Variation in P | comparative approaches to adpositional phrases*. Oxford: Oxford University Press, pp. 135–63.
- Scontras G, Polinsky M, and Fuchs Z (2018) In support of representational economy: Agreement in heritage Spanish. *Glossa* 3: 1–29.
- Søfteland Å, Putnam MT, and Hjelde A (2021) *Variation in infinitive markers in American Norwegian*. In: Hjelde A and Søfteland Å (eds) *Selected proceedings of the 10th Workshop on Immigrant Languages in the Americas (WILA 10)*. Somerville, MA: Cascadilla Press, pp. 60–68.
- Starke M (2009) Nanosyntax: A short primer to a new approach to language. *Nordlyd* 36: 1–6.
- Svenonius P (2016) Spans and words. In: Siddiqi D and Harley H (eds) *Morphological metatheory*. Amsterdam: John Benjamins, pp. 199–220.
- Walkden G (2014) *Syntactic reconstruction in Proto-Germanic*. Oxford: Oxford University Press.
- Westergaard MR and Vangsnes ØA (2005) Wh-questions, V2, and the left periphery in three Norwegian dialects. *Journal of Comparative Germanic Linguistics* 28: 269–96.

**Appendix I.** Speakers in CANS producing *wh*-infinitives + their number of examples of finite indirect questions + their total amount of tokens produced in the corpus.

Speaker	wh-inf.	wh-fin.	Tokens
Chicago-01gk	1	0	6,794
CoonRapids-01gm	1	0	2,678
CoonValley-08gm	1	1	4,914
CoonValley-12gm	1	0	4,188
Harmony-01gk	2	0	6,560
Hatton-01gm	1	0	3,559
Minneapolis-01uk	1	1	4,833
Outlook-07gk	1	1	2,316
Portland-01gm	1	1	5,013
Saskatoon-01gk	1	0	5,989
Saskatoon-07gk	1	1	5,010
Spokane-03gk	1	2	6,545
SpringGrove-07gm	1	1	2,555
Starbuck-01gk	1	0	2,190
Sunburg-01gm	1	1	2,505
Sunburg-02gk	1	0	2,286
Sunburg-05gk	1	0	8,059
Sunburg-10gm	1	1	4,003
Ulen-03gm	1	0	3,545
Westby-07gk	1	1	6,081
Williston-01gm	1	0	3,200