

On the Grammaticalization of *whether*
From *wh*-pronoun to question complementizer

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Roadmap

1. *Hwæper*-questions in OE: From *wh*-pronoun to complementizer
2. Source *Boethius*
 - a. Syntax
 - b. Meaning
3. Five types of *hwæper*-questions in *Boethius*
4. A grammaticalization pathway
5. Earlier accounts (long version)
6. Discussion and outlook

1. *Hwæper*-questions in OE

wh-pronoun “which of the two”; attested in Gothic already

(wh) þa þæt folc gesamnod wæs þa cwæð Pilatus,
 There the people collected was then said Pilatus,
 hwæper wylle ge þæt ic eow agyfe þe Barrabban ðe þone hælynd
whether want you that I you give or Barabbas or the saviour
 ðe is Crist gehaten?
 that is Christcalled?

‘When the people was assembled, Pilate said: **Which one** do you want that I should give you, **Barabbas or the saviour** who is called Christ?’ (cowsgosp,Mt_[WSCp]:27.17.2019)

1. *Hwæþer*-questions in OE

complementizer for polar questions, see modern *whether*

(comp)

Sege me nu hwæðer þu mid rihte mæge seofian

say me.DAT now **whether** you with right may lament

þina unsælþa (...)

your misfortunes ...

‘Tell me now whether you can rightly lament your misfortunes ...’

(OE Boethius 10: 16–17)

1. *Hwæþer*-questions in OE

Unembedded *hwæðer* questions that look like subordinate questions (‘TROUBLEMAKERS’)

- (1) Hwæðer nu gimma wlite eowre eagan to him getio
whether now jewels looks your eyes to them **attract**
 heora to wundrianne
 them.GEN to wonder.INF

‘Does the beauty of jewels attract your eyes, to wonder at them?’

(OE Boethius 13: 40–41; Godden & Irvine 2009: 266)

Traugott (1972), Allen (1980):

- polar questions
- look like subordinate clauses (‘troublesome’)
- syntactic in free variation to verb-fronting (V1)
- “no semantic/pragmatic difference to V1 questions”

1. *Hwæper*-questions in OE — *The traditional picture (short version)*

Ambiguity. *hwæper*₁: *wh*-pronoun, allows V2 clauses

*hwæper*₂: complementizer, triggers V-late syntax

Emergence.

*hwæper*₂: from *hwæper*₁ by reanalysis (van Gelderen 2004, 2009)

- no attempt to identify bridging contexts
- no discussion of semantic reanalysis
- *post hoc* guessing

TROUBLEMAKERS.

- elicit irritated comments
- viewed as a post-change spin of (comp. modern insubordination)
- play no rôle in Emergence

1. *Hwæper*-questions in OE — *Our account (preview)*

Initial stage. *hwæper*₁: *wh*-pronoun, allows V2 clauses

Emergence of *pedagogical question* construction

*hwæper*_{1.5}: Reanalysis of *hwæper*₁ in specific subordinate clauses

- pedagogical questions

Fostering of *pedagogical question* construction

*hwæper*_{1.5} in TROUBLEMAKER examples
more TROUBLEMAKER examples

Modern Stage.

complementizer *hwæper*₂

- by Actualization of *hwæper*_{1.5}

2. The Old English *Boethius*

Anicius Manlius Severinus Boëthius's *De consolazione philosophiae*

(Consolation of Philosophy, 523–525 CE), Dialogue Boethius — Philosophy ('Wisdom', 'Mind') on human happiness

OE Translation as part of King Ælfred of Wessex's scholarly initiative, ca. 890-930 (Godden & Irvine (2009, I: 146); identity of translator much disputed (Godden 2007; Godden & Irvine 2009, I: 140–146; Bately 2009, 2015)

Why *Boethius*?

more than half of all unembedded *hwæper*-questions in the York-Toronto-Helsinki Parsed Corpus of Old English Prose (YCOE; Taylor et al. 2003); independent rendering of the Latin original, faithful reflection of OE grammar

Referencing: Critical edition Godden & Irvine (2009). Where examples are taken from other Old English texts, they follow the YCOE (Taylor et al. 2003), and the references given are YCOE token IDs.

2. *Hwæther*-questions in *Boethius*: Syntax

ordinary *wh*-questions: verb-second syntax in all the early Germanic languages (Eypórsson 1995; Walkden 2014: 114–121)

unembedded *hwæþer*-questions consistently have the verb in a late position (Traugott 1972: 73; Allen 1980); this holds for all of the examples in *Boethius*

unembedded *hwæþer*-questions often/mostly show the verb in subjunctive mood

→ unembedded *hwæþer*-questions share syntactic patterns typical with subordinate clauses

See next section for detailed data record.

2. *Hwæther*-questions in OE *Boethius*: Semantics/Pragmatics

unembedded *hwæþer*-questions more often than not contain the words *nu* (23x in Boethius) or *þonne* (3x in Boethius). Discourse particles in OE (Van Kemenade & Links, 2020)

unembedded *hwæþer* questions (Boethius): pedagogical / ‘Socratic questions’

dialogue between Wisdom (W) and Boethius (B): only W ever asks unembedded *hwæþer* questions (in 48 instances).

Initial example: W provokes B after monologue on the dangers of wealth.

- (1) Hwæðer nu gimma wlite eowre eagan to him getio
whether now jewels looks your eyes to them **attract**
 heora to wundrianne
 them.GEN to wonder.INF
 ‘Does the beauty of jewels attract your eyes, to wonder at them?’

W immediately answers the question herself (“I know that they do so”).

Intermezzo: On the pragmatics of pedagogical questions

A. Pedagogical questions by **Speaker's intention**

- Sp knows answer to Q.
- Sp aims to elicit Ad belief about Q.

similar to *biased questions, exam questions, rhetorical questions* (Truckenbrodt 2004).

Most questions can be used as pedagogical question if supported by context.

B. Pedagogical questions by **literal content**

- Question asks for Ad belief about Q: What do you think — p or $\neg p$?
- literal content: *Do you believe that p , or do you believe that $\neg p$.*
- Force Ad to form an opinion on Q

Unembedded *hwæper* questions are **pedagogical questions by literal content**.

See other cues for non-standard questions in German (Eckardt & Beltrama 2019, Truckenbrodt 2006), Hungarian (Gyuris, 2017), Romanian (Farkas, 2019) a.o.

Intermezzo: On the pragmatics of pedagogical questions

- All unembedded *hwæþer* questions are pedagogical questions in Boethius.
- Some **embedded Type 4** questions convey information seeking questions.

(2) Ac ic wolde þe acsian *hwæðer* we ænigne frydom habban,
 and I wanted you ask whether we any freedom have
 oððe ænigne anweald hwæt we don
 or any power (as to) what we do
 hwætwe ne don
 what we not do

‘But **I would like to ask you whether** we have any freedom, or any power as to what we do or not do’

(OE Boethius 40: 101–103) — ISQ asked by Boethius.

- Some ordinary questions convey pedagogical questions by Wisdom to Boethius (i.e. are pedagogical questions by Speaker’s intention).

3. Five types of *hwæper* questions in *Boethius*

Type 1: *hwæper* as a *wh*-pronoun in the sense ‘which (of the two)’.

- (3) hwæperne woldest þu deman wites wyrpran
 whether.ACC would you deem punishment.GEN worthier
 þe ðone þe ðone unscyldgan witnode,
 either the that the innocent.ACC punished
 ðe ðone þe þæt wite þolade?
 or the that this punishment.ACCsuffered

‘**Which (of the two) would you judge worthier of punishment**, the one who punished the innocent, or the one who suffered this punishment?’

(OE Boethius 38: 220)

hwæðer.ne ACC = nominal *wh*-pronoun; cognate with Gothic *hwapar* (Nielsen 1998: 78–79; Ringe 2006: 290), *wh*-pronoun sense is the only attested sense in Gothic (Parra-Guinaldo 2013: 155–161; Walkden 2014: 146–147).

3. Five types of *hwæþer* questions in *Boethius*

Type 1: *hwæþer* as a *wh*-pronoun in the sense ‘which (of the two)’.

- (4) þa þæt folc gesamnod wæs þa cwæð Pilatus,
 There the people collected was then said Pilatus,
 hwæþer wylle ge þæt ic eow agyfe þe Barrabban ðe þone hælynd
 whether want you that I you give or Barabbas or the saviour
 ðe is Crist gehaten?
 that is Christcalled?

‘When the people was assembled, Pilate said: Which one do you want that I should give you, Barabbas or the saviour who is called Christ?’ (cowsgosp,Mt_[WSCp]:27.17.2019)

(example will be used to illustrate our analysis below)

3. Five types of *hwæþer* questions in *Boethius*

Type 2: *hwæðer you believe / would say / think that p*

(5) hwæðer þu woldest cweðan þæt he wære unwyrðe
whether you wanted say that he be.SUBJ unworthy
anwealdes and weorðscipes

power.GEN and honor.GEN

‘would you say that he was unworthy of power and honour?’

(OE Boethius 27: 40–41)

3. Five types of *hwæþer* questions in *Boethius*

Type 2: *hwæðer you believe / would say / think that p* — in embedded clauses

- (6) **Sege me nu** hwæðer þu æfre gehyrdest þæt he
say me now whether you ever heard.SUBJ that it
 angum þara þe ær us wære eallunga þurhwunode.
 to-any those who earlier us was entirely persisted.

‘**Tell me now** whether you have ever heard that it [= wealth] persisted in full for any of those who were before us.’

(OE *Boethius* 29: 8–9)

➔ straightforward to modern ears, but a TROUBLEMAKER in the old grammar with ‘which of two’

3. Five types of *hwæþer* questions in *Boethius*

Type 3: *hwæþer* p?

- (1) Hwæðer nu gimma wlite eowre eagan to him getio
whether now jewels looks your eyes to them attract
heora to wundrianne
them.GEN to wonder.INF

‘Does the beauty of jewels attract your eyes, to wonder at them?’

Always convey pedagogical questions in Boethius.

3. Five types of *hwæþer* questions in *Boethius*

Type 4: *hwæðer* as a question complementizer (= modern *whether*)

(7) ðry weras ... axodon ... hwæðer se halga Petrus

three men asked whether the holy Peter

þær wununge hæfde

there dwelling had.SUBJ

‘Three men asked whether Saint Peter lived there’

(coelive,+ALS[Peter’s_Chair]:109.2346)

(8) Sege me nu hwæðer þu mid rihte mæge seofian

say me.DAT now whether you with right may lament

þina unsælþa (...)

your misfortunes ...

‘Tell me now whether you can rightly lament your misfortunes ...’

(OE Boethius 10: 16–17)

3. Five types of *hwæþer* questions in *Boethius*

Type 5: *hwæðer q*, embedded under verb of *belief*

- (9) Wenst þu hwæðer he mæge yfel don?
 think you whether he may.SUBJ evil do?
 ‘Can he [= God] do evil, do you think?’
 (OE Boethius 35: 150)

Syntax: could be an embedded polar question with complementizer *hwæþer*.

Semantics: violates Karttunen’s semantic universal (Karttunen, 1977; Uegaki 2016, 2019)

- *believe* and synonyms do not allow question complements
 (most likely due to incompatibility between the epistemic nature of *believe*-verbs and questions)
- Type 5 are severe **Semantic TROUBLEMAKERS**.

3. Five types of *hwæþer* questions in *Boethius*

Some numbers in *Boethius*

Type 1: <i>hwæþer of the two, X or Y?</i>	n=2
Type 2: <i>hwæþer you believe that q?</i>	n=27
Type 3: <i>hwæþer q?</i>	n=19
Type 4: embedded <i>I ask you hwæþer p.</i>	n=11
Type 5: embedded <i>Do you believe hwæþer p?</i>	n=8

3. Five types of *hwæþer* questions in *Boethius*

Traditional grouping	
Stage 1	<i>hwæþer of the two, X or Y?</i>
Stage 2	<i>I ask you hwæþer p.</i> <i>Do you believe hwæþer p?</i> <i>Tell me hwæþer you believe that q</i>
TROUBLE-MAKERS	<i>hwæþer q?</i> <i>hwæþer you believe that q?</i>

Our grouping	
Stage 1	<i>hwæþer of the two, X or Y?</i>
Intermediate Stage: pedagogical questions	<i>Tell me hwæþer you believe that q</i> <i>hwæþer you believe that q?</i> <i>Do you believe hwæþer p?</i> <i>hwæþer q?</i>
Stage 2	<i>I ask you hwæþer p.</i>

Type 1: *hwæþer of the two, X or Y?*

Type 2: *hwæþer you believe that q?*, *Tell me hwæþer you believe that q*

Type 3: *hwæþer q?*

Type 4: embedded *I ask you hwæþer p.*

Type 5: embedded *Do you believe hwæþer p?*

4. Our grammaticalization pathway

Stages
1. <i>Whether S(x), A or B?</i>
2a. <i>Tell me whether you think that p</i>
2b. <i>Whether you think that p?</i>
2c. <i>Do you think whether p?</i>
2d. <i>Whether p?</i>
3. <i>He asked whether p.</i>

Working Assumptions

- In stage 1, *hwæper* is a question pronoun with the meaning ‘which of the two’.
- In the final stage, *hwæper* is a question complementizer for polar questions.
- Reanalysis must have taken place, as the logical type of *hwæper* is different in the first and last stage.
- In an optimal pathway, the grammars of types of *hwæper* questions in adjacent stages must be minimally different. Any reordering of stages would stipulate adjacent grammars that differ more.

4. A grammaticalization pathway

4.1. Gothic *hwāþar* / Old English *hwæþer* in the sense ‘which of two’:

Syntax:

Hwæþer is argument of the main verb.

Hwæþer is raised to Spec,CP and leaves a coindexed trace t_i .

Semantics:

$\llbracket \text{hwæþer} \rrbracket^{w,g} = D$ domain D is determined by deixis in context.

Presupposition: $|D| = 2$

$\llbracket \text{hwæþer} \rrbracket^{w,g} = \{A,B\}$ combines with further parts of the sentence by pointwise composition (Hamblin 1973).

Hwæþer is of flexible type. D can be domains of type e or of type $\langle s,t \rangle$, as in sentences like *hwæþer do you believe, S or T?*

4.1. Gothic *hwæþar* / Old English *hwæþer* in the sense ‘which of two’

Example derivation, **ad** = addressee of the utterance

(10) *Hwæþer do you want, Barabbas or Christ?*

1. LF structure: [*hwæþer*₁ do you want *t*₁]
2. $\llbracket \text{you want } t_1 \rrbracket^{w,g} = \{ \text{WANT}_w(\text{ad}, t_1) \}$
3. $\llbracket \text{hwæþer}_1 \rrbracket^{w,g} = \{ \text{Barabbas, Christ} \}$
4. $\llbracket \text{hwæþer}_1 \text{ you want } t_1 \rrbracket^{w,g}$

$$= \llbracket \text{hwæþer}_1 \rrbracket^{w,g} \oplus \llbracket 1 \rrbracket^{w,g} \oplus \llbracket \text{you want } t_1 \rrbracket^{w,g}$$

$$= \llbracket \text{hwæþer}_1 \rrbracket^{w,g} \oplus \{ \lambda t_1 . \text{WANT}_w(\text{ad}, t_1) \}$$

$$= \{ \text{Barabbas, Christ} \} \oplus \{ \lambda t_1 . \text{WANT}_w(\text{ad}, t_1) \}$$

$$= \{ \lambda w . \text{WANT}_w(\text{ad}, \text{Barabbas}), \lambda w . \text{WANT}_w(\text{ad}, \text{Christ}) \}$$

Final information-seeking question: {‘You want Barabbas’, ‘You want Christ’}

4. A grammaticalization pathway

4.2 Embedded sentences of Type 2

- (6) Sege me nu hwæðer þu æfre gehyrdest þæt he
 say me now whether you ever heard.SUBJ that it
 anum þara þe ær us wære eallunga þurhwunode.
 to-any those who earlier us was entirely persisted.
 ‘Tell me now whether you have ever heard that it [= wealth] persisted in full for any of those who were before us.’

could be use of Type 1, with ellipsis of second alternative (cf. the proposal in Walkden 2014: 154–155)

- (11) ... *hwæper* (‘which’) you heard: That it stayed with any of those before us (or that it never stayed).

4. A grammaticalization pathway

4.2 Embedded sentences of Type 2

Hearer construes an elided *non-S* and can interpret $\llbracket hwæper \rrbracket^{w.g} = \{S, \text{non-S}\}$.

(12) $[hwæðer_i [_{IP} \text{þu gehyrdest } t_i]] [\text{þæt } S \text{ (or } \text{þæt non-S) }]$

Sentence (12) under analysis 4.1 yields the following denotation.

(13) {‘you heard that wealth stayed with someone before us’,
‘you heard that wealth never stayed with anyone before us’}

→ complement of the matrix clause *sege me nu* ‘Tell me now’

= tantamount to asking question (13).

→ pedagogical question by content.

4. A grammaticalization pathway

4.3 Reanalyse embedded sentences of Type 2

hwæþer directly combines with proposition S to yield {S, non-S} (see Hamblin 1973)

$$\llbracket \text{hwæþer} \rrbracket^{\text{w.g}} = \lambda p \lambda q (q = p \vee q = \neg p)$$

hwæþer no longer is a cataphor but enters an operator-argument relationship with *þat S*.

At LF, *hwæþer_i* is a sister of [*þat S*].

- (14) [CP *hwæþer_i* [IP þu gehyrdest [*hwæþer_i* þæt S]]
 whether you heard.SUBJ that S

We leave the details of the complex subordination *hwæþer þat* open.

(could be taken to correspond to the operator stage of van Gelderen (2009))

4. A grammaticalization pathway

4.3 Reanalyse embedded sentences of Type 2

(15) LF structure: $[_{IP} \text{þu gehyrdest } [\text{hwæþer}_i \text{ þæt } S]]$

1. $\llbracket \text{hwæþer} \rrbracket^{w,g} = \lambda p \lambda q (q = p \vee q = \neg p)$

2. $\llbracket \text{hwæþer } S \rrbracket^{w,g} = \lambda q (q = \llbracket S \rrbracket \vee q = \neg \llbracket S \rrbracket)$

3. $\llbracket \text{þu gehyrdest} \rrbracket^{w,g} = \{ \lambda p. \text{HEARD}_w(\mathbf{ad}, p) \}$

combines with (2.) pointwise to yield

4. $\{ \lambda w. \text{HEARD}_w(\mathbf{ad}, \llbracket S \rrbracket),$

$\lambda w. \text{HEARD}_w(\mathbf{ad}, \neg \llbracket S \rrbracket) \}$

{you heard p, you heard non-p }

Combine with *sege me nu*

Literal meaning ‘Tell me: Did you hear that S, or did you hear that not-S’.

4. A grammaticalization pathway

4.4. Type 2, elision of redundant material: Leave out “tell me”

- (5) hwæðer þu woldest cweðan þæt he wære unwyrðe
 whether you wanted say that he be.SUBJ unworthy
 anwealdes and weorðscipes
 power.GEN and honour.GEN
 ‘would you say that he is unworthy of power and honour?’
 (OE Boethius 27: 40–41)

- *Hwæðer S* retains subordinate clause structure
- Matrix clause elided (~~Tell me~~)
- Remaining structure as before

4. A grammaticalization pathway

4.4. Type 2, elision of redundant material: Leave out “tell me”

(16) LF structure:

[_{IP} hwæðer þu woldest cweðan [t_i þæt he wære unwyrðe anwealdes and weorðscipes]]

1. $\llbracket \text{hwæðer} \rrbracket^{w,g} = \lambda p \{ p, \neg p \}$

2. $\llbracket \text{þæt he wære unwyrðe anwealdes and weorðscipes} \rrbracket^{w,g}$

= $\lambda w. \text{UNWORTHY}_w(\mathbf{He}, \mathbf{Power\&Honour}) =: \mathbf{p}$

‘he was unworthy of power and honour’ =: \mathbf{p}

3. Interpret *hwæðer* in its underlying position, combining with \mathbf{p} .

$\llbracket \text{hwæðer-þæt he wære unwyrðe anwealdes and weorðscipes} \rrbracket^{w,g} = \{ \mathbf{p}, \neg \mathbf{p} \}$

4. The matrix clause contributes the predicate ‘you want to say q’:

$\llbracket \text{þu woldest cweðan} \rrbracket^{w,g} = \{ \lambda q. \text{SAY}(\mathbf{ad}, q) \}$

5. Matrix clause and embedded question *compose pointwise*

$\{ \lambda w. \text{SAY}(\mathbf{ad}, \text{UNWORTHY}_w(\mathbf{He}, \mathbf{Power\&Honour})),$

$\lambda w. \text{SAY}(\mathbf{ad}, \neg \text{UNWORTHY}_w(\mathbf{He}, \mathbf{Power\&Honour})) \}$

$\approx \{ \text{Would you say } \mathbf{p}, \text{ Would you say } \neg \mathbf{p} \}$

4. A grammaticalization pathway

4.5. Type 5: TROUBLEMAKER resolved

- (9) Wenst þu hwæðer he mæge yfel don?
 think you whether he may.SUBJ evil do?
 ‘Can he [= God] do evil, do you think?’
 (OE Boethius 35: 150)

Reminder: Type 5 seem to show question denotations as arguments of *believe* verbs. This is prohibited.

Solution:

We assume that (9) shows *hwæper* overtly in the LF position assumed in (16).

Adopt analysis in (16):

- The question combines pointwise with the matrix predicate, *not* by argument-functor relation.
- Hence, no semantic conflict arises.

4. A grammaticalization pathway

4.5. Type 5: TROUBLEMAKER resolved

Sample derivation.

1. LF: [wenst þu [hwæþer he may do any evil]]
2. $\llbracket \text{hwæþer } S \rrbracket^{\text{w,g}}$
= { 'he may do evil', 'he may not do evil' }
3. $\llbracket \text{wenst þu } t_i \rrbracket^{\text{w,g}} = \{ \lambda p_i . \text{BELIEVE}_w(\mathbf{ad}, p_i) \}$
4. pointwise composition of (2) and (3)
 $\{ \lambda w . \text{BELIEVE}_w(\mathbf{ad}, \text{'he may do evil'}), \lambda w . \text{BELIEVE}_w(\mathbf{ad}, \text{'he may not do evil'}) \}$

We predict a pedagogical question meaning:

“Do you believe that he may do evil, or do you believe that he may not do evil?”

4. A grammaticalization pathway

4.6. Type 3: Unembedded *hwæþer* questions

(1) **Hwæðer** nu gimma wlite eowre eagan to him **getio**, heora to wundrianne?

Reminder:

- *hwæþer* in a polar question in verb-final syntax.
- Speaker intends to ask a pedagogical question. (Shaded by *nu*.)

Our Assumption:

We extend the analysis of Type 5 to these examples.

We assume a tacit matrix predicate *Do you think*

- to account for subordinate clause syntax;
- to predict pedagogical question meaning;

4. A grammaticalization pathway

Type 3: Unembedded *hwæþer* questions

(17) LF with tacit embedding predicate¹

[[Do you think]_∅ [CP *hwæþer*_{exp} C[∅] [TP S]]]

(18) $\llbracket \textit{hwæþer} \rrbracket^{w,g} = \lambda p \{p, \neg p\}$

(19) $\llbracket \textit{hwæþer} \text{ jewels attract your eyes} \rrbracket^{w,g}$

= {‘jewels attract your eyes’, ‘jewels don’t attract your eyes’}

(20) $\llbracket [\textit{Do you think}]_{\emptyset} t_i \rrbracket^{w,g} = \{ \lambda p_i . \text{Think}_w(\text{ad} , p_i) \}$

(21) Pointwise composition with (19):

{ Think_w(ad , ‘jewels attract your eyes’), Think_w(ad , ‘jewels don’t attract your eyes’) }

- tacit predicate forces subordinate clause syntax
- tacit predicate ensures pedagogical question sense: Do you think that *p*, or do you think that $\neg p$?

¹ We have represented *hwæþer* as occupying Spec,CP in (24), but nothing rests on this either syntactically or semantically.

4. A grammaticalization pathway. Taking Stock

Question type	Analysis	“itchy” parts
<i>Whether S(x), A or B?</i>	<i>wh</i> -pronoun over domain of size 2	none
<i>Tell me whether you think that p</i>	Ellipsis and Reanalysis [[<i>whether</i>]] = $\lambda p \lambda q (q=p \vee q=\neg p)$ pedagogic question (by content)	<i>whether</i> not interpreted in situ <i>whether</i> and <i>that</i> compete
<i>Whether you think that p?</i>	elision of redundant material: <i>tell me</i> matrix clause pedagogic question (fostering)	<i>whether</i> not interpreted in situ <i>whether</i> and <i>that</i> compete ad hoc pointwise composition
<i>Do you think whether p?</i>	<i>whether</i> shows in its LF position and matrix question clause pedagogic question (fostering)	ad hoc pointwise composition matrix clause: question concord?
<i>Whether p?</i>	Tacit <i>Do you think</i> matrix clause pedagogic question (elision)	tacit material needed
<i>He asked whether p.</i>	Actualization <i>whether</i> as question complementizer standard composition with matrix clause	none

4. A grammaticalization pathway. Taking Stock

Question type	Analysis	“itchy” parts
<i>Whether S(x), A or B?</i>	<i>wh</i> -pronoun over domain of size 2	none
<i>Tell me whether you think that p</i>	Ellipsis and Reanalysis [[<i>whether</i>]] = $\lambda p \lambda q (q=p \vee q=\neg p)$ pedagogic question (by content)	<i>whether</i> not interpreted in situ <i>whether</i> and <i>that</i> compete
<i>Whether you think that p?</i>	elision of redundant material: <i>tell me</i> matrix clause pedagogic question (fostering)	<i>whether</i> not interpreted in situ <i>whether</i> and <i>that</i> compete ad hoc pointwise composition
<i>Do you think whether p?</i>	<i>whether</i> shows in its LF position and matrix question clause pedagogic question (fostering)	ad hoc pointwise composition matrix clause: question concord?
<i>Whether p?</i>	Tacit <i>Do you think</i> matrix clause pedagogic question (elision)	tacit material needed
<i>He asked whether p.</i>	Actualization <i>whether</i> as question complementizer standard composition with matrix clause	none

Result: Modern complementizer (= standard grammar) needs the intermediate pedagogical questions (“itchy” grammar) to emerge by **actualization**. Itchy patterns got lost.

Unembedded *whether*-questions as of OE are attested once in later centuries: Bishop Berkeley: *The Querist* (1735-37), who framed claims as questions to avoid censoring. Berkely most likely knew *Boethius*, as he used classical dialogue between Wisdom and Man in his other writings. https://en.wikisource.org/wiki/The_Querist

5. Old English *hwæper*: Earlier Accounts

5.1 *The standard syntactic story*

Traditional analysis (Allen 1980: 791; Bosworth & Toller 1898): two *hwæpers* in Old English

*hwæper*₁ question pronoun (Type 1) allowing for subject-verb inversion

*hwæper*₂ complementizer (Type 2-5) competes with finite verbs for C⁰

Cf. den Besten (1989): complementary distribution of the complementizer and the finite verb.

Adopted in Kiparsky (1995: 142), van Gelderen (2009), Parra-Guinaldo (2013), Walkden (2014: 144–155)

From *hwæper*₁ to *hwæper*₂ Van Gelderen (2009, 2004) (see also Ukaji 1997; Parra-Guinaldo 2013):

- pronoun moves to Spec,CP – leaving room for V movement
- is reanalysed in some contexts as an operator first Merged there, Late Merge Principle (“Merge as late as possible”) (at the same time reanalysed semantically? how?)
- complementizer in C⁰ (Head Preference Principle, “Be a head, rather than a phrase”).
- main evidence for RA: verb-late clauses, no verb movement to the C-domain (van Gelderen 2009: 142).

5. Old English *hwæper*: Earlier Accounts

5.2 Synchronic problems with the standard story

- Syntax: Why unembedded clauses, starting with a complementizer? (No other such attested for OE.)
- Syntax: Competition between *and* and finite verb doesn't capture OE data correctly (see Walkden 2014, 2017, to appear; Walkden & Booth 2020: section 3)
- **Pragmatics**: why do unembedded clauses express pedagogical questions?

5.3 Diachronic problems with the standard story

- van Gelderen (2009) predicts V2 versions of Type 2/3 (unembedded *hwæper*) questions. These are unattested.
- **Semantic motivation** missing: why should a *wh*-pronoun turn into a complementizer for *polar* questions?
- serious **discussion of bridging contexts is missing**; our hypothesis rests on attested kinds of embedded sentences. (see also Mitchell 1985, I: 681; Fischer et al. 2000: 54; Walkden 2014: 150, for previous ideas in a similar direction.)
- **Troublemakers** are left aside.
- **Semantic troublemakers** can not be treated as either, *hwæper*₁ or *hwæper*₂

Summary

Traditional pathway	
Stage 1	<i>hwæþer of the two, X or Y?</i>
Reanalysis	
Stage 2	<p><i>I ask you hwæþer p.</i></p> <p><i>Do you believe hwæþer p?</i></p> <p><i>Tell me hwæþer you believe that q?</i></p>
TROUBLE-MAKERS	<p><i>hwæþer q?</i></p> <p><i>hwæþer you believe that q?</i></p>

Our pathway	
Stage 1	<i>hwæþer of the two, X or Y?</i>
<p>Intermediate Stage:</p> <p>pedagogical questions</p>	<p><i>Tell me hwæþer you believe that q</i></p> <p>Reanalysis</p> <p><i>hwæþer you believe that q?</i></p> <p>Elision</p> <p><i>Do you believe hwæþer p?</i></p> <p>(Reanalysis?)</p> <p><i>hwæþer q?</i></p> <p>Elision</p>
Stage 2	<p><i>I ask you hwæþer p.</i></p> <p>Actualization</p>

New pragmatic function → Reanalysis

Thanks for listening!
Comments welcome

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Appendix: Partial *wh*-movement as another question pattern?

This section presents questions where a matrix *what*-question ‘what do you think’ combines with a subordinate *hwæþer* question, as we see in (22).

- (22) Hwæt wenst du nu, (...) hwæðer he sie swa ungesælig
 what believe you now (...) whether he is.SUBJ so unworthy
 swa se þe nanwuht godes næfþ?
 as he who not.any good.GEN not-has

‘What do you think now, (...) ? Would he [who has some element of good in him] be as unfortunate as one who had nothing good?’

(OE Boethius 38: 108–110)

(22) can be paraphrased as ‘what do you think about the following question: Is *he* who has at least some good in him as unworthy as *he* who has no good at all?’ Similar examples in modern Dutch, German and Russian are studied as ‘partial *wh*-movement’ (see Fanselow 2017 for an overview), and the pattern in (22) is attested for more types of embedded questions in Old English as well. As OE data do not offer evidence for movement, *wh*-doubling or scope marking complementizers in general, we favour a base-generation analysis in which the two *wh*-elements do not form a syntactic

chain, following Dayal (1994, 2000), Felser (2001). We assume that the *hwæper*-question rests on the word's newer sense and serves to specify the search domain of *hwæt* in the matrix clause. According to this view, semantic composition proceeds in the following steps.

(23) Semantic composition of (22)

1. $\llbracket \text{he sie swa ungesælig swa se þe nanwuht godes næfþ} \rrbracket^{w,g} = \mathbf{p}$

2. $\llbracket \text{hwæper S} \rrbracket^{w,g} = \{ \mathbf{p}, \neg\mathbf{p} \}$

3. $\llbracket \text{wenst þu t}_i \rrbracket^{w,g} = \{ \lambda p_i . \text{BELIEVE}_w (\text{ad} , p_i) \}$

4. $\llbracket \text{hwæt}_i \rrbracket^{w,g}$ resumes $\llbracket \text{hwæper S} \rrbracket^{w,g}$,

therefore $\llbracket \text{hwæt}_i \rrbracket^{w,g} = \{ \mathbf{p}, \neg\mathbf{p} \}$

5. question denotation by standard composition of (3) and (4):

$$\llbracket \text{hwæt wens t}_i \rrbracket^{w,g}$$

$$= \{ \lambda w . \text{BELIEVE}_w (\text{ad} , \mathbf{p}), \lambda w . \text{BELIEVE}_w (\text{ad} , \neg\mathbf{p}) \}$$

This question type avoids several of the irregularities of the preceding examples. Firstly, pointwise semantic composition no longer happens *ad hoc* but by standard combination of question pronoun and its host clause. Secondly, *hwæper* is analysed as a question complementizer that is located in Spec,CP of the embedded clause, as standard would have it.

Thirdly, the question type generalizes to other types of embedded questions in OE as well as in other Germanic languages. This corroborates our claim that sentence (22) avoids idiosyncratic steps in the derivation that were needed to account for question types 2 and 5.