Microvariation in the “Have Yet To” Construction

Matthew Tyler & Jim Wood
Yale University

1 Introduction

- The “have yet to” (HYT) construction is found in all major dialects of English.

(1) John has yet to visit his grandmother.

Nevertheless, a closer investigation reveals numerous dimensions of microvariation in the syntax of HYT.

- Speakers vary with respect to:
  - The status of have as auxiliary or main verb
  - The status of negation tests
  - The status of a variety of related yet to constructions

- Today’s Goal: Sort out the microsyntax of HYT across speakers, in the face of contradictory empirical claims and mutually incompatible proposals in the existing literature.

  - We develop an analysis of the variation on the basis of two acceptability judgment surveys studying 361 and 520 speakers.
  - We focus on two main dimensions of variation: the status of have, and the status of negation.

Results Previewed

The status of have

- Speakers who treat it as a main verb can also treat it as an auxiliary verb, but not vice-versa.

  → Proposal: The difference between the main and auxiliary verb is small, having to do with where the [iT:PERF] feature is introduced.

    - Auxiliary have: [iT:PERF] merged in its canonical position.
    - Main verb have: [iT:PERF] merged lower, in the vP domain.

The status of negation

- Speakers do not treat all negation tests the same, forcing us to contend with the question of how these tests work.

  → Proposal: For most speakers, only the embedded clause is syntactically negative.

    - Negation tests split according to whether they must target the matrix clause or whether they can target an embedded clause as well.
    - In some cases, the tests will reveal the same clause to be both affirmative and negative, as we expect: the matrix clause is syntactically affirmative, but the embedded clause, which hosts the lexical content, is syntactically negative.

Roadmap

§2 Background
§3 Proposal
§4 Main vs. Aux-Have
§5 Negation and the structure of the complement clause
§6 Conclusion
2 Background

- Three previous analyses: Kelly (2012), Harves and Myler (2014) and Bybel and Johnson (2014).
  - Very different analyses, based on very different judgments of the crucial data points.
  - In this section, we outline the points of contention, some details of the analyses.

Points of contention

(i) whether *have* is treated as a main verb or an auxiliary verb
(ii) whether the construction is understood to have syntactic sentential negation or not

<table>
<thead>
<tr>
<th>(2) Kelly (2012)</th>
<th>Have</th>
<th>Sentential Negation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harves and Myler (2014)</td>
<td>Auxiliary verb</td>
<td>Yes</td>
</tr>
<tr>
<td>Bybel and Johnson (2014)</td>
<td>Main verb</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Below, we will argue that... 
  (i) there is genuine speaker variation regarding the main verb/aux-*have* question (with an interesting twist)
  (ii) syntactic negation is only present in the embedded clause

- Before getting to that, we outline the most important aspects of the previous analyses, because our analysis will draw on some insights from each of them.

2.1 Kelly (2012)

- Basic claim: *have* is an auxiliary, sentential negation is present, encoded directly on *yet*.

- *Yet* realizes perfect aspect features and negation together.

(3) a. John has yet to eat the apple.

Features of analysis

- HYT is mono-clausal, with one main verb (e.g. *eat*) and one auxiliary verb, *have*.

Problems

- Evidence that the construction is biclausal
- Evidence that the construction is not fully negative
- Auxiliary *have* is not necessary

What we take

- *Yet* carries temporal features related to the perfect semantics
- Close (but for us, indirect) connection between *yet* and negative features.

\[1\] Harves and Myler (2014) acknowledge that some speakers accept *have* as a main verb, but the bulk of their analysis is devoted toward the aux-*have* speakers.
2.2 Harves and Myler (2014)

- **Basic claim:** *have* is an auxiliary, sentential negation is not present.
  - HYT is biclausal, *yet* is an ordinary NPI.
  - A silent main verb, *FAIL* licenses the NPI and introduces negative-like semantics.
- *(4a) and (4b) are mutually entailing (on the bleached reading of *failed* in *(4a))*.

(4) a. John has failed to visit Paris yet.
     b. John has yet to visit Paris.

(5) 

Problems

- Very different analysis is required for speakers who treat *have* as a main verb.
- *FAIL* does not on its own license NPIs: it selects a clausal constituent that does.

(6) a. * John has failed anything.
     b. John has failed to finish anything.
  - This weakens the motivation to move *yet* to SpecVP, since V is not the licensor of the NPI.

What we take

- We agree with a biclausal approach, and that there is a silent verb in aux-*have* variants of the HYT construction.
- However, we see no need for it to be a silent version of the lexical verb *fail*, or any other lexical verb. Rather:

(7) a. **VP** 
     b. **vP**

- Assuming v is what selects for a negative CP, the root $\sqrt{FAIL}$ is unnecessary.
- In the absence of a root, v can be spelled out as a light verb (Folli and Harley 2013; Myler 2014).

→ When *have* is a main verb, it is the realization of a little v that is null in aux-*have* sentences.

→ This entails that *yet* is lower in the structure than in Harves and Myler’s proposal.

2.3 Bybel and Johnson (2014)

- **Basic claim:** sentential negation is present, *have* is a main verb (though cf. Johnson and Morris 2016!).
  - HYT is biclausal, *yet* adjoins to the lower TP
  - *Yet* is licensed by the modality of *have* (as in *John has to leave*).
Their claim regarding negation is motivated by two negation tests:

(9) a. John has yet to attend Mary's lecture, and neither has Jim.
    b. * John has yet to attend Mary's lecture, and so has Jim.

(10) John has yet to attend Mary's lecture, not even once.

We will show below that although Bybel and Johnson (2014) are correct that speakers accept sentences like (9a) and (10), many speakers also accept sentences like (9b).

### Problems

- Not clear where sentential negation comes from.
- Yet can't be licensed by modality in HYT.
  - Modal *have to*, unlike say *might*, does not license NPIs.
    (11) a. * John has to leave yet.
    b. John might leave yet.
  - Modality is not semantically present in HYT, as pointed out by Harves and Myler (2014).

### What we take

- For many speakers, HYT sentences do seem to pass the negation tests they provide.
- We must admit a structure (in at least some cases) with an overt main verb *have*, even if it cannot be exactly the modal *have to*.
- Yet merges below the main verb, in the complement clause.

### 3 Proposal

- Our proposal for aux-*have* sentences is given in (13):

(12) John has yet to visit Paris, although he doesn't have to visit Paris.

- v selects for a negative complementizer (cf. Landau 2002) that licenses *yet* and attracts it to SpecCP.
- Yet has an unvalued temporal feature [uT:__], which must be valued by a higher c-commanding interpretable Tense feature [iT:VAL] (using Wurmbrand's (2012) Reverse Agree framework).
In *have yet to* sentences, this valuing feature is a [iT:PERF] feature. This feature...

... is always spelled out as *have*

... can be introduced in one of two places

(i) **The canonical position:** the Perf head in the auxiliary field

(ii) **The alternative:** on the main verb v (the head that selects for negative C)

– We will notate the latter case as v_{PERF}

Our proposal for main-verb *have* sentences is given in (14).

(14)

\[
\begin{array}{c}
\text{TP} \\
\text{John} \\
\text{T} \\
\text{vP} \\
\text{v_{PERF}} \\
\text{CP} \\
\text{CP} \\
\text{NEG} \\
\text{yet} \\
\text{TP} \\
\text{to visit her (yet)}
\end{array}
\]

In what follows, we provide support for crucial aspects of our analysis. Specifically:

– The difference between aux-*have* and main-verb *have* derivations is minor and semantically negligible.

– There is an asymmetrical implicational relationship between the two derivations.

– HYT sentences are simultaneously negative and affirmative, with all the lexical content being in the scope of the negative.

### 4 Main vs. Aux-*Have*

#### 4.1 Survey Design

– Since researchers working on the HYT construction have come to different conclusions, we conducted a large scale acceptability judgment study.\(^2\)

– Administered using Amazon Mechanical Turk (AMT) (Sprouse 2011; Wood et al. 2015; Erlewine and Kotek to appear).

– Participants rated test sentences on a scale of 1–5, 1 being unacceptable and 5 being acceptable.\(^3\)

– Following the guidelines in Cowart (1997), we provided two filler sentences for every test sentence.

– Half of the filler sentences were control sentences that were intended to be grammatical or ungrammatical for everybody, such as those in (15):

(15) a. *John seems that is tired.*

b. Several books were given to John by his teacher.

c. John hopes to be bitten by mosquitoes more often.

– The control sentences were included because we wanted to make sure that we analyzed only surveys completed by participants who understood the task in the way that we intended them to understand it.

– Sentences were presented in pseudo-randomized order.

#### 4.2 Results: Do-Support vs. Aux-*Have*

– Drawing from the literature on HYT, we tested the sentences in (16):

(16) a. i. Oh, she has yet to finish, has she?

     ii. Oh, she has yet to finish, does she?

\(^2\) The surveys are part of a larger project on syntactic variation in American English.

\(^3\) See Appendix C for the survey’s instructions and a sample sentence.
b. i. What have you yet to eat?
   ii. What do you have yet to eat?

c. i. Has John yet to win the hearts of his classmates?
   ii. Does John have yet to win the hearts of his classmates?

d. i. Hasn’t John yet to win the hearts of his classmates?
   ii. Doesn’t John have yet to win the hearts of his classmates?

• The table in (17) shows the MAX judgment for each sentence type.\textsuperscript{4}
  \begin{itemize}
  \item Ratings of 4 and 5: “accept” or “good”
  \item Ratings of 1 and 2: “reject” or “bad”
  \end{itemize}

• We shade the areas of the chart that we are focused on.

\begin{center}
\begin{tabular}{l|ccc|c}
& \multicolumn{3}{c|}{Aux-have} & \\
\hline
Do-support & Bad & Marginal & Good & Total \\
\hline
Bad & 18 & 3\% & 36 & 7\% & 84 & 16\% & 138 & 27\% \\
Marginal & 10 & 2\% & 25 & 5\% & 79 & 15\% & 114 & 22\% \\
Good & 5 & 1\% & 24 & 5\% & 239 & 46\% & 268 & 52\% \\
Total & 33 & 6\% & 85 & 16\% & 402 & 77\% & 520 &
\end{tabular}
\end{center}

• 46\% of participants accepted both aux-have and do-support sentences.

• Otherwise, we have a one-way implication: almost everyone who accepts do-support also accepts aux-have, but not vice-versa.
  \begin{itemize}
  \item Only 1\% of participants accept do-support but reject aux-have.
  \item 16\% accept aux-have while rejecting all examples of do-support.
  \item 15\% accept aux-have while judging do-support as marginal at best.
  \end{itemize}

• This asymmetry is strong enough to take seriously in terms of a formal grammar.

→ We want do-support to be the marked option—which may or may not occur alongside the aux-have option.

\textsuperscript{4} The idea here is that we want to know, for each speaker, what the highest rating a speaker will give to a do-support and an aux-have sentence.

• Our analysis captures this asymmetry
  \begin{itemize}
  \item All speakers of English have access to the general Perf-head that may introduce an interpretable \([iT:PERF]\) feature
  \item The ability to introduce \([iT:PERF]\) on a “light” little \(v\) requires something extra.
  \end{itemize}

4.3 Further Support

4.3.1 Got Yet To

• The analysis also accounts for the behavior of the—until now undocumented—group of speakers who allow have got yet to, as in (18).

• (18b–d) provide attested examples of this construction, which is accepted by one of the authors of this paper.\textsuperscript{5}

\begin{center}
\begin{tabular}{l}
(18) a. We’ve \textbf{got yet to} visit our grandmother. \\
b. \( \gamma \) She blocked her eyes and drew the curtains with knots I’ve \textbf{got yet to} untie. \\
   (Michael Penn – No Myth). \\
c. \( \gamma \) That’s what I’ve \textbf{got yet to} see. \\
   \textit{Everybody’s Magazine}, Volume 47, page 143\textsuperscript{6} \\
d. \( \gamma \) And I’ve \textbf{got yet to} see a Plex developer acknowledge any kind of problem with Sync on iOS.\textsuperscript{7}
\end{tabular}
\end{center}

→ For these speakers, the otherwise null \( v \) may be spelled out as got.

\textsuperscript{5} To indicate attested example found on Google, we mark them with the “Google gamma” (see Horn 2011, 2013; Horn and Abbott 2012).

\textsuperscript{6} https://goo.gl/EQGO9t

\textsuperscript{7} https://goo.gl/bZpYBJ
4.3.2 Have had yet to

- Finally, the account correctly predicts that speakers will be able to introduce the [iT:PERF] feature on both the main verb and the Perf head.

- (19) provides examples of this construction (see also Johnson and Morris 2016).

(19) a. He **has had yet to** pay me for 29 years now.
   b. Although the UFC **has had yet to** make a public announcement as of the time of publication…
   c. Financial Services in Britain account for a full 10% of the economy even though the industry **has had yet to** fully recover from the 2008 financial crises.
   d. As I have gotten further along, my unborn child **has had yet to** go head down.

- The existence of the construction is strong support for the availability of [iT:PERF] (i.e., have) in the main verb position.
- Notice that ordinary periphrastic perfect constructions do not allow this.

(20) a. * He has had been aware of that rule for 29 years now.
   b. * The UFC has had made a public announcement…
   c. * The industry has had fully recovered…
   d. * My unborn child has had gone head down…

→ Such “double perfects” are allowed in the HYT construction because of…
   - The biclausal nature of the HYT construction
   - The availability of [iT:PERF] in the main verb position

4.4 Geographical distribution

- There is a convergence with the results in Johnson and Morris (2016):
  - Fewer acceptances of do-support in the Southeast than other regions
- We also see a cluster of acceptances of do-support spreading from Pittsburgh across the Midwest.
  - This raises the possibility of do-support as a Midlands feature (Murray and Simon 2006)
5 Negation and the structure of the complement clause

- Main claims
  - Yet is located in SpecCP of the embedded clause.
  - The embedded complementizer carries a [\text{NEG}] feature.
  - The low negation accounts for the mixed results we get when we test HYT for sentential negation.

\begin{align*}
\text{(21)} & \quad \text{TP} \\
& \quad \text{John} \\
& \quad \text{T PerfP} \\
& \quad \text{vP} \\
& \quad \text{CP} \\
& \quad \text{yet} \\
& \quad \text{C}_{\text{NEG}} \\
& \quad \text{TP} \\
& \quad \text{to visit her (yet)}
\end{align*}

5.1 The position of yet

- Yet has to follow the verb:

(22) a. John has [\text{V had}] yet to pay me back for twenty-nine years now.
 b. % Do you [\text{V have}] yet to visit your grandmother?
 c. % We’ve [\text{V got}] yet to visit our grandmother.

- Yet is located in the complement clause: it survives into a small clause, where there is no higher predicate:

(23) With [\text{SC the bride} yet to arrive], the wedding was falling apart.

- The complement clause is a CP: overt C is possible:

(24) a. John has yet for anyone to openly oppose him.
 b. I have yet for this battery to last longer than a couple of hours.

\begin{minipage}{\textwidth}
\textbf{Summary}
\begin{itemize}
  \item Regarding the position of yet, we find that it…
    \begin{itemize}
      \item follows the verb
      \item precedes the complementizer
      \item is located inside the complement clause
    \end{itemize}
  \item The most likely position for it, then, is SpecCP.
\end{itemize}
\end{minipage}

5.2 Movement of yet to SpecCP

- How does yet get to SpecCP?
  - C has a [\text{NEG}] feature, like C selected by stop, prevent (Landau 2002):

(25) The bouncer stopped [CP$_\text{NEG}$ anyone [C$_\text{NEG}$ from ] ] coming in].
(26) * The bouncer stopped anyone$_\text{NPI}$.

  - As an NPI, yet forms an Agree relation with its licensor, C$_\text{NEG}$ (cf. Harves and Myler 2014).

- Moving yet to SpecCP also enables yet to have its \text{uT: } \_ \_ \_ feature valued.
  - Otherwise yet would be trapped inside the CP phase.
5.3 Tests for sentential negation

• Main claims
  - In previous work, tests for sentential negation have yielded mixed results.
  - This is because some tests are sensitive to true sentential negation, other tests can be passed by constituent negation of an embedded clause.

• An instance of disagreement: the so/neither-inversion test.

(27) a. John has yet to attend Mary’s lecture, and neither has Jim. H&M: *; B&J: ✓
b. John has yet to attend Mary’s lecture, and so has Jim. H&M: ✓; B&J: *

• We subjected HYT to four tests for sentential negation:
  - So/neither-inversion (see (27) above)
  - VP-ellipsis with too
    (28) John has yet to win the hearts of his classmates, and Bill has too.
  - Not even
    (29) Jordan has yet to visit Grandpa, not even once.
  - Negative slifting
    (30) John has yet to eat dinner, I don’t think.

5.3.1 So/neither

We tested both aux-have and do-support variants:

(31) a. Jordan has yet to read it, and neither has Pat.
    b. Jordan has yet to read it, and so has Pat.

(32) a. Jordan has yet to read it, and neither does Pat.
    b. Jordan has yet to read it, and so does Pat.

Cross-tabulation of the two aux-have variants (31):

\[
\begin{array}{c|c|c|c|c}
\text{So-Inversion} & \text{Bad} & \% & \text{Marginal} & \text{Good} & \text{Total} \\
\hline
\text{Bad} & 54 & 9\% & 46 & 8\% & 146 & 24\% & 246 & 41\% \\
\text{Marginal} & 25 & 4\% & 27 & 4\% & 77 & 13\% & 129 & 21\% \\
\text{Good} & 42 & 7\% & 38 & 6\% & 146 & 24\% & 226 & 38\% \\
\hline
\text{Total} & 121 & 20\% & 111 & 18\% & 369 & 61\% & 601 & \\
\end{array}
\]

Key points

• Speakers do not fall neatly into two camps of neither-speakers and so-speakers.
  - There is a weak implicational relation: acceptance of so-inversion implies acceptance of neither-inversion.
  → How to explain this relation?

Licensing neither with aux-have

• A necessary condition for ellipsis with neither: the availability of a suitable antecedent to the ellipsis site (cf. van Craenenbroeck and Temmerman 2010).

(34) Steve did nothing to help, and neither did you <DO ANYTHING TO HELP>.

(35) Fat chance I’d open an attachment on any of those emails, and neither would you <OPEN AN ATTACHMENT ON ANY OF THOSE EMAILS>.
(36) (?) John seems not to be happy, and neither is Mary <HAPPY>.

- There are at least two parses available for the ellipsis site, in each case of neither/so-inversion:

(37) a. Jordan has yet to read it, and neither has Pat <READ IT>.
    b. # Jordan has yet to read it, and neither has Pat <YET TO READ IT>.

(38) a. # Jordan has yet to read it, and so has Pat <READ IT>.
    b. Jordan has yet to read it, and so has Pat <YET TO READ IT>.

  - For neither-inversion (37):
    - (37a) is more natural, though the verb changes to a participle form, so it’s somewhat marked.
    - (37b) has double negation, so is very unnatural.

  - For so-inversion (38):
    - (38a) lacks an affirmative antecedent, so is very unnatural.
    - (38b) does have an affirmative antecedent, but this is near-contentless higher clause. Hence it is still quite unnatural.

- Speakers’ grammars should be able to generate (37a) and (38b)... so why do so many reject (38b)?

  - (37a) and (38b) are each marked/unnatural in their own way.
  - Some speakers do treat HYT sentences as fully negative.
  - Differences in parsing strategies between speakers might cause them to land on unnatural (38a) before more-natural (38b) (because they are focused on lexical content), and so cause them to reject the sentence.

- Licensing neither with do-support

  - With do-support, the aux-have parse in (37a) is unavailable, meaning that there is no ‘natural’ parse for the ellipsis site:

(39) a. * Jordan has yet to read it, and neither does Pat <HAVE READ IT>.
    b. * Jordan has yet to read it, and neither does Pat <READPTCP IT>.
    c. # Jordan has yet to read it, and neither does Pat <READINF IT>.
    d. # Jordan has yet to read it, and neither does Pat <HAVE YET TO READ IT>.

  - Only so has a possible parse for its ellipsis site, in (40d) (the equivalent of (38b)):

(40) a. * Jordan has yet to read it, and so does Pat <HAVE READ IT>.
    b. * Jordan has yet to read it, and so does Pat <READPTCP IT>.
    c. # Jordan has yet to read it, and so does Pat <READINF IT>.
    d. Jordan has yet to read it, and so does Pat <HAVE YET TO READ IT>.

  - This analyses is supported by the results from the sentences with so/neither-inversion and do-support:

(41) So does vs. neither does

<table>
<thead>
<tr>
<th></th>
<th>Neither-Inversion</th>
<th>So-Inversion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bad</td>
<td>Marginal</td>
</tr>
<tr>
<td>Bad</td>
<td>324</td>
<td>62%</td>
</tr>
<tr>
<td>Marginal</td>
<td>45</td>
<td>9%</td>
</tr>
<tr>
<td>Good</td>
<td>57</td>
<td>11%</td>
</tr>
</tbody>
</table>

  - Almost no one (6% of participants) accepts neither-inversion with do-support.
  - 20% accept so-inversion.

    - This is around half of the 38% who accepted so-inversion with aux-have – i.e. basically what we would expect.
5.3.2 VP-ellipsis plus *too*

- We tested both variants of the sentence in (42). We use the higher-scoring sentence of the two for each speaker (assuming that accepting either sentence indicates that they can treat HYT as affirmative):

\[
\begin{array}{c|c|c}
& \text{Reject} & \text{Accept} \\
\hline \text{Bad} & 145 & 135 \\
\text{Marginal} & 81 & 83 \\
\text{Total} & 361 & 361 \\
\end{array}
\]

- 37% of participants accept one of the sentences.
  - i.e. the same number of participants who accepted so-inversion (38%).
- 40% of participants rejected both sentences.
  - i.e. the same number of participants who rejected so-inversion (41%).

- Note that there is a correlation between the two tests, suggesting that the same factors are at work.

\[(43)\]

a. Jordan has yet to read it, and so has Pat.

b. John has yet to win the hearts of his classmates, and Bill \{has/does\} too.

\[(44)\]

\[
\chi^2 (4, N = 361) = 110.09, p < .001
\]

5.3.3 *Not even*

- Most participants accepted HYT followed by a *not even* phrase:

\[(45)\] Jordan has yet to visit Grandpa, not even once.

\[
\begin{array}{c|c|c|c|c}
& \text{Reject} & \text{Marginal} & \text{Accept} & \text{Total} \\
\hline \text{Bad} & 40 & 10 & 284 & 361 \\
\text{Marginal} & 37 & 9 & 21 & 361 \\
\text{Good} & 284 & 79 & 124 & 361 \\
\text{Total} & 361 & 361 & 361 & 361 \\
\end{array}
\]

- This is because it is generally grammatical to attach *not even* to a negated embedded clause:

\[(46)\]

a. Paddy was certain [that Mary wouldn’t quit, not even after she sprained her ankle].

b. Mary seemed [not to be happy, not even after her blowout win on Saturday].

c. *The bouncer was stopping [anyone from coming in, not even if they had a ticket].

- Under our analysis, the embedded C in HYT has a \[\text{NEG}\] feature, making HYT like (46c).

5.3.4 Negative Slifting

- Negative slifting (Ross 1973) appears to be a better test for matrix clause negation than *not even* phrases:

\[(47)\]

a. *Paddy was certain that Mary wouldn’t quit, I don’t think.*

b. ?? Mary seemed not to be happy, I don’t think.

c. *The bouncer was stopping anyone from coming in, I don’t think.*

- Only a minority of participants accepted negative slifting with HYT:

\[(48)\] John has yet to eat dinner, I don’t think.
Reject 175 62%
Marginal 54 19%
Accept 52 19%
Total 281

→ This is expected if HYT lacks matrix clause negation (for most speakers).

– But for negative slifters, HYT has **matrix clause negation**. This predicts that negative slifters should accept **neither**-inversion. The prediction is mostly borne out:

(49)  
\begin{align*}
a. & \text{Jordan has yet to read it, and neither has Pat.} \\
b. & \text{John has yet to eat dinner, I don’t think.}
\end{align*}

(50)  
$\chi^2 (4, N = 389) = 49.72, p < .001$

<table>
<thead>
<tr>
<th>Neither-Inversion</th>
<th>Bad</th>
<th>Marginal</th>
<th>Good</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad</td>
<td>81</td>
<td>11</td>
<td>13</td>
<td>105</td>
</tr>
<tr>
<td>Marginal</td>
<td>45</td>
<td>12%</td>
<td>6</td>
<td>77</td>
</tr>
<tr>
<td>Good</td>
<td>93</td>
<td>24%</td>
<td>72</td>
<td>207</td>
</tr>
<tr>
<td>Total</td>
<td>219</td>
<td>56%</td>
<td>91</td>
<td>389</td>
</tr>
</tbody>
</table>

– Almost everyone who accepts the negative slifting sentence also accepts **neither**-inversion.

### 6 Conclusion

– Large-scale surveys can yield interesting results: there is a lot of variation lurking behind a construction that seems, on the surface, to be a general part of all major English dialects.

– Speakers differ in their judgments of **do-support vs. aux-have** thanks to genuine inter-speaker variation regarding where they can introduce the [PERF] feature:

→ Virtually everyone allows [IT:PERF] to be merged in its canonical position (the ‘Perf’ head).

→ A subset of speakers also allow [IT:PERF] to be merged low, at v.

– Speakers differ in their judgments of the **‘sentential negation’** tests because:

→ For most speakers, HYT introduces **constituent negation** of the embedded clause, with a negative complementizer.

→ The tests are testing different things:

→ Matrix negation vs. embedded clause negation.

→ Availability of a parse of the ellipsis site.
Appendix A: Geographic Distribution of Do-Support with HYT

- In this appendix, we give a brief geographical overview of where do-support with HYT is most accepted.
- The discussion here will make reference to the map in Figure 2 on page 18.

Reading the Map

- Each dot corresponds to a participant.
- The location of the dot corresponds to where the participant reports having grown up (for at least 8 years).
- White dots: average judgment of all four do-support sentences is in the “acceptable” range (between 3.5 and 5).
- Black dots: average judgments of all four do-support sentences is in the “unacceptable” range (between 1 and 2.25).
- The darker the shading around the dots, the higher the overall value is of the surrounding dots.

Results

- White dots are found in many regions of the country, but are
- * rare in the Southeast (e.g. Mississippi, Tennessee, Kentucky, and areas to the east of those states)
- * common in the “North Midlands” (see Murray and Simon 2006) (e.g. Pennsylvania, Ohio, Indiana, and Illinois).

It is notable that the dark blue area in Western Pennsylvania is almost exactly the region picked out as a distinct region in (Labov et al. 2006)

At any rate, it seems that geographic region does play a role in the acceptance of do-support with HYT, although we leave a closer investigation of this question for further research.

Appendix B: Closer Look at Survey Results

- The argumentation in the main body of the paper reported survey results in summary form.
- In this appendix we take a closer look at the data so that the reader can verify that the conclusions reached there were warranted.
- First, we present the max judgments without collapsing 1s with 2s and 4s with 5s.

(51) Max Rating

<table>
<thead>
<tr>
<th>Do-support</th>
<th>Aux</th>
<th>Have</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bad</td>
<td>Marginal</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>1%</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>1%</td>
</tr>
</tbody>
</table>

The relation between these variables was significant, $\chi^2(16, N = 520) = 95.18, p < .001$

The correlation was significant, $r(518) = .31, p < .001$\(^{12}\)

- Second, we will present each of the minimal pairs in turn. We will present each, one at a time, followed by a table showing the number of people who gave each set of judgments.

- In order to aid the reader in discerning the patterns on the tables, we have shaded each of the cells so that the higher the number, the darker the cell.

- We will then report on numbers that are not necessarily readily visible in the tables (but are computable from them, as the reader may verify).

\(^{12}\) The correlation of the average was higher, and also significant, $r(518) = .48, p < .001$. 

### Yes-No Questions

<table>
<thead>
<tr>
<th>(52)</th>
<th>a. Has John yet to win the hearts of his classmates?</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Does John have yet to win the hearts of his classmates?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y/N</th>
<th>Aux-have</th>
<th>1 %</th>
<th>2 %</th>
<th>3 %</th>
<th>4 %</th>
<th>5 %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do-Support</td>
<td></td>
<td>36</td>
<td>21</td>
<td>28</td>
<td>24</td>
<td>35</td>
<td>144</td>
</tr>
<tr>
<td>1</td>
<td>9</td>
<td>2</td>
<td>6</td>
<td>19</td>
<td>19</td>
<td>4</td>
<td>110</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>2</td>
<td>2</td>
<td>34</td>
<td>29</td>
<td>6</td>
<td>104</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>20</td>
<td>17</td>
<td>3</td>
<td>79</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>9</td>
<td>17</td>
<td>3</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>12</td>
<td>15</td>
<td>22</td>
<td>22</td>
<td>146</td>
<td>520</td>
</tr>
</tbody>
</table>

The correlation was significant, \( \chi^2 (16, N = 520) = 111.75, p < .001 \)

- 35% (182/520) judged do-support and aux-have the same.
- 46% (241/520) judged aux-have better.
- 19% (97/520) judged do-support better.

* Of that 19%, 57% judged aux-have as at least marginal (46/97).

- Only 4% (19/520) accepted do-support while rejecting aux-have.
- 19% (97/520) accepted aux-have while rejecting do-support.

### Tag Questions

<table>
<thead>
<tr>
<th>(53)</th>
<th>a. Oh, she has yet to finish, has she?</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Oh, she has yet to finish, does she?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tag</th>
<th>Aux-have</th>
<th>1 %</th>
<th>2 %</th>
<th>3 %</th>
<th>4 %</th>
<th>5 %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do-Support</td>
<td></td>
<td>32</td>
<td>39</td>
<td>41</td>
<td>45</td>
<td>89</td>
<td>215</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>27</td>
<td>34</td>
<td>20</td>
<td>24</td>
<td>5</td>
<td>108</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>7</td>
<td>20</td>
<td>21</td>
<td>4</td>
<td>11</td>
<td>61</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>3</td>
<td>14</td>
<td>25</td>
<td>22</td>
<td>4</td>
<td>64</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>18</td>
<td>47</td>
<td>7</td>
<td>71</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>8</td>
<td>15</td>
<td>22</td>
<td>25</td>
<td>31</td>
<td>520</td>
</tr>
</tbody>
</table>

The correlation was significant, \( \chi^2 (16, N = 520) = 114.39, p < .001 \)

- 29% (151/520) judged do-support and aux-have the same.
- 61% (316/520) judged aux-have better than do-support.
- 10% (53/520) judged do-support better than aux-have.

* Of that 10%, 66% (35/53) judged aux-have as at least marginal.

- Only 1% (6/520) accepted do-support while rejecting aux-have.
- 29% (148/520) accepted aux-have while rejecting do-support.

### Negative Yes-No Questions

<table>
<thead>
<tr>
<th>(54)</th>
<th>a. Hasn't John yet to win the hearts of his classmates?</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Doesn't John have yet to win the hearts of his classmates?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neg Y/N</th>
<th>Aux-have</th>
<th>1 %</th>
<th>2 %</th>
<th>3 %</th>
<th>4 %</th>
<th>5 %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do-Support</td>
<td></td>
<td>25</td>
<td>16</td>
<td>47</td>
<td>9</td>
<td>25</td>
<td>144</td>
</tr>
<tr>
<td>1</td>
<td>24</td>
<td>5</td>
<td>30</td>
<td>7</td>
<td>12</td>
<td>2</td>
<td>129</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>10</td>
<td>35</td>
<td>7</td>
<td>11</td>
<td>2</td>
<td>91</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>1</td>
<td>9</td>
<td>5</td>
<td>15</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>2</td>
<td>10</td>
<td>2</td>
<td>10</td>
<td>2</td>
<td>58</td>
</tr>
<tr>
<td>Total</td>
<td>138</td>
<td>27</td>
<td>141</td>
<td>27</td>
<td>75</td>
<td>14</td>
<td>520</td>
</tr>
</tbody>
</table>

The correlation was significant, \( \chi^2 (16, N = 520) = 150.62, p < .001 \)

- 41% (212/520) judged do-support and aux-have the same.
- 34% (178/520) judged aux-have better.
- 25% (130/520) judged do-support better.

* Of that 25%, 25% (33/130) judged aux-have as at least marginal.

- 7% (33/520) accepted do-support while rejecting aux-have.
- 10% (50/520) accepted aux-have while rejecting do-support.

### Wh-Questions

<table>
<thead>
<tr>
<th>(55)</th>
<th>a. What have you yet to eat?</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. What do you have yet to eat?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wh-Q</th>
<th>Aux-have</th>
<th>1 %</th>
<th>2 %</th>
<th>3 %</th>
<th>4 %</th>
<th>5 %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do-Support</td>
<td></td>
<td>116</td>
<td>22</td>
<td>39</td>
<td>8</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>24</td>
<td>5</td>
<td>62</td>
<td>12</td>
<td>25</td>
<td>2</td>
<td>127</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>3</td>
<td>31</td>
<td>6</td>
<td>36</td>
<td>7</td>
<td>105</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>23</td>
<td>4</td>
<td>56</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>2</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>166</td>
<td>32</td>
<td>146</td>
<td>28</td>
<td>107</td>
<td>21</td>
<td>520</td>
</tr>
</tbody>
</table>

The correlation was significant, \( \chi^2 (16, N = 520) = 213.71, p < .001 \)

- 47% (243/520) judged do-support and aux-have the same.
- 27% (142/520) judged aux-have better.
- 26% (135/520) judged do-support better.

* Of that 26%, 28% (38/135) judged aux-have as at least marginal.

- 5% (28/520) accepted do-support while rejecting aux-have.
- 6% (32/520) accepted aux-have while rejecting do-support.
Across these sentences, it is the yes-no question (52) and tag-question (53) that support the asymmetry between do-support and aux-have most clearly.

With negative yes-no questions (54), the asymmetry is much weaker, and with wh-questions (55) there is essentially no asymmetry at all.

Nevertheless, we contend that the overall patterning of judgments supports our claims in the main body of the paper, for two reasons.

(i) The asymmetry never goes the other way
   * That is, we don’t find any pairs where a similar asymmetry is found in the other direction, where accepting aux-have implies accepting do-support, but not vice-versa
   * The cases that do not show any strong asymmetry simply show a strong correlation.
   * Moreover, part of the issue seems to be that these are marked sentence types in the first place.\(^\text{13}\)
   * Notice that the proportion of participants who reject both options for those sentence types is much higher: 45% (232/520) for wh-questions, 40% (206/520) for negative yes-no questions, versus 19% (101/520) for tag questions and 19% (98/520) for ordinary yes-no questions.

(ii) Do-support speakers are aux-have speakers
   * Our main contention is that do-support speakers are generally also aux-have speakers.
   * This doesn’t require that there must exist, for every sentence type, a substantial proportion of the population that rejects do-support.
   * It only requires that no more than a small minority of speakers accept do-support while rejecting aux-have.
   * This holds for all four sentence pairs individually.

   – Our main point: do-support speakers and aux-have speakers should not be considered separate sets of speakers.

The conclusion we reach about the availability of do-support must inform our understanding and analysis of the cases with aux-have.

For example, if the do-support cases tell us that yet cannot be in the main clause, this should extend to the aux-have cases.

Moreover, there is a markedness relationship between them that should be captured in a formal analysis: in general, aux-have is available to almost all speakers, while do-support is available to only a subset of them.

### Appendix C: Survey Instructions and Sample Sentence

Informal, casual language can be different in different places. The goal of this survey is to find out about your language, and the language spoken where you live and where you grew up.

We are not interested in what is correct or proper English.

We are instead interested in what you consider to be an acceptable sentence in informal contexts. You will be presented with a sentence, or with a context plus a sentence. You will then judge the acceptability of that sentence on a scale of 1-5, with 1 being unacceptable and 5 being acceptable.

It may help to read each sentence aloud before giving your judgment.

---

\(^{\text{13}}\)Possibly the negative semantics of HYT make wh-questions and negative yes-no questions degraded in general. Consider the markedness of *What do you give to no one?* and *Doesn’t John read no books?*
Appendix D: Related Constructions

6.1 Have still to

(56) a. John has still to visit his grandmother.
   b. The best is still to come.

- A Google n-grams search reveals that be still to is more widely used than have still to – a reversal of the situation from yet.
- While yet is an NPI, still is not – how does it end up in SpecCP?

6.2 Be yet to

(57) John is yet to visit his grandmother.
(58) We were yet to see the point of the exercise.

- Have yet to: contentless head linking subject to CP is v. Spelled out as:
  * have, if it bears the [PERF] feature.
  * Ø, if it lacks the [PERF] feature.
- Be yet to: contentless head linking subject to CP is copula. Spelled out as be.

We found two interesting differences from HYT.

Difference #1: though-movement

- The complement of be may be targeted by though-movement; the complement of have may not (Harves and Myler 2014):
  (59) Yet to score though he is/*has, Messi is still Barcelona’s best player.
  (60) Yet to pass his driving exam though he is/*has, I still consider John a great driver.

- Note that though-movement targets VoicePs:
  (61) a. [VoiceP A smart guy] though he is, John is always getting into trouble.
    b. [VoiceP Leave the restaurant] though they did, it was not enough to save them from embarrassment.

- If have is inside VoiceP, then we would expect it to move.
- If have is outside VoiceP (as an auxiliary), note that it’s still strange to strand it (Harves and Myler 2014):
  (62) a. *[VoiceP Beaten the eggs thoroughly] though she has, Mary’s soufflé is still going to fall.
    b. *[VoiceP Finished dinner] though he has, John is still hungry.

Difference #2: tough-ish movement

(63) The most entrancing sight of all {is/*has} yet for me to see. (Rodgers & Hammerstein, The Sweetest Sounds)

- The matrix subject is extracted from a non-subject position in the lower clause, over the embedded subject.
- More from the internet (mainly spiritual, religious or motivational sources):

  (64) a. God has purposes and plans for Daniel’s life that are yet for him to know.\(^\text{14}\)
    b. While writing this, I have learned that there are things that are yet for me to learn.\(^\text{15}\)
    c. The best time of our lives is not in the past... but is yet for us to experience.\(^\text{16}\)

\(^{14}\text{http://goo.gl/B9JSzv}\)
\(^{15}\text{http://goo.gl/5uUVUd}\)
\(^{16}\text{http://goo.gl/h2agkw}\)
Possible only with be and not have.

Tends to reject verbs that assign clearly Agentive theta-roles to their subjects:

(65) a. ?? The work is yet for them to do.
    b. ?? John is yet for Mary to kiss.

Acknowledgments

We would like to thank the members of the Yale Grammatical Diversity Project for ongoing discussion of this work. We are also grateful to the audiences at PLC 40 and WCCFL 34 for insightful comments and questions. Thanks also to Greg Johnson and Kali Morris for sharing their ongoing work on the topic. This work is supported in part by National Science Foundation Grant BCS-1423872.

References


van Craenenbroeck, Jeroen, and Tanja Temmerman. 2010. How (not) to elide negation. Handout from NELS 41.


Figure 2: Average Judgments of Do-Support with Have Yet To