Remarks on Sentence Initial *That* Clauses*

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Abstract

Sentence initial *that* clauses have a number of curious features in terms of syntactic behaviors and binding. While they seem to be in the Spec of TP, binding facts imply that they are different from other nominal subjects. These facts lead some researchers to propose that *that* clauses are DPs moving to the Spec of TP (Delahunty (1983), Davies and Dubinsky (1998, 2001, 2009), and Takahashi (2010)), and other researchers to claim that *that* clauses are CPs base-generated in the Spec of CP (Koster (1978), Alrenga (2005), and Moulton (2009, 2013)). In this paper, after pointing out problems with previous analyses, I will provide a revised base-generation analysis, which not only accounts for the syntactic behaviors and binding facts but also explains scope relations in *that* clauses.

Keywords: sentential subject, *that* clause, scope reconstruction, *it-that* extraposition

1.   Introduction

It has long been a topic of debate since the beginning of generative

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grammar (Lees (1960), Rosenbaum (1967), Emonds (1970, 1972, 1976), among others) how to analyze constructions in which sentences headed by *that* appear in sentence initial positions, as in (1).

(1) That John shot Mary was evident.

That clauses in such constructions are sometimes called "sentential subjects," which implicitly implies that *that* clauses are nominals. However, the tacit assumption itself has become controversy in these days. In other words, is it really correct to assume that *that* clauses are DPs (followed by sentences/CPs)? Recent studies have revealed that *that* clauses behave differently from other nominals with regard to binding. For this reason and to be neutral descriptively, I call such constructions as (1) the *that* construction, and the sentence initial parts simply *that* clauses. In this paper, after pointing out problems with previous analyses, I will provide an alternative analysis which advocates the view that *that* clauses are base-generated in sentence initial positions.

The paper is organized as follows: In the next section, I will introduce two major analyses of the *that* construction, and point out that both of them have problems concerning syntactic behaviors and binding. To solve these problems, in section 3, I will provide an alternative analysis, which states that *that* clauses are base-generated in sentence initial positions. Section 4 is dedicated to show the consequences of the (revised) base-generation analysis, which explain the new fact that scope elements in *that* clauses interact with those in matrix clauses rather interesting ways. Section 5 concludes the paper.

2.   Movement vs. Base-Generation

2.1   Movement (to Spec TP) Analysis

It has been noted in Delahunty (1983), Davies and Dubinsky (1998, 2001, 2009), among others that (sentence initial) *that* clauses behave as subjects (TP-Spec elements) and have properties similar to noun phrases. First, they can allow Subject Auxiliary Inversion (SAI) as in (2) and (3a) on the one hand, and can occur in subordinate clauses as in (3b) on the other hand.[1]

(2) To what extent did that Fred failed to show up anger those of
     his devoted fans who had waited by the stage door since dawn
     of the previous day?   (Delahunty (1983: 382))

(3) a. Does that the parent wanted to come home cause any problem
        for the older children?

    b. Although that the parent wanted to come home caused
        problems for the older children, it was not a terrible
        inconvenience.

     (Widmann (2005), cited in Davies and Dubinsky (2009: 120))

If *that* clauses are in the Spec of TP, they can allow SAI and occur in subordinate clauses.

Second, *that* clauses show parallel behavior with subjects (TP-Spec elements) rather than topics (CP-Spec elements).   While *wh* elements can occur on the right side of topics (4), they cannot on the right side of *that* clauses (5).

(4) a. To Bill, what will you give for Christmas?

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  b. And to Cynthia, what do you think you will send?

  c. For Fred, what are you going to buy?

  d. And on this shelf, what do you think we should put?

  e. And a book like this, to whom would you give?

             (Delahunty (1983: 384-385))

(5) a. *That Fred always leaves early, who does bother?

  b. *That the Earth is coming to an end, who does upset?

  c. *That Quarks are the colour of a furious idea, to whom is

   known?   (Delahunty (1983: 385))

Conversely, *wh* elements cannot appear on the left side of topics, as in (6).[2] Examples in (7) illustrate that this is not true of *that* clauses.

(6) a. *To whom, a book will you give for Christmas?

  b. *On which shelf, the pots will you put?

  c. *For whom, a fur coat will you buy?

             (Delahunty (1983: 385))

(7) a. Who does that Fred left early bother so greatly that he
  refuses to visit us anymore?

  b. Who does that the world is ending upset so terribly that they
  have decided to abandon the planet?

  c. To whom is that quarks are green so well known that he
  cannot conceive of people who have not heard of the notion?

  d. Amongst which peoples is that the Earth was once flooded
  so often recalled that they refuse to leave their mountain
  homes for fear they will be trapped in the lowlands if the
  flood should ever occur again? (Delahunty (1983: 385))

Third, *that* clauses differ from topics in that they can occur in *to* infinitives. The example (8b), which is derived from the grammatical sentence (8a) by topicalization, is ungrammatical, while the corresponding *that* clauses are grammatical, as in (9).
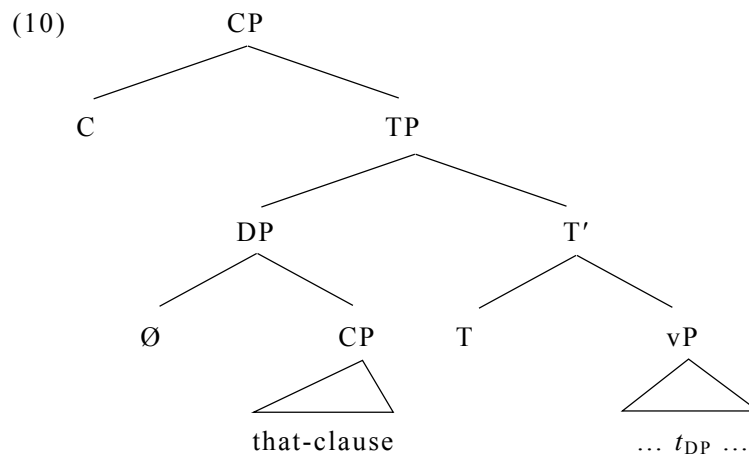
(8) a. Bill wants to give a raise to Fred.

    b. *Bill wants to Fred to give a raise.

<div align="right">(Delahunty (1983: 388))</div>

(9) Bill wants that Fred lied to be obvious to everyone.

<div align="right">(Delahunty (1983: 389))</div>

These data empirically demonstrate that (sentence initial) *that* clauses are subjects (in the Spec of TP). These observations lead Delahunty (1983), Davies and Dubinsky (1998, 2001, 2009), among others to conclude that *that* clauses have the following structure (though details are different):

(10)

```
                      CP
                    /    \
                   C      TP
                        /    \
                      DP      T′
                     /  \    /  \
                    Ø   CP  T    vP
                        /\       /\
                  that-clause  … t_DP …
```

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As (10) illustrates, *that* clauses, which are CPs following DPs (headed by null Ds), move from the position represented with t_{DP} to the surface site, similarly to other nominal expressions.[3]

However, this analysis faces a problem concerning binding. While variables in *that* clauses can be bound by antecedents in matrix clauses as in (11), proper nouns in *that* clauses can be antecedents for pronouns in matrix clauses and hence do not induce Condition C violation in their base positions as in (12) (the Condition C bleeding effects).

(11) a. [That some student from his$_i$ class cheated on the exam] seems to [every professor]$_i$ to be captured by this document.

    b. [That a student from his$_i$ class cheated on the exam] doesn't seem to [any professor]$_i$ to be captured by this document.

(Takahashi (2010: 350))

(12) a. [That John$_i$'s sister cheated on the exam] seems to him$_i$ to be captured by this document.

    b. [That John$_i$'s sister cheated on the exam], he$_i$ believes to be untrue. (Takahashi (2010: 362))

Although the former fact supports the view that *that* clauses are moved from complement positions of matrix verbs (the complement to *capture* in (11)), the latter fact seems to show that *that* clauses are base-generated in the sentence initial positions (the Spec of TP/CP).

In order to account for the Condition C bleeding effects in (12), Takahashi (2010) assumes that (sentence initial) *that* clauses are CPs following implicit determiners. Then, he proposes that *that* clauses can be inserted a-cyclically by Wholesale Late Merger (WLM) before

Case is assigned to the implicit determiners.　In (11), merging the *that* clauses in the base positions permits the co-references between *his* and *every professor/any professor*.　Then, the whole phrases consisting of the implicit determiners and *that* clauses move to the surface positions. On the other hand, in (12), only the implicit determiners move first, and then, the *that* clauses are merged with the determiners in the surface positions.　Since *John* is not bound in the base positions, the Condition C bleeding effects are correctly captured.

However, there is a problem with the WLM analysis.　*That* clauses can include variables and proper nouns co-indexed with matrix elements at the same time.　For example, in (13), *he* is bound by *any boy* on the one hand, and *she* is co-referential with *Mrs. Brown* on the other hand.

(13)…But that he_1 is too old for Mrs. $Brown_2$, I don't think she_2 would want any boy_1's father to believe.

(Moulton (2013: 266))

If the *that* clause is merged in the base position, then, Condition C is violated since *Mrs. Brown* is bound by the co-referential pronoun *she*, which c-commands it in the base.　On the other hand, merging the *that* clause in the surface position makes it impossible for the pronoun *he* to be bound by *any boy* since the latter cannot c-command the former at any stages.　Therefore, (16) is problematic to the WLM analysis.

2.2　Base-Generation (in Spec CP) Analysis

To account for this fact, Moulton (2013) assumes the following structure in (14),[4] and derives bound variable readings of pronouns from

semantics of intensional predicates without resorting to syntactic c-command.

(14)

CP
├── CP
│   └── *that*-clause
└── CP
     ├── Op
     └── C′
          └── ... t_{Op} ...
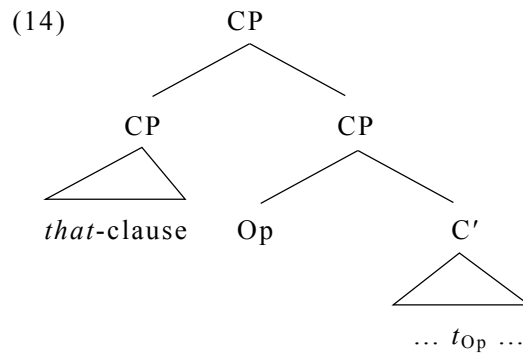
Since the *that* clause is base-generated in the Spec of CP, the proper noun *Mrs. Brown* in (13) is never c-commanded by the pronoun *her*, hence observing Condition C.

On the other hand, the pronoun *he* can be a bound variable because of semantics of intensional predicates. Specifically, following Quine (1956), Kaplan (1968), and von Stechow (1982), Moulton assumes that the (*de re*) intensional verb *believe* has the semantics in (15).

(15) *De re believe*

$$[\![\text{believe}]\!] = \lambda P . \lambda y . \lambda x . \lambda w . \forall \langle x', w' \rangle \in \mathrm{Dox}(\langle x, w \rangle)[P(y)(w')]$$

$\approx x$ believes *P de re* of *y* (in *w*)

(Moulton (2013: 265))

The variables *w, x, y,* and *P* in (15) respectively denote a world, an attitude holder, a *res* argument, and a property argument. Roughly, *res* arguments are participants of the propositions expressed by property

arguments, which are different from attitude holders. Dox is the abbreviation of "centered doxastic alternatives," the definition of which is given below:

(16) Centered doxastic alternatives
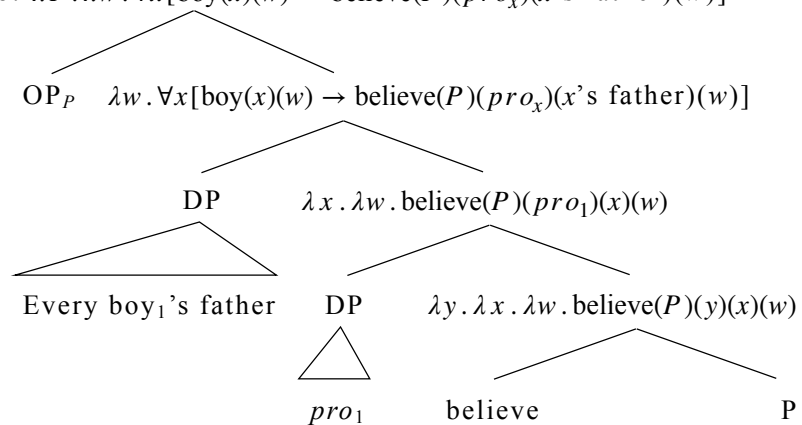
$\text{Dox}(x, w) = \{\langle x', w' \rangle :$

it is compatible with what x believes in w that x is x' in $w'\}$

(Moulton (2013: 262))

Then, the example (17a) has the syntax and semantics in (17b) at some point.[5]

(17) a. (That he is too old for Mrs. Brown) every boy's father
    believes.
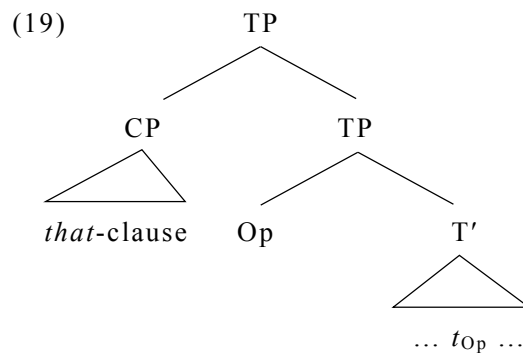
   b. $\lambda P . \lambda w . \forall x [\text{boy}(x)(w) \rightarrow \text{believe}(P)(pro_x)(x\text{'s father})(w)]$

In this structure, *every boy* is chosen as a *res* argument (the participant of the proposition denoted by the *that* clause), so that y is substituted by pro_1 coindexed with *every boy*. On the other hand, *every boy's*

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father is chosen as an attitude holder (believer), and thus *x* is substituted by *every boy's father* (which subsequently becomes *x*'s farther).   This ensures that *he* in the *that* clause is bound by *every boy*.   Combining the matrix clause with the proposition (the *that* clause) produces the following representation:

(18) a. $\lambda w . \forall x[\text{boy}(x)(w) \rightarrow \forall w' \in \text{Dox}(\langle x\text{'s father},w\rangle)$

$$[\text{too-old-for-Mrs.Brown}(pro_x)(w')]]$$

   b. $\approx$ Every boy *x*'s father believes in *w de re* of *x* that *x* has the property of being too old for Mrs. Brown.

(Moulton (2013: 267))

The sentence reports the *de re* belief of *every boy's father* that his child is too old for Mrs. Brown.   The bound variable reading in (13) is derived by the same mechanism in the Spec of CP without *any boy* c-commanding *he*.   Therefore, the referential expression *Mrs. Brown* is never c-commanded by the co-referential *she*, which is the reason why the sentence observes Condition C and is grammatical.

Although it can correctly account for the binding facts, Moulton's (2013) analysis fails to explain the syntactic behaviors seen in (2)-(9). Recall that he assumes that *that* clauses are base-generated in the Spec of matrix CP.   Then, we incorrectly expect that *that* clauses do not show SAI (*contra* (2) and (3a)), cannot occur within subordinate clauses (3b), can behave similarly to topics (*contra* (4)-(7)), and cannot be subjects of *to* infinitives (*contra* (8) and (9)).   Then, how can we explain the syntactic distribution in (2)-(9) and the binding facts in (12) and (13) at the same time?   I will tackle this issue in the next section.

3.   A Revised Base-Generation Analysis

In order to solve the problems with previous analyses, this section proposes a revised base-generation analysis of sentence initial *that* clauses.   Concretely, I argue that the basic insight of the base-generation analysis is correct, but the positions in which *that* clauses are base-generated are the outer Spec of TP, rather than CP, as in (19).

(19)

```
                    TP
                   /  \
                 CP    TP
                / \   /  \
    that-clause    Op    T′
                         / \
                        /   \
                    … tOp …
```

While the base-generation site of the *that* clause is different from that in Koster (1978), Alrenga (2005), and Moulton (2009, 2013), the other things are the same as these analyses.   Thus, *Op* moves from its base-generated position t_{Op} to the (inner) Spec of TP.

Given this structure, we can correctly account not only for the syntactic distribution but also for the binding facts.   First, the *that* construction allows SAI as in (2) and (3a), given that head-movement of auxiliaries to C derives SAI.   *That* clauses are placed in lower positions than moved auxiliaries.   Second, the construction can occur in subordinate clauses as in (3b) since *that* clauses are base-generated in the (outer) Spec of TP, rather than CP, which differentiate them from topics that cannot occur in subordinate clauses.   Similarly, since *that*

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clauses are in the (outer) Spec of TP, *wh* elements, which move to the Spec of CP, can appear on the left side of the *that* clauses ((4)-(7)). Third, contrary to topics (CP-Spec elements), *that* clauses can behave as subjects of *to* infinitives since they are in the (outer) Spec of TP ((8)-(9)).

Binding facts (11)-(13) can also be accounted for in the same way as in Moulton (2009).   Since *that* clauses are base-generated in, rather than move to, the (outer) Spec of TP, it displays the Condition C bleeding effect as in (12) and (13).   The variable readings in (11) and (13) are derived by essentially the same mechanism as Moulton's, namely by semantics of intensional predicates.

This section has revised the base-generation analysis so that it can account not only for the syntactic distribution but also for the binding facts.   In the next section, I will provide the base-generation analysis with further support in term of scope relations.[6, 7]

4.   The Base-Generation Analysis and Scope Relations

In addition to readings reflecting surface word orders, *that* clauses show total/radical reconstruction readings when matrix predicates are intensional expressions such as *seem* and *likely* and at the same time, *that* clauses involve quantifiers such as *someone* or *a man*.   For example, the sentence (20) has a reading in which *likely* takes a scope over *a man* as well as a reading where *a man* is outside the scope of *likely*.

(20) That a man from New York will win the lottery is likely to be
       true.   (a man > likely, likely > a man)

(20) means that there are some possibilities that a (non-specific) man from New York will win the lottery or that a specific man (say, John), who is from New York, will win the lottery.   How can we account for the fact?   Why can *a man* take a scope under *likely* in (20)?   The scope relations are well explained given the (revised) base-generation analysis.

Recall that the (revised) base-generation analysis assumes *Op*, which is responsible for bound-variable readings of pronouns.   The structure (19) is repeated here as (21) for convenience.

(21)

```
              TP
            /    \
          CP      TP
         /  \    /  \
   that-clause Op    T′
                    / \
                  ... t_Op
```
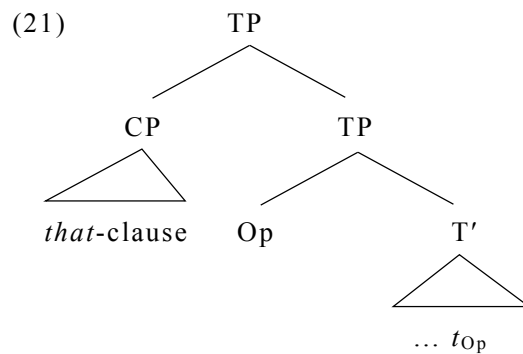
Op, the value of which is determined by the *that* clause, moves from its base-generated position to the (inner) Spec of TP.   Given that the valuation of *Op* takes place in A positions, there are multiple possibilities to make interpretations: in the base position, (an) intermediate position(s) of movement, or the final landing site (the (inner) Spec of TP).

Now, consider the interpretations of (20), which has the following derivation:

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(22) $[_{TP} [_{CP}$ That a man from New York will win the lottery$][_{TP} Op$
    [is likely $[_{TP} t_2$ to $[_{vP} t_1$ be true$]]]]]$.

<div align="right">(a man > likely, likely > a man)</div>

In (22), *Op* moves from the position represented with t_1 to the final landing site via the intermediate position t_2. If the *that* clause determines the value of *Op* in the base position t_1 or the intermediate position t_2, *likely* takes a scope over *a man*. If the valuation of *Op* takes place in the (inner) Spec of TP, *a man* is outside the scope of *likely*.

Thus far, I have demonstrated that the base-generation analysis of the sentence-initial *that* construction, coupled with movement of *Op*, can correctly explain the scope relations in (20). If such an analysis can apply to *that* clauses in general, we predict that the corresponding *it-that* construction behaves similarly in scope relations. Is this expectation correct?

The answer is positive: The two constructions behave similarly. The *it-that* construction (23) is the counterpart of (20).

(23) It is likely to be true that a man from New York will win the
    lottery.   (a man > likely, likely > a man)

(23) has the higher and lower readings of *a man*, as we have witnessed in (20).

Then, how can we explain the fact?   I assume as a null hypothesis that (23) has the structure in (24), which is quite similar to that in (22). The only difference is that the overt *it*, which I assume is realization of *Op*, is inserted to the Spec of TP.   Note that the *that* clause is placed

in the (outer) Spec of TP, as in (22), although it is pronounced at the end of the sentence. I attribute this word order to a phonological reason, specifically to the overt expletive *it* (realization of *Op*) in the (inner) Spec of TP, but I leave the detailed work for the future research.

(24) [$_{TP}$ [$_{TP}$ *It* is likely t_2 to t_1 be true][$_{CP}$ that a man from New York will win the lottery]].   (a man > likely, likely > a man)

In (24), *Op* moves from the position t_1 to the final landing site via the intermediate position t_2.   When it is in the final landing site and realized as the expletive *it*, the sentence receives the interpretation where *a man* is outside the scope of *likely*, since the valuation of *Op* takes place in the final site.   When *Op* is in the base (t_1) or intermediate (t_2) positions, *a man* takes a scope under *likely* since the *that* clause determines the value of *Op* in these lower positions.

Before concluding this section, it should be noted that the DP-movement analyses such as Delahunty (1983), Davies and Dubinsky (1998, 2001, 2009), and Takahashi (2010) cannot uniformly explain the *that* construction and *it-that* construction.   Recall their assumption that *that* clauses are DPs followed by sentences.   In the sentence initial *that* construction, *that* clauses receive Case from T/I/AGR.   However, in *it-that* construction, they cannot receive Case, for there is another Case receiver, namely, the expletive *it*.   Therefore, the uninterpretable/ unvalued Case features (Chomsky (2000, 2001, 2008)) of *that* clauses remain unchecked/unvalued and the sentence should be crashed. However, in the present approach, *that* clauses are CPs in effect, which does not require Case checking/valuation.   Therefore, undesirably, the

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DP-movement analyses need further stipulations so as to account for the *it-that* construction.

In this section, I have shown that the (revised) base-generation analysis makes it easy to analyze the scope relations in the *that* construction. I have also demonstrated that the analysis can straightforwardly be carried over into the *it-that* construction.

5. Conclusion

In this paper, I have reviewed two analyses of the sentence initial *that* construction and proposed an alternative analysis. In one approach, *that* clauses are considered to be moved to the surface site (the Spec of TP). In the other approach, *that* clauses are taken to be base-generated in the Spec of CP. The former approach seems to be problematic in that it cannot correctly account for the Condition C bleeding effects, while the latter approach also faces a problem given the syntactic behaviors such as SAI. To try to solve these problems, I have argued that *that* clauses are base-generated in the (outer) Spec of TP, which makes it easy to capture both of the syntactic behaviors and the binding facts. I have also applied the proposed analysis to the analysis of the *it-that* construction. I hope that the present analysis sheds new light on the derivations of *that* clauses, and the similarities/differences between the *that* and *it-that* constructions on the one hand, and interpretive mechanisms for binding and scopes on the other hand.

Notes

1)   Based on observations such as (i) below, Koster (1978) argues that *that* clauses are CPs appearing in Spec CP of matrix clauses (in recent terms).

   (i)   *Did *that John showed up* please you?

                               (Koster (1978: 53), italic in original)

Davies and Dubinsky (2009) claim that the ungrammaticality should be attributed to other factors such as parsing.

2)   In Delahunty's (1983: 385) original example, (6a) is notated as in (i), which would be incorrect.

   (i)   *To whom, a book will give you for Christmas?

I modify the example to illustrate what Delahunty intends to show.

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3)   I use the terms "move/movement" rather than "internal Merge" simply for convenience.

4)   Although details are different, such a structure as (14) is independently proposed in Koster (1978) and Alrenga (2005), based upon the observations mentioned in Note 1.

5)   Moulton's original notation, which is represented in (i), would be incorrect.   The incorrect part is shaded in (i).

(i)   a.   (That he is too old for Mrs. Brown) every boy's father
        believes.

    b. $\lambda P. \lambda w. \forall x[\text{boy}(x)(w) \to \text{believe}(P)(pro_x)(x\text{'s father})(w)]$
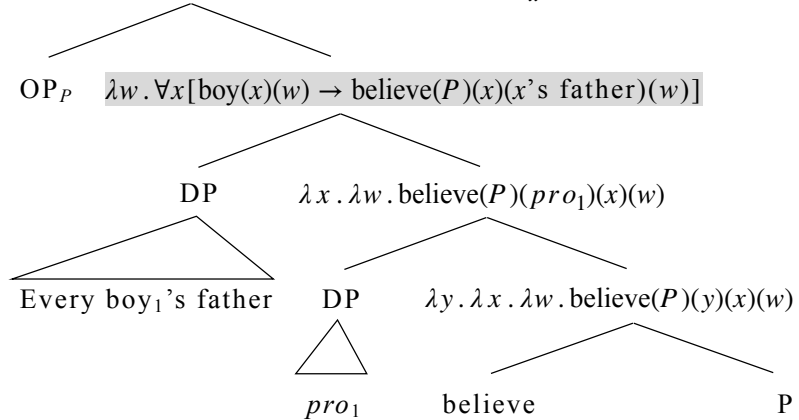
(Moulton (2013: 267))

Therefore, I modified the notation to reflect Moulton's intention.

6)   Davies and Dubinsky (1998) also observe that emphatic reflexives, which are known to co-occur with and modify DPs, can be used with *that*

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clauses. (i) shows emphatic reflexives co-occurring with DPs, whereas (ii) illustrates those with *that* clauses.

(i)   a.   The professor herself offered the student sage advice.

        b.   The zookeeper forced the monkey itself to clean up the cage.

        c.   I gave my x-rays to the doctor herself.

                                  (Davies and Dubinsky (1998: 84))

(ii)   a.   That Leslie arrived drunk itself put Kelly in a foul mood.

        b.   That there were 25 miles to go was itself enough to discourage Edwin.   (Davies and Dubinsky (1998: 84))

I leave these data for the future research, which would imply that *that* clauses are DPs.

7)   It is sometimes pointed out as evidence for DP-hood of *that* clauses that they Agree with matrix elements (T/I/AGR) in the standard ways. Coordinating two *that* clauses induces plural rather than singular Agreement, as in (i) below:

(i)   a.   That the president will be reelected and that he will be impeached are equally likely at this point.

        b.   That the march should go ahead and that it should be cancelled have been argued by the same people at different times.

        c.   That he'll resign and that he'll stay in office seem at this point equally possible.   (McCloskey (1991: 564))

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However, McCloskey (1991) notes that Agreement is affected by the contents of coordinated *that* clauses.   When the meanings of the two *that* clauses are compatible propositions, singular Agreement is preferred, as the following examples show:

(i) a.   That UNO will be elected and that sanctions will be lifted is
           now likely.

     b. ??That UNO will be elected and that sanctions will be lifted
           are now likely.

(ii) a.   That the position will be funded and that Mary will be hired
           now seems likely.

     b. ??That the position will be funded and that Mary will be hired
           now seem likely.

(iii) a.   That the shares are overvalued and that a decline is in order
           is widely believed on Wall St.

     b. ??That the shares are overvalued and that a decline is in order
           are widely believed on Wall St.

(McCloskey (1991: 365))

The two *that* clauses in each example in (i) - (iii) denote two incompatible meanings, so that plural Agreement is preferred.   Since Agreement seems not to be a pure syntactic phenomenon, the argument based upon Agreement is too weak.

References

Alrenga, Peter (2005) "A Sentential Subject Asymmetry in English and Its Implications for Complement Selection," *Syntax* 8, 175-207.

Chomsky, Noam (2000) "Minimalist Inquiries: The Framework," *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, ed. by Roger Martin, David Michaeks and Juan Uriagereka, 89-155, MIT Press, Cambridge, MA.

Chomsky, Noam (2001) "Derivation by Phase," *Ken Hale: A Life in Language*, ed. by Michael Kenstowicz, 1-52, MIT Press, Cambridge, MA.

Chomsky, Noam (2008) "On Phases," *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud*, ed. by Robert Freidin, Carlos Otero and Maria Zubizarreta, 133-166, MIT Press, Cambridge, MA.

Davies, Williams and Stanley Dubinsky (1998) "Sentential Subjects as Complex NPs: New Reasons for an Old Account of Subjacency," *CLS* 34, 83-94.

Davies, Williams and Stanley Dubinsky (2001) "Functional Architecture and the Distribution of Subject Properties," *Objects and Other Subjects: Grammatical Functions, Functional Categories, and Configurationality*, ed. by Williams Davies and Stanley Dubinsky, 247-279, Kluwer, Netherlands.

Davies, Williams and Stanley Dubinsky (2009) "On the Existence (and Distribution) of Sentential Subjects," *Hypothesis A / Hypothesis B: Linguistic Explorations in Honor of David M. Perlmutter*, ed. by Donna Gerdts, John Moore and Maria Polinsky, 111-128, MIT Press,

Cambridge, MA.

Delahunty, Gerald (1983) "But Sentential Subjects Do Exist," *Linguistic Analysis* 12, 379-398.

Emonds, Joseph (1970) *Root and Structure-Preserving Transformations,* Doctoral dissertation, MIT.

Emonds, Joseph (1972) "A Reformulation of Certain Syntactic Transformations," *Goals of Linguistic Theory*, ed. by Stanley Peters, 21-62, Prentice Hall, Englewood Cliffs, NJ.

Emonds, Joseph (1976) *A Transformational Approach to English Syntax: Root, Structure-Preserving, and Local Transformations*, Academic Press, New York.

Kaplan, David (1968) "Quantifying In," *Synthese* 19, 178-214.

Koster, Jan (1978) "Why Subject Sentences Don't Exist," *Recent Transformational Studies in European Languages*, ed. by Samuel Keyser, 53-64, MIT Press, Cambridge, MA.

Lees, Robert (1960) *The Grammar of English Nominalizations*, Mouton, Hague.

McCloskey, James (1991) "*There, It,* and Agreement," *Linguistic Inquiry* 22, 563-567.

Moulton, Keir (2009) *Natural Selection and the Syntax of Clausal Complementation,* Doctoral dissertation, University of Massachusetts Amherst.

Moulton, Keir (2013) "Not Moving Clauses: Connectivity in Clausal Arguments," *Syntax* 16, 250-291.

Quine, Willard (1956) "Quantifiers and Propositional Attitudes," *The Journal of Philosophy* 53, 177-187.

Rosenbaum, Peter (1967) *The Grammar of English Predicate Complement*

Constructions, MIT Press, Cambridge, MA.

Takahashi, Shoichi (2010) "The Hidden Side of Clausal Complements," *NLLT* 28, 343-380.

von Stechow, Arnim (1982) "Structured Propositions," ms., University of Konstantz.

Widmann, Cintia (2005) "Factors at Play in Determining the Acceptability of Sentential Subjects in English: The Role of Constituent Relative Weight," ms., University of South Carolina.

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