

# Specificational Pseudoclefts in English

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## Abstract

Specificational pseudoclefts (SPCs) have been a great challenge for a syntactic theory, because, despite the surface division between the pre- and post-copular elements, the post-copular ‘pivot’ behaves as if it occupied the gap position in the precopular *wh*-clause. This paper argues that movement-based or deletion-based syntactic approaches and purely semantic approaches have problems in dealing with syntactic properties and connectivity problems of SPCs in English. Observing the parallelism between SPC pivots and short answers to questions, it proposes an HPSG account based on a non-deletion-based QDT (Question-in-disguise theory) approach and on the equative analysis of the specificational copular sentences. The paper shows that SPCs must be handled by an integrated account of the syntactic, semantic, and pragmatic properties of the construction, and argues that the connectivity problems should be approached from such an integrated view.

## 1 Introduction

Specificational pseudoclefts (SPCs, henceforth) are copular sentences like (1) in which a *wh*-clause is equated with the focal phrase that corresponds to the gap in the *wh*-clause. The focal phrase in a SPC is often referred to as the pivot, whose category is as diverse as NP, AP, VP, and CP as illustrated in (1).

- (1) a. What he brought was a donkey.
- b. What they are is silly.
- c. What appeals to them most is a go on the swings.
- d. What he then did was cut his finger.
- e. What proves that your are wrong is that they weren’t even there. (Higgins 1979:2)

What has drawn many researchers’ interest in the investigation of SPCs is so called ‘connectivity’. The term connectivity refers to the observation that the pivot behaves as if it occupied the gap position in the precopular *wh*-clause. In (2a), for example, the pronoun has a bound variable reading as if it were in the same clause as *everyone*, and in (2b), the NPI *any* is licensed by the negation just as in a single clause.

- (2) a. What everyone<sub>*i*</sub> proved — was his<sub>*i*</sub> own theory. (*Bound variable connectivity*)
- b. What he didn’t buy — was any wine. (*NPI connectivity*)
- c. What John<sub>*i*</sub> is — is a nuisance to him<sub>*\*i/j*</sub>. (*Binding Theory B connectivity*)
- d. What he<sub>*\*i/j*</sub> is — is a nuisance to John<sub>*i*</sub>. (*Binding Theory C connectivity*)

It is well known that SPCs are distinguished from predicational pseudoclefts, in that only SPCs exhibit connectivity effects (Akmajian 1970, Higgins 1979). In predicational pseudocleft examples such as (3), the *wh*-clause is a free relative functioning as a referring expression, and the phrase following the *wh*-clause is the predicate. Thus unlike in (1b), the predicate in (3a) is predicated of some property of the *wh*-clause subject *Susan*, instead of being predicated of *Susan* directly.

- (3) a. What Susan is is worthwhile. (*Predicational pseudocleft*)  
 b. \*What he didn't have bothered anyone.  
 c. What John<sub>i</sub> is surprised him<sub>i</sub>/\*himself<sub>i</sub>.  
 d. What she<sub>i</sub> claimed is typical of Susan<sub>i</sub>.

The examples in (3b-d) show that NPI connectivity and binding theory connectivity are not observed in predicational pseudoclefts.

As will be discussed in section 2, while some analyses of SPCs are tightly connected to a syntactic approach to connectivity problems, it has also been proposed that connectivity should be handled from a semantic perspective.

The main purpose of this paper is to investigate how SPCs in English can be accounted for within HPSG. This paper shows that SPCs must be handled by an integrated account of the syntactic, semantic, and pragmatic properties of the construction, and argues that the connectivity problems should be approached from such an integrated view.

The rest of the paper is organized as follows. In section 2, recent approaches to SPCs are briefly reviewed and their merits and problems are pointed out. Section 3 takes a closer look at the Question-in-disguise theory (QDT). More supporting arguments for the approach are discussed, together with certain problems and limitations that the deletion-based QDT approach has. Then it will be suggested that the post-copular elements in SPCs should be taken to be short answers, not full answers that undergo phonological deletion at PF. Next, section 4 presents a proposal that is based on a non-deletion-based QDT approach and an equative analysis of the copular *be*. Ginzburg & Sag's (2000) analysis of short answers is adopted to represent the SPC pivots. Lastly, in section 5, some possible accounts of bound variable connectivity and NPI connectivity are discussed, pointing out remaining issues concerning binding principle connectivity.

## 2 Syntactic and semantic approaches to SPCs

Recently there have been proposed three different approaches to SPCs. In what follows, I'll briefly review movement approaches, deletion-based QDT approaches, and semantic approaches to the SPC constructions, and discuss what aspects of the previous analyses can be adopted for my analysis.

## 2.1 Movement approaches

The basic assumption of a movement approach is that the pivot and the position of the gap in the *wh*-clause is linked by syntactic movement. Recent proposals advocating this approach include Bošković (1997), Meinunger (1998), and Heycock & Kroch (2002).

Bošković (1997) claims that the pivot moves to the gap position at LF, and that a pseudocleft sentence is identified with the corresponding unclefted sentence at this level, as shown in (4).

- (4) a. What he brought was a donkey.  
b. He brought a donkey. (LF)

He claims that the *wh*-phrase is a surface anaphor that has the pivot as its antecedent, thus being replaced by the pivot at LF. More specifically, as the consequence of the competition for the same position between the *wh*-phrase and the pivot, the chain headed by the *wh*-phrase (or the initial trace position of the *wh*-phrase) is replaced by the pivot, being accompanied by the deletion of the *wh*-phrase.

On the other hand, Heycock & Kroch (2002) propose that SPCs have the same LF representation as non-copular sentences with the identical information structure. Therefore, all of (5a-c) have the same LF in (5d).

- (5) a. What she saw was two flamingos.  
b. She saw [<sub>F</sub> two flamingos].  
c. [<sub>F</sub> Two flamingos] she saw.  
d. [<sub>FocP</sub> [<sub>Focus</sub> two flamingos<sub>i</sub>] [<sub>Foc'</sub> Foc<sup>0</sup> [<sub>Ground</sub> she saw t<sub>i</sub>]]] (LF)

According to Heycock & Kroch, the Focus constituent in (5d) then undergoes obligatory reconstruction at LF, thus resulting in a unclefted counterpart of the cleft sentence.

In a movement approach, connectivity is dealt with by positing a structure in which the pivot and the material in the *wh*-clause are represented as clausemates. In this approach, a monoclausal analysis is tightly connected to the assumption that connectivity effects such as binding, NPI licensing, and bound variable licensing must be explained in terms of c-command.

However, Bošković's and Heycock & Kroch's analyses are problematic in some respects. First, in Bošković, the kind of movement that he proposes is quite odd in that the landing site is a trace position. Reconstruction to a trace position may occur at LF: however, if something should be reconstructed, it is the *wh*-phrase, not the pivot. Second, in Heycock & Kroch, it is not explained what precise mechanism derives the LF representation (5d) from (5a). Furthermore, given the same LF for (5a-c), it needs to be explicated why only (5a) has the specificational meaning. Third, both of Bošković and Heycock & Kroch cannot explain the example in (6),

because the movement (and the reconstruction) of the pivot wouldn't result in the expected simple sentence.

- (6) What John did was [he bought some wine]. (Den Dikken et al. 2000:43)

Fourth, as Cecchetto (1999) points out, anti-connectivity effects stand against the key assumption of Bošković that a pseudocleft becomes identical to its unclefted counterpart at LF. Since Heycock & Kroch also derive an unclefted sentence as the final LF representation, the same problem arises in Heycock & Kroch. (Anti-connectivity effects will be discussed in section 3.4.)

## 2.2 Deletion-based QDT approaches

The second approach is a deletion approach that is based on Ross (1985, 1997), Schlenker (1998, 2003), and Den Dikken et al.'s (2000) *Question-in-disguise theory* (QDT). In this approach, the precopular constituent is taken to be a question in disguise and the postcopular phrase, the answer to the question. The parallelism is shown in (7).

- (7) a. What John likes is himself.  
b. What does John like? (John likes) himself.

As illustrated in (8), a full answer form is posited at Spell-Out and LF, and the underlined form is assumed to be deleted at PF.

- (8) What John likes is John likes himself.

This approach is appealing because it accounts for connectivity without postulating any unmotivated movement (including reconstruction). Since the connected clause appears in the pivot at SS, connectivity is explained via syntactic relations at this level. In addition, this approach captures parallelism between SPCs and question-answer pairs (for example, a uniqueness presupposition carried by a question and a precopular phrase in SPCs). It also accounts for the existence of the examples like (9) that contain a full answer form.

- (9) What I did then was I called the grocer. (Ross 1972)

Furthermore, as Schlenker (2003) argues, this approach can be extended to cases of DP connectivity, such as *The person John likes is himself*, by assuming that the precopular DP is a concealed question in which the Definiteness feature of a concealed *wh*-word is spelled out by *the*.

Despite the advantages, this approach has limitations in explaining why only a subset of questions is permitted in precopular position, and what precise mechanism is at work for the deletion process. Moreover, as will be discussed in section 3.4, this approach is also undermined by some anti-connectivity effects (Sharvit 1999 and Cecchetto 2000).

## 2.3 Semantic approaches

The third one is a semantic approach that is sometimes called *Unconstrained-‘be’ theory* (Jacobson 1994, Heycock & Kroch 1999, Sharvit 1999, Cecchetto 2000, 2001).<sup>1</sup> This approach is based on the idea that a pseudocleft sentence is a true equative and the pre and post-copular phrases have the same denotation.

- (10) a. What John read was *War and Peace*.  
b.  $\text{Max}(\lambda y[\text{John read } y]) = \text{War and Peace}$   
(“Max” is a uniqueness/maximality operator.)

In this approach, connectivity in SPCs is viewed as a purely semantic phenomenon that is not related to a structural condition like c-command. This view is based on the observation that bound pronouns may occur without c-command as in (11) (Jacobson 1994, Sharvit 1999).

- (11) The picture of himself that every student bought was a nuisance to him.  
(For every student *x*, the picture of *x* that *x* bought was a nuisance to *x*.)

In Sharvit and Cecchetto, connectivity related to variable binding, binding theory, and NPI licensing is shown to arise from independent interpretive procedures or semantic constraints. For example, their account of BV connectivity is based on the “functional” analysis of *wh*-questions. BT B&C effects are viewed as a result of Reinhart’s (1983) rule, which expresses systematic preference for a bound variable interpretation over a coreferential interpretation.

We agree in vein with their conclusion that connectivity in SPCs can be accounted for in terms of semantics. However, it should be examined whether various syntactic behaviors of SPCs can be also reconciled with this approach. Syntactically, there is some evidence that a precopular *wh*-clause is an interrogative clause, rather than a free relative clause. This will be discussed in the next section.

## 3 More on a question-answer-pair analysis of pseudoclefts

While it has been pointed out that the deletion-based QDT approach has some problems, there are certain aspects of the question-answer-pair analysis that can be adopted for the account of SPCs. In this section, we will take a closer look at syntactic properties of precopular and post-copular elements in SPCs and discuss what similarities and dissimilarities between SPCs and question-answer-pairs should be taken into account.

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<sup>1</sup>Actually, Heycock & Kroch (1999) is hard to classify, since their analysis is based on both the equative sentence approach and a variant of reconstruction approach. However, in contrast to other reconstruction approaches, they argue that the derivation process of a connected sentence is semantic as well as syntactic, since it occurs after reaching the LF, mapping an interpreted structure onto another interpreted structure.

### 3.1 Similarities between SPC *wh*-clauses and interrogative clauses

In this subsection, we will examine similarities between SPC *wh*-clauses and interrogative clauses. First, as Ross (1985) shows, pseudocleft clauses behave like embedded interrogatives in that they license ‘what else’ and do not allow ‘whatever’. These properties contrast to free relatives, because free relatives do not permit ‘what else’, although they allow ‘whatever’ to occur freely.

- (12) a. I know [what else she cooked]. (interrogative)  
b. \*I ate [what else she cooked]. (FR)  
c. [What (else) she is going to cook] is spaghetti flambé. (SPC)
- (13) a. I wonder [what(\*ever) he is]. (interrogative)  
b. I ate [whatever she cooked]. (FR)  
c. [What(\*ever) he is] is silly. (SPC)

Second, although marginal, it is possible that multiple *wh*-phrases appear in SPCs, unlike in free relatives. ((14a) is from Ross 1997, and (14b) from Den Dikken et al. 2000.)

- (14) a. ?[Who ordered what] was [Tom (ordered) a beer and Jim a watermelon flip].  
b. ?[What John gave to whom] was [a book to Mary a CD to Sue].

Third, topicalization out of pseudoclefts is permitted as in interrogatives, which contrasts to the extraction possibilities in free relatives (Meinunger 1998).

- (15) a. ?To Mary, what I wouldn’t give is any wine.  
b. ?To Mary, what will you give?  
c. \*To Mary, what I gave caused a scandal.

All these arguments present evidence that the SPC *wh*-clause is not a free relative. These facts support that precopular elements in SPCs are better analyzed as interrogatives.

### 3.2 Dissimilarities

It should be also mentioned that there are some differences between SPC *wh*-clauses and interrogatives. The examples in (16) are from Higgins (1979), and he observes that speakers vary with respect to the grammatical judgements. Certain speakers accept only some or all of the examples.

- (16) a. Who told me about it was Jane.  
b. Where he spends his summers is Chester.  
c. How he cut his face was by trying to eat while shaving.

- d. Why they did it was to impress Mary. (Higgins 1979:2)

The variability in judgements indicates that speakers vary as to which *wh*-phrases they allow in SPCs.

On the other hand, almost all speakers do not accept examples with *which*, *whose*, or *how many*, as in (17), and this clearly contrasts to interrogatives.

- (17) a. \*Which hat John found was that one.  
b. \*Whose book John borrowed was Jane.  
c. \*How many books Jennifer read was five (books).
- (18) a. Which/whose hat did John find?  
b. How many books did Jennifer read?

In addition, unlike in *wh*-questions, pied-piping of *wh*-phrases is not permitted as illustrated in (19).<sup>2</sup>

- (19) a. \*With whom he went to the movie was with Jane.  
b. \*About what he is thinking is about his new movie.
- (20) a. To whom did he introduce Jane?  
b. About which woman are they speaking?

Therefore, if we adopt a question-answer-pair analysis, these dissimilarities should be accounted for. Proposals regarding this problem will be discussed in section 4.3.

### 3.3 SPC pivots as (elided) answers

Putting aside the differences mentioned in 3.2, another supporting argument for the question-answer-pair analysis comes from the parallelism between SPC pivots and elided answers. First piece of evidence concerns the fact that full answers may appear in the pivot, as shown in (21).

- (21) a. What John did was he bought some wine. (Den Dikken et al. 2000:43)  
b. What I did then was I called the grocer. (Ross 1972)

Existence of examples like (21a,b) is quite puzzling in a movement-based analysis or in a purely semantic approach.

Moreover, as shown in (22) to (24), scope of negation illustrates parallelism between the SPC pivots and elliptical answers (Higgins 1979, Bošković 1997, Den Dikken et al. 2000). Although (22a) is ambiguous between the readings in (22b) and (22c), the ambiguity does not occur in the SPC example in (23) and in the question-answer pairs in (24).

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<sup>2</sup>It should be also noted that pied-piping is impossible in free relatives as well.

(i) \*With whom he went to the cinema has just entered the room.



- (22) a. Jane does not believe that he will graduate. (*ambiguous*)  
b. Jane does not hold the belief that he will graduate.  
c. Jane holds the belief that he will not graduate.
- (23) ?What Jane does not believe is that he will graduate. ( $\neq$  22c)
- (24) a. ??What Jane does not believe is [she does not believe that he will graduate] ( $\neq$  22c)  
b. ?What does Jane not believe? That he will graduate. ( $\neq$  22c)

The foregoing facts show that SPC pivots exhibit the same pattern as responses to questions with respect to negation scope. I take this to suggest that the Question-in-disguise theory has merits that can be adopted.

### 3.4 Anti-connectivity and a non-deletion-based QDT approach

One of the main obstacles for the existing QDT approaches is anti-connectivity. As mentioned in section 2, previous QDT approaches presuppose the occurrence of a full answer in the pivot. However, as Sharvit and Cecchetto observe, the connectivity observed in SPCs does not always coincide with that of question-full-answer pairs. Some examples of *anti-connectivity effects* are shown in (25) and (26).

- (25) a. What John thinks that Mary likes is himself.  
b. \*John thinks that Mary likes himself.  
c. What does John think that Mary likes? Himself. (Schlenker 2003:203)
- (26) a. What some student admires is every teacher. (\*  $\forall\exists$ )  
b. What some student admires is some student admires every teacher.  
c. What does some student admire? Every teacher. (\*  $\forall\exists$ ) (Cecchetto 2001:98-99)

In (25a), if a full answer appears in the pivot, as the proponents of the deletion-based approach claim, it should have a form in (25b). However, this is not possible because (25b) is an ungrammatical sentence. Therefore, the anti-connectivity effect in (25) cannot be explained in the deletion-based approach. It also posits a problem for the movement approach, because ungrammatical (25b) constitutes the LF representation of (25a).

Moreover, the deletion-based QDT approach (as well as the movement approach) cannot explain the absence of the wide scope reading of the universal quantifier in (26a). This is because, at SS and LF, (26a) will be of the form (26b), in which the pivot part should allow the wide scope reading of universal quantifier just as in the simple sentence *Some student admires every teacher*. (Cf. Cecchetto 2001)

On the other hand, as (25c) and (26c) exhibit, when we consider a context where short answers are used as responses to *wh*-questions, it becomes evident that SPC pivots correspond to such short answers. Thus parallelism holds between (25c) & (25a), and (26c) & (26a), respectively.

Accordingly, in our view, what is problematic with previous QDT approaches is the parallelism made between SPCs and question-full-answer pairs, which is accompanied by phonological deletion. We propose that the pivots in (25a) and (26a) be directly related to the short answers in (25c) and (26c) respectively. If we take into account *question-short-answer pairs*, the parallelism is more complete.

## 4 Proposed analysis

Now I will present a proposal based on a non-deletion-based QDT approach and the equative analysis of SPCS within the framework of HPSG. The first key to the analysis is the description of the copular *be*.

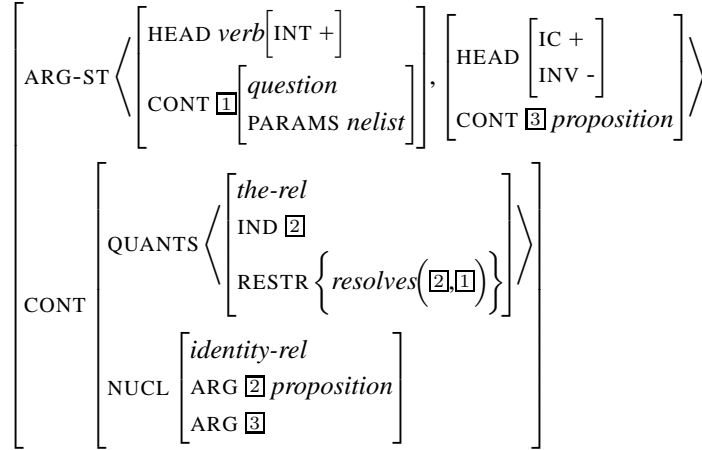
### 4.1 *Be-of-identity*

There have been a number of studies that have provided arguments for the analysis that specificational copular sentences are equatives, and the copular *be* in those sentences has the meaning of identity. (Partee 1986, Jacobson 1994, Sharvit 1999, Heycock & Kroch 1999, Schlenker 2003). Based on the arguments, we take SPCs to involve *be-of-identity*.

Now the question is how to equate the meaning of precopular elements with that of post-copular ones in HPSG representations. If we treat the precopular elements in SPCs as a *wh*-interrogative clause, its CONTENT would be of type *question*. However, in this case, the question meaning itself will not be identical to the meaning of the post-copular answer part.

What seems to be more appropriate is to say that it is the (resolving) answer to the precopular question that is equated with the post-copular element. This idea is incorporated in the lexical entry of *be* in (27).

(27) *be*



In (27), in order to represent the meaning of the precopular clause, I adopted and modified Ginzburg & Sag's (2000) coercion analysis for the interrogative complements of resolutive predicates such as the ones in (28).

(28) *Jane knows/discovered/forgot who passed the exam.*

In addition, I assume that indices can be employed for the representation of verbal projections as well as nominal ones (cf. Van Eynde 2000 and Sag & Wasow 1999). Thus the two arguments of *identity-rel* in (27) are expressed via propositional indices.

Now, given the entry in (27), let's consider how the analysis works.

1. First of all, since it is the (resolving) answer to the precopular question, not the question meaning itself that is equated with the post-copular element, the identity relation holds between two propositions without any type mismatch problem.
2. Second, as the semantic coercion of the pre-copular interrogative clause is stated in the lexical entry of *be*, it is consistent with Ginzburg & Sag's observation that interrogatives only manifest 'fact-denoting' behavior in embedded contexts.<sup>3</sup>
3. Third, since core properties of the construction are represented by the lexical entry of *be*, our analysis explains why a predicate of identity (i.e., the copula *be*) must be used in SPCs.
4. Next, the definite quantifier in the CONT of *be* is to accommodate the standard assumption that there exists a unique exhaustive answer to a question.

<sup>3</sup>While Ginzburg & Sag posit *fact* as a separate semantic object, in our analysis, both of Ginzburg & Sag's *fact* and *proposition* are represented by the type *proposition*.

Thus the CONT can be understood as expressing the meaning ‘The exhaustive (resolving) answer to the question represented by the first element in the ARG-ST is token-identical to the CONT of the second element’.<sup>4</sup>

5. Another consequence of the analysis is that it may rule out the occurrence of ‘indirect answers’ that are not allowed in the SPC pivot as in (32). While an ordinary question in (29a) may have either direct answers in (29b,c) or indirect answers in (30), SPC pivots allow only direct answers as shown in (31) and (32). This can be explained in my analysis, because the CONT of the pivot is required to be identical to that of the precopular clause. In the examples in (32), such identity does not hold between two propositions represented by pre- and post-copular elements.

- (29) a. What did John do?  
       b. Buy a book.  
       c. He bought a book.

- (30) a. I believe that he bought a book.  
       b. I don’t know (what he did).  
       c. BILL bought a book (... but I don’t know what John did).

- (31) a. [What John did] was [buy a book].  
       b. [What John did] was [he bought a book].

- (32) a. \*[What John did] was [I believe that he bought a book].  
       b. \*[What John did] was [I don’t know].  
       c. \*[What John did] was [BILL bought a book]. (Den Dikken et al. 2000:49)

6. Next, the second element in the ARG-ST is specified as [IC +] in order to represent that a short answer is a main-clause phenomena, although it appears in an embedded context in SPCs. (See section 4.2.)
7. In addition, the requirement that the second element in the *arg-st* be [IC +, INV -] indicates that the post-copular element should be an independent, noninverted clause (i.e., S or CP). Thus both a full clause or an elliptical clause that is [IC +] can appear in the SPC pivot.

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<sup>4</sup> Although the two elements in the ARG-ST as is in (27) will appear as SUBJ and COMPS daughters respectively, we do not preclude the possibility of an alternative analysis wherein the first element is realized as a filler (i.e. as a topicalized phrase). See Hankamer 1974, Meinunger 1998, Den Dikken et al. 2000 for the latter position.

8. Finally, the requirement that the first ARG-ST element be [INT+] forces the precopular question to have an interrogative *wh*-phrase at the beginning, prohibiting the examples in (33). A more detailed discussion will be provided in section 4.3.

- (33) a. \*[John bought what] is a book.  
b. \*[To whom John gave a book] is to Jane.

## 4.2 SPC pivots as short answers

Now I will present the analysis of the SPC pivot. As mentioned, for ordinary SPCs, I take the post-copular part to correspond to the (elided) answer to a question. However, in contrast to Den Dikken et al. and Schlenker, it is not analyzed as involving phonological deletion. Instead, it will be analyzed in terms of *declarative-fragment-clause* (*decl-frag-cl*), which is proposed to handle short answers and reprise sluices in Ginzburg & Sag (2000).

In Ginzburg & Sag, *decl-frag-cl* is a subtype of the type *headed-fragment-phrase* (*hd-frag-ph*) and *decl-cl*.<sup>5</sup> Following Ginzburg & Sag, the type constraints can be given as in (34) and (35).<sup>6</sup>

$$(34) \text{ } hd\text{-}frag\text{-}ph: \left[ \begin{array}{l} \text{HEAD } verb[VFORM \textit{fin}] \\ \text{SUBJ } < > \\ \text{SPR } < > \\ \text{CTXT|SAL-UTT } \left\{ \left[ \begin{array}{l} \text{CAT } \boxed{1} \\ \text{CONT|IND } \boxed{2} \end{array} \right] \right\} \end{array} \right] \rightarrow \mathbf{H} \left[ \begin{array}{l} \text{CAT } \boxed{1} \\ \text{CONT|IND } \boxed{2} \end{array} \right]$$

<sup>5</sup>For the type *hd-frag-ph*, we don't pose a restriction on the category of head daughter. This is different from Ginzburg & Sag, who limit the head daughter's category to nominal ones (i.e. nouns or prepositions).

<sup>6</sup>The QUANTS value of the clause is specified using a 'shuffle' relation. This permits a narrow scope interpretation of the quantifier(s) arising in the pivot with respect to the quantifiers present in the *wh*-clause.

$$\left[ \begin{array}{l} \text{HEAD} \left[ \text{IC } + \right] \\ \text{CONT} \left[ \begin{array}{l} \textit{proposition} \\ \text{SOA} \left[ \begin{array}{l} \text{QUANTS } \boxed{A} \bigcirc \textit{order}(\boxed{\Sigma_g}) \\ \text{NUCL } \boxed{5} \end{array} \right] \end{array} \right] \\ \text{STORE } \boxed{\Sigma_I} \\ \text{MAX-QUD} \left[ \begin{array}{l} \textit{question} \\ \text{PARAMS } \textit{neset} \\ \text{PROP} \left[ \begin{array}{l} \textit{proposition} \\ \text{SOA} \left[ \begin{array}{l} \text{QUANTS } \boxed{A} \\ \text{NUCL } \boxed{5} \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] \rightarrow \mathbf{H} \left[ \text{STORE } \boxed{\Sigma_I} \cup \boxed{\Sigma_g} \right]$$

The treatment of short answers is incorporated to my analysis of SPCs as in the following.

The diagram illustrates the semantic structure of the sentence "What John brought was a donkey". The root node S branches into two S nodes. The left S node branches into a LOC node (containing CAT 7 and IND 5) and an S node (containing a SLASH node with 6). The LOC node is labeled "what" and the S node is labeled "John brought". The right S node branches into a VP node and an S node. The VP node branches into a V node and an S node. The V node branches into a QUANTS node (containing the-rel, IND 2, RESTR, and resolves(2,1)) and a NUCL node (containing identity-rel, ARG 2, and ARG 3). The QUANTS node is labeled "the-rel" and the NUCL node is labeled "was". The right S node branches into a decl-frag-cl node (containing IC +, CONT 3, and NUCL 4) and a CTXT node (containing MAX-QUD 1 and SAL-UTT with CAT 7 and IND 5). The decl-frag-cl node is labeled "proposition" and the CTXT node is labeled "a donkey".

$$(\boxed{4} = brought(\boxed{8}, \boxed{5}))$$

In (36), since the SAL-UTT value contains the category value of the initial *wh*-phrase, the category identity between the pivot and the initial *wh*-phrase can be accounted for.

### 4.3 On the interrogative analysis of SPC *wh*-clauses

In section 3.2, we have seen limited usage of *wh*-phrases and anti-pied-piping property of SPCs. In order to account for the restricted occurrence of interrogative *wh*-clauses in SPCs, I make a couple of assumptions. First, nouns, determiners, and adverbs are assumed to have an additional head feature INT, whose value of *wh*-interrogative words (e.g., *who*, *what*, *which*, *where*, and *how*) is [INT +]. Second, a new type of clause *p(seudo)c(left)-cl(ause)* is introduced as a subtype of *wh-int-cl*.

- (37) *wh*-words in interrogatives:

$$\left[ \text{HEAD} \left[ \text{INT} + \right] \right]$$

- (38) *p(seudo)c(left)-cl(ause)* (a subtype of *wh-int-cl*):

$$\left[ \text{HEAD} \left[ \text{INT} \boxed{1} \right] \right] \rightarrow \left[ \text{HEAD} \left[ \text{INT} \boxed{1} \right] \right], \mathbf{H}$$

I propose the constraint (38) for the type *p(seudo)-c(left)-cl(ause)*. Since *pc-cl* is a subtype of *wh-int-cl*, it obeys Ginzburg & Sag's constraints imposed on the types *inter-cl* and *wh-int-cl*.

- (39) Interrogative Retrieval Constraint (Ginzburg & Sag 2000:227)

*inter-cl*:

$$\left[ \begin{array}{c} \text{STORE} \boxed{\Sigma_1} \\ \text{CONT} \left[ \text{PARAMS} \boxed{\Sigma_2} \right] \end{array} \right] \rightarrow \dots \mathbf{H} \left[ \text{STORE} \boxed{\Sigma_1} \uplus \boxed{\Sigma_2} \right] \dots$$

- (40) Filler Inclusion Constraint (Ginzburg & Sag 2000:228)

*wh-int-cl*:

$$\left[ \text{CONT} \left[ \text{PARAMS} \left\{ \boxed{1} \right\} \uplus \text{set} \right] \right] \rightarrow \left[ \text{WH} \left\{ \boxed{1} \right\} \right], \mathbf{H}$$

Now let's look at how this can account for no pied-piping effects. As the lexical description of *be* in (27) specifies, the precopular clause is required to be [INT+]. Since the INT is a head feature, in an ordinary phrase, it is inherited from the head, not from a specifier or complement daughter. Consequently, by the Generalized Head Feature Principle in (41), the bracketed phrases in (42) is [INT-], thus not permitted as a precopular clause by (27).

- (41) Generalized Head Feature Principle

*hd-ph*:

$$\left[ \text{SYNSEM} / \boxed{1} \right] \rightarrow \dots \mathbf{H} \left[ \text{SYNSEM} / \boxed{1} \right] \dots$$

- (42) a. \*[[Which student] the teacher visited] was Jane.  
 b. \*[[About what] the student asked] was about music.

Therefore, it is explained why *wh*-clauses with *wh*-determiners cannot appear as in (17) and why pied-piped PP is not allowed as in (19).

In a *pc-cl*, the INT value is inherited from the filler daughter by (38), which involves non-default inheritance of HEAD information.<sup>7</sup> Accordingly, the bracketed *wh*-clause in (43) is [INT +], obeying the relevant description in (27).

- (43) [[What] Jane found] was a pebble.

So far our analysis has assumed that nominal *wh*-words in (16), i.e., *who*, *where*, *how*, and *why* are all basically available in SPCs. On the other hand, for the speakers who do not accept (part of) the examples in (16), the current analysis can be slightly modified: we can posit a head feature PC (PSEUDOCLEFT) instead of INT, and lexically mark the *wh*-words as either [PC +] or [PC -], depending on their availability in pseudocleft constructions. Thus for instance, for speakers not accepting examples with *why*, e.g., (16d), *why* can be marked [PC -]. If this line of analysis is necessitated, the INT feature in (27) and (38) will have to be accordingly replaced by the PC feature.

## 5 Some remarks on connectivity effects

In this final section, I will briefly discuss the connectivity effects. Since my account is based on Ginzburg & Sag's analysis short answers, connectivity should be handled via the account of short answers. Although I think that there are a lot more work to be done, I'll sketch some possible accounts and remaining issues.

### 5.1 Possible accounts

First, as shown in (45), which analyzes the pivot of (44), bound variable readings in SPCs can be represented in the CONTENT of the pivot. In (45), the QUANTS and STORE values of the fragment clause are constrained by (35). More specifically, the two quantifiers in the QUANTS list come from the QUANTS of the question in the MAX-QUD and the head daughter's STORE value. The other order of the quantifiers in which the universal quantifier takes narrow scope is prohibited, because it yields an unbound variable in its interpretation.<sup>8</sup>

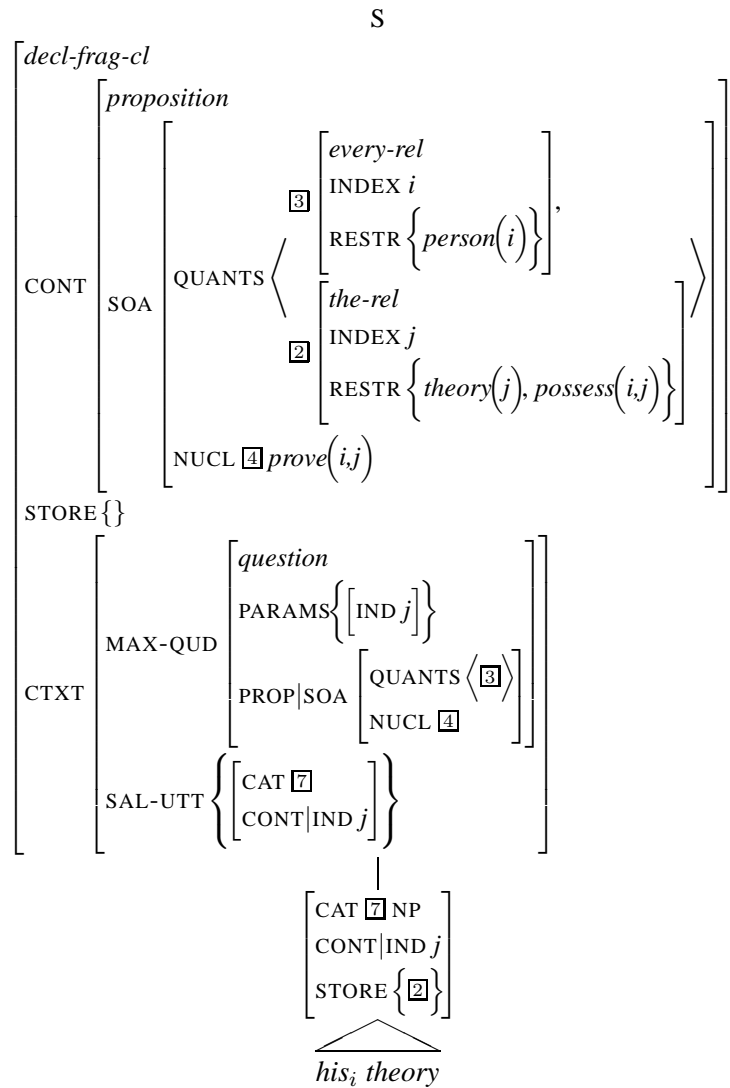
<sup>7</sup>Such non-default inheritance of certain HEAD information may occur in free relative constructions as well.

(i) [<sub>NP</sub> [<sub>NP</sub> Whomever]<sub>acc</sub> he likes]<sub>nom</sub> makes a big trouble. (Lee 2002:35)

<sup>8</sup>Alternatively, bound variable connectivity can be handled by Ginzburg & Sag's account of functional uses of *wh*-phrases and QPs.



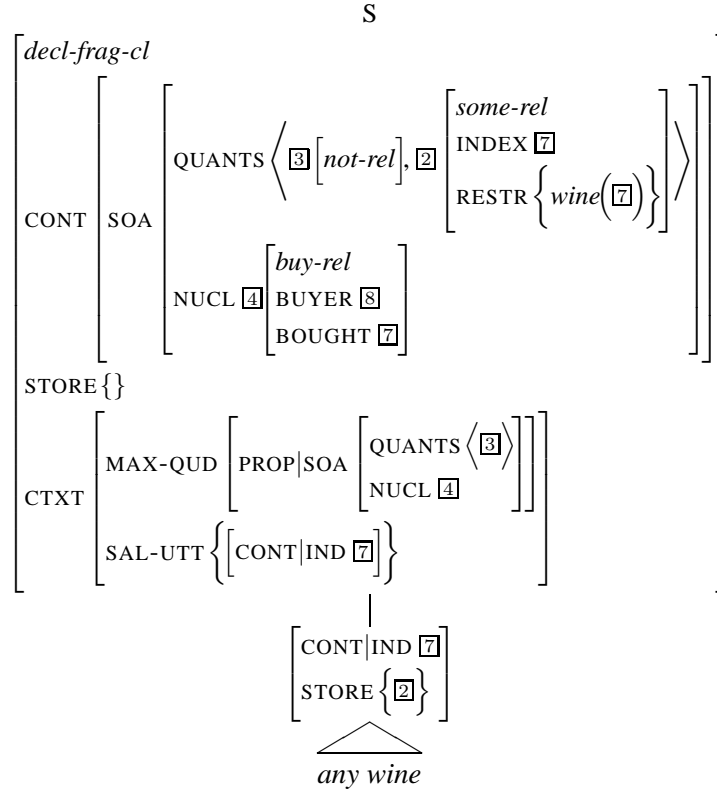
(45)



As for NPI connectivity, following Ladusaw (1979), we can make a simple assumption that *any* is an indefinite that is required to appear within the scope of a downward entailing operator in its interpretation (Sharvit 1999:310). If we allow negation to be represented by a negative quantifier, as in Ginzburg & Sag (2000:335), the CONT of the pivot phrase in (2b) can be described as in (47). In the following, (2b) is repeated as (46).

(46) What he didn't buy was any wine.

(47)



In (47), the indefinite quantifier which originates in *any* is retrieved at the *decl-frag-cl*, and has narrow scope with respect to negation.

## 5.2 Remaining issues

Now what remains unsolved is binding principle connectivity. The binding principle effects in examples like (2c,d) cannot be accounted for by HPSG binding theory, since the relation between the pivot and the elements within the *wh*-clause is not local. However, it is still questionable whether binding connectivity in SPCs should be handled syntactically, given the anti-connectivity examples such as (25).

As Heycock & Kroch (1999) point out, accounts for connectedness effects in pseudoclefts must be extendable to other cases that arise in discourse. This is because the connectivity effects in (2c,d) are also exhibited between sentences, as (48) illustrates.

(48) What did she<sub>i</sub> claim? Only that Mary<sub>\*i</sub> will be late.

Therefore, what seems to be more desirable is a semantic account that takes into account discourse representations of question-(short)-answer pairs, coreference phe-

nomena, etc. If our analysis is on the right track, then binding principle connectivity should be handled via the analysis of short answers.

Another issue is how to account for anti-connectivity effects in (25) and (26). This also directly depend on the account of anti-connectivity in question-short-answer pairs. In (26), the quantifier originating from the pivot takes only narrow scope with respect to the quantifiers in the *wh*-clause, and this can be guaranteed by specifying a fixed order of quantifier scope in the type constraints of *decl-frag-cl*. However, it has to be looked at more carefully whether this kind of scope relation can be generalized in question-short-answer pairs and SPCs. I leave this issue for future research.

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