An HPSG-Based Analysis of English Quotative Constructions

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This paper presents a theoretical analysis of English Quotative Constructions (QCs) within the framework of Head-Driven Phrase Structure Grammar (HPSG). QCs refer to sentences that involve a quotative verb and a quote (i.e., a direct speech complement). In QCs, a quote can be positioned sentence-initially, sentence-finally, or even discontinuously. Moreover, a subject and a verb may undergo inversion, a phenomenon known as Quotative Inversion (QI) in the literature. In this paper, I introduce a new feature and lexical rule within HPSG to elucidate the syntactic properties of QCs. I then propose the linearization-based HPSG approach for the distribution of quotes in QCs. (Seoul National University)

Keywords: syntax, HPSG, Quotative Constructions, Quotative Inversion

1. Introduction

Quotation is one of the most common phenomena in both spoken and written language. It involves the use of a quotative verb to introduce a quote, which is then marked by quotation marks. In generative grammar, sentences that involve quotations are referred to as Quotative Constructions (henceforth QCs).

In English, QCs involve two elements: a verb of saying, writing, or thinking (i.e., a quotative verb) and a direct speech complement (i.e., a quote). Quotative verbs (e.g., *say*, *ask*, *state*, *declare, shout*, *write*, *think*) function as reporting verbs, which means they report what is said, written, or thought. Consider (1) for clarification.

(1) Jim said, "Let's hit the road."

In (1), the subject *Jim* is the one who said the quoted clause *Let's hit the road*. The verb *said*, in this context, is reporting that the subject said the quote.

QCs have attracted scholarly interest within the minimalist syntax. For example, Collins and Branigan (1997) stands as one of the seminal works delving into QCs. They adopt the feature-checking approach to explain Quotative Inversion (henceforth QI), the inversion between a subject and a finite verb in QCs. As the framework has developed, researchers have adopted additional theoretical assumptions and mechanisms, such as equidistance (Chomsky, 1995) and Feature Inheritance (Chomsky, 2008), in their analyses of QCs.

However, despite the limitations associated with the minimalist analyses, QCs have not been actively investigated within other grammatical frameworks. In this paper, I present a theoretical analysis of QCs within the framework of Head-Driven Phrase Structure Grammar (HPSG). In what follows, I discuss the syntactic properties of QCs (§2), outline the previous analyses (§3), and introduce a new feature (§4.1) and lexical rule (§4.2) to account for the discussed properties of QCs. I then propose the linearization-based HPSG approach for the distribution of quotes (§4.3) and conclude (§5).

2. Phenomena

One of the interesting properties that QCs exhibit is the variation in the positioning of quotes, as exemplified in (2).

(2) a. "John might be late," Lisa said.
b. Lisa said, "John might be late."
c. "John might," Lisa said, "be late."

In (2a), the quote "*John might be late*" is sentence-initial, while in (2b), it is sentence-final.[1] Moreover, (2c) shows that quotes can be divided by a subject

1. The minimalist studies on QCs generally assume that quotes, or at least some part of them, should be located in the sentence-initial position at the end of the derivation. Hence, *stricto sensu*, (2b) is not categorized as an instance of QCs. In this paper, however, all instances are comprehensively accounted for.

and a verb and thus be discontinuous. All instances are considered fully acceptable. This intriguing and somewhat puzzling distribution of quotes constitutes a primary focus of this paper.

Another interesting property of QCs is that a subject and a verb can undergo optional inversion (i.e., QI). In other words, a quotative verb can optionally precede a corresponding subject, as in (3).

(3) "You should go home," said Bill.

QI shows the following syntactic properties. First, it is optional and independent of the distribution of quotes. In other words, QI optionally occurs regardless of the position of quotes, as in (4).

(4) a. "John might be late," said Lisa.
b. Said Lisa, "John might be late."
c. "John might," said Lisa, "be late."

Second, auxiliaries are incompatible with inversion, as the contrast in (5) shows.

(5) a. "What time do you go to bed?" asked Perry of Mona.
b. ?*"What time do you go to bed?" had asked Perry of Mona.

Third, the occurrence of QI is precluded when an object NP is present, as shown in (6). This is referred to as the transitivity constraint in the literature.

(6) a. "Go away!" Perry told Mona.
b. ??"Go away!" told Perry Mona.

Fourth, there is a notable degradedness in acceptability when a QI subject is pronominal, as illustrated in (7). If pronominals are to be forced to function as subjects, then the Case must be nominative.

(7) a. ??"Don't move," said he.[2]

2. It is questionable, however, whether the degraded acceptability of (6b) and (7a) can be solely ascribed to syntactic reasons. Prosody or processing might affect the acceptability. For example, when a speaker utters a string like (6b), a listener may interpret the utterance as conveying that someone named *Perry Mona* told someone to go away.

b. *"Don't move," said him.

Fifth, a subject and a verb must be adjacent in QI constructions. Specifically, a subject must precede the complements of a verb, even though the verb precedes the subject, as in (8). Also, QI constructions disallow adverb insertion between a subject and a verb, as in (9).

(8) a. "How much are they?" asked Leslie to the cashier.
b. *"How much are they?" asked to the cashier Leslie.

(9) a. "Pass me the salt, please," politely requested James.
b. *"Pass me the salt, please," requested politely James.

Sixth, QI is incompatible with clausal negation, as exemplified in (10). This stems from the fact that auxiliaries are incompatible with inversion (cf. (5)). Note that negation can be present in non-inverted QCs.

(10) a. "Let's move on," John didn't say just once.
b. *"Let's move on," didn't say John just once.

Seventh, QI subjects disallow quantifier floating, while non-inverted subjects can let go of their quantifiers. In (11a), for example, the quantifier *all* can float from its host *the guests*. While in (11b), the floating of *all* leads to ungrammaticality.

(11) a. "We should try again," the guests all declared to Tony.
b. *"We should try again," declared the guests all to Tony.

Lastly, quotes from the embedded clause cannot cause inversion in the matrix clause, as shown in (12).

(12) a. "Where is my key?" Mary wanted to say.
b. *"Where is my key?" wanted Mary to say.

In summary, what must be investigated in analyzing QCs are the distributional pattern of quotes and the syntactic properties of QI. In the next section, I outline the previous analyses of QCs, while addressing their limitations.

3. Previous analyses

3.1. Collins and Branigan (1997)

Collins and Branigan (1997) assume the following clausal structure for QCs, based on Chomsky (1991).

(13) $[_{AgrP}\ DP_i\ [_{Agr'}\ Agr_s\ [_{TP}\ T\ [_{AgrP}\ Agr_o\ [_{VP}\ t_i\ [_{V'}\ V\ \ldots]]]]]]$

Concerning the inverted word order of a subject and a verb in QCs, their proposal is that the subject stays in its base position, [Spec,VP], while the verb undergoes raising to Agr_o in the overt syntax. Yet, this contradicts the prevalent assumption that overt movement of a subject NP (or DP) is obligatory to check a strong N-feature of T (i.e., an EPP-feature of T). To circumvent this problem, they posit that there are two types of C heads in QCs. One is non-inverting [+ quote] C, which selects normal T (i.e., T with a strong N-feature). The other is inverting [+ quote] C, which selects T with a weak N-feature. In the latter, since T does not require the subject to be in its checking domain, it remains *in situ*. In simpler terms, QI hinges on the type of C head in QCs.

Regarding the distribution of quotes within QCs, the authors propose that there is an empty quotative operator, and it is controlled by a quote, which is externally adjoined to CP. That is, there are two clausal constituents in QCs: the quote itself, and the clause in which inversion may occur. This is exemplified in (14).

(14) a. "When on earth will the fishing begin again?" asked Harry.
b. $[_{Quote}$ "When on earth will the fishing begin again?"$]$ $[_{CP}\ O_i\ [_{ArgP}$ asked Harry $t_i]]$.

(Adapted from Collins & Branigan, 1997, p. 11)

In addition to using an operator in (14b), the assumption is made that the element that undergoes A′-movement is an operator, not a quote. This is based on the observation that there are three potential positions that quotes can occupy in QCs (cf. (2)). To be specific, if a quote occupies [Spec,CP], the leftmost periphery of a sentence, it poses a challenge in accounting for cases of sentence-final and discontinuous quotes. This is why the authors employ an operator, whose content identifies with a corresponding quote. Then, what triggers

movement is the [+ quote] feature inherent in an operator, which needs to be checked by a matching feature. Given that C also has a [+ quote] feature in this analysis, the movement of an operator to [Spec,CP] is explained.

However, employing an operator is incapable of capturing the distributional properties of quotes. Consider (15), for example.

(15) a. "When on earth," asked Harry, "will the fishing begin again?"
b. "When on earth will," asked Harry, "the fishing begin again?"
c. "When on earth will the fishing," asked Harry, "begin again?"
d. "When on earth will the fishing begin," asked Harry, "again?"

Apart from the three quote positions in QCs, the pattern of discontinuity of quotes can be intricate, as shown in (15). Nevertheless, it remains unexplained how an empty operator and a CP-external quote can correctly capture the complex pattern of discontinuous quotes.

3.2. Collins (1997)

Collins (1997), which is a revised version of Collins and Branigan (1997), includes several different assumptions. For example, it adopts multiple specifier structures rather than agreement projections, as illustrated in (16).

(16) $[\ldots [_{T'}\ T\ [_{TrP}\ Op_i\ [_{Tr'}\ DP\ [_{Tr'}\ Tr\ [_{VP}\ V\ [_{DP}\ t_i]]]]]]]$

In this structure, the subject DP is base-generated in the inner specifier of transitivity phrase (TrP), which roughly corresponds to *v*P, and the empty quote operator Op moves from its base position to the outer specifier of TrP at the intermediate stage of derivation. The verb successively raises and adjoins to Tr and T to have its [tense] feature checked. Then, what determines inversion in QCs is the equidistance (Chomsky, 1995), which suggests the potential for various elements within the search domain of a probe to serve as goals for the probe. Since Op and DP are equidistant from T′, either of them can move to [Spec,TP] and check an EPP-feature of T. If Op moves and DP remains *in situ*, then the verb would precede the subject. If DP moves to [Spec,TP], then it would precede the verb. Note that in either scenario, Op must move to [Spec,CP] to check a strong [quote] feature of C.

While this analysis explains QCs in line with a more advanced version of

the minimalist theory, it still relies on the assumption of an empty operator and a CP-external quote. Consequently, as pointed out in the last section, it fails to suggest a principled account for the complex pattern of the distribution of quotes (cf. (15)). Further explanation for discontinuous quotes is still necessary.

3.3. Arano (2014)

Arano (2014) suggests that QCs can be seen as a distinctive clause type "Quotative" (following Gyoda, 1999) and argues that its C head may have peculiar properties, such as the optionality of Feature Inheritance (Chomsky, 2008). In his analysis, Feature Inheritance from C to T is optional in QCs, which leads to the optionality of inversion. Specifically, if C gives its [person, tense] features to T, then T, which in turn has [person, tense, number, EPP], is the only probe that agrees with a subject DP. So, when the subject moves to [Spec,TP] to check an EPP-feature of T, the subject precedes the verb (i.e., non-inverted QCs).[3]

On the other hand, when C does not give any of its features to T, both C and T function as probes for a subject DP. When the subject moves to [Spec,TP] to check an EPP-feature of T, it leaves a copy of itself in the base position. At this stage of derivation, a [person] feature of C and [number, EPP] features of T are checked by the subject. However, C still has a [tense] feature to be checked by the verb. To avoid the disruption of adjacency between C and the verb, the higher copy of the subject is deleted, and the lower one is pronounced at the phonological interface. As a result, the verb precedes the subject (i.e., inverted QCs). This analysis of QI is exemplified in (17).

(17) a. "Look at me. I'm still here!" shouted the barn.
b. $[_{CP}$ Quote $C_{[person,\ tense]}$ $[_{TP}$ $T_{[number,\ EPP]}$ $[_{XP}$ shout $[_{vP}$ the barn v $[_{VP}$ V $t_{Quote}]]]]]$
c. $[_{CP}$ Quote $C_{[\sout{person},\ tense]}$ $[_{TP}$ the barn $T_{[\sout{number},\ EPP]}$ $[_{XP}$ shout $[_{vP}$ <the barn> v $[_{VP}$ V $t_{Quote}]]]]]$
d. $[_{CP}$ Quote C $[_{TP}$ ~~the barn~~ T $[_{XP}$ shout $[_{vP}$ <the barn> v $[_{VP}$ V $t_{Quote}]]]]]$
(Adapted from Arano, 2014, p. 30)

3. Contrary to Collins (1997), it is important to notice that a subject and a quote are not equidistant from T′ in this analysis. This is due to the base generation of a subject in [Spec,*v*P] and a quote in VP. Consequently, it must be the subject DP that checks an EPP-feature of T.

In (17b), since there is no Feature Inheritance from C to T, both C and T agree with the subject *the barn*. After the subject moves to [Spec,TP] from its base position, only a [tense] feature of C is left unchecked, as in (17c). In (17d), if the higher copy of the subject is not deleted at PF, then C and the verb *shout* would not be adjacent, which is problematic for the Agree relation. Therefore, the lower copy of the subject is pronounced by the requirement imposed at the PF interface.

Contrary to the two aforementioned analyses, this analysis eschews the use of an empty quotative operator. Instead, it assumes that a quote is itself clause-internal, which leads to a greater potential for explaining the distributional properties of quotes in detail. However, the primary emphasis of the analysis is on explaining the derivation of inverted word order in QCs rather than providing an account of discontinuous quotes.

4. Proposal

While the previous analyses elegantly explain the derivation of QI, none of them have thoroughly investigated and consequently proposed a principled account for the distributional properties of quotes in QCs. In this section, I propose an HPSG-based analysis of QCs, focusing on QI and the distribution of quotes. Note that the framework employed in my proposal is based on Ginzburg and Sag (2000) and Sag et al. (2003) in a way that does not conflict with each other.

4.1. A new feature for QCs

To account for the syntactic properties of QCs, I suggest that the selectional properties of quotative verbs can be generalized as in (18).

(18) $\begin{bmatrix} \text{HEAD} & v \\ \text{ARG} - \text{ST} & \langle \text{X} (, [\text{HEAD } \textit{nominal}]), [\text{QUOTE } +] \rangle \end{bmatrix}$

The ARG-ST value specifies that the verbs take as their argument a subject NP (simplified here as X), an element whose HEAD value is of type *nominal*, and an element specified as [QUOTE +]. The second argument indicates an optional complement of a quotative verb. As shown in (19), it can either be NP

(e.g., *Sam*) or PP (e.g., *to Sam*), both of which are the subtypes of *nominal* in the type hierarchy (Ginzburg & Sag, 2000).

(19) a. "Leave me alone!" Leslie told Sam.
b. "Leave me alone!" Leslie shouted to Sam.

The third argument is a quote. I introduce a new feature QUOTE to differentiate between quotes and non-quotes (e.g., indirect speech complements). This is based on Gyoda's (1999) observation of the distinctive properties of quotes compared to other canonical CP complements in indirect speech, which is listed in (20).

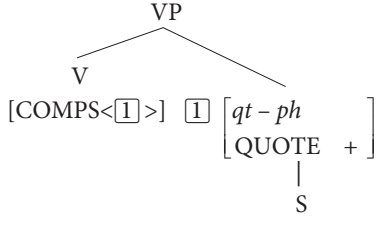
(20) a. A subordinating conjunction (e.g., *that*) cannot introduce the quote.
b. The verbs of the quote do not undergo a sequence of tense rule, that the tense of a verb in a matrix clause place constrain[t]s on the tense of a finite verb in a subordinate clause.
c. The personal pronouns with the same referent in the matrix and subordinate clauses of indirect speech [are] identical.
d. The deictic elements which refer to the time or place or the demonstratives of the quoted speech act [do] not change according [to] the matrix clause.
e. The quote is a root sentence, and it is possible to quote anything that someone says (e.g., statements, questions, orders, suggestions, exclamations).

(Gyoda, 1999, p. 288)

However, quotative verbs are not exclusive to direct quotation, as shown in (21). They also appear in indirect quotation, taking a non-quote CP as their complement. Thus, I assume that the functionality of a CP (or S) as a quote or a non-quote depends on the subcategorization of the verb in question. Consider (22) for clarification.

(21) a. Lisa said, "John might be late."
b. Lisa said that John might be late.

(22)



If a verb subcategorizes as a quotative verb, selecting a quote as its complement, then the complement undergoes the unary rule *quotative-phrase* (*qt-ph*) and thus is specified as [QUOTE +].[4] On the other hand, if the same verb subcategorizes as taking an indirect speech complement, then the rule does not apply, and the complement remains a non-quote. In short, *qt-ph*, which maps non-quote elements onto quotes, optionally applies to the complement of a verb according to the selectional restriction of the verb.

In this section, I introduced the new feature QUOTE and explained how and where it is specified. Furthermore, I posited that determining CPs as direct or indirect speech complements is associated with the subcategorization of a verb. In the next section, I discuss how QI can be explained within HPSG, a non-transformational framework.

4.2. Quotative Inversion Lexical Rule

Based on the syntactic properties of QI discussed previously, I propose that QI can be explained by introducing the Quotative Inversion Lexical Rule (henceforth QILR). The rule can be informally stated as follows.

(23) Quotative Inversion Lexical Rule (Informal)
  a. The ARG-ST values of the input and output are identical, while the output is specified as [SPR < >] and [INV +].
  b. Only the verbs that are [AUX –] can be the input.
  c. Only the verbs that directly take a quote in their ARG-ST value can be the input.

(23a) ensures subject-verb inversion without altering the ARG-ST value of the verb. Once inversion occurs, the verb is specified as [INV +]. By specifying the output as [SPR < >], the adjacency between a subject and a verb in QI constructions is automatically explained. Consider (24) for example.

(24) a. *Said to Amy Leslie, "I love you."
  b. *Requested politely James, "Pass me the salt, please."

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4. In their analysis of French direct quotation, Bonami and Godard (2008) introduce this unary rule to map the quoted material onto a linguistic sign. Building upon this idea, I employ the rule to capture the dual functionality of CPs (i.e., CPs as direct or indirect speech complements).

Given that it is now the subject NP that is the first complement of the verb, the ordering of the complements is determined as [COMPS < NP, [HEAD *nominal*], [QUOTE +] >], which in turn prevents the second complement from intervening between the inverted verb and subject. Hence, (24a), wherein the second complement *to Amy* intervenes between the verb *said* and the first complement *Leslie*, is ruled out. Moreover, since the Head-Modifier Rule requires the head in question to be [COMPS < >] (Sag et al., 2003), no adverb insertion (i.e., VP modification) can be licensed until the verb and the subject are combined and thus the verb becomes [COMPS < >]. Consequently, (24b) is ruled out. (23b) ensures that auxiliary verbs cannot be the input of the rule. Thus, examples like (25a) are ruled out. In addition, it ensures that the negated verbs are also ineligible as inputs. This stems from the fact that only [AUX +] verbs can be negated and thus specified as [POL +] (Sag et al., 2003). Consequently, the ungrammaticality of (25b) can be explained. (23c) comes into play when a quote is in the embedded clause. Inversion within the matrix clause is precluded in such instances, as in (25c). Note that (24) and (25) are grammatical when not inverted.

(25) a. ?*Had confessed Harry, "Jim left early this morning."
b. *Didn't say Leslie just once, "Work harder!"
c. *Wanted Sarah to say, "I will show you what I saw."

To sum up, the introduction of the QILR successfully accounts for the five syntactic properties of QI. First, the optionality of inversion in QCs is explained, as the application of the lexical rule is itself optional. Second, the adjacency between a QI subject and a QI verb is explained. Third, the incompatibility of QI with auxiliaries is correctly captured. Fourth, the incompatibility of QI with clausal negation is also explained. Fifth, the QILR provides an explanation for the restriction on inversion within the matrix clause in the context of embedded quotes. The formalization of (23) is suggested in (26).

(26) Quotative Inversion Lexical Rule

$$\left[\begin{array}{l} \textit{pi}-\textit{rule} \\ \text{INPUT} \quad < \left[\begin{array}{ll} \text{SS}\,|\,\text{LOC} & [\text{CAT}\ [\text{HEAD}\ [\text{AUX}\ -]]] \\ \text{ARG}-\text{ST} & \boxed{\text{A}} < \ldots, [\text{QUOTE}\ +] > \end{array}\right] > \\ \\ \text{OUTPUT} \quad < \left[\begin{array}{ll} \text{SS}\,|\,\text{LOC} & \left[\text{CAT}\ \left[\begin{array}{ll} \text{HEAD} & [\text{INV}\ +] \\ \text{SPR} & < > \end{array}\right]\right] \\ \text{ARG}-\text{ST} & \boxed{\text{A}} \end{array}\right] > \end{array}\right]$$

In (26), I assume that the QILR is of type *pi-rule*, the subtype of *l-rule* (Sag et al., 2003). This implies an inheritance of the identity constraint for CONTENT values between the INPUT and OUTPUT. Consequently, (26) suggests that QI does not result in a change in meaning, which appears to be correct. For instance, in QCs, both a subject and a verb exhibit scopelessness (Potts, 2005), i.e., they are not scoped within linearly preceding operators, as illustrated in (27).

(27) a. "John might be late," Lisa said.
b. SAY (l, P) ∧ ◊[BE-LATE(j)]
c. *◊[SAY(l, P) ∧ BE-LATE(j)]

The semantic representation (27c), wherein the modal operator (◊) takes a wider scope than the quotative predicate (i.e., SAY(l, P)), cannot be derived from (27a). This fact holds even when the subject and the verb undergo inversion or when the quote is located in a different position, as in (28).[5]

(28) a. "John might be late," said Lisa.
b. "John might," said Lisa, "be late."

The discussion hitherto, however, has not yet provided an account of the three syntactic properties of QI. Regarding the preclusion of QI with an object NP (cf. (6)) and the disallowance of pronominal subjects in QI (cf. (7)), I presume that these might be attributed to non-syntactic factors, such as

5. According to Reinhart (1983), on the other hand, a subject and a verb in QCs may be construed as taking the widest scope in the sentence, rather than being considered scopeless. However, determining the more accurate analysis is not 'within the scope' of this paper. In either scenario, inversion does not affect the meaning of QCs.

prosody or processing. The restriction on quantifier floating from QI subjects (cf. (11)) may arise because floating quantifiers, like *all*, function as adverbs modifying a VP. Due to such reasons, I do not further discuss them in the current paper.

In this section, I introduced the QILR to analyze QI. The QILR accurately accounts for the five syntactic properties and the semantic identity constraint of QI. In the following section, I employ the linearization-based HPSG to account for the distribution of quotes in QCs.

4.3. The linearization-based HPSG approach to QCs

Before proposing an HPSG analysis, I examine whether QCs can be analyzed in relation to parenthetical verb constructions, whose linear order bears similarity to that of QCs.

4.3.1. QCs as parenthetical verb constructions?

Quotes in QCs can be positioned sentence-initially, sentence-finally, or discontinuously (cf. (2)). To put differently, the strings of a subject and a verb in QCs, which I refer to as quotative verb clauses (henceforth QVCs) for convenience, can also be sentence-initial, sentence-final, or interpolating into a quote. This is illustrated in (29), in which the string *said Lisa* is an instance of QVCs.

(29) a. [$_{\text{QVC}}$ Said Lisa,] [$_{\text{Quote}}$ "John might be late."]
b. "John might be late," said Lisa.
c. "John might," said Lisa, "be late."

On the surface, the distribution of QVCs appears to resemble the distribution of parenthetical verb clauses (henceforth PVCs) in parenthetical verb constructions, as exemplified in (30).

(30) a. [$_{\text{PVC}}$ Lisa fears], [$_{\text{CP}}$ John might be late.]
b. John might be late, Lisa fears.
c. John might, Lisa fears, be late.

The two constructions, however, do not exhibit parallelism in many respects. First, PVCs and QVCs are different in their functions in the sentence. For example, the function of PVCs is to modify propositions that may express

illocutionary force, which leads them to function as expressing the speaker's intended illocutionary force or emotional stance, or sometimes mitigating the speaker's commitment to the truth value of the propositions they modify (Griffiths, 2015; Simons, 2007). On the other hand, the function of QVCs is to report (cf. (1)). This leads to the difference in the use of negation, as shown in (31).

(31) a. John will always love Mary, Sam didn't say.
b. ?*"John will always love Mary," Sam didn't say.
c. "John will always love Mary," Sam didn't say just once.

In (31a), PVCs can be negated, whereas in (31b), it is extremely awkward when QVCs are negated. This might stem from the fact that what is not said, written, or thought cannot be reported. They need the assistance of adverbs, such as *just once*, as in (31c). Second, the two constructions are syntactically different. According to de Vries (2012), a PVC and its host clause undergo *parenthetical*-Merge. It functions as an adjunction, implying the absence of a selection relation.[6] On the other hand, there is a selection relation between a quotative verb and a quote. In fact, a selection relation must exist, as a quote serves the function of a 'feature-checker' (or a 'goal' in a more general term) in

6. Conventionally, sentence-initial PVCs are viewed as *subordinating*-PVCs, whereas sentence-final or interpolating PVCs are analyzed as *paratactic*-PVCs. The former, not the latter, c-selects its host clause. Griffiths (2015) argues that the two types of PVCs show differences in terms of semantic interpretation when *not* is displayed in the host clause. For clarification, consider the following examples.

(i) Eve won't be coming, I don't think. (*par*-PVC)
= [I think ¬[Eve will be coming]]

(ii) I don't think Eve won't be coming. (*sub*-PVC)
= ¬[I think ¬[Eve will be coming]]

(Griffiths, 2015, p. 201)

In (i), the negation in the PVC is semantically vacuous. While in (ii), it is not. This further supports the disparity between QCs and parenthetical verb constructions since there is no meaning difference caused by negation according to the position of QVCs, i.e., they are scopeless, as shown below.

(iii) "I don't like Sam," John didn't say just once.
= [John says ¬[just once ¬[John likes Sam]]]

(iv) John didn't say just once, "I don't like Sam."
= [John says ¬[just once ¬[John likes Sam]]]

the minimalist framework, a role exclusive to arguments. Moreover, unlike QVCs, PVCs never allow subject-verb inversion, as illustrated in (32).

(32) a. "John might," said Lisa, "be late."
b. *John might, fears Lisa, be late.

Drawing from these differences, my conclusion is that QCs must be approached differently from parenthetical verb constructions.

4.3.2. Order domains and their formation in QCs

In the linearization-based HPSG, the linear order of a phrase is represented in the word order domain, which has been proposed as an alternative account of constituent order that has been theretofore discussed under linear precedence. According to Reape (1996), order domains are represented by a feature DOM on a phrase, with its value being a list of signs. He also suggests that the PHON value of a phrasal sign is the concatenation of the PHON values of its domain elements without changing the order.

In the course of phrase-building, the domain elements of daughter nodes are passed on to the domain of their mother node. Kathol and Pollard (1995) introduce the notions of compaction and p(artial)-compaction as mechanisms for domain formation. (33) formalizes compaction as a mapping relation from a sign (1) to a single domain object in the DOM of the sign's mother (2).

(33) compaction(1, 2) ≡

$$\boxed{1}:\begin{bmatrix} sign & \\ \text{SS} & \boxed{3} \\ \text{DOM} & <[\text{PHON}\,\boxed{4}],\ldots,[\text{PHON}\,\boxed{n}]> \end{bmatrix}$$

$$\wedge\boxed{2}:\begin{bmatrix} dom-obj & \\ \text{SS} & \boxed{3} \\ \text{PHON} & \boxed{4}\oplus\ldots\oplus\boxed{n} \end{bmatrix}$$

(Kathol & Pollard, 1995, p. 175)

P-compaction refers to cases wherein zero or more domain objects are excised from its order domain, and thus, the altered sign is compacted. This is formalized in (34).

(34) $\text{p} - \text{compaction}(\boxed{1}, \boxed{2}, \boxed{3}) \equiv \boxed{1} : \begin{bmatrix} sign & \\ \text{SS} & \boxed{4} \\ \text{DOM} & \boxed{6} \end{bmatrix} \wedge \boxed{2} : \begin{bmatrix} dom - obj & \\ \text{SS} & \boxed{4} \\ \text{PHON} & \boxed{7} \end{bmatrix}$

$\wedge \text{shuffle}(\boxed{5}, \boxed{3}, \boxed{6})$

$\wedge \text{join}_{PHON}(\boxed{5}, \boxed{7})$

(Kathol & Pollard, 1995, p. 178)

(34) illustrates that in a sign (1), some of its domain objects (2) undergo compaction, while the remainder (3) escape from compaction. An auxiliary relation join_{PHON} (5, 7) means that 7 is the concatenation of the PHON values of 5. Note that compaction and p-compaction are not, by definition, separate possibilities. Instead, the former is considered a subcase of the latter.

Finally, what completes the linearization-based HPSG analysis of QCs is the shuffle relation, which is defined in (35).

(35) shuffle(L_1, …, L_{n-1}, L_n):
"The shuffle relation holds of n lists L_1, …, L_{n-1}, L_n, iff L_n consists of the elements of the first n–1 lists interleaved in such a way that the relative order among the original members of L_1 through L_{n-1}, respectively, is preserved in L_n."

(Kathol & Pollard, 1995, p. 175)

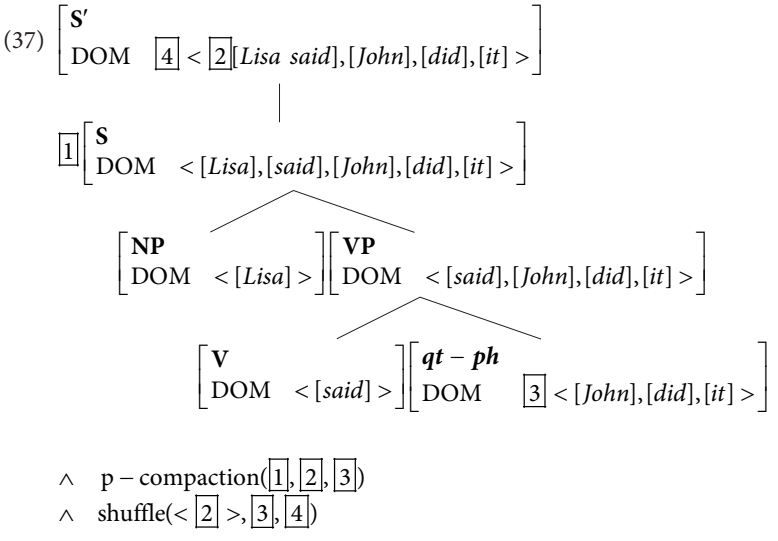
According to (35), what 'shuffle (5, 3, 6)' in (34) states is that the domain objects in the lists 5 and 3 can be shuffled within the domain 6, in the way that the relative ordering among those domain objects within each list is preserved.

The linearization-based analysis of QCs is as follows. In (36), the default word order of both non-inverted and inverted QCs is presented, wherein the quote is positioned to the right of the verb.

(36) a. Lisa said, "John did it."
b. Said Lisa, "John did it."

The structure for non-inverted (36) and its domain formation are suggested in (37).[7]

7. In the structure, angled brackets representing the PHON values of the domain objects are not expressed for the sake of notational simplicity.

(37)


In (37), I assume there is no instance of p-compaction until the formation of the domain of S. In other words, the domain objects of all daughter nodes of S are transmitted to the domain of S as separate domain objects. Furthermore, I tentatively introduce an additional node S′.[8] This is because, according to (34), the domain objects of NP and VP have to appear in the domain of a single sign for them to undergo p-compaction. From there (1), the subject *Lisa* and the verb *said* are compacted (2) in the domain of S′ (4), while the domain objects of the quote (3) are not. Then, the shuffle relation takes over the baton. According to as stated in (37), the domain elements of the lists <2> and 3 can be shuffled in the domain 4. In so doing, all occurrences of quote positions—whether sentence-initial, sentence-final, or discontinuous—are explained. In this analysis, quote-internal shuffles, such as (38a), which eventually lead to ungrammaticality, are correctly ruled out. This is because the relative ordering of the domain objects of each list cannot be altered, by the definition of the shuffle relation.

8. In Kathol and Pollard (1995), the p-compaction and shuffle relations are invoked by the Head-Complement Schema, which indicates that the specific constraints of the order domains of the mother and daughter operationalize these relations. In that sense, introducing an S′ node just for these relations is too arbitrary. A construction-based investigation of QCs is necessary to determine the constructional type of S′ and its constraints. This will ensure the p-compaction and shuffle relations between S and S′ nodes are operationalized by specific constraints.

(38) a. *"Did John it," Lisa said.
b. *"Did John it," said Lisa.

The structure for inverted (36b) and its domain formation are suggested in (39).

(39)
$$\left[\begin{array}{l}\textbf{S}' \\ \text{DOM} \quad \boxed{4} < \boxed{2}[\textit{Said Lisa}], [\textit{John}], [\textit{did}], [\textit{it}] >\end{array}\right]$$

$$\boxed{1}\left[\begin{array}{l}\textbf{S} \\ \text{DOM} \quad < [\textit{Said}], [\textit{Lisa}], [\textit{John}], [\textit{did}], [\textit{it}] >\end{array}\right]$$

$$\left[\begin{array}{l}\textbf{V} \\ \text{DOM} \quad < [\textit{Said}] >\end{array}\right]\left[\begin{array}{l}\textbf{NP} \\ \text{DOM} \quad < [\textit{Lisa}] >\end{array}\right]\left[\begin{array}{l}\textbf{S} \\ \text{DOM} \quad \boxed{3} < [\textit{John}], [\textit{did}], [\textit{it}] >\end{array}\right]$$

$\wedge$ p – compaction($\boxed{1}$, $\boxed{2}$, $\boxed{3}$)
$\wedge$ shuffle(< $\boxed{2}$ >, $\boxed{3}$, $\boxed{4}$)

The only difference between non-inverted and inverted QCs lies in the ternary branching of the latter in accordance with QILR (cf. (26)). In (39), it is likewise assumed that there is no instance of p-compaction until the formation of the domain of S and that p-compaction occurs from S ($\boxed{1}$) to the DOM of S′ ($\boxed{4}$). In this case, as well, the verb *said* and the subject *Lisa* are compacted ($\boxed{2}$) in the domain of S′ ($\boxed{4}$), but the quote ($\boxed{3}$) is not. Then, the shuffle relation comes into play. Resultingly, (38b) is ruled out.

5. Concluding remarks

In this paper, I presented an HPSG-based analysis of English QCs. I first introduced the new feature QUOTE to account for the selectional properties of quotative verbs and the dual functionality of CPs as either quotes or non-quotes. I then proposed the new lexical rule QILR to address how QI can be analyzed within HPSG. Moreover, I employed the linearization-based HPSG to account for the distribution of quotes.

While my analysis offers the advantage of embracing what has not been discussed in the previous minimalist analyses, it is not without its remaining problems. For example, some restrictions on QI, potentially associated with non-syntactic factors, are left undiscussed. Also, a tentative assumption is made to explain the linearization of elements in QCs. Therefore, it is called upon to address these issues in further studies.

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