# Clausal Question-Answer Pairs: Evidence from ASL

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## 1. Introduction

Questions and their answers typically take the form of two separate sentences (or smaller units) at the level of discourse, but could they ever combine to form a single clause? In this paper we argue that they can, using evidence from a construction in American Sign Language that we call a Clausal Question-Answer pair (CQA). An example of a CQA can be seen in Figure 1 below.



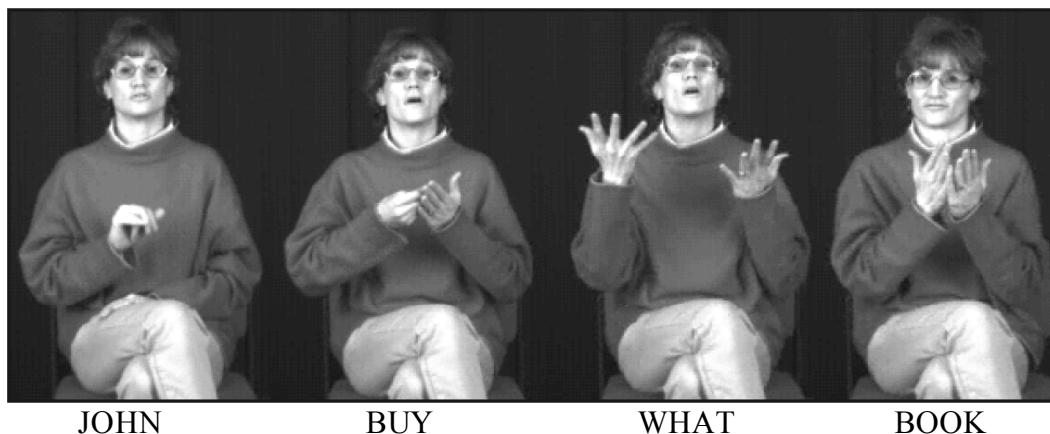|            |           |            |            |
|------------|-----------|------------|------------|
| JOHN       | BUY       | WHAT       | BOOK       |

Figure 1: A CQA in ASL, from the SignStream Corpus, NCSLGR, Boston University.

In the CQA in Figure 1, the signer has raised eyebrows during the first three signs. This is referred to as 'nonmanual marking' and sets off the first part of the construction (JOHN BUY WHAT), which we call the *Q(uestion)-constituent*, from the second part (BOOK), which we call the *A(nswer)-constituent*. Following convention, we note nonmanual marking in a separate line above the manual signs.

(1)          <u>      *brow raise*    </u>
        JOHN BUY WHAT, BOOK.
        'The thing/What John bought is a book.'[1]

Every CQA in ASL uses *brow raise* over the Q-constituent, so in this paper we will only mark nonmanual marking when it is relevant to the point being made. Also, following Petronio (1991), we separate the Q-constituent from the A-constituent with a comma to aid in readability.

The CQA in ASL has previously been analyzed as a pseudocleft (Petronio 1991, Wilbur 1994, 1996) or as a discourse-level question-answer pair made of two separate syntactic and semantic units

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[1] We translate CQAs using English specificational sentences to best convey the semantic/pragmatic properties of CQAs. This should not be taken as a claim of equating the two, an issue we address along with the semantic/pragmatic properties in Davidson *et al*. (to appear).

(Hoza *et al.* 1997). We, instead, argue that a CQA is a single declarative clause resulting from a silent copula of identity that combines an embedded interrogative clause (the Q-constituent) with a (partially elided) embedded declarative clause behaving like its answer (the A-constituent).[2] In Davidson *et al.* (to appear) we provide a detailed syntactic and semantic implementation of this analysis (and include remarks about the pragmatics of the CQA and its differences from pseudoclefts). In this paper, we focus on supporting our analysis with a series of arguments showing that the Q-constituent in a CQA behaves like a question (§2), the A-constituent behaves like its answer (§3), and the whole CQA forms a single declarative clause (§4).

## 2. The Q-Constituent is a Question

In this section, we argue that the Q-Constituent in a CQA is an embedded interrogative clause conveying a question by showing that CQAs and interrogative clauses pattern alike, including the distribution of wh-words. In English and other languages, when wh-words appear in non-interrogative contexts such as free or headed relative constructions, the wh-words that can appear in the wh-phrase are generally restricted. For example, in English, free relatives allow *what* (2)a but not *which* (2)b, as do specificational pseudoclefts (3)a and (3)b, while headed relatives allow *which* (4)a but not *what* (4)b.

(2)     a. I bought what you bought.
        b. *I bought which books you bought.

(3)     a. What he bought was a book.
        b. *Which book he bought was The Fountainhead.

(4)     a. *I bought the things what were on sale.
        b. I bought the book which was on sale.

In contrast, in a CQA in ASL any wh-word that can appear in a discourse-level question can appear in the Q-constituent in the very same position. Some examples are seen in (5)-(13), where (a) shows the CQA, and (b) shows the corresponding discourse-level question-answer pair.

(5)     a. JOHN EAT **WHAT**, PASTA.
        'The thing/What John ate was pasta.'
        b. Signer A: JOHN EAT **WHAT**?     Signer B: PASTA
        'What did John eat?'                'Pasta.'

(6)     a. GO-TO PARTY **WHO**, JOE.
        'The one who came to the part was Joe.'
        b. Signer A: GO-TO PARTY **WHO**?   Signer B: JOE.
        'Who came to the party?'            'Joe.'

(7)     a. LEAVE SHOES **WHERE**, KITCHEN.
        'The kitchen is where I left my shoes.'
        b. Signer A: LEAVE SHOES **WHERE**?   Signer B: KITCHEN.
        'Where did I leave my shoes?'         'In the kitchen.'

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[2] After developing our analysis, we became aware that a somewhat similar idea had been suggested in a poster abstract by Grolla (2004), but we disagree with her main argument that CQAs and English specificational pseudoclefts should be analyzed in the same way (see Davidson *et al.* to appear).

(8)     a. JOE COOK **WHEN**, YESTERDAY.
        'Yesterday is when Joe cooked.'
        b.  Signer A: JOE COOK **WHEN**?          Signer B: YESTERDAY.
        'When did Joe cook?'                      'Yesterday.'

(9)     a. BABY CRY **WHY**, MOTHER LEAVE.
        'The baby cried because its mother left.'
        b. Signer A: BABY CRY **WHY**?            Signer B: MOTHER LEAVE.
        'Why did the baby cry?                    'Its mother left.'

(10)    a. JOHN LIKE GIRL **WHICH**, MARY.
        'The girl that John likes is Mary.'
        b. Signer A: JOHN LIKE GIRL **WHICH**?    Signer B: MARY
        'Which girl does John like?'              'Mary.'

(11)    a. JOHN READ **HOW**, VERY-FAST.
        'John read very fast.'
        b. Signer A: JOHN READ **HOW**?           Signer B: VERY-FAST
        'How did John read?'                      'Very fast'

(12)    a. CAR COST **HOW-MUCH**, $20,000.
        'The car cost $20,000.'
        b. Signer A: CAR COST **HOW-MUCH**?       Signer B: $20,000
        'How much does the car cost?'             '$20,000'

(13)    a. TOMORROW **DO-DO**, GO-TO MOVIE.
        'What we'll do tomorrow is go to the movies.'
        b. Signer A: TOMORROW **DO-DO**?          Signer B: GO-TO MOVIE
        'What will we do tomorrow?'               'Go to the movie.'

The list above is not exhaustive, because adding *brow furrow* nonmanual marking to a declarative clause that is missing an argument has the effect of causing the clause to be interpreted as a wh-question, but these can also be used as the Q-constituent of a CQA. In short, there is no wh-phrase that can appear in an interrogative in ASL that cannot also appear in the Q-constituent of a CQA.

The claim that the Q-constituent of a CQA is an interrogative clause is also supported by the fact that wh-words are only used in interrogative constructions in ASL. Liddell (1978) showed that headed relative clauses in ASL do not use wh-words (14), and others (eg. Hoza *et al*. 1997, Grolla 2004) have noted that free relatives are also ungrammatical (15).

(14)    *I LIKE PERSON [WHO CAME YESTERDAY].
        (cf. *I like the person who/that came yesterday* in English)

(15)    a.  *[JOHN BUY WHAT], BEAUTIFUL.
        (cf. *What John bought is beautiful* in English)
        b.  *JOHN BUY [WHAT MARY LIKE]. / *JOHN BUY [MARY LIKE WHAT].
        (cf. *John bought what Mary likes* in English)

A Q-constituent may also resemble a polar interrogative, which further supports our claim that Q-consituents are interrogative clauses. First, note that ASL declarative clauses (16) differ only from their polar interrogative counterparts in that the polar interrogatives have obligatory brow raise nonmanual marking (17).

(16)    I LAUGH.
        'I was laughing.'

(17)      *brow raise*
          I LAUGH?
          'Was I laughing?'

Hoza *et al*. (1997) argue that polar interrogatives are acceptable as Q-constituents of CQAs, and this was confirmed by examples in the National Signstream Database and by our consultants (18).

(18)      *brow raise*
          I LAUGH, YES/NO.
          'I was/wasn't laughing.'

So far we have shown that the Q-constituent is an interrogative clause, but next we show that more specifically, it is an embedded interrogative clause. The behavior of nonmanual marking provides the first piece of evidence. Wilbur (1994) discusses the fact that in ASL, the nonmanual marking in any matrix wh-question, whether information seeking (19), rhetorical (20), or an echo question (21) is *brow furrow*.

(19)      _____*brow furrow*_
          JOHN BUY WHAT?
          'What did John buy?'

(20)      _____*brow furrow*_
          GIVE-BIRTH-TO-YOU WHO?
          'Afterall, who gave birth to you?'

(21)                           _*brow furrow*_
          Signer A:    KEYS, SEE WHERE?
                       'Where are my keys?'
                        _*brow furrow*_
          Signer B:    SEE WHERE? I THINK (POINT) KITCHEN.[3]
                       'Where are your keys? I think they're in the kitchen.'

Its use in rhetorical and echo questions in ASL shows that *brow furrow* is not restricted to indicating information-seeking status, and so we might expect it to occur with the Q-constituent in CQAs as well, if the Q-constituent were a matrix interrogative. However, as noted in Section 1, the required nonmanual marking in the Q-constituent is actually *brow raise*, not *brow furrow*. Petronio and Lillo-Martin (1997) note that embedded wh-interrogatives also do not have brow furrow nonmanual marking. Instead, the nonmanual marking changes depending on the matrix predicate, some of which select for brow furrowing. In conclusion, the nonmanual marking on Q-constituents is compatible with them being embedded wh-interrogatives, while it would be totally unexpected if they were matrix interrogatives.

The Q-constituent also behaves like an embedded interrogative rather than a matrix one as far as the doubling of wh-words is concerned. Matrix wh-interrogatives in ASL allow a wh-word to optionally be repeated later in the sentence, questioning the same constituent as the first occurrence of the word. When repeated, it can appear either at the beginning of the sentence and at the end (22)a, or *in situ* and at the end (22)b.

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[3] Example (3) in Wilbur (1994).

(22)     a. **WHAT** JOHN BUY YESTERDAY **WHAT**? [4]
         b. JOHN BUY **WHAT** YESTERDAY **WHAT**?
         'What did John buy yesterday?'

Unlike matrix wh-questions, neither embedded wh-interrogatives (23) nor the Q-constituent of CQAs (24) allow repeated wh-words.

(23)     JOHN ASK **WHO** GO-TO (\***WHO**).
         'John asked who came.'

(24)     (\***WHAT**) JOHN EAT **WHAT**, PASTA.
         'John ate pasta.'

Although the behavior of doubling wh-words in ASL is not well understood, it does constitute a piece of evidence against treating the Q-constituent like a matrix interrogative and for treating it like an embedded interrogative.

## 3. The A-Constituent is an Answer

Not only does the Q-constituent in a CQA behave like a question, but the A-constituent behaves syntactically and semantically like an answer to a question. One syntactic piece of evidence is that the A-constituent can either be a full or elided IP. In almost all of the examples we have seen thus far, the A-constituent is a constituent smaller than a full sentence. However, as noted in Hoza *et al.* (1997) and confirmed by our consultants, for a given A-constituent it is also possible to have a full IP answer to the question in the Q-constituents, as in (25).

(25)     JOHN BUY WHAT, HE BUY BOOK.
         'The thing/What John bought is a book.'

Some are more natural than others; in an example like (25) it can feel redundant to add the material HE BUY, but signers still report that it is grammatical. This is exactly like discourse-level answers, which are also usually elided but have full answers which are still considered to be grammatical.

Furthermore, like a discourse-level answer to a question, our consultants report that the A-constituent may be non-referential, as in (26).

(26)     JOHN BUY WHAT, EVERYTHING/NOTHING.
         'John bought everything/nothing.'

This contrasts with specificational pseudoclefts, in which non-referential postcopular constituents are usually judged to be ungrammatical with a specificational reading, as in (27).

(27)     #What John bought was everything/nothing.

If the A-constituent really is an answer to the question contained in the Q-constituent, there is no reason why the answer is required to be referential provided it is still an appropriate answer to the question, as happens in (26). Thus, as expected if the Q-constituent is a question, we see that the A-constituent behaves like a typical answer.

## 4. The whole CQA is a declarative clause

In this section, we give a series of arguments that show that the whole CQA behaves like a single

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[4] Example (16), p. 115 in Neidle *et al.* (2000).

declarative clause. First, a CQA can be embedded as the complement of a predicate, as shown by the bracketed CQA in (28) (see also Wilbur 1994).

(28)     THOSE GIRL HOPE [THEIR FATHER BUY WHAT, CAR].
         'Those girls hope that the thing/what their father bought is a car.'

We would especially like to emphasize that the predicates under which a CQA can be embedded are exactly those which take declarative clauses as complements. For example, predicates such as HOPE, THINK, or BE-AFRAID can embed a CQA (29), but predicates that only take interrogative clauses as complements, such as ASK, cannot (30).

(29)     THOSE GIRLS HOPE/THINK/AFRAID [THEIR FATHER BUY WHAT, CAR].
         'Those girl hope/think/are afraid that the thing/what their father bought is a car.'

(30)     *THOSE GIRLS ASK [THEIR FATHER BUY WHAT, CAR].
         ('Those girl asked that the thing/what their father bought is a car.')

It could be argued that the previous examples are not cases of embedding, but instead reported speech. However, the embedded pronoun THEIR in (28) and (29) is in the 3rd person, not the 1st person, showing that the entire utterance is from the viewpoint of the signer. This contrasts with reported speech, which is signaled in ASL by a movement of the body called 'role shift' and is somewhat analogous to quotation marks in written English (31).

(31)     THOSE GIRLS HOPE {*role shift* OUR/*THEIR FATHER BUY WHAT, CAR}.
         'Those girls hope: «Our father bought a car».'

When the CQA takes place within the role shift and not embedding, the signer takes on the perspective of the girls, so the pronoun in (31) must be OUR, not THEIR.

   ASL provides two other pieces of evidence that CQAs inside other clauses are true cases of embedding. The first is based on the property that only main clauses have in ASL to double either their main verb, or their modal, or their negation at the very end of the whole main clause (Petronio 1991), as seen in (32)-(34). The pragmatic properties of these sentence-final doubles are not yet well understood, but they are usually said to add emphasis to the sentence.

(32)     THOSE GIRL **BUY** CAR YESTERDAY **BUY**.
         'Those girls bought a car yesterday.'

(33)     JOHN **WILL** COME TOMORROW **WILL**.
         'John will come tomorrow.'

(34)     JOHN **NOT** COME TOMORROW **NOT**.
         'John is not coming tomorrow.'

A predicate that takes a CQA as its declarative clause complement also can be doubled at the end of the main clause, after the CQA (35). The same is possible for modals (36) and negation (37). This shows that the CQA is embedded within the main clause.

(35)     THOSE GIRL **HOPE** [THEIR FATHER BUY WHAT, CAR] **HOPE.**
         'Those girls hope that the thing/what their father bought is a car.'

(36)     THOSE GIRL **WILL** HOPE [THEIR FATHER BUY WHAT, CAR] **WILL.**
         'Those girls will hope that the thing/what their father bought is a car.'

(37)     THOSE GIRL **NOT** WANT [THEIR FATHER BUY WHAT, CAR] **NOT.**
         'Those girls don't want the thing/what their father bought to be a car.'

Another means by which the sentence boundary can be determined is that ASL can have a pronoun referring back to the subject at the end of the sentence (38) (Padden 1988, Sandler and Lillo-Martin 2006). Like the doubling of the verb, modal, or negation, the doubling of the subject in ASL is common but not well-understood pragmatically.

(38)     JOHN$_i$ BUY CAR **HE**$_i$.
         'John bought a car.'

When the CQA is embedded, the subject of the main clause may be doubled (39), which is expected if the CQA is embedded within the matrix sentence.

(39)     JOHN$_i$ HOPE [FATHER BUY WHAT, CAR] **HE**$_i$
         'John hopes the thing/what his father bought is a car.'

Because it is possible to have a multi-clausal Q-constituent (eg. THOSE GIRLS HOPE THEIR FATHER BUY WHAT? 'What do those girls hope their father bought?'), many examples of embedding are in principle compatible with an analysis according to which everything in the sentence preceding where we have been placing the comma is a Q-constituent. These examples would allow brow raising nonmanual marking on the entire Q-constituent, as shown in (40)a. This differs from our examples of actual embedding where brow raising nonmanual marking occurs only within in the embedded clause (40)b.

(40)                                                              _brow raise_
         a. [THOSE GIRLS HOPE THEIR FATHER BUY WHAT], CAR.
         'The thing/What those girls hope their father bought is a car.'
                                                      _brow raise_
         b. THOSE GIRLS HOPE [THEIR FATHER BUY WHAT, CAR].
         'The girls hope that the thing/what their father bought is a car.'

Furthermore, (40)a-b differ in meaning, as the translation indicates, and in their pragmatic properties (for more information on pragmatic properties, see Wilbur 1994, Davidson *et al.* to appear). They can also be disambiguated syntactically, since the embedded CQA (41)b, unlike the matrix CQA (41)a, allows the matrix verb to be doubled sentence-finally (because HOPE is the matrix verb only in (41)b).

(41)                                                              _brow raise_
         a. *[THOSE GIRLS **HOPE** THEIR FATHER BUY WHAT], CAR **HOPE**
         'The thing/What those girls hope their father bought is a car.'
                                                      _brow raise_
         b.  THOSE GIRLS **HOPE** [THEIR FATHER BUY WHAT, CAR] **HOPE**
         'The girls hope that the thing/what their father bought is a car.'

What is relevant for our argument is that there are clear examples of embedding the CQA, as in (41)b, showing that the CQA is a single, declarative, clause.

## 5. Conclusion

In this paper, we have presented a series of arguments supporting a new syntactic and semantic analysis of the CQA in ASL, which we develop in detail in Davidson *et al.* (to appear). Specifically, we have shown that the Q-constituent of a CQA exhibits all of the syntactic and semantic properties of an (embedded) interrogative clause. Similarly, the A-constituent of a CQA can optionally be elided and may be nonreferential, as expected of a declarative clause (or smaller constituent) conveying an

answer to a question. Furthermore, in Section 4 we have argued that the entire CQA is a single clause, of which the Q-constituent and A-constituent are components.

These conclusions resemble a popular family of analyses according to which specificational pseudoclefts in English and other languages are a syntactic and semantic unit comprised of a question and its answer (Ross 1972; Den Dikken *et al.* 2000; Schlenker 2003, among others). However, in Davidson *et al.* (to appear) we discuss several differences between CQAs in ASL and specificational pseudoclefts that cast doubts on a straightforward reduction of one to the other. Moreover, we show that CQAs are closer in behavior to question-answer pairs than even pseudoclefts, further supporting our analysis of CQAs.

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