Identity Sentences as Answers to Questions

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Introduction: Problem Establishment

I attempted to prove *Collingwood's thesis* previously[1].

Collingwood's thesis: Every statement except a question has meaning only in relation to a question.

The proof I attempted previously may not have been a logically exact proof, in common with most proofs about linguistic phenomena. However, I think it is sufficient as an empirical proof. Here, I want to prove the following thesis:

Thesis 1: Every answer to a question can be paraphrased into an identity statement or its negation.

If we can prove thesis 1, then we will be able to derive the following thesis from thesis 1 and the Collingwood thesis:

Thesis 2: Every statement except a question can be paraphrased into an identity statement or its negation.

If thesis 2 holds and we can reach an appropriate account of the meaning of identity statements, then we can reach an appropriate account of the meaning of all statements. With this aim, I sought to prove thesis 1 here. The proof of thesis 1 does not presuppose Collingwood's thesis.

To prove thesis 1, I would like to divide interrogative sentences into *wh-interrogative sentences* and *yes/no interrogative sentences*. "Wh-interrogative sentences" are interrogative sentences with *interrogative words* like 'who,' 'what,' 'which,' 'when,' 'where,' 'why,' and 'how.'[2]
We will prove the following T1a and T2b using the two kinds of interrogative sentences:

T1a: Answers to wh-interrogative statements are, if expressed in the form of full statements, always identity statements.

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[1] 'A Proof of Collingwood's Thesis' in *Philosophia Osaka*, Nr. 4, Published by Philosophy and History of Philosophy / Studies on Modern Thought and Culture Division of Studies on Cultural Forms, Graduate School of Letters, Osaka University, pp. 69-83, 2009/3.

[2] A wh-interrogative sentence is called 'Ergäntungsfragesatz' (a complement interrogative sentence) in German. A yes/no-interrogative sentence is called 'Entscheidungsfragesatz' (a decision interrogative sentence) in German.

T1b: Answers to yes/no-interrogative statements are, if expressed in the form of full statements, always identity statements *or their negation*.

1 Proof of T1a for Wh-Interrogative Statements

(1) All Wh-Interrogative Statements Require References

Wh-interrogative statements, of course, require answers. The answers are statements of sentences that are constituted by *substituting* some expressions for *interrogative words* and *changing* the order of words appropriately, if necessary. We do not answer in this way in ordinary cases, but we answer by saying *only* the expression that is supposed to be substituted for an interrogative word. These parts are the new information that questioners want to know and the other parts are old information that interrogative sentences have already presented.

Wh-questions are used in posing questions to other persons or to the questioner him- or herself. In both cases, to understand a wh-question is to understand what object is sought. When a questioner asks another person a wh-interrogative statement, she is asking the other person to specify an object. If the addressee specifies an object, she refers it to the questioner. When a questioner asks herself a wh-interrogative statement, she is seeking to identify an object by herself.

By the way, when we cut off an interrogative word from a wh-interrogative sentence, the remainder has similar properties to those of predicates that *Frege* called *'unsaturated'*. This remainder requires a reference to become saturated. The difference between them is that a predicate is never a full sentence; however, the remainder of an interrogative sentence, without the interrogative word, can be a full sentence in some cases. For example, when we cut off the interrogative word 'what' from 'What did you buy?' and make a possibly appropriate rearrangement, we get the remainder 'You bought,' but it is not a full sentence. In contrast, when we cut off the interrogative word 'when' from 'When did you buy the book?' and make an appropriate rearrangement, the remainder 'You bought the book' becomes a full sentence by itself.

(2) *A Denoting Phrase* of the Object a Question is Seeking and *an Answer* to the Question Are Different Expressions of the Same Object

For a person to answer a wh-question, the wh-question must denote which object the answerer should refer to, because, if not, she cannot answer it. So, a questioner is asking to refer to an object, but has already referred to the object in another way. A wh-question and an answer to it refer to the same object in different ways. We will see this from some examples:

"Who is the fastest runner in the world?" "Bolt."
"Where are you from?" "I come from the country that is famous for yogurt."
"When did the earthquake occur?" "Ten years ago tomorrow."

These wh-questions and answers give us different references to the same objects; this can be expressed explicitly in the following identity sentences:

"The fastest runner in the world＝Bolt"

"My home country = the country that is famous for yogurt."

"The date of the earthquake = ten years ago tomorrow"

Of course, what a person intends consciously by asking a wh-question is not to seek another expression of the object that she is seeking, but to reach the object itself. An answerer provides a clue by which the questioner may attain the object, by chance, in words. Thus, in some cases, an answerer could answer in nonlinguistic ways, such as by pointing. The attention of questioners and answerers are directed not to linguistic expression, but to objects. However, from the point of view of a third person, what is going on in questioning and answering can be said to be a process of making an identity sentence jointly.

(3) A Full-Sentence Answer and an Identity Sentence
As described above, a wh-question seeks a reference and an answer to it provides the reference. In many cases, an answer expresses a reference in the shortest form that avoids repeating the information given in the question, as follows:

"What did you eat last night?" "Curry"

We can use abbreviated parts and express the answer in a complete form with respect to grammar and information. We call it *'a full-sentence answer'*. In the case of the above example it would be the following:

① "I ate curry last night"

By the way, this sentence can become an answer to other questions, as follows:

"When did you eat curry?" "Last night"

The full sentence of this answer is the same as the above.

② "I ate curry last night"

The difference between the two statements of this same sentence is in the position of the focus. To make it explicit, we underline the words in focus as follows:

① "I ate <u>curry</u> last night"

② "I ate curry <u>last night</u>"

The difference is made more explicit, if these full sentences are paraphrased into identity sentences.

①´ "what I ate last evening = curry"

②´ "when I ate curry last = last evening"

① and ② are the same, but different, answers to different questions. ① and ② are different as statements. Their difference is in the position of the focus. If we express full-sentence answers in the form of identity sentences, we can get different identity sentences. By the way, these identity sentences are also full sentences of answers. A full-sentence answer to a question could be expressed in many ways, including in the form of an identity sentence. What I want to prove is that answers to all questions can be paraphrased into full sentences in the form of identity sentences.

   Next, we check the major sorts of wh-interrogative sentences and confirm that a full-sentence answer can be written in the form of an identity sentence.

(4) Main Sorts of Wh-Interrogative Sentences
(a) Interrogative Sentences with 'Which' and 'Who'
   Let us compare two questions "What is your favorite flower?" and "Which is your favorite flower?" For example, if you are standing in front of a florist shop, you might ask the question "Which is your favorite flower?" Then, the answerer is expected to select from the flowers in the shop. One could also ask "What is your favorite flower" while standing in front of a florist shop; that is asking an addressee to answer without being restricted to flowers in the florist shop. So, it does not matter if the addressee names a flower that is not in the florist shop. A what-question is asked when alternatives are not given. In contrast, we typically ask the which-question in a case with alternatives. Answers to which-questions are selected from the supposed alternatives and a full sentence of answer can be written in the form of an identity sentence (we consider 'what'-questions later).

   Who-questions have alternatives for an answer in some cases, and not in others. For example, the question "Whom do you like in your class?" has a set of alternatives, but "Whom do you respect?" has no set of alternatives. However, even if we could select from dead persons or fictional persons, we must select a person or some persons. So, in this sense, we could say that the set of alternatives is determined by the category of persons. A who-question requests the answerer to refer to one or some persons; thus, a full-sentence answer can be written in the form of an identity sentence as follows:

   "Whom do you respect?" "Gandhi"
   "The person I respect = Gandhi"

 (b) Interrogative Sentences with 'Where' and 'When'
   "Where do you want to go camping?" If this question requests a particular place for an answer, the answer will be a place, such as "Mt. Fuji" and the full-sentence answer can be rewritten as an identity sentence: "The place I want to go camping = Mt. Fuji."
   If someone was asked the question and answered "A cool place," then she may have thought the question did not necessarily request a particular place. If we express more clearly the question for that case, it will be something like, "What kind of place do you want to go camping?" or "What are the features of a place where you would like to go camping?" Then, an answer to it will be an identity sentence such as "The feature of the place where I want to go camping = being a cool place" (we will discuss 'what kind of'-questions and what-questions later).
   In the case of a when-question, a full-sentence answer can also be written as an identity sentence, even if the answer is opaque. For example,

"When do we move to a bigger place?" "When our child has grown up"

"The time when we move to a bigger place = the time when our child has grown up"

(c) Interrogative Sentences with 'How'
"How did you pass the examination?" "I worked more than ten hours every day."

A full sentence of the answer will be as follows:

"I passed the examination by working more than ten hours every day"

This can be paraphrased in the following identity sentence:

"The way by which I passed the examination = working more than ten hours every day"

The noun phrases on the left and right sides are *abstract general terms*.

（d）**Interrogatives Sentences with 'Why'**

"Why did he do it?" "He was in trouble with money"

The next sentence is not a full sentence of answer,

"Because he was in trouble with money"

This sentence does not make sense if it is isolated without the question. It does not present explicitly the full information that the answer presents implicitly. The full-sentence answer would be "He did it because he was trouble in money" and can be paraphrased into the following:
"The reason he did it = that he was in trouble with money"
Generally, 'why'-questions are questions about causes of events, reasons for actions, or grounds of assertions[3]. Thus, we can rewrite them as "What is the cause of … ?," "What is the reason for … ?" or "What are the grounds for … ?" The answers will then have identity sentences such as "The cause of … = …" and so on. Both noun phrases in these identity sentences are *abstract singular terms*.

(e) Interrogatives Sentences with 'What'

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[3] Cf. 'Do Three Kinds of Why-Questions Have One Root?' in *Metaphysica* Nr. 35, Published by Philosophy and History of Philosophy / Studies on Modern Thought and Culture Division of Studies on Cultural Forms, Graduate School of Letters, Osaka University, pp. 59-6, 2004.

Suppose that a person is asked, "What is your favorite flower?" and answers, "It's a rose." A full-sentence answer is "My favorite flower is a rose" and this is an identity sentence, because it can be rewritten as "A rose is my favorite flower" by *conversion of the subject and the predicate*. On the other hand, when a person is asked, "What is this?" and answers, "It is an apple," this answer is not an identity sentence, because it cannot be rewritten into "An apple is it" by conversion. How are we supposed to think about such cases?

(i) Ambiguity of What-Questions

The reason why answers to what-questions become subject-predicate sentences in many cases is probably that many what-questions are ambiguous. Suppose that we can answer "It is an apple" to the question "What is this?" in a situation. However, there are many ways to answer the question in the same situation, such as "It is a fruit," "It is food," "It is my lunch," "It is what I bought," "It is a source of vitamins," and so on. To answer the what-question *in a specific way*, we must qualify the meaning of the what-question. We may qualify it, for example, as "What kind of fruit is this?" and answer is, "It is an apple," or we may qualify it as "What do you do with this?" and the answer is, "It is my lunch," or we may qualify it as "Why is this here?" and the answer is, "It is what I bought." Unless we qualify a meaning for "What is this?" we cannot answer it in any particular way. So, a full-sentence answer becomes as follows:

"What is this?" ("What kind of fruit is this?") "It is an apple"
  "The kind of fruit this is is an apple"

This sentence can be rewritten as "The apple is the kind of fruit this is." Thus, it is an identity sentence. We can divide ways to qualify what-questions in two sorts.

(ii) A Way to Qualify 'What'-Questions (1): By Adding a Point of View

We can qualify 'what'-questions by adding a point of view, as follows.

"What is this?"
  → "What is this with respect to the color?"
"What was the speech of the Prime Minister about?"
  → "What was the speech of the Prime Minister with respect to his intention?"

These what-questions with a point of view are synonymous with "What is the color of this?" or "What was the intention of the speech of the Prime Minister?" These questions are still ambiguous. "What is the color of this?" is still ambiguous as to how minute a qualification of colors it requests. "What was the intension of the speech of the Prime Minister?" is also still ambiguous as to how much in the way of detailed information it requests.

In the former case, if we qualify it further into "What is the number of vibrations of the light this reflects?" then a full-sentence answer to it becomes an identity sentence. In the latter case, if an answer to it is, "The intention behind the speech of the Prime Minister was that he wanted to announce his resignation after closing the Diet", then this is an identity sentence, because we can convert the subjects and the predicates of these statements.

(iii) A Way to Qualify What-questions (2): By Changing Them to Other Types of Questions

As we described above, full sentences of answers to other types of wh-interrogative sentences can be rewritten in the form of identity sentences. So, if we can change a 'what'-question into a different type of wh-question, then a full-sentence answer to it becomes an identity sentence. Alternatively, if we can change a 'what'-question into a yes/no-question, a full-sentence answer will be an identity sentence (yes/no-questions are considered later).

(iv) A Predictable Objection

A following objection is predictable. What-questions are questions seeking a reference in some cases and questions seeking a predication in other cases. A what-question is seeking a reference in the following case.

"What is the cause of this accident?"

An answer to it can be written as an identity sentence, such as, "The cause of this accident = …" On the contrary, what-questions are seeking predicates in the following cases.

"What is the color of the flower?"
"What is his nationality?"

We can make an interrogative sentence from a subject-predicate sentence by changing a subject with "what" and an appropriate rearrangement or by changing a predicate with "what" and an appropriate rearrangement. In the latter case, a what-question requests no reference and thus an answer to it cannot be an identity sentence.

(v) Reply to the Objection

What I want to confirm first is that every question includes a reference and a predication. For example, in the case of "What color does this have?" the point of view of the question, i.e., the color, is expressed explicitly. It constitutes a part of predication. This question has made not only a reference but also a predication, partially. Strictly speaking, this question does not request a predication, but the complement of a predication, such as "This has a color of … ." The complement of the predicate will be made by referring to a color. So this question can be changed into "What is the color of this?" that requests a reference.

In the case of "What is the color of this?" the point of view of the question has become a part of the subject, so this question seems to have no point of view. So, it might seem to have no predication. However, the question is still ambiguous and needs to be qualified furthermore to be answered, as I said above. The vocabulary of colors is finite, but considerable and ambiguously sorted. So, to answer it, we need to qualify the point of view.

As to the case of "What is this?", to answer it, we need to understand the point of view of this question. If not, we cannot understand what we are supposed to answer. In many cases, the point of view of the question would be implicitly indicated by the context. This question is also requesting a reference.

In general, a subject-predicate sentence "S is P" always has a point of view. It is ordinarily a broader concept of P. When we answer "S is P" to a question "What is S?" we suppose *a broader concept (B)* as a point of view of the question. The question is

understood as "What is S *with respect to B*?" and can be answered. The answer "S is P" can be rewritten as an identity sentence, "The feature of S in respect to B = P."

2. Proof of T1b on Yes/No-Interrogative Statements

Second, we would like to prove T1b, "Answers to yes/no-interrogative statements are, if expressed in full statements, always identity statements or their negation." In a yes/no-question we ask "p?" as to a sentence "p" and an answer to it is "Yes, p" or "No, not p". If "p" is an identity sentence, "Yes, p" is also an identity sentence and "No, not p" is a negation of an identity sentence. However, if "p" is not an identity sentence, then an answer is neither an identity sentence nor its negation. If we change an answer into an identity sentence, then we can make explicit what has become clear through the question and answer. To show this, I want to confirm first that every statement has a focus. A focus of a statement means the part on which a speaker's attention is placed in the statement. For example, in the statement "She bought a book," the focus can be on "she," "bought," or "a book." When we change it into a yes/no question, there are also three possibilities. I show the position of the focus by underlining.

"Did <u>she</u> buy a book?"
"Did she <u>buy</u> a book?"
"Did she buy <u>a book</u>?"

An affirmative answer to this question also has three possibilities for the focus position:

"Yes, <u>she</u> bought a book"
"Yes, she <u>bought</u> a book"
"Yes, she bought <u>a book</u>"

We can make explicit these positions of focus by changing them into identity sentences as follows.

"A person who bought a book = she".
"What she did regarding a book = buying"
"Thing she bought = a book"

These identity sentences also make explicit what has been confirmed through the question "Did she buy a book?" and the answer "Yes, she bought a book." In this sense, we can paraphrase an answer to yes/no-question into an identity sentence.

Next, I would like to think about a negative answer to a yes/no-question. Suppose that the next yes/no-question has a focus on "she."

"Did <u>she</u> buy a book?"
A full sentence of a negative answer is the following:

"<u>No,</u> she did <u>not</u> buy a book"

The focus is on 'No' and 'not.' This could be paraphrased into the following negation of an identity sentence:

"she ≠ A person who bought a book"

We would get similar results if the question had focused on the other positions.

By the way, we might be able to paraphrase "Is S P?" into "Is "S is P" true?" and an answer "Yes, it is true" into an identity sentence "The truth value of "S is P" = true." However, we do not accept this line of thought, because it cannot be applied to an answer without a truth value, like an answer "Yes, I want a coffee" to a question "Would you like a coffee?"

3. Remaining Problems
(1) Cases in which answers are negative sentences
(a) In cases where answers to wh-interrogative sentences are negative sentences, those wh-interrogative sentences contain the negation from the start. For example,

"Where don't you want to go?"
"I don't want to go to a battle field"

A full sentence of answer is a negative sentence and can be rewritten as the following identity sentence.
"A kind of the place where I don't want to go to = a battle field

The negation does not make the negation of an identity sentence; it is involved in the left side noun phrase. When answers to wh-interrogative sentences become negative sentences, the wh-interrogative sentences include the negation in itself. Thus, the negation will be involved in a noun phrase, whether on the left or right side of an identity sentence.

(b) Negative answers to yes/no-questions are divided into two kinds: a negative answer to an affirmative yes/no-question and one to a negative yes/no-question. We have already considered the former case above. Here, I consider the latter. The latter negative yes/no questions are further divided into a negative question of an identity sentence and one of a subject-predicate question. A negative question of an identity sentence is as follows:

"Isn't the fastest runner in the world Obama?"

"No, it is not Obama"

This answer can be rewritten into a negation of identity sentence.

"The fastest runner in the world ≠ Obama"

A negative question of a subject-predicate sentence is as follows:

"Didn't you buy a book yesterday?"

The negative answer to it is:

"No, I didn't buy a book yesterday"

A negative sentence like this has its focus on the negation; in this case it is placed on the part "didn't," and, thus, we cannot rewrite it as an identity sentence by picking up a phrase with a focus. However, its original subject-predicate sentence, before being negated, can be rewritten into an identity sentence by picking up a phrase with a focus. For example, if a statement of "You bought a book yesterday" has its focus on the phrase "a book", then this statement can be changed into a statement of the sentence "A thing you bought yesterday = a book." So, we can rewrite the original negative subject-predicate sentence "You didn't buy a book yesterday" into a negation of the identity sentence "a thing you bought yesterday ≠ a book."

(2) Cases where Answers are Universal Sentences
(a) The cases in which universal sentences become answers to wh-questions may be divided in two ways. For example, a case in which "all crows are black" becomes an answer to wh-questions is divided in the following two ways:

  Way 1
    "How big is the portion of crows that are black?"
    "All crows are black"

This answer can be rewritten into an identity sentence "a portion of black crows = all"

  Way 2
    "Do all crows have the same color?"
    "Yes"
    "What color do all crows have?"
    "All crows are black"

This answer can be rewritten into an identity sentence, "the color of all crows = black"

 (b) Cases where answers to yes/no questions are universal sentences

    "Are all crows black?" "Yes, all crows are black."

To make explicit what has become clear by this question and answer, we need to rewrite the question and answer into identity sentences. As above, if the focus is put on "all," "all crows are black" means "the portion of black crows = all," or, if the focus is put on "black" it means "the color of all crows = black." Thus, the question "Are all crows black?" means one of the following two questions:

    "Is the portion of black crows all?"
    "Is the color of all crows black?"

Then, the answer "All crows are black" means, respectively, the following.

    "The portion of black crows = all"
    "The color of all crows = black"

(3) Cases where answers are complex sentences by conjunction or disjunction
    Consider the following example:

"What is the condition for the application?" "P and Q"

This answer is an abridged sentence. A full-sentence answer is as follows:

"The condition for the application is P and Q"

We can rewrite it into an identity sentence.

"The condition for the application = P and Q"

The cases of disjunction can be treated in the same way. That is to say, a full-sentence answer never becomes a complete sentence in the form of a conjunction or disjunction.

(4) Cases where answers to questions are conditional sentences
Can answers that are conditional sentences be paraphrased into identity sentences? There are two sorts of cases: cases where questions are conditional and cases where questions are not.

(a) The Cases of Conditional Questions
(i) Cases where consequences of conditional questions are wh-questions.

"If butter is heated to 150 degrees, what would happen to it?"

"Butter would melt"

If we change it to a full-sentence answer, we will get the following:

"If butter is heated to 150 degrees, then it would melt"

The consequence of this full sentence can be changed to an identity sentence:

"If butter is heated to 150 degrees, then what would happen to it = melting"

The whole of this sentence is not an identity sentence, but a conditional sentence. However, we can change it into an identity sentence:

"What would happen to butter, if it is heated to 150 degrees = melting"

(ii) Cases where consequences of conditional questions are yes/no-questions
"If butter is heated to 150 degrees, then would it melt?"

A full-sentence positive answer is as follows:

"Yes, if butter is heated to 150 degrees, then it would melt."

This answer can be rewritten as an identity sentence:

"What would happen to butter if it is heated to 150 degrees = melting"

This said, how do we deal with a negative answer to it?

> "If butter is warmed to 50 degrees, then would it melt?"

A negative answer would be as follows:

> "Even if butter is warmed to 50 degrees, then it would not melt."

This answer can be rewritten into the following negation of an identity sentence:

> "What would happen to butter if it is warmed to 50 degrees ≠ melting"

(b) Cases of questions that are not conditional

Even if questions are not conditional, answers to them can be conditional, as follows:

> "Will this apple become red?"
> "Yes, if it grows well, it will become red."

This full-sentence answer can be rewritten into the following identity sentence:

> "The color of this apple when it grows well = red"

(5) Cases where answers to questions are existential sentences

Consider the following examples:

> "Do bears exist in Japan?" "Yes, they exist in Japan."
> "Does Pegasus exist?" "No, Pegasus doesn't exist."

We could paraphrase these answers into the following identity sentences:

> "Japan = where bears exist"
> "This world ≠ where Pegasus exists"

This answer might be too simplistic, but we could take this line of thought.

4 Conclusions

With that, we come to the end of the proof of thesis T1, "Every answer to a question can be paraphrased into a statement of identity or its negation." I would like to close this article by repeating what I said at the beginning. On the grounds of T1 and Collingwood's thesis, "Every statement except a question has meaning only in relation to a question," we can state thesis 2, "Every statement except a question can be paraphrased into a statement of identity or its negation." The next task is to provide an appropriate theory of meaning for identity sentences. If we achieve this, then we may arrive at a theory of the meaning of statements in general.