

Negation, An Optional Transformation in Syntax

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Introduction:

The following construction fits nicely with the analysis of wh and yes-no questions. The analysis that emerges has many of the characteristics of the analysis of questions. This construction involves negation:

a. Jack (did not) buy the apples.

This paper will investigate the interaction between negations and questions in terms of rules required and their ordering. For example, there are some restrictions on whether a negative element may immediately follow the model in a question:

- a. (*Did not) Jack buy apples?
- b. (Didn't) Jack buy apples?
- c. Did Jack (not) buy the apples?

Finally, this paper will present a construction that is similar to questions containing negation; this is called tag questions:

- a. Jack didn't buy apples, did he?
- b. Jack bought apples, didn't he?

Sentential negation:

Negative element is not or n't. they are used in connection with auxiliary verbs:

Jack	Did not Didn't	buy the apple
	Will not Won't	Open the door
	Has not Hasn't	Seen Sara yet
	Is not Isn't	Driving very carefully

These examples reveal a restriction on the distribution of negation among the elements of the verbal sequence. This description shows the formal categorization of this restriction. It is impossible for (not) to precede the verbal sequence entirely:

Jack (*not)	will smile
	has smiled
	would have smiled
	is smiling
	smiles

However, having (not or n't) after the first member of the verbal sequence is acceptable.

Cases of having a verbal sequence containing more than one auxiliary verb:

Jack would	not	have bought the apples
	n't	be standing here now

If there is only one member of the verbal sequence other than the verb, then negation follows that member. The set of phrase structure rules generate all and only verbal sequences that contain negation.

Verbal sequence	Examples
TENSE M not V	Jack will not smile
TENSE have en not V	Jack has not smiled
TENSE be ing not V	Jack is not smiling

TENSE have en not be ing V	Jack has not been smiling
TENSE M not have en V	Jack will not have smiled
TENSE M not be ing V	Jack will not be smiling
TENSE M not have en be ing V	Jack will not have been smiling

There are two important observations to be made. First, the order of elements is precisely the same as that in the verbal sequences without negation. Second, negation follows the first element in the sequence after TENSE. A transformational analysis permits us to capture the generalizations that a phase structure account fails to capture. There are three approaches of comparable plausibility:

1- PSR1: S → NP AUX VP

(not) always appears after TENSE and the first verbal element. It permits(not) to appear after AUX in the deep structure.

PSR1: S → NP AUX (not) VP

To have (not) in between AUX and VP, one should revise the Do-Replacement so that it will apply even when (not) is present.

2- (not) is treated as an underlying constituent of VP rather than of S:

PSR1': S → NP AUX VP

PSR2: VP → (not) V (NP)

3- (not) as a constituent of the sentence that is generated in a position outside of the verbal sequence and is moved after AUX by a transformation. The traditional treatment involves PSR1'' and the transformation of NegPlacement

PSR1'': S → (not) NP AUX VP

Neg Placement: X not Y AUX Z

Alternative 3 does not require complication of Do replacement if Neg Placement is ordered after it. When Do Replacement applies, in this analysis, (not) has not yet been moved into the verbal sequence. However, in the other two analyses, (not) originates in the middle of the verbal sequence, and therefore the possibility of its presence must be taken into account in the statement of Do Replacement. The rule of Do Replacement can be applied when the AUX is followed by adverbs such as *just*, *ever* and *so*.

- a. Jack has just left the room
- b. *Just, Jack has left the room
- c. *Jack has left the room, just.

These adverbs can only appear in the position after AUX. there is no evidence that they must be moved into this position from elsewhere in the sentence by transformation. In order for Do Replacement to apply when there is an adverb between do and the *have* or *be* that replaces it, the rule must be restated roughly as follows.

Do Replacement: X do Y (have) Z

The variable Y will allow the adverb or (not) between do and the auxiliary verb that is moved. It is possible to have two instances of negation in the verbal sequence. Such cases are awkward, but grammatical:

- a. You simply can't not take advantage of this offer.

Without permitting (not) to be generated in more than one place in the sentence, it will be impossible to derive examples such as these. There is a construction that serves as a diagnostic for the presence of a VP. In some sentences negation is on the VP and in other sentences it is not. This construction is called pseudo-cleft:

- a. What Jack did was (to) leave the door open.
- b. What Emily will do will be (to) read a book.

Pseudo-cleft consists of three parts; the left-hand part, which takes the form of a wh-question that lacks inversion. Second, an AUX followed by some form of the verb be. Third, the right-hand part that provides the answer to the question "asked" by the left-hand part. In the preceding example: leave the door open answers the question what did jack do. When the left hand part of the pseudo-cleft seeks the nature of the action performed, the right-hand side provides the answer in the form of a verb phrase. The answer of the question can take the form of (not) followed by a verb phrase:

- a. What Jack did was (to) not leave the door open, (but (to) close it).

(not) can appear after (will be) in the pseudo-cleft before a VP but not before any other constituents.

- a. *What Jack buys will not be a toy.

This example can be improved by introducing a but-clause:

- a. What Jack buys will be not a toy, but a gun.

However, in these cases the (not) is part of the constituents that contains the two phrases and (but). The (not-but) construction can be used independently of those contexts in which sentential negation could be operating:

- a. Not a toy, but a gun, arrived in the mail.
- PSR3: VP → (not) (have en) (be ing) V (NP) (ADV)
- a. What Jack has done has been (to) open the door.

The right of be is of the form V NP. Verb phrases with have en or being cannot appear in this position:

- a. * What Jack does is have left the area.
- b. * What Emily has done has been be leaving the area.

Since this construction is the one that appears to the right of be in the pseudo-cleft, and negation is a constituent of this constituent, PSR:

PSR3a: VP' → (not) (have en) (being) VP

There can be three nots in a sentence:

- a. Jack would VP [not have VP [not paid his taxes]] for several years

There is some experimental evidence that suggests that it is difficult to produce sentences with multiple negative elements.

- a. Jack would not have not been paying his taxes for several years
- (not) must follow (have) in deep structure in this example because the presence of (would) in AUX will prevent (have) from being moved to the left into AUX by Do-Replacement:

PSR3a: VP' → (not) (have en) (not) (be ing) VP

One consequence of this revision is that the grammar now becomes capable of generating sentences with four nots:

- a. Jack would not not have not been not paying his taxes for several years.

Since (have en) and (be ing) are optional, our grammar will generate sentences with many nots but only one verbal element in VP.

VP Ellipsis: allows a verb phrase to be deleted when there is another identical verb phrase in the sentence.

- a. Jack will leave and Marry will leave too.
- b. Jack will leave and Emily will Ø too.

This serves as a strong evidence for the existence of each constituent.

- a. Jack couldn't have been studying Spanish, but Bill could have been studying Spanish.
 - b. Jack couldn't have been studying Spanish, but Bill could have been Ø.
- (b) can be derived from the structure (a) by deletion of one of the nodes in the VP structure.

Negative question and contraction:

(n't) is called contracted negation and the process where it is derived from (not) is called contraction. There are certain restrictions on the distribution of negation in negative questions.

*Will not Won't	Jack buy the apples?
*Did not Didn't	Emily fix the t.v?

When negation is moved by Inversion the form of negation must be the contracted form. When negation is not moved by Inversion, it cannot be the contracted form.

Neg contraction: attaches n't to AUX before Inversion applies.

- a. *Charley would not haven't seen the money.
- b. Charley wouldn't have not seen the money.

NEG CONTRACTION: X AUX not Y

n't is attached to the right of AUX.

The ordering rules will be: Do Replacement- Neg Contraction and Inversion.

A modal plus n't is treated as a unit involves a transformation that deletes a modal when there is an identical modal preceding it:

- a. Jack will leave and Emily will stay.
- b. Jack will leave, and Emily, stay.

When (not) is present, it cannot be deleted. On the other hand, when n't appears, it cannot be left behind by this deletion transformation and must be deleted with the modal.

- a. Jack will not leave and Emily will not stay.
- b. Jack will not leave and Emily, not stay.
- c. *Jack will not leave and Emily, stay.

Regarding n't:

- a. Jackwon't leave and Emilywon't stay.
- b. Jack won't leave and Emily, stay.
- c. *Jack won't leave and Emily, n't stay.

Tag questions:

The classical analysis:

- a. Jack didn't buy the apples, did he?
- b. Jack bought the apples, did he not?
- c. Jack bought the apples, didn't he?

A tag question has two parts; the right of the comma is called tag. The left of the comma is the main clause. These examples indicate that it is impossible to have a negation in the tag and the main clause at the same time. Examples with one or no negation are acceptable. However, having two instances of negation is not acceptable. The form of the tag is related to the form of the main clause. The model in the tag and the model in the main clause must be the same:

a. Emily won't read the book,	will	she?
	*can	
	*may	
	*shall	
	*would	
	*is	
	*has	
	*should	

There must be a definite pronoun in the tag. This pronoun must "agree" with the subject of the main clause. Agree means that the pronoun and the subject of the sentence must have the same gender (masculine, feminine or neuter), number (singular or plural) and person (first person, second person or third person).

a. Jack isn't smiling, is	he?
	*she?
	*Jack?
b. You haven't read my book, have	you?
	*they?
	*we?

There is notag questions that have overt wh words in the tag:

- a. *Jack saw someone, who did he?
- b. *You are going somewhere, where are you?

The Inversion applies in tags, the distribution of negation in tags is accounted for by applying Inversion to the output of Neg Contraction in the derivation of negative questions:

a. Isn't Jack smiling? Is jack not smiling? *Is not Jack smiling? *Is Jackn't smiling?	b. Jack is smiling, isn't he? Jack is smiling, is he not? *Jack is smiling, is not he? *Jack is smiling, is he n't?
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The Inversion will apply in tag just as it applies in negative questions. This means that the derivation of the tag question the wh word (whether) must appear in the tag, since this is the only wh word that will be deleted after causing Inversion to apply. The tag is not present in the deep structure, (whether) must be introduced into the tag by the application of Tag Formation.

It is impossible to apply Tag Formation to a structure that underlies a wh-question

- a. *Who left early, did he?

In order to make this formation work, the phrase markers can contain a wh where a Tag Formation may apply:

- a. Jack forgot what Emily said, didn't he?
- b. Emily questioned whether the world was flat, didn't she?

Tag Formation cannot apply when Wh Fronting has moved the wh constituent to the front of the main clause. However, it is difficult to differentiate between wh questions and declaratives in terms of a simple structural condition. A wh-question "who saw Jack?" and the declarative "Emily saw Jack does" have the same basic structure of NP AUX VP

The formulation of the Tag Formation transformation would have to be as follows. It will have to apply after wh Fronting, so that it will apply when there is an indirect wh question but not when there is a direct wh question. It will have to take as input: NP AUX X and the output: NP AUX X, whether (NP+PRO) AUX.

TAG FORMATION (1): NP AUX X (NP should not be a wh phrase)

TAG FORMATION (2): whether NP AUX X

(Whether) appears in the initial position. This formulation blocks the derivation of a tag question from a structure that underlies a wh-question. The movement of (whether) out of the main clause into the tag ensures the correct application of Inversion in the tag and blocks application of Inversion to the main clause.

Input	Whether EmilyPres will not read the book
Tag Formation	EmilyPres will not read the book, whether she Pres will
Neg Contraction	EmilyPres will + n't read the book, whether she Pres will

Since Tag Formation only copies the AUX and not the rest of the verbal sequence, no way that this rule can introduce a not into the tag. Changing the order is not a solution to this problem. If Neg Contraction preceded Tag Formation, we would generate ungrammatical sentences, in which the contracted negation in the AUX was copied into the tag. One solution is to complicate Tag Formation so that it treats (not) in one of two ways:

- 1- If (not) immediately follows AUX, Tag Formation must either copy the AUX and leave the (not) behind.
- 2- Copies the AUX and moves the (not) into the tag.

TAG FORMATION (3): whether NP AUX (not) X

- 1 2 3 4 5
- a. ∅ 2 3 4 5,1 (2+PRO) 3
- b. ∅ 2 3 ∅ 5,1 (2+ PRO) 3 4

Culicover (1971) and Akmajian and Heny (1975) distribute (not correctly) in tag questions:

NEG PLACEMENT: X not Y AUX Z

1 2 3 4 5 \longrightarrow ∅ 3 4 + 2 5

If Tag Formation (2) is applied, the results will lead in having two AUXs:

- a. not whether EmilyAUX [Pres will] leave
- b. not∅Emily AUX [Pres will] leave, whether she AUX [Pres will]

There are two possible derivations:

- 1- (not) is moved after the first AUX, the AUX in the main clause.
 - a. ØEmily AUX [Pres will] not leave, whether she AUX[Pres will]
- 2- (not) is moved after the AUX in the tag
 - b. ØEmily AUX [Pres will] leave, whether she AUX[Pres will] not.

In this analysis, the meaning of tag questions cannot be determined until after Neg Placement has applied because Neg Placement determines which AUX will have not next to it.

Arguments against tag formation

There are several reasons why transformational analysis of tag questions are questionable. The positive tag in the following sentences, discussed by Klima (1964), cannot be explained by the transformational analyses:

a. Jack rarely eats his spinach,	does	he?
	*doesn't	
b. It scarcely rains in California,	does	it?
	*doesn't	

It appears, therefore, that the proper account of the tag questions must be formulated not in syntactic but in semantic terms where we have (1) an independent characterization of what constitutes a “negative” sentence, and (2) an explanation for why positive tags are selected by negative sentences. However, currently, no entirely adequate account exists.

References

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- [3]. Klima, E. (1964). Negation in English In: Fodor, J. A & J. J. Katz (eds.). *The Structure of Language: Readings in the Philosophy of Language*. Englewood Cliffs, New Jersey: Prentice-Hall, 246-323.