RETHINKING INVERSION IN ENGLISH SYNTAX

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Abstract

The article deals with some internal theoretical controversies in the concept and the use of the term *inversion* in English syntax as used in some descriptive and most pedagogical grammars of Modern English. The analysis focuses mainly on the formation of interrogative and emphatic negative structures in English by applying some basic concepts of generative grammar. The aim of the analysis is to explain the transposition of the subject and the verbal predicate by following the Occam Razor' s principle of scientific description requiring the employment of a minimal number of principles and technicalities in the course of analysis which results in higher explanatory adequacy. This aim is achieved through the application of the terms *operator* and *operator fronting* in the cases of both obligatory and reversive inversion. The obligatory visualization of the operator in a series of syntactic structures is also discussed and a general rule is formulated.

Key words: inversion, insertion, operator, operator fronting, visibility.

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Inversion in English is a widespread grammatical term used to describe the changes in the word order especially when it comes to describing the formation of direct questions and negative inversion.

What this article claims is that despite the long-lasting tradition of its usage in describing the changes of the word order commonly used in pedagogical grammars of English, from a theoretical viewpoint *inversion* turns to be a deceptive term implying false interpretations of how English syntactic rules work.

The arguments presented in this article are based on empirical material involving mainly the formation of interrogatives and negative inversion. In order to reach valid generalizations, the formation of simple negation and reported questions are also analyzed. Aside are left the changes in the word order resulting in subject-verb transposition caused by the topicalization of adverbs and adverbial phrases (AdvP), noun-phrases (NPs) and prepositional phrases (PPs) referred to as *front-focus* or *preposing* (Nordquist, 2017):

(1) [PP In the corner] stood another man of the law. (Carter &McCarthy, 2006, p. 595)

(2) [PP On a hill in front of them] stood a great castle (Swan, 1980, p. 346)

(3) [P Up] walked a policeman (Swan, 2005, p. 303)

Although topicalization is also a fronting type of movement it is of a different nature compared to WH-movement and negative fronting as it allows to move phrases originating in a post verbal position to the front of the clause without affecting the TP (Radford, 1992, p. 530). This is shown in the following examples by Edmonds (1976, p. 31), where the original position in the deep structure of the fronted NPs is marked as "_":

(4) [NP These steps] I used to sweep _ with a broom.

(5) [NP Our daughter] we are proud of _.

Discussion

Inversion is most often defined as "a reversal of position, order, form or relationship: such as a change in the canonical SVO word order; especially: the placement of a verb before its subject" (inversion, n.d.b). Another definition says that: "Inversion happens when we reverse (invert) the normal word order of a structure,

most commonly the subject-verb word order. For example, a statement has the subject (s) before the verb (v), but to make question word order, we invert the subject and the verb, with an auxiliary (aux) or modal verb (m) before the subject (s) (inversion, n.d. a). Inversion in questions is often explained as "a change of the places" of the auxiliary verb and the subject or as "a switch" of the subject with the auxiliary (Perfect English Grammar, n.d.; inversion, n.d.).

Negative inversion necessarily occurs when a clause starts with a negative adverb or negative adverbial phrase which requires an inversion of the canonical declarative subject-verb word order (Camus, 2018; Horner, 2014).

As seen from the above the most popular internet resources and dictionary definitions define inversion in the scope of question formation and emphatic negation as a shift, a switch or a reverse of the subject and the first auxiliary of the VP.

No matter how simple and useful *inversion* is in pedagogical and prescriptive English grammars, it fails to explain language facts on a number of occasions summarized in the following cases:

Case 1

While the rule of inversion holds seemingly true in complex tenses and copular *be* clauses, an additional rule is needed, namely the so called *dummy do insertion* to explain interrogatives such as: *Do you like her?* and *Did you read the book?* It is obvious that a simple subject-verb inversion will end up with the ill-formed **Like you her?* and **Read you the book?* In addition, there is no explanation when and where the *do-insertion* happens and why the lexical verb remains *in situ*, which adds an extra complexity to the inversion rule.

Case 2

Conventionally the formation of questions is explained as inversion of the subject and the first auxiliary in both Y/N questions termed *polar interrogatives* by Carter & McCarthy (2006), and WH-interrogatives by simply stating that the first auxiliary precedes the subject (Swan, 2005; Crystal, 1999). However, this description fails to explain the mechanism of the obligatory subject-verb transposition. Second, as in Case 1, it does not explain how and why the auxiliary *do/does/did* appears in both interrogative structures. Carter and McCarthy simply state: "Wherever there is no

auxiliary *be*, auxiliary *have* or modal verb already present, auxiliary do/does/did/ is used." (2006, p. 534). Another issue that lacks proper explanation is why only the first auxiliary moves, while the rest of the complex predicate remains *in situ.* The rule simply states: "Where there is more than one auxiliary verb or a modal verb plus auxiliary verb(s), only the first auxiliary or the modal verb precedes the subject." (2006, p. 534).

Case 3

However, another inconsistency is observed, namely inversion rule seems to be valid for all but for the WH-questions addressing the subject. For example: From the declarative *John loves Mary.* two WHO-questions are formed: *Who does John love? (Answer: Mary),* and *Who loves Mary? (Answer: John).* The descriptive rule tells: apply inversion in case of a question to the object and do not apply inversion in case of a question to the subject. Thus the questions to the subject seem to create an exception to the general inversion rules needing an *ad hoc* solution.

Case 4

Another *ad hoc* rule needs to be applied when the formation of reported questions is concerned. Once inverted in direct questions, a rule of "re-inversion", or a backshift to the canonical declarative SVO order is needed. What is this obligatory "re-inversion" triggered by is a question that traditional English grammars do not address.

Case 5

Finally, the causes of negative inversion have never been explained thoroughly in traditional syntactic descriptions, which leads to the need of establishing a third *ad hoc* rule applied to numerous clauses (though not to all), where negative adverbs and prepositional and quantifying phrases such as *never, seldom, if only, under no circumstances, few* etc. come first in the clausal structure.

The five cases above incite a number of challenging questions: Can it be suggested that all types of inversions, including "re-inversion", be due to one single syntactic rule? If so, can all the phenomena above receive such a general explanation that will also account for the exceptions? And finally, what is the real nature of inversion and what triggers or blocks it?

Possible answers are provided by the theoretical principles underlying the classical generative syntax theory.

The first principle concerning language structure is the concept of deep structure, which contains all "logical relationships of the elements of a phrase or sentence" that change into surface structure by rules of transformation (deep structure, 2016). More consistently the notion of deep structure is defined in Collins Dictionary (Deep structure, 2014) as "a representation of a sentence at a level where logical or grammatical relations are made explicit, before transformational rules have been applied." What is important is the assumption that deep structure contains all possible syntactic elements, some of which might be either overt or covert on the surface structure. Then, is the subject-verb transposition, traditionally called *inversion*, a kind of transformational rule that can explain all the above mentioned cases?

The second principle concerning the theory of language is the determination theoretical generalizations to strive for the highest possible descriptive and explanatory adequacy[1]. Descriptive adequacy "specifies the observed data [...] in terms of significant generalizations that express underlying regularities in the language" (Chomsky, 1964, p. 63). Compared to observational adequacy descriptive adequacy presents a higher level of abstraction as it formulates rules for all observed data according to which all and only grammatically well-formed sentences in a language are produced. Explanatory adequacy entails that only one rule among many is the correct choice, and this is the one that has a predictive power. However, explanatory adequacy is more oriented towards the rules underlying the concept of Universal Grammar, while descriptive adequacy refers to specific language rules (Rizzi, 2016, pp. 1-2).

And the third is the Ockhamist parsimony methodological principle in science and philosophy postulating that: "It is useless to do with more what can be done with less" (International Encyclopedia of Philosophy). The parsimony is commonly referred to as *Ockham's razor*. As Ockham says in *Sent.* I, dist. 30, q. 1: "For nothing ought to be posited without a reason given, unless it is self-evident (*literally,* known through itself) or known by experience or proved by the authority of Sacred Scripture." (cited in Spade & Panaccio, 2016). Putting aside the Sacred Scripture the Razor can be further generalized as: "Don't multiply entities beyond necessity." (cited in Spade & Panaccio, 2016). In generative grammar Ockham's razor presupposes two outcomes: one, the aim of scientific analysis is to explain maximum empirical facts with minimal effort, and two,

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[1] For more on observational, descriptive and explanatory adequacy see Rizzi, 2016.

when there are two competing theories (rules) that make the same predictions, the simpler one is better. It needs mentioning, however, that the principle of simplicity does not make assumptions about which theory is true, the Razor only claims that the simpler explanation (theory) is more likely to be true[2].

The notion of deep structure in combination with Ockham's razor principle help reach an elegant and exception-free theoretical explanation eliminating the ad hoc rules concerning the different types of inversion envisaged in the empirical material above. Such an approach will help to achieve the highest possible descriptive adequacy and a sufficient explanatory one when inversion is concerned.

Analysis[3]

All Y/N and WH-questions, which, together with tag-questions, are supposed to be prototypical in Modern English, manifest what is conventionally referred to as inversion. It is easy to accept the term when complex predicates (combinations of an auxiliary or auxiliaries and a lexical verb) are concerned. Thus the declarative *John is reading a book*. is transformed by inversion into: *Is John reading a book?* But there is no inversion in: *Does John read books?* In this case we can speak about *do-insertion* rather than inversion.

There are already two major reasons to put the use of the term *inversion* at stake. First is the ill-formedness of **Loves John Mary*? displaying the theoretical *non - sense* of directly substituting verbs for nouns (and vice versa) in the clause, and second, the need of two rules for making questions: *invert* in all clauses with complex predicates and *insert* in the cases of single verb clauses.

The deep structure contains all elements of a clause; thus it can be supposed that every clause in English has a slot for an auxiliary including those clauses where the predicate is a single lexical verb. Such an assumption allows to interpret the clauses with a single-verb predicates as such containing a *do/does/did*-auxiliary in their TP (tense node) or IP (inflection node). The *do*-auxiliaries are covert categories on the surface structure in neutral declaratives requiring the lexical verb to take the

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[2] More details about Ockham's razor can be found in *The Stanford Encyclopedia of Philosophy* and Kaye, S. (n.d.).

[3] The analysis is not conducted in any concrete version of Generative syntax (Phrase Structure Grammar, Government and Binding Theory or Minimalism). It is used simply as a general framework to explain the phenomena provided by the empirical language material.

morphological tense marking as in: *John love**s**/love**d** Mary*. What is more, the potential existence of all forms of *do* is supported by the well-formedness of emphatic declaratives where the auxiliary is an overt category on the surface structure as in: *John does/did love Mary*.

With the acceptance of the existence of all auxiliaries in the deep structure the second rule of *do*-insertion is eliminated. What is then the general mechanism of question formation in Modern English? The term proposed by R. Jacobs (1993, p. 259) is a specific movement named *operator fronting* which eliminates the irrational assumption that verbs and nouns are substitutable, on the one hand, and is quite transparent (an important feature of all terms used in any science), meaning that the operator moves around the subject to the front of the clause and lands in the COMP slot to form a Y/N question.

(6a) John is reading a book.

(6b) [COMP] [$_{NP}$ John] [[$_{TP}$ is] [[$_{VP}$ reading]] [$_{NP}$ a book]]]]?

(6c)   Is   John   reading   a book?

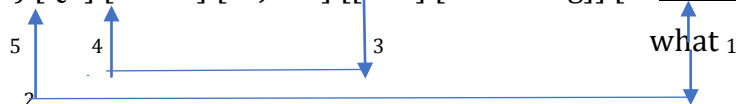(7a) John loved Mary.

(7b) [COMP] [John] [[[$_{TP}$ past] [[$_{VP}$ love]] [$_{NP}$ Mary]]]]]
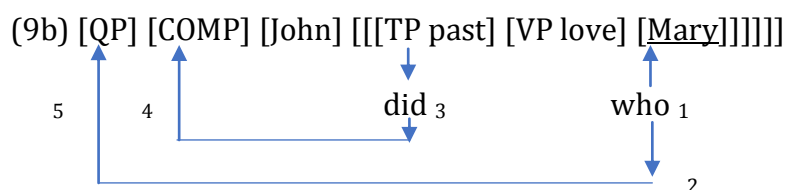
(7c) Did   John   love   Mary?

Is operator fronting valid for Y/N questions only? Observations on language sample shows that operator fronting occurs in WH-questions in the same way as it does in Y/N questions. The questions to the objects are: *What is John reading?* and *Who did John love?* where the operator again precedes the subject. The operator fronting is preceded by two earlier operations: first the object is replaced by an appropriate WH-word, then moved to the front of the clause, extracting on its way the operator from the TP, placing it in the COMP slot, and subsequently landing in the question slot (QP). The mechanism of the five-step movement is shown below:

(8a) What is John reading?
(8b) [QP] [COMP] [$_{NP}$ John] [[$_{TP}$ is] [$_{VP}$ reading]] [$_{NP}$ a book]]]]

      5   4   3   what 1
      2

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(9a) Who did John love?

(9b) [QP] [COMP] [John] [[[TP past] [VP love] [Mary]]]]]]

5   4   did 3   who 1

2

What can be generalized so far is that both Y/N and the WH-questions undergo operator fronting with the difference that WH-questions involve two preliminary steps as replacing the object-NP by a WH-word and then moving it to the front of the clause. But how are the WH-movement and the operator fronting related? Could we suppose that the operator fronting is triggered by the WH-movement? Evidence is found in the formation of WH-questions to the subject *Who loved Mary?*, in which operation fronting is blocked and the clause retains its canonical SVO word order. The movement is presented graphically below.

(10a) Who loved Mary?

(10b) [QP] [COMP] [John] [[[TP past] [VP love] [Mary]]]]]

who
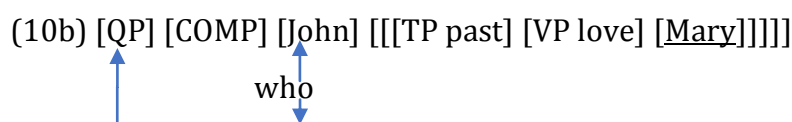
Examples (4) and (5) show that the operator fronting is sensitive to the WH-movement passing over the TP slot where the operator is placed. In (4) the WH-movement simultaneously visualizes the covert operators and triggers the operator movement to the COMP slot. If there is no element to pass around the TP as in (10 a,b) operator fronting does not happen. This explains why WH-questions to the object require operator fronting, while WH-questions to the subject do not. It can be generalized that (11) Every movement crossing the TP of a clause necessarily causes visualization of the covert operator.

The next problem concerns the lack of operator fronting in reported questions. Reported questions in generative grammar are defined as dependent clauses that always contain an obligatory COMP slot filled out by an introductory word. The common introductory WH-words in reported questions are either *if* or *whether* for Y/N questions or WH-words (*what, where, when* etc.) for WH-questions. The reported questions of *Is there a bank nearby?* and *Who is that girl?* are, for example, *Can you tell me if there is a bank nearby.*, and *I wonder who this girl is.*, respectively. The underlying structure of reported questions has the following flat representation:

(12) [[CP$_1$] [[COMP] [CP$_2$]]],

      if/whether

        where

        what etc.

where CP$_1$ is the introductory main clause, and CP$_2$ is the reported question retaining its canonical SVO word order.

How does the original question cease to be a real question and what blocks the operator fronting? First of all operator fronting is a movement, not an inversion. Movement is allowed under several conditions, among which the principle of an available landing site is crucial. The principle says that if there is no landing place in the deep structure, no movement can occur. Reported questions are dependent clauses with an obligatory introductory word in the COMP slot. The absence of a suitable landing site explains why the operator movement in reported questions is blocked by default following the rule (13) All covert or overt operators necessarily undergo fronting whenever a movement goes around the TP *if* and *only if* there is a free COMP slot.

Could the traditionally so called negative inversion be explained also as a kind of operator fronting movement in conformity with the above rule? It seems it can. The canonical non-emphatic declarative sentence structure containing a negative adverb or negative phrase is the following:
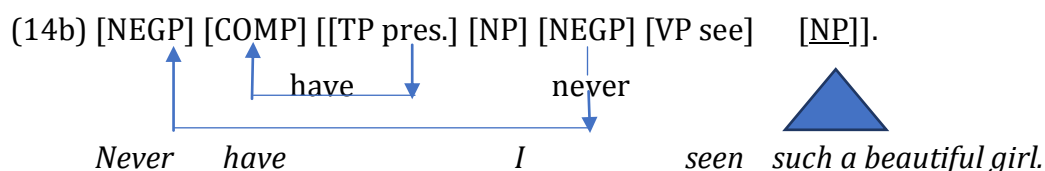
(14) I have never seen such a beautiful girl.

(15) I not only heard him, but .... .

Negative emphasis is reached through moving the negative adverb or phrase to the front of the clause which ends up with negative constructions such as: *Never had I seen such a beautiful girl* and *Not only did I hear him, but I also saw him*. They can be united under the umbrella term *negative inversion* in most English grammars and pedagogical handbooks. However, there are no explanations why in such cases a subject-verb transposition is obligatory. What makes operators undergo fronting? And what makes overt operators become visible in simple tense clauses?
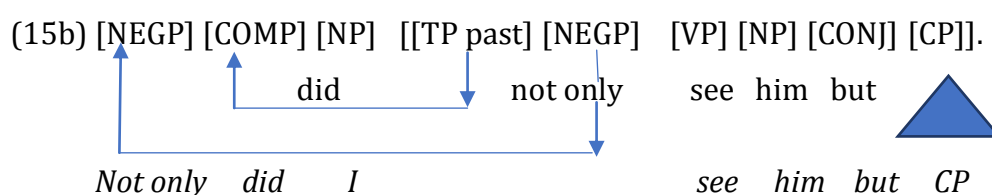
Following Ockham's razor, it is suggested that the operator fronting is caused by a movement. The structure of the non-emphatic negative declarative clause is the following:

(14a/15a) [$_{CP}$ [NP] [[TP] [NEGP] [VP]] [NP/CP]]]]

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On its way to the front the NEGP passes over the operator slot which automatically triggers operator fronting. The two elements move together until the operator goes into the COMP slot, while the NEGP ends up in NEGP slot. The mechanism can be graphically illustrated as follows:

(14b) [NEGP] [COMP] [[TP pres.] [NP] [NEGP] [VP see]   [NP]].

have   never

Never   have   I   seen   such a beautiful girl.

An analogous movement of the NEGP explains the operator fronting in the first clause of (15):

(15b) [NEGP] [COMP] [NP]   [[TP past] [NEGP]   [VP] [NP] [CONJ] [CP]].

did   not only   see him but

Not only   did   I   see   him   but   CP

In the deep structure of non-emphatic negative clauses, the negative elements immediately follow the operator. The movement of the negative element to the front of the clause around the subject necessarily goes across the operator slot TP. In the cases when the operator is overt the movement of NEGP necessarily triggers its fronting and landing in the COMP slot. In the cases when the operator is covert, the NEGP movement round the TP triggers its visualization and then its movement to the COMP slot on the surface structure.

The visualization of the operator is an unexceptional rule in simple negative and negative-interrogative clauses where the insertion of *not* immediately after the operator allows regular contractions like *don't, doesn't, didn't* etc. It can be generalized that (16) Both insertion and movement make covert operators visible.

Conclusions

It is axiomatic in syntactic theory that particular parts of speech take particular syntactic positions. Without the notion of deep structure, *inversion* means that the subject (NP) and the predicate (VP) swap their positions. Such an interpretation violates basic linguistic principles in structural linguistics like parts of speech, functions and distribution (Lyons, 1968; Jespersen, 1924).

Generative approach to English syntax gives an explicit answer to all questions raised in the five cases above. First, every IP contains a slot for an operator, which is always a finite verb, followed by the lexical verb. In complex predicates the operator is an overt category, while in single-verb predicates it is a covert one. The operator is the only element within the IP that can move around the subject. The movement stops in the COMP slot and is defined as *operator fronting*. The nature of the operator fronting has nothing to do with inversion as both the subject and the lexical verb remain *in situ*. Operator fronting is triggered by question formation and negative preposing. Both movements originate in the right periphery of the clause and affect the operator slot on their way to the front. Movements and the insertion of the negative *not* make covert operators in the deep structure visible. Operator fronting is barred on two occasions: first, when a movement does not go around the operator slot which happens with Who-subject questions, and second, when the COMP slot is occupied and there is no landing site available, which is the case with reported questions.

The generalizations above give an elegant theoretical answer why *inversion* in traditional descriptive grammars of English is an inappropriate explanation of how language works. Its replacement by *operator fronting* eliminates the need of additional *ad hoc* rules to explain exceptions, on the one hand, and offers a powerful explanatory tool for the description of language structure, on the other.

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