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VP inversion and aspect in written texts*

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Introduction

While the syntax of English inversion constructions has been the recent subject of considerable debate (e.g., Levin 1985; Green 1985; Bresnan – Kanerva 1989; Levine 1989; Culicover – Rochemont [in press], *inter alia*), far less attention has been paid to the pragmatics of these constructions. Notable exceptions include Green (1980, 1982) and Hartvigson – Jakobsen (1974), who posit a number of discourse functions for the various types of inversion. Common to all work on inversion with which we are familiar, however, is the assumption that inverted sentences and their canonical word order counterparts are semantically equivalent. That is, as Green (1980: 582) notes, there seems to be no truth-conditional difference between an inversion and its canonical word order variant. Nonetheless, we have discovered a non-truth-conditional asymmetry between certain types of inversion and their subject-verb-object (SVO) counterparts.¹ These inversions, in which a VP appears in sentence-initial position, are literary in nature and particularly characteristic of journalistic prose (Green 1982: 134 – 139). In certain contexts, these inversions permit an interpretation not shared by the corresponding SVO variants. Consider (1a) and (1b) in the following context:

- (1) In the last few weeks before yesterday's final vote in Washington, many Senators changed their positions on the new income tax proposal.
- a. Senator Jones of Ohio was voting in favor of the bill.
 - b. Voting in favor of the bill was Senator Jones of Ohio.
 - c. 'Senator Jones of Ohio voted in favor of the bill.'

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From the SVO variant (1a) one could plausibly infer that the completed, or perfective, interpretation in 1c does not hold (e. g., that Senator Jones changed his mind and ultimately voted against the bill). From the inversion in 1b, on the other hand, one could reasonably infer that Senator Jones did in fact vote for the bill in question. In this paper we investigate the nature of this asymmetry. We argue that the aspectual asymmetry illustrated in (1) is the result of a syntactic constraint on inversion interacting with neo-Gricean pragmatic principles.

Previous studies

As noted by Bennett—Partee (1972); Dowty (1979); and Stump (1985), *inter alia*, a sentence in the past progressive, unlike the preterit, does not necessarily entail perfectiveness.² Consider, for example, the accomplishment predicate in (2):

- (2) a. Sixteen-year-old Johnny Smith swam across Lake Michigan yesterday.
b. Sixteen-year-old Johnny Smith was swimming across Lake Michigan yesterday.

If it is true that Johnny Smith swam across Lake Michigan, then it follows that at some interval he was swimming across Lake Michigan. However, the entailment is unidirectional in that (2b) does not entail (2a): Unlike (2a), (2b) can receive an imperfective interpretation, i. e., that Johnny did not swim completely across the lake. That non-completion of the swim in question contradicts (2a) but is consistent with (2b) can be seen in (3):

- (3) a. Sixteen-year-old Johnny Smith swam across Lake Michigan yesterday. # Unfortunately, he got caught in a bad storm and never made it to the other side.
b. Sixteen-year-old Johnny Smith was swimming across Lake Michigan yesterday. Unfortunately, he got caught in a bad storm and never made it to the other side.

The oddness of (3a) results from the perfectiveness of the preterit contradicting the subsequent assertion of imperfectiveness; with the past progressive in (3b) there is no entailment of perfectiveness and thus no contradiction of the subsequent assertion.

Correspondingly, a subsequent assertion of perfectiveness is redundant only in the case of the preterit, as illustrated in (4):

- (4) a. Sixteen-year-old Johnny Smith swam across Lake Michigan yesterday. # In fact he made it all the way to the other side.
b. Sixteen-year-old Johnny Smith was swimming across Lake Michigan yesterday. In fact he made it all the way to the other side.

In (4a), the assertion of completion in the second clause is redundant given the preceding preterit. In (4b), however, completion is not entailed by the past progressive, hence no redundancy. In fact, use of the past progressive may license an inference of *non*-completion, as in (1a) above and the following exchange:

- (5) A: Lately, many high school students have been attempting ridiculous stunts to impress their friends. Yesterday, sixteen-year-old Johnny Smith of Martinsville was swimming across Lake Michigan.
B: How far did he get before he gave up?

In (5), B infers that Johnny did not in fact complete his swim across the lake. Thus, we can conclude that the progressive and preterit sentences in the above examples stand in a unidirectional entailment relation.

Given this relation, the imperfective interpretation associated with the past progressive can be accounted for pragmatically, as a case of conversational implicature involving Grice's (1975, 1978) maxim of Quantity. Under this view, a speaker's use of a "weaker" or less informative form can implicate that (the proposition associated with) a "stronger" or more informative form is false, unknown, or otherwise inappropriate (cf. Horn 1972, 1984; McCawley 1978; Gazdar 1979; Dowty 1979; Hirschberg 1985; *inter alia*). Such an approach is taken by Stump (1985) in his analysis of the perfect tense. Stump argues that a relation of mutual entailment holds between the perfect tense, illustrated in (6a), and the preterit tense, illustrated in (6b):

- (6) a. John has seen Mary.
b. John saw Mary.

In Stump's theory, the two tenses have identical truth conditions and differ only pragmatically, with the additional interpretation associated with the perfect tense being analyzed as a case of generalized conversational implicature. Citing McCawley's (1978) "principle of less linguistic effort", Stump claims that a speaker's use of the "more effortful" (6a) will implicate that the "less effortful" (but equally truthful) (6b) does not

apply.³ Given the greater structural and semantic complexity of the perfect tense, it is argued that its use will implicate inapplicability of the preterit. As stump (1985: 233) puts it, “someone using a present perfect sentence like [6a] conversationally implicates that s/he has a reason for not using the corresponding preterit [6b], namely that John’s seeing Mary happened during some extended now which is especially salient.”

The pragmatic approach to tense and aspect outlined in Stump 1985 can be straightforwardly extended to cover the past progressive/preterit alternation discussed earlier. However, unlike the mutual entailment relation which holds between the perfect and the preterit, we have seen that the entailment relation between the past progressive and the preterit is unidirectional. Given this relation, the use of the past progressive can generate a conversational implicature involving Horn’s (1984) lower-bounding “Q-Principle”: “Make your contribution sufficient; say as much as you can.” From this principle, it follows that the use of the relatively marked, morphologically more complex progressive Q-implicates that the less marked and more informative preterit does not hold. Thus, a speaker’s use of the past progressive – in an environment where the preterit form is structurally possible – can implicate that the use of the less marked, i.e., preterit, form is inappropriate. In the case of (2b) above, use of the past progressive can thus induce an imperfective interpretation, given the existence of the “competing” preterit form in (2a).

Aspectual asymmetry and inversion

Now we are in a position to address the question posed at the outset regarding the aspectual asymmetry illustrated in connection with (1) above. That is, why does the inverted past progressive in (1b) seem to allow a perfective interpretation, while the corresponding SVO progressive in 1a does not? The answer lies in the fact that, unlike the SVO progressive, the inverted variant has no preterit form with which it can “compete”, and therefore lacks the implicature of imperfectiveness identifiable with the SVO progressive. Consider (7)–(8):

- (7) a. Pennsylvania was among six states to boycott Soviet-made vodka in protest of the Soviet attack, Liquor Control Board officials said yesterday ... Joining Pennsylvania in the boycott of the Soviet-made vodka in state liquor stores were Alabama, Iowa, Ohio, New Hampshire and West Virginia.
[*Philadelphia Inquirer*, p. 1 – A, 9/8/83]

- b. *Join(ed) Pennsylvania in the boycott of the Soviet-made vodka in state liquor stores (did) Alabama, Iowa, Ohio ...
- (8) a. Alabama, Iowa, Ohio, New Hampshire and West Virginia were joining Pennsylvania in the boycott of the Soviet-made vodka in state liquor stores.
b. Alabama, Iowa, Ohio, New Hampshire and West Virginia joined Pennsylvania in the boycott of the Soviet-made vodka in state liquor stores.

Here we see that while the past progressive and preterit forms compete in the SVO examples in (8), such competition is ruled out on syntactic grounds in the case of inversion, since the preterit does not undergo inversion (cf. [7b]).⁴ Therefore, no implicature of imperfectiveness is generated with the participial inversion, since there is no “less marked” perfective inverted form with which the progressive could compete.⁵ As a result, the progressive inversion is free to receive either a perfective *or* an imperfective interpretation, as evidenced by (9):

- (9) Joining Pennsylvania in the boycott of the Soviet-made vodka in state liquor stores were Alabama, Iowa, Ohio, New Hampshire and West Virginia ...
a. ... until the national liquor lobby intervened, preventing them from actually initiating any boycott.
b. ... for a total of six states involved in the boycott.

The felicitous final phrases in (9a)–(9b) demonstrate that the inverted participle is “perfectively neutral” in the sense that neither a perfective nor an imperfective interpretation is induced by virtue of the progressive’s form or (semantic) meaning alone. This observation is consistent with Stump’s (1985: 261) analysis of the progressive as simply a predicative construction consisting of a copula and a present participle phrase.⁶

Interestingly, we find that even when the progressive is anomalous in canonical word order, the corresponding inverted progressive is nonetheless possible. Consider the SVO past progressive in (10):

- (10) There were only classes of people in 18th century France: the very rich and the very poor. #Over 97% of the population was falling into the latter category.

As Dowty (1979) and Stump (1985), *inter alia*, have argued, the anomaly of participles like that in (10) can be attributed to semantico-pragmatic factors. Given the complete temporal overlap of the progressive and the

preterit for stative predicates, there is nothing that one form conveys which is not also conveyed by the other. In Hornian terms, then, there is nothing for the more complex and marked progressive to convey which the preterit doesn't convey as well, hence the infelicity of employing the more marked form. However, consider the inverted stative progressive in (11):

- (11) a. Falling somewhere in a category between Einstein's theory and sand fleas — difficult to see but undeniably there, nevertheless — is the tropical 'city' of Islandia, a string of offshore islands that has almost no residents, limited access and an unlimited future. (Brown Corpus 47 1744)
 b. 'The tropical "city" of Islandia ... falls somewhere in a category between Einstein's theory and sand fleas ...'

Here, the stative idiom *fall into a category* can felicitously appear as an inverted progressive, as in (11a), with the interpretation of (11b). Such an interpretation arises in the absence of an inverted simple form with which the inverted participle in (11a) could compete. Again, we see that inverted progressives correspond to *both* the SVO simple present and the SVO progressive forms; inverted stative predicates are different only in that one of the two corresponding SVO forms is ruled out on independent pragmatic grounds.⁷

Similarly, when the simple form is deviant in SVO order, as in (12a), the corresponding inversion may nonetheless be well-formed (12b) and receive a progressive interpretation (12c):

- (12) a. #Many Chicago businessmen learn Japanese this summer.
 b. Learning Japanese this summer are many Chicago businessmen.
 c. 'Many Chicago businessmen are learning Japanese this summer.'

In fact, it is consistently the case that given a well-formed SVO simple present, preterit, or progressive predicate, there exists a corresponding and semantically equivalent inverted progressive. Thus, we conclude that the absence of a Hornian Q-implicature associated with inverted progressives arises from the absence of a competing inverted simple form. This, in turn, follows from a syntactic constraint in English on inversion, to which we now turn.

The syntax of VP inversion

We have seen that the interpretation of inverted progressive VPs follows naturally from independently motivated pragmatic principles, given that progressives may undergo inversion while verbs in the simple present and preterit tenses may not. The question remaining, then, is why the simple forms do not occur in inversions. We claim that this restriction follows from a general syntactic constraint allowing VP inversion only when auxiliary *be* is present.⁸ Consider the paradigm in (13)–(15):

- (13) a. John Smith swam across the Atlantic.
 b. John Smith was swimming across the Atlantic.
 c. *Swam/swim across the Atlantic (did) John Smith.
 d. Swimming across the Atlantic was John Smith.
 (14) a. John Smith runs a mile every morning.
 b. John Smith is running a mile every morning.
 c. *Run(s) a mile every morning (does) John Smith.
 d. Running a mile every morning is John Smith.
 (15) a. John will win the diving competition.
 b. John Smith will be winning the diving competition.
 c. *Win the diving competition will John Smith.
 d. Winning the diving competition will be John Smith.

Here, we see that the preterit in (13c), the present in (14c), and the future in (15c) all lack auxiliary *be*, and are thus excluded from inversion contexts. All of the corresponding progressive sentences (13d)–(15d), on the other hand, do contain auxiliary *be* and are fully grammatical. However, it is not the case that all auxiliary verbs allow inversion. Consider the examples of auxiliary *have* in (16):

- (16) a. John Smith has run a mile every morning.
 b. John Smith has been running a mile every morning.
 c. *Run a mile every morning has John Smith.
 d. Running a mile every morning has been John Smith.

Here we see that the auxiliary verb *have* does not license the inversion of the VP in the perfect tense (16c). Thus, on the basis of such examples, we conclude that the presence of auxiliary *be* is both a necessary and a sufficient condition for grammatical VP inversion.⁹

An apparent counterexample to our claim that the presence of auxiliary *be* is sufficient to allow VP inversion is provided in (17):

- (17) a. # Being over 6 feet tall was John Smith.
 b. # John Smith was being over 6 feet tall.

Given the presence of auxiliary *be* in (17a), why is it nonetheless ill-formed? We maintain that the source of the deviance of (17a) is pragmatic rather than syntactic. Consider again the inverted stative present participle in (18):

- (18) a. Falling somewhere in a category between Einstein's theory and sand fleas – difficult to see but undeniably there, nevertheless – is the tropical 'city' of Islandia, a string of offshore islands that has almost no residents, limited access and an unlimited future. [= 12a]
 b. # The tropical 'city' of Islandia, a string of offshore islands that has almost no residents, limited access and an unlimited future, is falling somewhere in category between Einstein's theory and sand fleas – difficult to see but undeniably there, nevertheless.

Recall that Stump (1985) and Dowty (1979) analyze SVO stative predicates such as (17b) and (18b) as pragmatically deviant. However, the inverted VP in (17a) is deviant while that in (18a) is not. Again, the difference can be attributed to the presence of a "competing form" for the inversion in (17a), namely the AdjP inversion in (19):

- (19) Over 6 feet tall was John Smith.

That is, given the complete temporal overlap of the progressive in (17a) and the preterit in (19), there is no reason for a speaker to use the more complex and marked progressive form in (17a) given the existence of the simple preterit in (19). However, in the case of (18a), there exists no less marked or less complex inverted form for the inversion to compete with, hence no infelicity arises from its use.¹⁰ Thus, we conclude that the infelicity of (17a) does not counter our claim that auxiliary *be* is a necessary and sufficient condition for grammatical VP inversion.

We have argued that the aspectual asymmetry found in connection with inverted progressives is the result of there being no inverted simple form with which the inverted progressive can compete. When competing inverted forms *are* possible, then aspectual symmetry obtains between SVO and inversion. Consider the passives in (20).

- (20) a. John Smith was driven out of office.
 b. John Smith was being driven out of office.

- c. Driven out of office was John Smith.
 d. Being driven out of office was John Smith.

Here, the presence of auxiliary *be* licenses the inversion of both the simple passive VP (as in [20]) and the passive progressive VP (as in [20d]). As a result, these two inverted forms compete in the same way as do the corresponding SVO passives (20a) – (20b), and we therefore find the same implicature of imperfectiveness in the inverted progressive in (20d) that we found in connection with the SVO progressive in (5). As an example of this implicature in the case of inverted passives, consider the discourses in (21):

- (21) a. Last year's crop failure bankrupted a number of farmers in California's Central Valley. Being forced to sell his farm was 64-year-old Sam Gustafson of Bakersfield. Fortunately, he inherited a great deal of money and didn't have to sell after all.
 b. Last year's crop failure bankrupted a number of farmers in California's Central Valley. Forced to sell his farm was 64-year-old Sam Gustafson of Bakersfield. # Fortunately, he inherited a great deal of money and didn't have to sell after all.

As was the case for SVO word order, the competition between the inverted progressive and simple forms in (21) licenses the inference in (21a) that Farmer Gustafson did not in fact end up selling the farm. An imperfective interpretation in (21b), however, is infelicitous in the context of the inverted (non-progressive) passive. Thus what would otherwise be a puzzling exception to the asymmetry displayed by inverted progressives is straightforwardly accounted for.

Conclusion

In this paper we have argued that the aspectual asymmetry between inverted and SVO progressives is the result of an interaction between a syntactic constraint and neo-Gricean pragmatic principles. Specifically, we have shown that VPs can invert only around auxiliary *be*. Given this syntactic restriction, the asymmetrical temporal and aspectual interpretations associated with inversion and canonical word order can be straightforwardly accounted for by appeal to general pragmatic principles. Use of the SVO past progressive, for example, can implicate that a perfective interpretation is inappropriate, given the existence of another

(less marked) SVO form – the preterit – which could also be used to convey this interpretation. Since the simple form is disallowed in inversion on syntactic grounds, there is no alternative form with which the inversion competes; thus the implicature associated with the SVO progressive does not obtain. Where there is a competition of forms, as in the case of inverted passives, the aspectual interpretation of inverted and non-inverted forms is entirely symmetrical.

Notes

1. Our use of the term *inversion* is not meant to imply the acceptance of a multi-stratal syntactic analysis which involves movement of the VP. In this paper, we remain neutral with respect to the correct syntactic analysis of inversion; however, see Birner (in prep.) for a review and discussion of the syntactic issues related to inversion.
2. By *preterit*, we mean the simple past tense, as in *John left*; by *progressive*, we mean the progressive aspect, regardless of tense, i.e., a copula and a participial phrase, as in *John is/was leaving*; by *perfect*, we mean the perfect tense, as in *John has/had left*; and by *perfective*, we mean “completed”, as in *Laid off from his job. John applied for unemployment*, where the past participial free adjunct is interpreted perfectly. See Stump (1985) for discussion.
3. See Horn (1984) for a critique of McCawley’s “principle of less effort”.
4. In the following section, we propose a syntactic principle to account for this restriction.
5. An interesting implication of our analysis is that inverted and non-inverted sentences are not “competing alternatives” in the sense of Horn (1984). That is, the use of a marked syntactic construction (*inversion*) does not seem to implicate that the unmarked (SVO) word order variant “does not obtain”. This suggests that differences between related syntactic constructions do not give rise to Hornian Q-implicatures.
6. Stump provides several other examples of “perfectly neutral” participial phrases, including adnominal participles, augmented adjuncts, and augmented absolutes. For each of these participial constructions, Stump observes, the phrase in question is vague with respect to perfectivity; only the context – and not the linguistic form – will supply the perfective or imperfective interpretation. On the basis of this evidence, Stump (1985: 256) concludes that “the progressive aspect in fact has no independent semantic status in English – that its truthconditions are entirely determined by general semantic properties of present participles.” Of course, what these constructions have in common with inverted present participles is that they all occur in environments in which the preterit is not possible, hence there is no form with which the participial phrase can compete.
7. David Dowty has pointed out to us that when *fall* is used non-idiomatically (and non-statively), the SVO progressive is fully felicitous:
 - (i) a. Johnny Smith was falling into the lake.
 - b. Falling into the lake was Johnny Smith.

As before, the inverted variant in (ib) corresponds to two SVO forms: the preterit and the progressive. However, with non-stative *fall*, both forms (and interpretations) are

possible with SVO word order, given the temporal distinctness of the two forms in question. Dowty has also provided us with two further examples of stative *fall*, in contexts other than inversion:

- (ii) a. Any pesticides falling into this category should be labeled.
- b. Falling into the category of class 1 hypertensives, John is a candidate for a severe heart attack.

In these examples of present participle phrases (see Stump 1985), no infelicity results, despite the stative aspect of the predicate. Again, we can attribute the well-formedness of these examples to the lack of a simpler competing form which could serve to block the participial forms.

8. There is little agreement in the syntactic literature as to the correct constituent analysis of the English auxiliary; therefore, we shall simply assume the existence of some AUX-like constituent for the auxiliary elements under discussion. However, nothing in the following discussion depends on this assumption.
9. While we are concerned here with VP inversion in particular, the *be* requirement appears to be more general. That is, with the exception of locative inversion (i), all other types of inversion require *be*:
 - (i) In the garden stands a scarecrow.
 - (ii) a. Injured by the gunman was Sandy Thomas. (past participle inversion)
 - b. *Injured by the gunman {appeared/lay} Sandy Thomas.
 - (iii) a. Also angry were three Republican congressmen. (AdjP inversion)
 - b. *Also angry {grew/complained} three Republican congressmen.

For evidence that locative inversion is distinct from VP inversion on syntactic, semantic, and pragmatic grounds, see Ward – Birner (1989)

10. The existence of (i) is not a counterexample to our claim regarding the absence of a competing inverted form for (18a), since it is an instance of locative inversion, argued above to be a distinct construction.

- (i) Somewhere in a category between Einstein’s theory and sand fleas – difficult to see but undeniably there, nevertheless – falls the tropical ‘city’ of Islandia, a string of offshore islands that has almost no residents, limited access and an unlimited future.

As discussed above (footnote 5), a speaker’s choice of one syntactic construction over another (truth-conditionally equivalent) one appears not to give rise to Hornian Q-implicatures; the existence of (18a) and (i) as non-competing forms for expressing the same propositional content supports this conclusion.

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