So-inversion as Polarity Focus
Jim Wood
New York University

1 Introduction

So-inversion, exemplified in (1a), is superficially similar to neither-inversion (1b).

(1)  a.  John plays guitar and so do I.
     b.  John doesn’t play guitar and neither do I.

In this paper, I propose that so-inversion is best analyzed as parallel to neither-inversion. Both constructions are examples of polarity-focus. So in so-inversion is an affirmative polarity marker, accompanied by the focus particle too. However, too is not always pronounced.

1.1 Additivity

So-inversion clearly means something like ‘also’. It is only felicitous in circumstances where also, too, or as well are also felicitous. I will refer to this property as ‘additivity’. Thus, (2a-b) are additive while (2c) is not. So-inversion is also additive.

(2)  a.  I also play guitar.
     b.  I play guitar too.
     c.  I play guitar.

1.2 So and Polarity

So-inversion interacts with polarity in important ways. So-inversion generally requires an affirmative antecedent (Klima 1964), unlike other additive constructions (3c).

(3)  a.  * John does not play guitar and so do I not (play guitar).
     b.  * John doesn’t play guitar and so do I.
     c.  John does not play guitar and I also do not (play guitar).
So-inversion itself must be affirmative (4a), unlike other additive constructions (4c).

(4)  a.  *  John plays guitar but so don’t I.  
      b.  *  John plays guitar but so do I not.  
      c.  John plays guitar but I don’t <also> play guitar <also>.  

Conversely, neither-inversion requires a negative antecedent.

(5)  a.   John doesn’t play guitar and neither do I.  
      b.  *  John plays guitar and neither do I (play guitar).  

Neither itself must be negative, just as so must be affirmative.

1.3 So and too

As mentioned above, so-inversion clearly has additive meaning. The focus particle too also induces additive meaning (2b). But interestingly, too can be added to so-inversion without any extra additive meaning.

(6)  a.  John plays guitar, but so too does Mary.  
      = John plays guitar, but so does Mary.  
      b.  Just as some children ignore their parents, so too do some parents ignore their children.  
      = Just as some children ignore their parents, so do some parents ignore their children.  

Although they co-occur in the preposed position, additive-too and additive-so are in an interesting kind of complementary distribution.

(7)  a.  So do I.  
      b.  *  Too do I.  

(8)  a.  I do too.  
      b.  *  I do so.  

Additive-too cannot occur alone in the preposed position, unlike so (7). Additive-so can only occur in the preposed position (8).

1.4 So and N-neither

I claim that so-inversion and neither-inversion have strongly similar syntactic derivations. Huddleston & Pullum (2002:1539) claim that there are two crucial differences between so-inversion and neither-inversion. The first is that so must
contrast subjects, but neither need not do so. This seems to be incorrect: so does not have to contrast the subject. Example (9d) comes from President Barack Obama’s nomination acceptance speech at the Democratic National Convention in 2008.

(9)  a. The Druze will continue as individuals to play their policing role, but so will they continue as a group to protest it indirectly through democratic channels.
   b. For this divorced father, as women demand equality in the workplace, so too must they demand equality in child support.
   c. As we uncover the mysteries of the body, so too must we unravel the harmonies of the soul.
   d. Just as we keep our promise to the next generation here at home, so must we keep America’s promise abroad.

Their claim is on the difference between (10a-b) and (10c-d).

(10)  a. *He can play the piano, and so can he sing.
   b. *She has invited Max, and so does she intend to invite Paul.
   c. He can’t play the piano, and neither can he sing.
   d. She hasn’t invited Max, and neither does she intend to invite Paul.

However, the examples in (10) are much, if not completely, improved if and is changed to but and too is added.

(11)  a. He can play the piano, but so too can he sing.
   b. She has invited Max, but so too does she intend to invite Paul.

Thus, this does not seem to be a clear difference between so-inversion and neither-inversion.

The second claimed difference is that so can occur with too, but neither stands alone. One cannot, for example, insert not/nor/either with neither-inversion.

(12)  a. John plays guitar, but so (too) does Mary.
   b. John doesn’t play guitar, but neither (*not/*nor/*either) does Jim.

I would like to claim that this difference stems from a decomposition of neither in to at least n- + either.

<table>
<thead>
<tr>
<th>Polarity Marker</th>
<th>Focus Particle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affirmative</td>
<td>so</td>
</tr>
<tr>
<td>Negative</td>
<td>n-</td>
</tr>
</tbody>
</table>
The reason neither cannot co-occur with a focus particle, then, is that it is an that always occurs with a focus particle, namely, either. This is analogous to analyzing so-inversion as involving so + TOO.

2 What do we have to account for?

Any analysis of so-inversion should explain: (a) why it induces subject-aux inversion, (b) its obligatory affirmative polarity, and antecedent polarity matching, (c) its co-occurrence with too, (d) the similarities with neither-inversion, and (e) its additive meaning. In the next section, I show how my analysis accounts for these properties.

2.1 Polarity Focus Constructions (PFCs)

‘Polarity Focus’ refers to focus on the affirmative or negative polarity of the sentence. At first glance, PFCs seem to vary greatly across languages. Recent work on many languages, however, seem to converge on the idea that they involve a polarity focus projection, ΣP, which dominates the inflectional domain (e.g. TP).

There have been two conceptions of ΣP in the literature. The first, originally introduced by Laka (1990), is that ΣP is a Polarity Phrase which can be Affirmative, Negative or Emphatic. In the second, used by Holmberg (2001) and others, ΣP is a Polarity Focus Phrase, which either attracts the Pol(arity)P to its specifier or generates a focus particle there. Liptak (2003) and van Craenenbroeck (2004) call this projection VFocP, for Verum Focus Phrase. Here, this is understood as ΣP, following the second conception of ΣP. Below is a brief summary of how ΣP has been exploited in the analysis of various languages.

Table 1

<table>
<thead>
<tr>
<th>Language</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oevdalian</td>
<td>Σ is realized as subject-doubling in the presence of a finite set of adverbials when polarity is focused (Rosenkvist 2007).</td>
</tr>
<tr>
<td>Russian</td>
<td>Σ licenses ellipsis with additive tozhe ‘also’ only when Σ bears contrastive focus (Laleko 2006).</td>
</tr>
<tr>
<td>Basque</td>
<td>Σ is a unified polarity projection with three possible settings: affirmative, negative, and emphatic (Laka 1990).</td>
</tr>
<tr>
<td>Finnish</td>
<td>Σ is a polarity focus projection which attracts Pol(arity)P to its specifier and licenses ellipsis in Yes-No answers (Holmberg 2001).</td>
</tr>
<tr>
<td>Hungarian</td>
<td>Σ/VFoc involves contrastive sentential emphasis, with a strong role for is ‘also’ and igenis (Liptak 2003).</td>
</tr>
<tr>
<td>Dutch</td>
<td>Σ/VFoc hosts emphatic polarity particle toch, which is followed by wel ‘AFFIRMATIVE’ or nie ‘not’ (van Craenenbroeck 2004).</td>
</tr>
</tbody>
</table>
A parametric difference between various analyses of \( \Sigma \) is (a) \( \Sigma \) is in complementary distribution with polarity markers, as in Russian, Basque, Finnish, (and English), and (b) \( \Sigma \) is realized by a separate polarity focus particle, and is not in complementary distribution with polarity markers, as in Dutch, Hungarian, Oevdalian. A possible account of this variation, which I do not pursue in detail here, would be to take the first set to involve movement of PolP (AffP/NegP) to \( \Sigma \) to focus polarity, and the second set to involve \( \Sigma \) being realized by a separate lexical item. So-inversion falls under the first category.

### 2.2 So-inversion as Polarity Focus

The general framework assumed here is the Minimalist Program (Chomsky 1995, 2008, Collins 1997), assuming Antisymmetry (Kayne 1994) and no covert movement (Kayne 1998).

_Too_, as a focus particle, is a focus head which merges in the left periphery of the extended VP. This is in line with Kayne’s (1998) analysis of focus particles, including _too_. It attracts the focused constituent to its specifier (14).

\[
(14) \quad \begin{array}{c}
\text{PolP} \\
\downarrow \\
\text{Pol} \\
\downarrow \\
\text{So} \\
\downarrow \\
\text{DP} \\
\downarrow \\
\text{Foc} \\
\downarrow \\
\text{TOO} \\
\downarrow \\
\text{VP} \\
\downarrow \\
\text{play guitar}
\end{array}
\]

Next, the affirmative polarity particle _so_ merges with FocP, creating AffP. The derivation proceeds normally from here, until \( \Sigma \) merges with TP and attracts PolP to its specifier after VP has evacuated it (15).

\[
(15) \quad \begin{array}{c}
\text{PolP} \\
\downarrow \\
\text{So} \\
\downarrow \\
\Sigma \\
\downarrow \\
\text{TP} \\
\downarrow \\
\text{DP} \\
\downarrow \\
\text{do} \\
\downarrow \\
\Sigma \\
\downarrow \\
\text{VP} \\
\downarrow \\
\text{play guitar}
\end{array}
\]

\[
\Sigma P \quad \begin{array}{c}
\text{PolP} \\
\downarrow \\
\text{So} \quad \text{TOO} \\
\downarrow \\
\Sigma \\
\downarrow \\
\text{TP} \\
\downarrow \\
\text{DP} \\
\downarrow \\
\text{do} \\
\downarrow \\
\Sigma \\
\downarrow \\
\text{VP} \\
\downarrow \\
\text{ZP}
\end{array}
\]

\[
\Sigma P \quad \begin{array}{c}
\text{PolP} \\
\downarrow \\
\text{So} \quad \text{TOO} \\
\downarrow \\
\Sigma \\
\downarrow \\
\text{TP} \\
\downarrow \\
\text{DP} \\
\downarrow \\
\text{do} \\
\downarrow \\
\Sigma \\
\downarrow \\
\text{VP} \\
\downarrow \\
\text{ZP}
\end{array}
\]
Now consider neither-inversion. The key to accounting for the differences between *so* and *neither* is the decomposition of *neither* into $n+$ *either*. The one ‘word’ *neither* does the work of the two words *so* *too* (16). The rest proceeds the same (17).

2.3 Polarity Focus and the Facts of So-inversion

How does this account for the properties of *so*-inversion discussed above? Subject-aux inversion is a general property of polarity focus. Whatever the account of (18) is, this will extend to *so-/neither*-inversion.

(18) Never have I seen such a hideously ugly car.

Polarity restrictions follow directly. If *so* is an affirmative polarity particle, it should not be compatible with negative polarity. Additive meaning comes from the (sometimes silent) focus particle *too,* or (the always present) *either.* The latter cannot be silent because it forms a prosodic word with *n*. *Too* and *either* are focus particles, and are tightly connected with polarity focus. This connection seems cross-linguistically ubiquitous. Finally, *so*-inversion in this analysis is di-
rectly analogous to neither-inversion. The differences stem from decomposition of neither into n-either.

3 Previous Analyses

I now consider some previous analyses of so-inversion, and show that they fail to capture the properties outlined above. Further, they make incorrect predictions of their own.

3.1 So as a pro-form

In a recent analysis Toda (2007) argues that so is a pro-form that replaces a preposed VP. This is very similar to the analysis of so-inversion in Chomsky (1957:65-6). This has intuitive appeal, since VP-ellipsis is very common with so-inversion: if so replaces the VP, this is explained.

However, such an analysis has several drawbacks. First, subject-aux inversion must be stipulated. Second, there is no reason to expect a polarity restriction. Third, there is no obvious relationship with too or neither. Fourth, the additive meaning of the construction actually has to be denied (Toda 2007:fn6). While Toda’s analysis gets many facts right for a few examples, it doesn’t extend, within the language, beyond the construction itself.

I will not criticize Toda’s proposal directly, but wish to point out a more general problem with any “so as proform” approach: the verb phrase material still seems to be there, either overtly or as ellipsis. This is most clearly shown in the sentences like (6b) and (9).

Even when ellided, though, the VP can still be shown to be present. Compare the behavior of so-inversion with a more clear verbal pro-form do so.10 In so-inversion, wh-echo can be recovered, unlike with do so.

\[(19) \quad \text{Context: Matt knows John has never met Mary.}\\ \quad \text{Matt: Fred visited Mary yesterday.}\\ \]

a. i. Fred: So did John.
   ii. Matt: So did John what?
   iii. Matt: So did John visit who?

b. i. Fred: John did so too.
   ii. * Matt: John did so what too?
   iii. * Matt: John did so visit who too?
   iv. Matt: John did what too?

Similarly, so-inversion can co-occur with a Hanging Topic (Cinque 1977): 11
If so were a pro-form, we would not expect (19a-ii), (19a-iii), or (20a) to be grammatical, since so would replace the constituent containing what in (19a-ii), who in (19a-iii), and bugs in (20a).

3.2 So as an adjunct

So is taken to be a “connective” adjunct in Huddleston & Pullum (2002) and an “additive adverb” in Quirk et al. (1985). I discuss these in turn.

A connective adjunct establishes a relationship between two sentences. Examples include moreover, nevertheless, etc. However, most connective adjuncts do not induce subject-aux inversion (21b), nor do they exhibit polarity restrictions (21c). The relationship between so-inversion and too and neither could be explained by calling them connective adjuncts too, but *Too do I would not be explained. Additive meaning would seem to be partially explained on this hypothesis.12

Further, most connective adjuncts can appear in multiple places throughout the phrase, unlike so in so-inversion.

An additive adverb is an adverbial which is additive in the sense defined above. Examples include also, as well, and too. This is closer to the present analysis, since here there is an additive element present (i.e. too). However, most additive adjuncts do not induce subject-aux inversion (23).13 Polarity restrictions also would not be expected (24). The relationship with so and too might be expected, though the co-occurrence of so too might be expected to be odd.
Thus, neither the adjunct nor pro-form approach to so-inversion capture the facts of the construction.

4 New England so don’t I

In most of Eastern New England, there exists a construction usually referred to as the so don’t I construction. It is important to note that so don’t I is affirmative. Some naturally occurring examples from Google are shown below.

1. Went here the other night with a girlfriend. Sure it’s trendy, but so aren’t most NYC clubs.
2. I so agree - we do need to let go and laugh and live. And we so need our gal pals - hubbys and kids and other family are essential for most of us, but so aren’t the gals in our lives.
3. Yes, the “Somalis” should be treated with respect but so shouldn’t the Americans.
4. National healthcare would be great, but so wouldn’t everybody actually paying taxes.

No similar construction exists for the negative (26a), it is obligatorily affirmative and cannot take a negative antecedent (26b), and there is no non-inverted version (26c). The n’t does not license NPIs (27).

14 New England so don’t I
Unlike standard so-inversion, so don’t I does not allow an optional too (28). In addition, for no speaker is an unreduced negative not allowed (29).

(28)  
  a. He plays guitar, but so (*too) don’t I.
  b. He plays guitar, but so too do I.
  c. Just as some parents ignore their children, so (*too) don’t some children ignore their parents.
  d. Just as some parents ignore their children, so (too) do some children ignore their parents.

(29)  
  a. * He plays guitar, but so do not I.
  b. * He plays guitar, but so do I not.

The pragmatic force of so don’t I is one of implicature canceling. That is, (30a) is only pragmatically felicitous when there exists an implicature like (30b).

(30)  
  a. He plays guitar, but so don’t I.
  b. It is not the case that I play guitar too.  
    \[ a \text{ cancels } b \]

Why is (26a) ungrammatical? While I do not have the space to go into the details, I would like to argue that this implicature cancelation is syntactically represented by an abstract negation morpheme, which constituent negates the verb phrase. Thus, so don’t I is similar to double negation (31b), which is possible in ellipsis contexts (32).

(31)  
  a. Mary: I didn’t know that you played guitar too!
  b. Fred: Well, I don’t really play guitar too, but I don’t not play guitar too.

(32)  
  I don’t not pay attention in class, but some people certainly do \( \Delta \).
  \[ \Delta = \text{not pay attention in class.} \]

If this is on the right track, then the impossibility of neither can’t I in New England English would relate to the impossibility of neither as constituent negation in double negation sentences (33).

(33)  
  * I don’t not pay attention in class, and John doesn’t pay attention in class neither.

*Intended reading:* John doesn’t not pay attention in class either.

Since neither must move to the clausal negation position (16), bypassing not, we predict that not can be the constituent negator, and neither the clause negator, but this would preclude n’t. This prediction is borne out:
(24) I don’t pay attention in class, and neither does John. 
\[ \Delta = \text{not pay attention in class.} \]

The ungrammaticality of (33) and (26a) are then related: neither must be the clausal negator, at the expense of n’t. In so don’t I, the lower polarity operator so is not negative, allowing merger of n’t but with scope only over the lower implicature similar to metalinguistic negation (Carston 1996).

5 Conclusion

So-inversion involves polarity focus, where so is best understood as an affirmative polarity particle. The properties of so-inversion, which extensively differentiate it from pro-forms and adjuncts, are very similar to neither-inversion specifically, and polarity focus in general. The differences between so and neither can be shown to follow from the fact that neither is composed of (at least) two morphemes, n- and either. Dividing the functions of polarity and additivity into two separate elements allows for a clearer understanding microparametric variation in New England so don’t I. Finally, analyzing so-inversion as polarity focus invites interesting connections with polarity-focus constructions cross-linguistically, which very often involve additive particles like too or also, as well as a high polarity focus position.

Notes

1 I am utterly indebted to the following people for inspiring discussion of the material here: Mark Baltin, Inna Livitz, Jeroen van Craenenbroeck, Richard Kayne, Tricia Irwin, Oksana Laleko and Sara Schmelzer, as well as others I can’t think of at the moment. In addition, a huge thanks to Melinda Kaye Wilson for extensive discussion of the so don’t I data.
2 Though see below on so don’t I.
3 Examples (9a-c) are from the Contemporary Corpus of American English (COCA; Davies 2008). Many more can be found.
4 The object of the preposition for in (b), this divorced father, appears to be the speaker, a phenomenon discussed in detail by Collins & Postal (2008).
5 I assume more VP structure than is shown here. See Alexiadou & Anagnostopoulou (2004), Collins (2005), and Baltin (to appear).
6 More generally, PolP; see Culicover 1991. Alternatively, there may be reasons to believe that so is in Spec,PoLP. See Haddican (2004).
7 Here I show VP moving to SpecZP, the latter adopted from Baltin (2006). See also Kayne (2005) and Bentzen (2005) for the possibility of a position between T and Pol to which VP moves.
8 Here I show this as a result of movement – the idea is that negative constituents like neither must move to NegP to establish clausal negation (see Kayne 1998, den Dikken 2006). Another possibility is that nothing moves and n realizes Neg.
9 See Haegeman (2000) for discussion. It is not clear how this would extend to the system in Sobin (2003).
See Baltin (to appear) and Haddican (2007) on do so as a pro-form. It is worth noting that Toda (2007:fn3) explicitly argues that his pro-form so has nothing to do with the pro-form do so. This doesn’t affect the arguments here, though: pro-forms usually don’t occur with the constituents they supposedly replace, and in Toda’s analysis, the VP is swallowed up whole, derivationally, by the pro-formalization process.

The important thing here is the contrast. Thank you to van Craenenbroek (p.c.) for pointing out some reasons to believe that this is something like Hanging Topic, rather than Topicalization or Left Dislocation.

That is, connective adjuncts seem to be additive in the clausal sense. For example, moreover could be replaced by also in many cases. Usually, though, so focuses a specific sub-constituent of the clause, such as the subject, and not the clause itself. It seems much harder to get moreover to do this.

An exception is the very interesting case of as do I and nor do I, which also arguably involve polarity in some important way. See Potts (2002) for some discussion.


These examples are from the following websites, in order:
http://www.yelp.com/biz/runway-new-york-3
http://stampinangeljenn.blogspot.com/2008/06/girls-daynight.html
http://www.sunjournal.com/story/258000-3/LewistonAuburn/Students_grades_to_go_online/

In some dialects, sentences of this kind are acceptable and negative. Speakers who judge these as acceptable are not hard to find, nor are examples on the internet. Unfortunately, I do not have time to discuss such speakers here. Importantly, they are ungrammatical for speakers of the dialect in question. All of my informants unequivocally rejected such sentences, often asking what such an expression could possibly mean.

References

Klima, Edward. 1964. “Negation in English”. In The Structure of Language,

Jim Wood
New York University
Department of Linguistics
726 Broadway, 7th Floor
New York, NY 10003
jim.wood@nyu.edu