A linear approach to negative prominence

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Abstract

Languages often require negation to be realized in a prominent position. A well known example is Italian, which seems to require a pre-verbal realization of negation. Some other languages require negation to be in a prominent position but do not require it to be pre-verbal. An example is Swedish. Working within Lexical Functional Grammar (LFG), Sells (2000) proposes that Swedish requires a negative element which is not inside VP and that Italian has the same constraint. Similar facts are found in the VSO language Welsh. However, Sells's approach cannot be applied to Welsh. Borsley and Jones (2005) develop a selectional approach to Welsh, in which certain verbs require a negative complement. This works well for Welsh but cannot be applied to Swedish or Italian. A similar approach to all three languages is possible within the linearization-based version of Head-driven Phrase Structure Grammar (HPSG) developed by Kathol (2000). It seems, then, that a linear approach is preferable to both a structural and a selectional approach.

1. Introduction

Languages often require negation to be realized in a prominent position.[↑] This was noted by Jespersen, who observed that there is a 'natural tendency, ... for the sake of clearness, to place the negative first, or at any rate as soon as possible' (1917: 5). This tendency is seen in Italian, where a pre-verbal n-word appears without any other marking of negation but a post-verbal n-word requires the negative particle *non* before the verb. The following, in which the negative elements are in bold, illustrate:

(1) a. **Nessuno** telefona a Gianni.
no one telephones to Gianni
'No one calls Gianni.'

b. *Gianni telefona a **nessuno**.
Gianni telephones to no one
'Gianni does not call anyone.'

[↑] Some of the ideas in this paper were included in a talk at the 12th Welsh Syntax Seminar in Gregynog, Mid-Wales, in July 2005, and in another, at Université Paris 7 in October 2005. I have benefited from discussion with Henriette de Swart. I am also grateful to Kersti Börjars for help with the Swedish data and to Bob Morris Jones for help with the Welsh. Any bad bits are my responsibility.

c. Gianni **non** telefona a **nessuno**.
Gianni NEG telephones to no one
'Gianni does not call anyone.'

Such data suggest that Italian requires some pre-verbal marking of negation. Other languages require negation to be quite early in the sentence but do not require it to be pre-verbal. It is common within generative syntax to propose that phenomena that appear to involve linear order really involve something else. However, as Culicover and Jackendoff (2005) point out, there is a reason for favouring approaches involving linear order. They remark that:

> Given the epistemological priority of linear order – it is immediately available to the learner in a way that structure is not – it seems to us that the natural approach would be to see how much explanatory mileage one could get out of linear order. (Culicover and Jackendoff 2005: 52)

In this paper, I will argue that this phenomenon should indeed be analyzed in terms of linear order and will show how this can be done within the linearization-based version of Head-driven Phrase Structure Grammar (HPSG) developed by Kathol (2000).

The paper is organized as follows. In section 2, I consider the simple linear approach to the Italian data outlined in De Swart (forthcoming). In section 3, I look at the rather different Swedish data and outline the structural approach developed in Sells (2000). Next, in section 4, I show that Sells's approach cannot be applied to the very similar data in Welsh. I then outline the selectional approach of Borsley and Jones (2005) and show that this cannot be applied to either the Italian or the Swedish data. In section 5, I show how the negation facts of all three languages can be accommodated within linearization-based HPSG. Finally, in section 6, I conclude the paper.

2. Italian

A simple linear approach to the Italian data is proposed in De Swart (forthcoming). Working within Optimality Theory, De Swart proposes that the facts are the result of what she calls the Negfirst principle, which simply requires negation to be pre-verbal.

(2) Negfirst
Negation is pre-verbal.

This seems to account for the data in (1) and also allows examples with a preposed negative complement, such as (3).

(3) A **nessuno** ho parlato.
to nobody have spoken
'I haven't talked to anybody.'

It also accounts for the fact that *non* is required with a post-verbal subject. The following illustrate:

(4) a. *Ha telefonato **nessuno**.
has telephoned nobody
'Nobody has phoned.'
b. **Non** ha telefonato **nessuno**.
NEG has telephoned nobody
'Nobody has phoned.'

(4a) is acceptable as an interrogative, meaning 'Has anyone phoned?', but is ungrammatical as a negative declarative.

This approach is quite plausible for Italian. It is also easy to accommodate a language in which negation is not required to be early in the sentence. One can simply assume that Negfirst is a low ranked constraint in such a language. However, it cannot accommodate certain other languages, which require negation to appear quite early but do not require it to be pre-verbal.

3. Swedish

One language that is relevant here is Swedish, discussed by Sells (2000). Here, while (5a–5c) are fine, (5d) and (5e) are ungrammatical.

(5) a. Jag har **inte** gett boken till henne.
I have not given the book to her
'I have not given the book to her.'
b. **Ingen** såg mig.
no one saw me
'No one saw me.'
c. Jag såg **ingen**.
I saw no one
'I saw no one.'
d. *Jag har sett **ingen**.
I have seen noone
'I haven't seen anybody.'
e. *Jag pratade med **ingen**.
I spoke with noone
'I didn't speak to anyone.'

Grammatical counterparts of (5d) and (5e) have *inte* 'not' and a negative polarity item:

(6) a. Jag har **inte** sett någon.
I have not seen anyone
'I haven't seen anybody.'
b. Jag pratade **inte** med någon..
I spoke not with anyone
'I didn't speak to anyone.'

One way to describe the facts is to say that negation must be early in the sentence. In (5a–c) it is early enough, but in (5d) and (5e) it isn't.

Working within Lexical Functional Grammar (LFG), Sells develops a structural approach to the facts. He makes the following assumptions:

(7) a. Swedish sentences may contain a VP. The finite verb is outside VP in a main clause. Other verbs are inside VP.[1]
b. Pronominal objects are outside VP when the associated verb is outside VP.
c. Negative objects are outside VP.
d. Other objects are inside VP.

In support of these assumptions, Sells draws attention to examples like the following:

(8) Jag kysste henne **inte**.
I kissed her not
'I didn't kiss her.'

Here, both the verb *kysste* and the pronoun *henne* precede the negative particle *inte*. Sells assumes that *inte* marks the left edge of VP. Given this assumption, such examples suggest that both the verb and the pronoun are outside VP. Contrasting with (8) are examples like the following:

(9) Jag såg **inte** Sven.
I saw not Sven
'I did not see Sven.'

This provides evidence that non-pronominal objects are inside VP. Sells also highlights examples like (10).

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[1] Sells assumes that subjects are in SpecIP and that the verb is in I when it follows the subject. He assumes that the verb is in C when it precedes the subject and that any preceding phrase is in SpecCP. A related but somewhat simpler view of Swedish clause structure is proposed in Börjars, Engdahl and Andréasson (2003).

(10) Hon hade **inga** biljetter köpt.
he had no tickets bought
'He hadn't bought any tickets.'

Here the negative object precedes the associated non-finite verb, which suggests that it is outside VP. Contrasting with (10) are examples like (11).

(11) Hon hade köpt några biljetter.
he had bought some tickets
'He had bought some tickets.'

This provides evidence that non-negative objects are inside VP.

The assumptions in (7) allow a simple structural account of the Swedish data. Given these assumptions, the examples in (5) have the following structures:

(12) a. [$_{IP}$ Jag har **inte** [$_{VP}$ gett boken till henne]]
b. [$_{IP}$ **Ingen** såg mig]
c. [$_{IP}$ Jag såg **ingen**]
d. [$_{IP}$ Jag har [$_{VP}$ sett **ingen**]]
e. [$_{IP}$ Jag pratade [$_{VP}$ med **ingen**]]

Sells proposes that the facts are the consequence of the following constraint:

(13) A negative clause requires a negative expression which is not inside VP.

He also suggests that the same constraint is operative in Italian.

Sells's analysis seems to work quite well. However, it requires an analogue of verb-movement to allow a verb to appear outside the associated VP. This is something that has not generally been assumed within HPSG. Hence, it is natural to look for an alternative approach. A relevant fact is that quite similar data are found in another language, where a structural account is not plausible. This is Welsh, which I discuss in the next section.

4. Welsh

Welsh differs from Swedish in a variety of ways. However, in the area of negation it is rather similar. Consider the following examples:

(14) a. Dw i **ddim** wedi rhoi 'r llyfr iddi hi.
am I NEG PERF give the book to.3SGF she
'I have not given the book to her.'

b. Welodd **neb** fi.
saw.3SG no one I
'No one saw me.'

c. Welish i **neb**.
saw.1SG I no one
'I saw no one.'

d. *Dw i wedi gweld **neb**.
am I PERF see nobody
'I haven't seen anybody.'

e. %Soniish i wrth **neb**.
mentioned I to no one
'I didn't talk to anyone.'

These examples show that Welsh is a VSO language and also that it has a rather different perfect construction. Otherwise, they are quite like those in (5). The only significant difference is that (14e) is acceptable for some speakers (as indicated by '%'). The grammatical counterpart of (14d) is (15a), and a counterpart of (14e) which is grammatical for all speakers is (15b).

(15) a. Dw i **ddim** wedi gweld **neb**.
am I NEG PERF see nobody
'I haven't seen anybody.'

b. Soniish i **ddim** wrth **neb**.
mentioned I NEG to no one
'I didn't talk to anyone.'

These examples show that Welsh, unlike Swedish but like Italian, is a language which allows multiple realizations of negation. However, the similarities between Welsh and Swedish negation are quite striking, and it is natural to try to extend Sells's structural approach to Welsh. I will show, however, that this is not possible.

Almost all transformational work has assumed that Welsh VSO clauses contain a VP, from which the verb is extracted by verb movement. Roberts (2005: 8) remarks that 'the general consensus of work on Welsh' is 'that VSO clauses involve an operation which moves the verb out of VP to the left over the subject', and this is indeed the consensus of transformational work.[2] It is in fact generally assumed that both the verb and the subject originate within VP and that both are moved out of VP with the verb moving further than the subject to give the VSO order. Within one transformational

[2] A similar analysis is proposed within LFG in Bresnan (2001: 127–131).

approach, that of Rouveret (1994), the examples in (14) would have the following structures:

(16) a. $[_{AgrP}$ Dw$_i$ $[_{TP}$ i$_j$ $[_{VP}$ t$_j$ t$_i$ **ddim** wedi rhoi 'r llyfr iddi hi]]]
b. $[_{AgrP}$ Welodd$_i$ $[_{TP}$ **neb**$_j$ $[_{VP}$ t$_j$ t$_i$ fi]]]
c. $[_{AgrP}$ Welish$_i$ $[_{TP}$ i$_j$ $[_{VP}$ t$_j$ t$_i$ **neb**]]]
d. $[_{AgrP}$ Dw$_i$ $[_{TP}$ i$_j$ $[_{VP}$ t$_j$ t$_i$ wedi gweld **neb**]]]
e. $[_{AgrP}$ Soniodd$_i$ $[_{TP}$ Sioned$_j$ $[_{VP}$ t$_j$ t$_i$ am **neb**]]]

Here, the finite verb is in Agr and the subject in Spec TP. Somewhat more complex structures are proposed in Roberts (2005). An important property of these structures is that the object in (16b) and (16c), and the PP complement in (16e) are within VP. If a VP is assumed, it is fairly clear that it should include both objects and PP complements. Welsh does not have the kind of data that supports the idea that certain objects are outside VP in Swedish.

In Swedish, the fact that pronominal objects sometimes precede the negative particle *inte* suggests that they may be outside VP. In Welsh, the object of a finite verb cannot co-occur with the negative particle *ddim*. A simple transitive sentence is negated by what Borsley and Jones (2005: chapter 5.3.2) call a pseudo-quantifier, giving (18) instead of (17).

(17) *Welish i **ddim** y bachgen.
saw.1SG I NEG the boy
'I didn't see the boy.'
(18) Welish i **mo** 'r bachgen.
saw.1SG I NEG the boy
'I didn't see the boy.'

It follows that we cannot ask whether the object of a finite verb precedes or follows *ddim*. However, the object of a finite verb may co-occur with the adverbs *byth* and *erioed*, which mean 'never' and appear to occupy the same post-subject position as *ddim* when they are the sole marker of negation.[3] In this situation, non-pronominal and pronominal objects come second, as the following show:

(19) a. Wela' i **byth** Emyr eto.
will-see.1SG I never Emyr again
'I will never see Emyr again.'
b. *Wela' i Emyr **byth** eto.
will-see.1SG I Emyr never again

3 *Byth* is used in imperfective contexts and *erioed* in perfective contexts.

(20) a. Welish i **erioed** Emyr eto.
saw.1SG I never Emyr again
'I never saw Emyr again.'
b. *Welish i Emyr **erioed** eto.
saw.1SG I Emyr never again
(21) a. Wela' i **byth** fo eto.
will-see.1SG I never he again
'I will never see him again.'
b. *Wela' i fo **byth** eto.
will-see.1SG I he never again
(22) a. Welish i **erioed** fo eto.
saw.1SG I never he again
'I never saw the men again.'
b. *Welish i fo **erioed** eto.
saw.1SG I he never again

A negative object may precede or follow *byth* and *erioed*:

(23) a. Wela' i **byth neb** eto.
will-see.1SG I never no one again
'I will never see anyone again.'
b. Wela' i **neb byth** eto.
will-see.1SG I no one never again
(24) a. Welish i **erioed neb** eto.
saw.1SG I never no one again
'I never saw anyone again.'
b. Welish i **neb erioed** eto.
saw.1SG I no one never again

In this situation, however, the adverbs are not the sole marker of negation and do not have to be in the post-subject position. They can also appear in the sentence-final adverbial position. This is shown by examples with a negative subject or *ddim*.

(25) a. Fydd **neb** yn y cae **byth**.
will-be no one in the field ever
'No one will ever be in the field.'
b. Fuodd **neb** yn y cae **erioed**.
was no one in the field ever
'No one was ever in the field.'
(26) a. Fydd Gwyn **ddim** yn y cae **byth**.
will-be Gwyn NEG in the field ever
'Gwyn will never be in the field.'

b. Fuodd Gwyn **ddim** yn y cae **erioed**.
was Gwyn NEG in the field ever
'Gwyn was never in the field.'

Thus, examples like (23b) and (24b) do not show that negative objects may appear earlier than other objects.

Similarly, in Welsh sentences with an auxiliary and a non-finite verb, the object follows the verb. The following illustrate for non-pronominal objects:

(27) a. Naeth Emrys weld Emyr.
did.3SG Emrys see Emyr
'Emrys saw Emyr.'
b. *Naeth Emrys Emyr weld.
did.3SG Emrys Emyr see

With a pronominal object the non-finite verb is preceded by a clitic but the object follows the verb and may not precede:

(28) a. Naeth Emrys ei weld o.
did.3SG Emrys 3SGM see he
'Emrys saw him.'
b. *Naeth Emrys o weld.
did.3SG Emrys he see

With a negative object, the verb must be preceded by *ddim* or some other negative element. The object may not precede the verb. ((29a) is rather like (15a).)

(29) a. Naeth Emrys **ddim** gweld **neb**.
did.3SG Emrys NEG see no one
'Emrys didn't see anyone.'
b. *Naeth Emrys **neb** weld.
did.3SG Emrys no one see

Thus, while it is quite plausible to suppose that certain objects appear outside VP in Swedish, there seems to be no evidence that any objects are outside VP in Welsh.

There also seems to be no evidence that PP complements are outside VP. A PP complement always follows the negative particle *ddim*.

(30) a. Soniish i **ddim** wrth Megan.
mentioned I NEG to Megan
'I didn't talk about Megan.'

b. *Soniish i wrth Megan **ddim**.
mentioned I to Megan NEG
'I didn't talk about Megan.'

It also follows a non-finite verb.

(31) a. Nesh i sôn wrth Megan.
did I mention to Megan
'I didn't talk to Megan.'
b. *Nesh i wrth Megan sôn.
did I to Megan talk
'I didn't talk to Megan.'

Thus, if Welsh VSO clauses contain a VP, Sells's structural approach cannot be extended to Welsh.

Although a VP analysis of Welsh VSO clauses has been generally accepted within transformational work, Borsley (2006) shows that the arguments for such analyses are quite weak. For example, one argument highlights the fact that non-finite clauses such as the bracketed material in (32), show subject-verb order and presumably contain a VP.

(32) Mae Siôn yn disgwyl [i Emrys ddarllen llyfr].
is Siôn PROG expect to Emrys read book
'Siôn expects Emrys to read a book.'

This would provide evidence that finite verbs contain a VP if one assumed that all forms of a lexeme must be associated with the same structure. However, it seems that no one assumes this. It has been generally accepted since the 1970s that passive verbs differ from the related active verbs in taking an optional PP, containing an NP with the semantic role which is assigned to the subject of the active.

If Welsh VSO clauses do not in fact involve a VP, then verb and its subject and complements are all daughters of S. This might lead one to propose a variant of Sells's approach which requires a negative constituent which is a daughter of S. (14a–14c) will have a negative constituent which is a daughter of S, whereas (14d) will have a negative constituent inside an aspectual phrase. (14e) will have a negative constituent which is a daughter of S if the PP complement counts as a negative constituent but will not if it does not. However, if complements are daughters of S, so will post-complement adverbs be. These do not give a well-formed negative sentence, as (19b) and (20b), repeated here in (33), show:

(33) a. *Wela' i Emyr **byth** eto.
will-see.1SG I Emyr never again
'I will never see Emyr again.'

b. *Welish i Emyr **erioed** eto.
saw.1SG I Emyr never again
'I never saw Emyr again.'

Thus, whether or not Welsh VSO clauses contain a VP, it seems that Sells's structural approach is untenable.

Borsley and Jones (2005: chapters 3 and 9) develop what might be called a selectional approach to the Welsh data. They propose that Welsh has a class of weak negative verbs, which normally look like positive verbs, as in (34), but sometimes have a distinctive form, as in (35).

(34) a. Fydd Gwyn yng Nghymru.
will-be Gwyn in Wales
'Gwyn is in Wales.'
b. Fydd Gwyn **ddim** yng Nghymru.
will-be Gwyn NEG in Wales
'Gwyn is not in Wales.'
(35) a. Mae Gwyn yng Nghymru.
is Gwyn in Wales
'Gwyn is in Wales.'
b. Dydy Gwyn **ddim** yng Nghymru.
is Gwyn NEG in Wales
'Gwyn is not in Wales.'

They propose that such verbs are subject to the following constraint:

(36) Negative Dependent Constraint
A weak negative verb must have a negative complement.

Following Borsley (1989b), they assume that post-verbal subjects are complements, and they argue (2005: chapter 5) that the same is true of post-subject adverbs. They assume that a constituent is negative if it has a negative head and that for some speakers but not others a PP is negative if its head has a negative complement.

This approach provides a straightforward account of the data in (14). (14a)-(14c) all contain a negative complement. In (14d), the complement *wedi gweld neb* contains a negative element, but it is not negative itself because the negative element is not the head. In (14e) the complement *wrth neb* contains a negative element which is not the head. However, it is negative for some speakers but not others.

This approach works well for the Welsh data. However, it is obviously not possible to apply it to the Italian data because neither post-verbal complements nor post-verbal subjects produce a well-formed negative sentence. Nor can it be applied to Swedish. Unlike Welsh, Swedish has a double-object construction. As the following show, a negative second object only gives a well-formed negative sentence if the first object is pronominal.

(37) a. Jag lånade dig **inga** pengar.
I lent you no money
'I didn't lend you any money.'
b. *Jag lånade Sven **inga** pengar.
I lent Sven no money
'I didn't lend Sven any money.'

For Sells, the first object in (37a) is pronominal and can be outside VP. Hence, the second object can also be outside VP. In contrast, the first object in (37b) is non-pronominal and must be inside VP. Hence, the second object must be inside VP. Obviously, examples like (37b) show that not all negative complements give a well-formed negative sentence in Swedish. Thus, Borsley and Jones's approach cannot be applied to Swedish.

We have now considered three approaches to negative prominence: De Swart's simple linear approach, Sells's structural approach, and Borsley and Jones's selectional approach, and three languages, Italian, Swedish and Welsh. The following table shows which approaches can accommodate which languages:

	De Swart (forthcoming)	Sells (2000)	Borsley and Jones (2005)
Italian	yes	yes	no
Swedish	no	yes	no
Welsh	no	no	yes

Table 1: Approaches to negative prominence

None of the three approaches can accommodate the negative realization facts in all three languages. It is natural, then, to look for a rather different approach.

5. Linearization-based HPSG approach

I will now show that a more sophisticated linear approach can be developed within the linearization-based version of HPSG developed in Kathol (2000), which can accommodate all three languages.

For linearization-based HPSG, constituents have an order domain, to which ordering constraints apply. The domain elements of a constituent may be 'compacted' to form a single element in the order domain of the mother or they may just become elements in the mother's order domain, in which case the mother has more domain elements than daughters. Most importantly in the present context, order domains and especially clausal order domains are divided into topological fields. Kathol shows how a variety of facts about

German clause structure can be accounted for by constraints on order domains. I will show how the negation facts of all three languages can be attributed to such constraints.

Kathol (2000: chapter 9) discusses Swedish clause structure and proposes the following system of topological fields:

first	Initial constituents
second	Finite verbs in main clauses
third	Constituents which follow the finite verb in a main clause but precede non-finite verbs and finite verbs in subordinate clauses
fourth	Non-finite verbs and finite verbs in subordinate clauses
fifth	Constituents which follow the finite verb in a subordinate clause

Table 2: Swedish topological fields

Assuming these fields and assuming that constituents which can give a well-formed negative sentence are [NEG +], the examples in (5) will have the following clausal order domains:

(38)
$$\left[\text{DOM} < \left[\begin{matrix}\textit{first}\\ < \text{jag} >\end{matrix}\right], \left[\begin{matrix}\textit{second}\\ < \text{har} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ \text{NEG} +\\ < \text{inte} >\end{matrix}\right], \left[\begin{matrix}\textit{fourth}\\ < \text{gett} >\end{matrix}\right], \left[\begin{matrix}\textit{fifth}\\ < \text{boken til henne} >\end{matrix}\right] >\right]$$

(39)
$$\left[\text{DOM} < \left[\begin{matrix}\textit{first}\\ \text{NEG} +\\ < \text{ingen} >\end{matrix}\right], \left[\begin{matrix}\textit{second}\\ < \text{såg} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{mig} >\end{matrix}\right] >\right]$$

(40)
$$\left[\text{DOM} < \left[\begin{matrix}\textit{first}\\ < \text{jag} >\end{matrix}\right], \left[\begin{matrix}\textit{second}\\ < \text{såg} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ \text{NEG} +\\ < \text{ingen} >\end{matrix}\right] >\right]$$

(41)
$$\left[\text{DOM} < \left[\begin{matrix}\textit{first}\\ < \text{jag} >\end{matrix}\right], \left[\begin{matrix}\textit{second}\\ < \text{har} >\end{matrix}\right], \left[\begin{matrix}\textit{fourth}\\ < \text{sett} >\end{matrix}\right], \left[\begin{matrix}\textit{fifth}\\ \text{NEG} +\\ < \text{ingen} >\end{matrix}\right] >\right]$$

(42) $\left[\text{DOM} < \left[\begin{matrix}\textit{first}\\ < \text{jag} >\end{matrix}\right], \left[\begin{matrix}\textit{second}\\ < \text{pratade} >\end{matrix}\right], \left[\begin{matrix}\textit{fifth}\\ < \text{med ingen} >\end{matrix}\right] >\right]$

(38) and (40) have a [NEG +] element in *third*, and (39) has a [NEG +] element in *first*. In (41) a [NEG +] element is in *fifth*. (42) has no [NEG +] element. The ungrammaticality of (43) suggests that *med ingen* is not [NEG +].

(43) *Med **ingen** pratade jag.
with no one spoke I
'I didn't speak to anyone.'

Notice that this contrasts with Italian, where (3) suggests that PPs like this are [NEG +], and Welsh, where (14e) suggests that similar PPs are [NEG +] for some speakers. The grammatical counterparts of (5d) and (5e), (6a) and (6b) have the following clausal order domains:

(44) $\left[\text{DOM} < \left[\begin{matrix}\textit{first}\\ < \text{Jag} >\end{matrix}\right], \left[\begin{matrix}\textit{second}\\ < \text{har} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ \text{NEG} +\\ < \text{inte} >\end{matrix}\right], \left[\begin{matrix}\textit{fourth}\\ < \text{sett} >\end{matrix}\right], \left[\begin{matrix}\textit{fifth}\\ < \text{någon} >\end{matrix}\right] >\right]$

(45) $\left[\text{DOM} < \left[\begin{matrix}\textit{first}\\ < \text{Jag} >\end{matrix}\right], \left[\begin{matrix}\textit{second}\\ < \text{har} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ \text{NEG} +\\ < \text{inte} >\end{matrix}\right], \left[\begin{matrix}\textit{fifth}\\ < \text{med någon} >\end{matrix}\right] >\right]$

Both have a [NEG +] element in *third*.

We should also consider the examples in (37). These will have the following clausal order domains:

(46) $\left[\text{DOM} < \left[\begin{matrix}\textit{first}\\ < \text{jag} >\end{matrix}\right], \left[\begin{matrix}\textit{second}\\ < \text{lånade} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{dig} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ \text{NEG} +\\ < \text{inga pengar} >\end{matrix}\right] >\right]$

(47) $\left[\text{DOM} < \left[\begin{matrix}\textit{first}\\ < \text{jag} >\end{matrix}\right], \left[\begin{matrix}\textit{second}\\ < \text{lånade} >\end{matrix}\right], \left[\begin{matrix}\textit{fifth}\\ < \text{Sven} >\end{matrix}\right], \left[\begin{matrix}\textit{fifth}\\ \text{NEG} +\\ < \text{inga pengar} >\end{matrix}\right] >\right]$

In (46) the first object is in *third* and therefore the negative second object can also be in *third*. In (47) the first object is in *fifth* and therefore the negative second object must also be in *fifth*.

Given these order domains, there is a simple generalization about Swedish negation. A negative clause has a negative element in the first or second field. Thus, we need the following constraint:

(48) *negative-clause* $\rightarrow$ $\left[\text{DOM} < ... \left[\begin{array}{l} \textit{first} \ \vee \ \textit{third} \\ \text{NEG} + \end{array}\right] ... >\right]$

We can turn now to Welsh. As far as I am aware, topological fields have not been applied to Welsh clause structure. However, Borsley and Kathol (2000) propose the following topological fields for the related Celtic language, Breton, and they seem appropriate for Welsh as well.

first	Pre-verbal constituents
second	Verbs
third	Subjects, post-subjects adverbs, complements
fourth	Adverbial constituents

Table 3: Welsh topological fields

Assuming these fields, we can propose the following schematic clausal order domains for the examples in (14):

(49)
$$\left[\text{DOM} < \left[\begin{array}{l}\textit{second}\\ < \text{dw} >\end{array}\right], \left[\begin{array}{l}\textit{third}\\ < \text{i} >\end{array}\right], \left[\begin{array}{l}\textit{third}\\ \text{NEG} +\\ < \text{ddim} >\end{array}\right], \left[\begin{array}{l}\textit{third}\\ < \text{wedi rhoi r'llyfr iddi hi} >\end{array}\right] >\right]$$

(50) $$\left[\text{DOM} < \left[\begin{array}{l}\textit{second}\\ < \text{welodd} >\end{array}\right], \left[\begin{array}{l}\textit{third}\\ \text{NEG} +\\ < \text{neb} >\end{array}\right], \left[\begin{array}{l}\textit{third}\\ < \text{fi} >\end{array}\right] >\right]$$

(51) $$\left[\text{DOM} < \left[\begin{array}{l}\textit{second}\\ < \text{fydd} >\end{array}\right], \left[\begin{array}{l}\textit{third}\\ < \text{i} >\end{array}\right], \left[\begin{array}{l}\textit{third}\\ \text{NEG} +\\ < \text{neb} >\end{array}\right] >\right]$$

(52) $\left[\text{DOM} < \left[\begin{matrix}\textit{second}\\ < \text{dw} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{i} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{wedi gweld neb} >\end{matrix}\right] > \right]$

(53) $\left[\text{DOM} < \left[\begin{matrix}\textit{second}\\ < \text{soniish} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{i} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ (\text{NEG} +)\\ < \text{wrth neb} >\end{matrix}\right] > \right]$

[NEG +] is bracketed in the domain element of *wrth neb* because some speakers but not others will have this feature specification. (49)–(51) and, for some speakers, (53) have a [NEG +] element in *third*. (52) has no [NEG +] element because *neb* is not the head of the complement *wedi gweld neb*. The examples in (15) will have the following clausal order domains:

(54) $\left[\text{DOM} < \left[\begin{matrix}\textit{second}\\ < \text{dw} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{i} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ \text{NEG} +\\ < \text{ddim} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{wedi gweld neb} >\end{matrix}\right] > \right]$

(55) $\left[\text{DOM} < \left[\begin{matrix}\textit{second}\\ < \text{soniish} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{i} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ \text{NEG} +\\ < \text{ddim} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ (\text{NEG} +)\\ < \text{wrth neb} >\end{matrix}\right] > \right]$

Both have a [NEG +] element in *third*. The grammatical examples in (19)–(22) also have a negative element in *third*. (19a), for example, has the following clausal order domain:

(56) $\left[\text{DOM} < \left[\begin{matrix}\textit{second}\\ < \text{wela} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{i} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ \text{NEG} +\\ < \text{byth} >\end{matrix}\right], \left[\begin{matrix}\textit{third}\\ < \text{Emyr} >\end{matrix}\right], \left[\begin{matrix}\textit{fourth}\\ < \text{eto} >\end{matrix}\right] > \right]$

It is clear, then, that a negative element in *third* gives a well-formed negative sentence. However, this is not the only possibility.

Borsley and Jones (2005: chapter 3) show that Welsh also has certain strong negative verbs, which produce a well-formed negative sentence on their own. One type is a verb in a subordinate clause preceded by the particle *na* (*nad* before a vowel).[4] (57) illustrates.

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4 Welsh also has negative subordinate clauses which are just like negative main clauses. Thus, (i) is possible instead of (57).

(57) Wn i [**na** fydd Sioned yn gweithio heno].
know.PRES.1SG I NEG be.FUT.3SG Sioned PROG work tonight
'I know that Sioned will not be working tonight.'

Another is a special negative verb used in imperatives, illustrated in (58).[5]

(58) **Paid**/ **Peidiwch** â mynd i Aberystwyth.
NEG.SG NEG.PL with go to Aberystwyth
'Don't go to Aberystwyth'

The subordinate clause in (57) and the imperative in (58) will have the following clausal order domains:[6]

(59) $\left[\text{DOM} < \left[\begin{array}{l} \textit{second} \\ \text{NEG} + \\ < \text{na fydd} > \end{array} \right], \left[\begin{array}{l} \textit{third} \\ < \text{Sioned} > \end{array} \right], \left[\begin{array}{l} \textit{third} \\ < \text{yn gweithio heno} > \end{array} \right] > \right]$

(60) $\left[\text{DOM} < \left[\begin{array}{l} \textit{second} \\ \text{NEG} + \\ < \text{paid/peidiwch} > \end{array} \right], \left[\begin{array}{l} \textit{third} \\ < \text{â mynd i Aberystwyth} > \end{array} \right] > \right]$

Both domains have a negative element in *second*. Thus, this is a second possibility.

(i) Wn i fydd Sioned **ddim** yn gweithio heno.
know.PRES.1SG I be.FUT.3SG Sioned NEG PROG work tonight
'I know that Sioned will not be working tonight.'

5 This is a defective verb, which has just the imperative forms in (58) and a non-finite form *peidio* used to negate a non-finite clause. The latter is illustrated in (i), where it appears as *beidio* due to a regular mutation process.

(i) Mae Siôn yn disgwyl [i Emrys **beidio** â darllen llyfr]
is Siôn PROG expect to Emrys NEG with read book
'Siôn expects Emrys not to read a book.'

6 In Borsley and Jones (2005) only semantically negative dependents are marked [NEG +]. However, there is no good reason why negative heads should not also be marked in this way. A clause with a [NEG +] head must not be [NEG +] itself because it does not make a superordinate clause negative. This is no problem if heads and their mothers are only identical by default as in Ginzburg and Sag (2000).

What about negative elements in *first*? This is what we have in (61), which will have the clausal order domain in (62).

(61) ***Neb** welish i.
no one saw-1SG I
'It was no one that I saw.'

(62) $\left[\text{DOM} < \left[\begin{array}{l} \textit{first} \\ \text{NEG} + \\ < \text{neb} > \end{array}\right], \left[\begin{array}{l} \textit{second} \\ < \text{welish} > \end{array}\right], \left[\begin{array}{l} \textit{third} \\ < \text{i} > \end{array}\right] > \right]$

It seems, then, that a negative element in *first* does not give a well-formed negative sentence.

What about *fourth*? The ungrammatical examples in (19)–(22) show that a negative element in *fourth* does not give a well-formed negative sentence. (19b) will have the following clausal order domains:

(63) $\left[\text{DOM} < \left[\begin{array}{l} \textit{second} \\ < \text{wela} > \end{array}\right], \left[\begin{array}{l} \textit{third} \\ < \text{i} > \end{array}\right], \left[\begin{array}{l} \textit{third} \\ < \text{Emyr} > \end{array}\right], \left[\begin{array}{l} \textit{fourth} \\ \text{NEG} + \\ < \text{byth} > \end{array}\right], \left[\begin{array}{l} \textit{fourth} \\ < \text{eto} > \end{array}\right] > \right]$

It seems, then, that a Welsh negative clause requires a negative element in either the second or the third field, and hence that the following constraint is necessary:

(64) *negative-clause* $\rightarrow \left[\text{DOM} < ... \left[\begin{array}{l} \textit{second} \vee \textit{third} \\ \text{NEG} + \end{array}\right] ... > \right]$

Finally, we can consider Italian. Here, it seems reasonable to assume the following very simple set of topological fields (cf. Przepiórkowski 1999):

first	Pre-verbal constituents
second	Verbs
third	Post-verbal constituents

Table 4: Italian topological fields

Given these assumptions, (1a) and (1b) will have the following clausal order domains:

(65) $\left[\text{DOM} < \left[\begin{array}{l} \textit{first} \\ \text{NEG} + \\ < \text{nessuno} > \end{array}\right], \left[\begin{array}{l} \textit{second} \\ < \text{telephona} > \end{array}\right], \left[\begin{array}{l} \textit{third} \\ < \text{a Gianni} > \end{array}\right] > \right]$

(66) $\left[\text{DOM} < \left[\begin{array}{l} \textit{first} \\ < \text{Gianni} > \end{array}\right], \left[\begin{array}{l} \textit{second} \\ < \text{telephona} > \end{array}\right], \left[\begin{array}{l} \textit{third} \\ \text{NEG} + \\ < \text{a nessuno} > \end{array}\right] > \right]$

What of (1c)? For Kim (2000: chapter 4.3), *non* is a clitic-auxiliary and hence a type of verb. For Abeillé and Godard (2003) it is a lexical adjunct to the verb. Either way it will be in *second*. Given Kim's analysis, (1c) will have something like the following order domain:[7]

(67) $\left[\text{DOM} < \left[\begin{array}{l} \textit{first} \\ < \text{Gianni} > \end{array}\right], \left[\begin{array}{l} \textit{second} \\ \text{NEG} + \\ < \text{non} > \end{array}\right], \left[\begin{array}{l} \textit{third} \\ < \text{telephona} > \end{array}\right], \left[\begin{array}{l} \textit{third} \\ \text{NEG} + \\ < \text{a nessuno} > \end{array}\right] > \right]$

Assuming these order domains, Italian requires a negative element in either the second or the third field, and hence the following constraint:

(68) *negative-clause* $\rightarrow \left[\text{DOM} < ... \left[\begin{array}{l} \textit{first} \ \vee \ \textit{second} \\ \text{NEG} + \end{array}\right] ... > \right]$

It seems, then, that while a number of non-linear approaches cannot accommodate the negative realization facts in all three languages, there is no problem for a linear approach assuming topological fields.

6. Concluding remarks

In this paper, I have looked at the ways in which three languages, Italian, Swedish, and Welsh, require negation to be realized in a prominent position. I have shown that a linear approach employing topological fields can provide an account of the facts in all three languages, unlike the simple linear approach of De Swart (forthcoming), the structural approach of Sells (2000) and the selectional approach of Borsley and Jones (2005). It looks, then, as if

[7] There are other possible analyses here. *Telefona* and *a nessuno* might form a single member of the third field. Alternatively, *telefona* might be a second member of *second*.

we have phenomena here which not only appear to involve linear order but really do involve linear order.

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