

## Word Order and Constraint Interaction\*

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### 0. Introduction.

In this paper, I will discuss some differences concerning word-order and discourse function across languages. The languages to be studied are Portuguese, English, Dutch and Icelandic. I will present some properties of the behavior of subjects and objects in these languages relating position of subjects and objects with their function in terms of discourse. It will be seen that in some languages there is a correlation between position and function which is missing in other languages (e.g. English), though such a relation is operative for non-nominal arguments.

I will try to show that the differences between these languages only arise when discourse and syntactic constraints interact.

Given this situation of constraint conflict, I will propose an analysis of the data to be discussed within the framework of Optimality Theory (Prince and Smolensky 1993, Grimshaw 1996).

### 1. Problems.

#### 1.1. Subject Positions.

In Portuguese, subjects with different discourse functions occupy different positions (Ambar 1992, Martins 1994, Costa 1996b,c). In Costa (1996b,c), it is argued that Portuguese subjects occupy the Spec,IP position if they convey old information (unless they bear heavy sentence stress). If they convey new information they appear in Spec,VP. The arguments for this are extraction tests, ordering with respect to adverbs and the position of objects. These tests are presented in Costa (1996b,c). This pattern is exemplified in (1). I am taking question-answer pairs and correction contexts as tests to identify new information. The phrase that replaces the *wh*-word in the answer is the focus of the sentence, and everything that is referred to in the question is old information in the answer:

- (1) a. O que é que o Paulo fez?  
what did Paulo do  
a' O Paulo partiu a janela.  
Paulo broke the window  
a'' #Partiu o Paulo a janela.  
a''' #Partiu a janela o Paulo.
- b. Ninguém partiu nada.  
no-one broke anything  
b' Partiu o Paulo a janela.  
b'' #O Paulo partiu a janela.  
b''' #Partiu a janela o Paulo.
- c. O que é que aconteceu?  
what happened?  
c' O PAULO\o Paulo partiu a janela.

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c'' #Partiu a janela o Paulo.

The paradigm in (1) shows that old subjects may not appear in postverbal position (1a), and that if both subject and object are new information, we get the VSO order (1b). If everything is new information the SVO order (which is the unmarked order in Portuguese) arises (1c). The fact that depending on the context each order is either felicitous or infelicitous shows that the free word-order in Portuguese pertains to different discourse functions.

In English, subjects ambiguously (with respect to discourse function) occupy the Spec,IP position, independently of their status with respect to the information structure of the sentence. This is shown in (2):

- (2) a What did John do?  
a' John broke the window.
- b No-one broke anything.  
b' John broke the window.

There are several alternative solutions for the differences between these two languages:

One possible solution is to say that subjects in Portuguese move at LF to a focus position, and that the same happens in English, yielding a similar representation at LF for both languages. A problem with this type of analysis is that all possible word-orders correspond to different structures in terms of information status:

- (3) SVO - subject is old information, object is new (or unmarked order)  
VSO - both subject and object are new information  
VOS - subject is new, object is old

The problem with these different meanings is that it is the relation between all members of the sentence that matters for defining their status with respect to information structure. Taking prosodic information into account (as done in Cinque 1993, Reinhart 1995, Frota 1994,1995 for Portuguese) the generalization seems to be that what constitutes new information in a sentence is the phrase bearing the heaviest stress plus everything it c-commands. In an SVO sentence the object bears most prominent stress of the sentence by default and indeed it is the only new element there. On the contrary in a VSO sentence, the subject bears the heaviest stress, and it c-commands the object: both subject and object are new. In a VOS sentence, the stress also falls on the subject which conveys the only new information.<sup>1</sup> It seems thus that the surface ordering between the constituents of the sentence is important for the representation in discourse terms. If focused subjects would move at LF to a focus position (at the left periphery of the sentence by analogy with Hungarian (Brody 1990 among others)), all these configurations would be lost, not only creating similar SVO orders but also failing to establish the relation between the several elements that constitute the focus of the sentence (for instance in VSO sentence). If focus is relevant at LF (cf. Rooth 1985, Partee 1991 among others), the structure that determines the focus structure of the sentence has to be preserved at this level.

Another possible solution for this problem is to say that all subjects in Portuguese have weak nominative features, and that when they are old information, they are left-dislocated (cf. Barbosa 1995; for other null subject languages see Alexiadou and Anagnostopoulou 1995, Ordoñez and Treviño 1995 among others). However, it seems that preverbal subjects in Portuguese (at least the

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<sup>1</sup> For a more detailed presentation of the data, see Costa (1996b,c).

definite ones) are in Spec,IP. This is illustrated in (4): (4a) shows that they may be A-binders;<sup>2</sup> (4b) shows that there is no complementary distribution with other left dislocated elements, which is expected as (4b') with two left-dislocated arguments shows (unless a multiple topic reading is forced); (4c) shows that the order between a definite subject and a left dislocated constituent is rigid, differently from what happens when two arguments are left-dislocated. In the latter case there is no difference in terms of acceptability between the two sentences:

- (4) a A-Binding:  
 O Paulo viu o seu irmão.  
 Paulo saw poss. brother
- b No complementary distribution with other left-dislocated elements:  
 Sobre a Maria, o Paulo falou com o Pedro.  
 about Maria, Paulo talked with Pedro
- b' ??Sobre a Maria, com o Pedro o Paulo falou.  
 about Maria with Pedro Paulo talked
- c Rigid order with respect with left-dislocated elements:  
 \*?O Paulo sobre a Maria falou com o Pedro.  
 Paulo about Maria talked with Pedro
- c' Sobre a Maria o Paulo falou com o Pedro.  
 About Maria Paulo talked with Pedro.
- c'' ??Sobre a Maria com o Pedro o Paulo falou  
 about Maria with Pedro Paulo talked
- c''' ??Com o Pedro sobre a Maria o Paulo falou.

Optionally strong features would not solve the problem either because one would only be considering feature properties of the subject, not considering the status of the other elements of the sentence with respect to information structure (cf. discussion of (3) above).

The analysis I will pursue here is that the checking of nominative features may be violated if some other constraint interacts with this process.

### 1.2. Object Positions:

According to Johnson (1990), Pesetsky (1989), Koizumi (1995) and Costa (1996a), nominal objects in English always move to a case position. This is reinforced by the distribution of monosyllabic adverbs. These adverbs cannot be right-adjoined (since they never appear after a PP-complement (5d) without a heavy stress), and they always follow nominal objects. On the other hand they never appear before the verb. In previous work, this was analyzed as follows: English NPs always move to Spec,AgrOP and the verb moves to the first head position dominating AgrOP. Monosyllabic adverbs being left adjoined to VP will always follow nominal objects and precede prepositional complements which do not need to check any case features.

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<sup>2</sup> This is not a problem for Barbosa (1995) since her analysis predicts that A-binding by the empty pronominal in Spec,IP which the left-dislocated subject is associated with is possible.

- (5) a \*John well speaks French.  
 b John speaks French well.  
 c John looked hard at the those pictures.  
 d \*John looked at those pictures hard.  
 e John looked at those pictures HARD.

In Portuguese, the position of objects (NPs and PPs) depends on their function in discourse: if the complement is the focus of the sentence it remains in its base position, which is the position where it will receive the default nuclear stress of the sentence (cf. Cinque 1993, Nash 1995). If the focus is the adverb, the object has to be scrambled to the left of the adverb in order to leave the adverb in the position where it can receive the default stress of the sentence, and so that the object avoids it, as discussed in Reinhart (1995).

This is shown in (6) and (7), with the same tests for identification of focus that were used before:

NPs:

- (6) a Quem é que o Paulo conhece bem?  
 who does Paulo know well  
 a' O Paulo conhece bem a Margarida.  
 Paulo knows well Margarida  
 a'' #O Paulo conhece a Margarida bem.  
 Paulo knows Margarida well  
  
 c Como é que o Paulo conhece a Margarida?  
 how does Paulo know Margarida  
 c' O Paulo conhece a Margarida bem.  
 Paulo knows Margarida well  
 c'' #O Paulo conhece bem a Margarida.  
 Paulo knows well Margarida

With PPs, the pattern is exactly the same:

PPs:

- (7) a Como é que o Paulo falou com a mãe?  
 how did Paulo talk to his mother?  
 a' O Paulo falou com a mãe bem.  
 Paulo talked with his mother well  
 a'' #O Paulo falou bem com a mãe.  
 Paulo talked well with his mother  
  
 b Com quem é que o Paulo falou bem?  
 with whom did Paulo talk well  
 b' O Paulo falou bem com a mãe.  
 Paulo talked well with his mother  
 b'' #O Paulo falou com a mãe bem.  
 Paulo talked with his mother well

In English, NPs ambiguously occupy the pre-adverbial position independently of their status with respect to the information structure of the sentence:

- (8) a How does John speak French?  
 a' John speaks French well.  
 b What does John speak well?  
 b' John speaks French well.

On the other hand, English PPs behave like Portuguese objects:

- (9) a A: What did John look hard at?  
 B: John looked hard at those pictures.  
 b A: How did John look at those pictures.  
 B: John looked at those pictures HARD.

Since the movement of NPs is obligatory and that of PPs depends on their status in terms of information structure, I conclude that the motivation for moving NPs and PPs in English is distinct. Additional evidence for this claim comes from object-shift languages like Swedish and Icelandic which exhibit the reverse behavior: only NPs move, PPs always stay in situ:

- (10) Swedish (Holmberg 1986):  
 a Jag tror inte på det.  
 I believe not in that  
 b. \*Jag tror på det inte.

The behavior of objects has undergone several analyses in recent work. Chomsky (1995) proposes that the motivation for scrambling is syntactic: objects move leftwards to check a feature related to specificity. However, as shown by Reinhart (1995), specificity is not at stake: specific NPs may stay in situ, and indefinite non-specific NPs may scramble. Besides, explaining scrambling in syntactic terms does not capture the relation between stress and position.

A different approach to the behavior of objects is proposed by Diesing and Jelinek (1995). They suggest that definite NPs are scrambled out of VP (all material inside VP is mapped into the nuclear scope receiving an existential reading) in order to escape existential closure. As acknowledged by Diesing and Jelinek, this hypothesis does not explain scrambling of existential indefinites like in (11), which may stay inside VP without any problem.

- (11) German:  
 a weil Elly immer Lieder singt.  
 since Elly always songs sing  
 a' ALWAYS<sub>t</sub> [time (t)]  $\exists_x$  song (x) & sings (Elly,x,t)  
 b weil Elly Lieder immer singt  
 since Elly songs always sings  
 b' ALWAYS<sub>x</sub>  $\exists_x$  [ song (x) ] sings (Elly,x)

Diesing and Jelinek solve this problem by suggesting that there is a scope condition applying at S-structure in German. That is, if an adverb takes scope over the object, the adverb has to c-command the object at S-structure. If the object has scope over the adverb, it has to be scrambled in order to satisfy the scope condition. This is motivated by the semantic readings of the sentences with and

without scrambling represented in (11a') and (11b'). However, if one chooses an adverb which does not play any role in the temporal representation of the sentence, scrambling is still possible without any change in terms of the temporal/semantic representation of the sentence, as in the Portuguese examples in (12):

- (12) a O Paulo canta bem canções.  
Paulo sings well songs  
b O Paulo canta canções bem.  
Paulo sings songs well

As noted by Danny Fox (p.c.), it is interesting to note that the adverbs used in Diesing (1992) and Diesing and Jelinek (1995) are often sensitive to focus in the sense of Rooth (1985). This may explain that the semantic reading is changed and may also establish a bridge between their analysis and Reinhart's (1995) proposal that I will adopt here. Reinhart (1995) assumes Cinque's (1993) theory of sentence stress assignment, which predicts that the most embedded constituent of a sentence is the one that receives nuclear stress. The focus of a sentence always bears the most prominent stress (cf. Jackendoff 1972), hence in order for the object not to be interpreted as focus of the sentence it has to move to the left of another element (the focus) in order to escape the default stress. Under this view, the motivation for scrambling is defocusing of the object. Note that this captures the semantic analysis: if the object is defocused, it is not new in the discourse. If it is not new, it gets a specific interpretation. Reinhart's analysis allows thus for treating specificity as an effect of the information status of the elements.

One question that is left unanswered is why English NPs are always ambiguous. We will return to this issue later.

### *1.2.1. Portuguese/Dutch Objects vs. Icelandic objects: Scrambling vs. Object-Shift:*

Another property of object positions we would like to capture is the difference in terms of landing site of shifted objects between Dutch and Portuguese on one hand, and Icelandic and Swedish on the other. While in the former group of languages objects are A-bar moved, being adjoined to VP, in the latter they exhibit A-movement properties, and by assumption their landing site is Spec,AgrOP. I should note that this is a very problematic issue which has been subject to much discussion. I will not discuss these differences here and will assume that things are as just described. For discussion, see Zwart (1993), Déprez (1989), de Hoop (1991), Bobaljik (1995), Vikner (1994), Corver and Riemsdijk (1994), Vikner (1994), Costa (1996c) among others.

If this difference between landing sites for objects is indeed true, it constitutes additional evidence that scrambling and movement for case purposes are different processes for moving complements leftwards.

### *1.3. Summary of the problems:*

The problems we have identified are the following:

- a) Portuguese subjects stay in Spec,VP if they are focused. LF-movement to Spec,IP would destroy the focus structure of the sentence. Apparently nominative case licensing is violated in these cases.

- b) Focused subjects and objects in English violate information structure since they do not appear in the positions where they would get the nuclear sentence stress. Note that the sentence stress rule is the same in English and Portuguese, as the behavior of PPs discussed before illustrates. This is corroborated by observations related to Heavy NP Shift, which show that the rightmost position is associated with focus (cf. Rochemont 1990).
- c) The difference between scrambling and object-shift has to be captured. That is, although there are similar effects on these types of movements, they exhibit different properties in that only the latter seems to be case related.

In what follows I will try to account for these facts.

## **2. Analysis within Optimality Theory.**

In order to deal with the problems described in the previous section, I will use Prince and Smolensky's (1993) Optimality Theory. Under this theory, grammatical constraints are universal and violable. Their ranking is the only factor that determines language variation. Constraints evaluate representations, which are generated from a single input and the grammatical candidate is the one which violates constraints minimally (according to the ranking).

I will make some assumptions concerning the input and the way phrase structure is projected. According to Grimshaw (1996) and Grimshaw and Samek-Lodovici (1995,1996), the input from which all outputs are generated contains the argument structure of the verb and information concerning what is the focus and the topic of the sentence. I will further follow Ackema and Neeleman's (1995,1996) proposals concerning the projection of phrase structure: they propose a theory of phrase structure under which only structure that is required is projected. That is, there is no empty phrase structure and there is no need for the postulation of several empty functional projections (for empirical evidence against empty functional projections based on the distribution of adverbs see Costa (1995, in press); for more details on this theory of phrase structure see Ackema and Neeleman 1995,1996).

The reason why I will analyze these data within the framework of Optimality Theory is that the phenomena described above do suggest that we are facing an optimization problem. More precisely, we have seen that case seems not to be checked, only if some requirement (focus) forces it to be unchecked. That is, as we have seen, Portuguese subjects as well as Dutch and Icelandic objects do not move their objects to the position where case is licensed, only if focus requires these elements to remain in a position where they get focus stress. On the contrary in English discourse related constraints appear to be violated only when case requires an element to be moved out of the position where it gets focus. We do have thus constraints operating on the same elements and conflicting with one another. As we will see, due to different rankings, languages optimize the representations differently, preferring to respect one of the constraints at the cost of one (or more) of the others.

### *2.1. Violable Constraints.*

Before presenting the analysis, I would like to motivate my assumption that the constraints I am going to use are violable. In this section, I present evidence that Case and Information Structure can be violated. By doing so, I hope not only to motivate the existence of these constraints, but also to show that in order to get a better understanding of their effects they have to be taken as violable constraints rather than as absolute conditions.

#### *2.1.1. Case:*

2.1.1.1. *Default case in contexts in which there is no case assignor*: Case has been taken to be an inviolable constraint. Since the Case filter was proposed, it has been assumed that no NP can surface if it is not assigned case. This predicts that sentences like (13) below are ruled out:

(13) \*(For) him to bite a dog is impossible.

In order to render this sentence grammatical, a case assignor has to be inserted. This would seem to be quite general and uniform if we only looked at the sentential level. However, (14) is a perfectly natural utterance, though there is no case assignor for the two NPs:

(14) Coffee or tea?

What happens in these cases is that the NPs get the default case of the language (accusative in English, nominative in Portuguese):

(15) a Him or her?  
b \*I or she?

(16) a Eu ou tu?  
I or you  
b \*Mim ou ti?  
me or you

There are two ways of thinking of default case: one is to assume that default case is the case assigned when no assignor is present. The other way is to assume that it is a random case that NPs are marked with when no case is assigned. That is, if NPs do not receive any case, they surface with whatever case inflection the language picks just so that the NPs can actually be pronounced (in the absence of caseless forms). It seems to me that the latter option offers two conceptual advantages: it does not require the postulation of 'invisible' case assignors, and it explains why in a pair of languages like Portuguese and English (for which, at the sentential level case functions in a very similar way) two different cases are picked up.

### 2.1.1.2. *Subjects in Portuguese.*

Another example showing that case may be not assigned comes from the behavior of Portuguese subjects already discussed. In Costa (1996b,c), it is shown that subjects in Portuguese may stay in Spec,VP if certain discourse conditions have to be met. This is exemplified in (17)

(17) a O Paulo comeu a sopa.  
Paulo ate the soup  
b Comeu o Paulo a sopa.  
ate Paulo the soup

Two of the possible word-orders for subject, verb and object are illustrated in (17). In Costa (1996b,c) it is argued that only in (17a) has the subject moved to Spec,IP and that in (17b) it stays in Spec,VP, as mentioned before. Some of the arguments are: 1. subjects follow sequence of auxiliary and participle construction (cf. 18); 2. the subject obligatorily follows a VP-adverb (cf. 19); 3. this



There are two hypotheses here: one is to say that the object moves covertly in (22b) (in the spirit of checking theory), the other one is to assume that the object does not get case at all. One argument in favor of the latter is the relevance of each order for the interpretational component of the grammar already discussed above (Diesing and Jelinek 1995, Diesing 1995 among others). As noted before, moving the objects covertly would destroy the configuration which is relevant for interpretation of the information structure of the sentence.<sup>5</sup>

Another argument favoring the hypothesis that these objects just do not get case comes from Holmberg's generalization:

(23) Overt verb movement is a precondition for object shift.<sup>6</sup>

Holmberg (1986) observes that object-shift in Icelandic and Mainland Scandinavian is dependent on overt movement of the verb. This is confirmed by the following cases which show that the absence of verb-movement blocks object movement.

- (24) (Danish, Vikner 1991)
- a Hvorfor har Peter ikke købt den?  
why has Peter not bought it
  - b \*Hvorfor har Peter den ikke købt?  
why has Peter it not bought
- (Icelandic, Thráinsson 1994)
- c Hann hefur aldrei lesið bókina.  
he has never read books
  - d \*Hann hefur bókina aldrei lesið.  
he has books never read

Now the problem with a covert movement approach to the data (in (22-24) is that it predicts that at LF both the verb and the object will move. However, there is no position where the verb can move to: that is why it stays in situ in (24). Since the absence of V-movement prohibits object-shift, there is no way for the object to get its case checked.

I propose, based on the the discussion of default case in the absence of case assigner, the behavior of Portuguese subjects and that of objects in object-shift languages, that case is a violable constraint. One crucial problem raised by the postulation that case is a soft constraint that I will leave for further research is the relation between morphological case and the violability of this constraint. That is, why can't an accusative case surface in subject position when nominative is not licensed? A solution for this problem will depend on research on how lexical insertion and lexicon selection operate in this system and on what is the cost of generating candidates with the wrong morphological case.

### 2.1.2. Information structure.

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<sup>5</sup> I am overlooking the possibility discussed in Chomsky (1995) that at LF only features move, leaving the object in situ. This might capture the fact that the semantic content of the NP is interpreted in its base position, though it is still assigned case. I know of no empirical evidence for defending such an approach, and the consequences for overt movement are quite unpredictable (see Chomsky's discussion of pied-piping).

<sup>6</sup> See Zwart (1993) and Bobaljik (1995) for extensive discussion and criticism of Holmberg's generalization. Zwart and Bobaljik try to prove that Holmberg's finding is not correct in order to treat Dutch and German on a par with Object-Shift languages. However, as shown by Webelhuth (1989), Vikner (1994), scrambling and Object-Shift differ in a reasonable amount of properties. Given the absence of evidence for a complete unification of the two phenomena, I will keep to the standard assumption that they are different and assume that Holmberg's generalization is correct.

In this section, I will reinforce the issue discussed above that information structure constraints (see Kiss 1995, Valduví 1990) are also violable. That is, though some languages favor having foci or topics in certain positions, there are cases in which these positions are not accessible to the elements which play these discourse roles.

#### 2.1.2.1. *English subjects*

Adger (1994,1995), based upon work by Pinto (1994), has shown quite convincingly that the difference between the distribution of subjects in Italian and English follows from the possibility of Italian subjects to stay in situ or to move, depending on the discourse function they play: in (25) the subject is new information, so it has to stay in its base position. In (26), it is old information, hence it has to move to Spec,IP. This is basically the same pattern found for Portuguese before:

- (25) (Italian, Pinto 1996)  
A: Chi é arrivato  
    who arrived  
B: É arrivato il postino.  
    is arrived the postman

- (26) A: Mario mi ha scritto una lettera.  
    Mario to-me has written a letter  
B: La lettera é arrivata ieri.  
    the letter is arrived yesterday

Adger shows that English subjects because of being obligatorily forced to move overtly are always ambiguous between new and old information:

- (27) A: who arrived?  
B: \*Arrived the postman  
B': The postman arrived.

- (28) A: Mario wrote a letter to me.  
B: The letter arrived yesterday.

As discussed before, this difference cannot be due to the fact that English expresses focus in a different way than Italian. As Cinque (1993) has shown, in both English and Italian the constituent bearing default focus stress is the most embedded one (or the rightmost one in accordance to the recursion pattern of the language, under Nash's (1995) reformulation of Cinque's sentential stress algorithm).

- (29) a John read the book.  
b Gianni ha letto il libro.

Further evidence for the claim that there is a correlation between right edge and focus in English as well as Italian comes from the observation (Culicover and Rochemont (1990) and references therein) that shifted heavy NPs are normally foci:

- (30) I met yesterday [my best friend from high school]<sub>F</sub>

Given the fact that the correlation between right-edge and focus is operative in the two languages, what appears to be at stake in the case of English subjects (and objects as discussed before) is a violation of the way English codifies information structure.

#### 2.1.2.2. *Wh-elements.*

Another case in which information structure seems to be violated is that of *wh*-questions. *Wh*-phrases have contradictory properties: on the one hand they are operators, which requires them to scope over the sentence; on the other hand, they are new information, which makes them stay in their base position in order to get focal stress. In English, the scope requirement takes *wh*-words out of the position in which they get sentential focus stress (putting aside echo-questions for the moment):

- (31) a       What did you do?  
      b       \*You did what?

In Portuguese, on the contrary, *wh*-words are left in situ or marked with a cleft (see Bresnan and Mchombo 1987 for the relation between clefts and focus in *wh*-context).<sup>7</sup>

Leaving *wh*-words in situ does not seem problematic for a framework in which covert movement is possible since it has been assumed that covert operator movement is quite productive (e.g. May 1985). However, once we take into account the need for a *wh*-phrase to be interpreted as focus, and we acknowledge the fact that *wh*-phrases require a focus interpretation, a language like English (in which focus is associated with the rightmost position of a sentence and in which *wh*-words move) represents a case in which information structure is violated.

#### 2.2. *Constraints.*

Having given some examples of the violability of the constraints to be used, let me now describe the function of each of them. The constraints I am going to use are the ones listed in (32-34):

- (32) CASE: NPs are licensed at the specifier position of AgrPs (from Chomsky 1989-1995).  
      a       OBJ-CASE: nominal objects are licensed in Spec,AgrOP  
      b       SUBJ-CASE: subjects are licensed in Spec,AgrSP

- (33) ALIGNFOCUS (adapted from Grimshaw and Samek-Lodovici 1995, Reinhart 1995, Nash 1995 and Cinque 1993):

The (prosodically unmarked) focus of the sentence is the rightmost constituent in accordance with the recursivity pattern of the language.

- (34) STAY: minimize to 0 the number of movements in each representation (Chomsky 1989-1995, Grimshaw 1996)

CASE requires NPs to move to the Spec positions where case is licensed. This constraint is violated whenever an NP stays in situ. As mentioned before, further research is necessary in order to establish what drives the correct lexical insertion in languages that exhibit morphological case. Though I am aware of this problem, I will leave it unsolved in this paper and address it in future work.

The distinction between OBJ-CASE and SUBJ-CASE will not be crucial in this paper, since the behavior of subjects and that of objects will be studied separately. Nevertheless, some remarks will

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<sup>7</sup>*Wh*-questions without cleft are assumed to be possible in most literature on Portuguese (cf. e.g. Ambar 1992). It seems to me though that there is a very strong tendency for speakers to use either the cleft constructions or the *wh*-in-situ variant. A careful survey of the data is required to establish what the pattern really is.

be made regarding these two constraints. It will be seen that this distinction is important for the different behavior of subjects and objects in Portuguese. Whenever such a distinction is not relevant I will refer to both constraints as CASE.

ALIGNFOCUS forces the focus of a sentence to be at the rightmost position of the sentence. It is failed by foci that are not at the rightmost position or foci that dominate constituents that are not members of the focus set of constituents of the sentence (see Reinhart 1995 for discussion of focus set of constituents).<sup>8</sup>

STAY favors representations with the least possible number of movements. It is failed by any movement.

The possible rankings we get from these three constraints are listed in (35):

- (35) a CASE » ALIGNFOCUS » STAY  
 b ALIGNFOCUS » CASE » STAY  
 c ALIGNFOCUS » STAY » CASE  
 d CASE » STAY » ALIGNFOCUS  
 e STAY » ALIGNFOCUS » CASE  
 f STAY » CASE » ALIGNFOCUS

(35e-f) will not be discussed here, since they are not relevant for the languages to be analyzed. Hence, I will concentrate on the first three rankings.

### 2.3. Subjects.

Let us start with the analysis of the behavior of subjects in English and Portuguese. STAY will not be relevant for this part of the analysis, thus this constraint will not be considered here. We get therefore two rankings:

- (36) a CASE » ALIGNFOCUS  
 b ALIGNFOCUS » CASE

A language with the ranking of (36a) satisfies case in spite of violations of ALIGNFOCUS. A language with the ranking of (36b) prefers satisfying ALIGNFOCUS even if that implies a violation of CASE. Given the facts described above and the conclusions of Adger (1994,1995), it is obvious that CASE is higher ranked in English than in Portuguese. Hence I suggest that (36a) corresponds to the English ranking while (36b) corresponds to Portuguese.

Let us see the predictions of these rankings:

- Subject is not the focus of the sentence:

(T1) input: (V(x,y), Focus:y)

	CASE	ALIGNFOCUS
☞ a. [IP S V [VP t t O]]		
b. [IP V [VP S t O]]	*!	

(T2) input: (V(x,y), Focus: y)

<sup>8</sup> The focus set of constituents of a sentence is the most prominent constituent plus everything it c-commands. For instance, in a Portuguese VSO sentence in which the subject bears the highest pitch, the object is obligatorily interpreted as new information, that is as a member of the focus set of constituents.

	ALIGNFOCUS	CASE
☞ a. [IP S V [VP t t O]]		
b. [IP V [VP S t O]]		*!

(T1) and (T2) show that when the subject is not the focus of the sentence movement of the subject to Spec,IP is predicted in both languages. This is because ALIGNFOCUS is vacuously satisfied in both cases and only CASE is violated when the subject stays in Spec,VP. Since ALIGNFOCUS does not impose any requirements, the optimal candidate will be the one that satisfies both constraints in the two languages. Note that in (T2), though the role of STAY is not represented, it is crucial that CASE dominates STAY, since candidate (a) has more violations of STAY (cf. the traces) than candidate (b), and still (a) is optimal. It will be shown below that this is not the case for objects.

-Subject and object are the foci but the verb is not (subject may not c-command the verb, cf. fn.8, hence it stays in situ):

(T3) input: (V(x,y), Focus: x,y)

	CASE	ALIGNFOCUS
☞ a. [IP S V [VP t t O]]		*
b. [IP V [VP S t O]]	*!	

(T4) input: (V(x,y), Focus: x,y)

	ALIGNFOCUS	CASE
a. [IP S V [VP t t O]]	*!	
☞ b. [IP V [VP S t O]]		*

As shown in (T3) and (T4), when the subject is part of the focus of the sentence, there is a difference predicted by these rankings. In the first one, the winner is the candidate in which the subject moves to Spec,IP though it violates ALIGNFOCUS. The violation of CASE is fatal for the second candidate. In the other grammar we have the reverse situation: though CASE is violated by candidate b., this is the optimal one because of the fatal violation of ALIGNFOCUS by the first candidate (though the subject is not aligned to the right of the sentence in b., it does not violate ALIGNFOCUS, since the focus set of constituents is well defined: the subject bears the most prominent stress and it c-commands the other elements that constitute the focus of the sentence).

The differences and similarities predicted by these two grammars do correspond to the facts observed in English and Portuguese: in both languages, the subject moves to Spec,IP if it is not focused. Only in Portuguese subjects stay in situ if focused.

## 2.4. Objects.

### 2.4.1. English vs. Icelandic:

In this section, we will see that the interaction between the CASE and ALIGNFOCUS also makes correct predictions for objects. Actually, we will see that the predictions made for subjects carry over to objects. As discussed before, in English nominal objects always move to Spec,AgrOP. In Icelandic, they stay in their base position if they are focused, and they move to Spec,AgrOP if they are not. Note that the behavior of objects in Icelandic is exactly the same as that of subjects in Portuguese: their moving to a case-licensing position is dependent on discourse functions. Let us look at the tableaux and see how the interaction between these two constraints makes the correct predictions. The ranking corresponding to Icelandic is the same as the one in Portuguese presented

before: ALIGNFOCUS » CASE. For the discussion of these cases, I added an adverb to the examples so that we can check the position of the adverb and determine what the focus of the sentence is: either the object or the adverb.

English NPs:

- Object is the focus:

(T5) input: (V(x,y), Focus: y)

	CASE	ALIGNFOCUS
☞ a. [IP S V [AgrOP O <sub>i</sub> [VP Adv t <sub>i</sub> ]]]		*
b. [IP S V [VP Adv O]]	*!	

- The adverb is the focus:

(T6) input: (V(x,y), Focus: Adv)

	CASE	ALIGNFOCUS
☞ a. [IP S V [AgrOP O <sub>i</sub> [VP Adv t <sub>i</sub> ]]]		
b. [IP S V [VP Adv O]]	*!	*

As expected, since CASE outranks ALIGNFOCUS, nominal objects will always move to Spec,AgrOP, independently of what is the focus of the sentence. If the object is not the focus, that is exactly what is expected since this movement does not violate any constraint. If the object is the focus, however, there is a conflict between the two constraints: CASE requires it to move, ALIGNFOCUS requires it to stay in situ. Since CASE outranks ALIGNFOCUS, the candidate which respects the former wins.

If CASE did not impose any requirement on the object, ALIGNFOCUS might be satisfied. This is actually what happens with prepositional complements, for which CASE is irrelevant. Tableaux 7 and 8 illustrate this; the candidates under consideration are instantiations of PP-in-situ and that of PP-scrambling across the adverb:

English PPs:

- Object is focus:

(T7) input: (V(x,y), Focus: y)

	CASE	ALIGNFOCUS
a. [IP S V [VP PP <sub>i</sub> [VP Adv t <sub>i</sub> ]]]		*!
☞ b. [IP S V [VP Adv PP]]		

- Adverb is focus:

(T8) input: (V(x,y), Focus: Adv)

	CASE	ALIGNFOCUS
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☞ a. [IP S V [VP PP <sub>i</sub> [VP Adv t <sub>i</sub> ]]]		
b. [IP S V [VP Adv PP]]		*!

As shown above, if the PP is the focus it stays in situ. Otherwise it scrambles across the adverb. This is indeed the pattern described above:

- (37) a A: At which pictures did he look hard?  
 B: He looked hard at the pictures of Miró.  
 B': #He looked at the pictures of Miró hard.
- b A: How did he look at the pictures?  
 B: He looked at the pictures hard.  
 B': #He looked hard at the pictures.

Let us now turn to the ranking in which ALIGNFOCUS dominates CASE. The predicted results should be the same as those obtained for subjects.

Icelandic NPs:

- Object is the focus:

(T9) input: (V(x,y), Focus: y)

	ALIGNFOCUS	CASE
a. [IP S V [AgrOP O <sub>i</sub> [VP Adv t <sub>i</sub> ]]]	*!	
☞ b. [IP S V [VP Adv O]]		*

- Adverb is the focus:

(T10) input: (V(x,y), Focus: Adv)

	ALIGNFOCUS	CASE
☞ a. [IP S V [AgrOP O <sub>i</sub> [VP Adv t <sub>i</sub> ]]]		
b. [IP S V [VP Adv O]]	*!	*

The results of (T9) and (T10) do indeed correspond to the data described for Icelandic: if the object is the focus it stays in situ. If the adverb is the focus, it moves to Spec,AgrOP:

- (38) (Icelandic, Bobaljik 1995)  
 context: Does he know “Barriers”?  
 a Hann les Barriers alltaf.  
 he reads Barriers always  
 b #Hann les alltaf Barriers.  
 he reads always Barriers

- (39) context: Does he know Chomsky’s work?  
 a #Hann les Barriers alltaf.  
 he reads Barriers always  
 b Hann les alltaf Barriers.  
 he reads always Barriers

Given the rankings proposed for each language, the results derived so far from the interaction between CASE and ALIGNFOCUS are the following, given the rankings proposed for each language:

- a) English subjects are always in Spec,IP, and they are always ambiguous between new and old information;
- b) English nominal objects are always in Spec,AgrOP, and they are always ambiguous between new and old information;
- c) English prepositional objects remain in their base position if they convey new information; if the adverb is the focus they scramble across it;
- d) Icelandic nominal objects and Portuguese subjects behave alike: if they are new information, they remain in their base position; if they convey old information they move to a case position.

#### 2.4.2. *Object-shift vs. Scrambling and the behavior of PPs.*

We have now explained the way English and Portuguese/Icelandic differ with respect to the obligatory character of movement to CASE, but we still need to derive the difference between the landing sites of the objects in languages like English/Icelandic on the one hand as opposed to Portuguese/Dutch on the other. That is, we have to derive the difference between Object-shift that moves the NPs to a case licensing position and scrambling that has A-bar properties.

In order to explain this difference STAY will now play an important role. Recall that STAY works against movements. Now, according to the theory of phrase structure underlying most work in OT-syntax (cf. Grimshaw 1996, Ackema and Neeleman 1995, 1996, Bakovic 1995, among others) phrase structure is built up only when it is necessary. For instance, in Grimshaw's (1996) work, the CP node is only projected when a wh-element moves to its specifier or when an auxiliary moves to its head. A sentence in which no material is visible in CP is assumed not to contain this projection. Now, what is the relevance of this for the difference between scrambling and object-shift? There are two options to move the object: either by adjunction to VP or by moving it to Spec,AgrOP. If the former option is taken, CASE is not satisfied since case is not licensed in A-bar positions. If the latter is taken, one additional projection is built up creating one more head position (AgrO). This head will have to be filled in by the verb on its way to I, yielding one more violation of STAY.<sup>9</sup> This will predict that Object-shift and scrambling will be in complementary distribution, as observed in Webelhuth (1989) and Vikner (1994), since one process will respect STAY but violate CASE (scrambling) and the other will respect CASE but violate STAY (object-shift).<sup>10</sup>

Let us now look at the tableaux and see how the interaction between these constraints describes the data we have been looking at. In the following tableaux I will only count the violations of STAY concerning V-movement and object-movement, ignoring the case of the subject. The options with respect to information structure will be the same as the ones used for the discussion of Icelandic objects: either the object or the adverb is the focus.

Let us look at the first ranking listed in (35):

Ranking I: CASE » ALIGNFOCUS » STAY

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<sup>9</sup> This additional violation of STAY might be obviated if the verb skips AgrO, violating the Head Movement Constraint (Travis 1984). For the moment I know of no evidence for treating this constraint as a soft one, or for postulating that in all these languages it is top-ranked. See Grimshaw (1996) and Bakovic (1995) for discussion.

<sup>10</sup> Note that scrambling followed by object-shift, a typical case of improper movement (Müller and Sternefeld 1993) is also excluded since it induces more violations of STAY than the two other options (the same number of movements of the object and the additional head movement).

As expected, this ranking will correspond to English, since for the discussion of subjects and objects we proposed that CASE outranks ALIGNFOCUS. The following tableaux illustrate the predictions of this ranking for each situation. The candidates under consideration are: (a) complement in situ; (b) scrambled complement; (c) complement in case-position:

- Object NP is the focus:

(T11) input: (V(x,y), Focus: y)

	CASE	ALIGNFOCUS	STAY
a. [IP S V [VP Adv [VP O]]]	*!		*
b. [IP S V [VP O [VP Adv [VP t]]]	*!	*	**
☞ c. [IP S V [AgrOP O [VP Adv [VP t]]]		*!	***

- Adverb is the focus:

(T12) input: (V(x,y), Focus: Adv)

	CASE	ALIGNFOCUS	STAY
a. [IP S V [VP Adv [VP O]]]	*!	*	*
b. [IP S V [VP O [VP Adv [VP t]]]	*!	*	**
☞ c. [IP S V [AgrOP O [VP Adv [VP t]]]			***

For NPs, STAY does not play any role. All the decisions are made before the strings are evaluated by this constraint. In all the cases in which the object does not move, CASE is fatally violated. Even if the complement is not relevant for CASE (i.e. if it is a PP), STAY will not be relevant, since the decision is made by ALIGNFOCUS:

- Object PP is the focus:

(T13) input: (V(x,y), Focus: y)

	CASE	ALIGNFOCUS	STAY
☞ a. [IP S V [VP Adv [VP PP]]]			*
b. [IP S V [VP PP [VP Adv [VP t]]]		*!	**

- Adverb is the focus:

(T14) input: (V(x,y), Focus: Adv)

	CASE	ALIGNFOCUS	STAY
a. [IP S V [VP Adv [VP PP]]]		*!	*
☞ b. [IP S V [VP PP [VP Adv [VP t]]]			**

As (T13) and (T14) show, if the PP is focus it stays in situ violating STAY only once (because of the movement of the verb). Scrambling it violates ALIGNFOCUS, since the adverb is the rightmost

constituent in this representation. On the contrary, if the adverb is the focus, the optimal candidate is the one with PP-scrambling, since leaving the PP in situ yields a violation of ALIGNFOCUS.

The predictions of Ranking I are the following:

- a) Nominal complements always move to Spec,AgrOP;
- b) Prepositional complements stay in their base position if they are the focus of the sentence;
- c) Prepositional complements scramble if they are not the focus.

This pattern corresponds to the description given above for English.

Let us now look at the second ranking of these three constraints and see what it predicts. In this ranking ALIGNFOCUS dominates CASE which overranks STAY. This will correspond either to Portuguese or to Dutch, since it was proposed before that for these two languages ALIGNFOCUS is higher ranked than CASE.

Ranking II: ALIGNFOCUS » CASE » STAY

Let us first look at the case of nominal complements:

- Object NP is the focus:

(T15) input: (V(x,y), Focus: y)

	ALIGNFOCUS	CASE	STAY
☞ a. [IP S V [VP Adv [VP O]]]		*	*
b. [IP S V [VP O [VP Adv [VP t]]]	*!	*	**
c. [IP S V [AgrOP O [VP Adv [VP t]]]	*!		***

- Adverb is the focus:

(T16) input: (V(x,y), Focus: Adv)

	ALIGNFOCUS	CASE	STAY
a. [IP S V [VP Adv [VP O]]]	*!	*	*
b. [IP S V [VP O [VP Adv [VP t]]]		*!	**
☞ c. [IP S V [AgrOP O [VP Adv [VP t]]]			***

(T15) shows that when the object is the focus any movement of this constituent will violate ALIGNFOCUS, which is the highest ranked constraint. Since both candidates (b) and (c) move the object out of its base position, the decision is made on the basis of the highest constraint.

If the adverb is the focus of the sentence (T16), leaving the object in situ will violate ALIGNFOCUS, excluding the first candidate. Since CASE dominates STAY, scrambling the object yields a violation of CASE, making the candidate with movement of the object to Spec,AgrOP the optimal one, in spite of the three violations of STAY (by movement of the verb to AgrO and to I and movement of the object).

With PPs, the results are the same as in English, since CASE does not play any role and the decisions are made by ALIGNFOCUS:

- PP is the focus:

(T17) input: (V(x,y), Focus: y)

	ALIGNFOCUS	CASE	STAY
☞ a. [IP S V [VP Adv [VP PP]]]			*
b. [IP S V [VP PP [VP Adv [VP t]]]	*!		**

- Adverb is the focus:

(T18) input: (V(x,y), Focus: Adv)

	ALIGNFOCUS	CASE	STAY
a. [IP S V [VP Adv [VP PP]]]	*!		*
☞ b. [IP S V [VP PP [VP Adv [VP t]]]			**

The predictions of this grammar are therefore the following:

- a) Nominal complements stay in their base position if they are the focus;
- b) Nominal complements move to Spec,AgrOP if they are not the focus;
- c) Prepositional complements stay in their base position if they are the focus of the sentence;
- d) Prepositional complements scramble if they are not the focus.

This grammar could correspond to Icelandic and Mainland Scandinavian (putting aside for the moment the difference between the Scandinavian languages that move NPs or just pronouns), if it would not make the wrong prediction that, in these languages, PPs scramble. This prediction is wrong since, as we have seen, PPs never shift to a pre-adverbial position. Recall the following example repeated from above:

- (40) Swedish (Holmberg 1986):
- a Jag tror inte på det.  
I believe not in that
  - b. \*Jag tror på det inte.

I would like to present a hypothesis which would allow us to keep the correct predictions of the ranking presented before and does away with the wrong prediction concerning PP-scrambling. I must emphasize, though, that this is still a very speculative hypothesis requiring a careful look at the data. If adjunction of PPs to VP is independently ruled out in these languages, PP-scrambling will never be possible because of this ban on PP-adjunction to VP. The reason why I think it is possible to propose such a ban on PP-adjunction to VP is that in the literature I checked<sup>11</sup> I have not found a single example of an adjunct PP base-adjoined to the left of VP. Moreover, the only case of a left-adjoined PP-adjunct I came across was judged ungrammatical unless the adjunction site is IP. This is given in (41):

- (41) (Swedish, Holmberg 1986):
- a om dom i min frånvaro tilldelade honom priset.  
if they in my absence awarded him the prize
  - b \*om dom tilldelade i min frånvaro honom priset.
  - c \*om dom tilldelade honom i min frånvaro priset.

<sup>11</sup> This is the literature I checked: Holmberg (1986), Bobaljik and Jonas (1993), Déprez (1989), Diesing (1995), Diesing and Jelinek (1995), Holmberg and Platzack (1996), Vikner (1991) and Vikner (1994).

If this hypothesis proves true, ranking II can still account for Icelandic, though research is necessary in order to know what is the reason for this ban on adjunction to VP. However, as already said, a careful survey of the data is needed to check whether this is true for all classes of PP-adjuncts. Finally, let us look at the last ranking under consideration here: the one in which ALIGNFOCUS dominates STAY which outranks CASE:

Ranking III: ALIGNFOCUS » STAY » CASE

The only difference between this ranking and the one discussed above is that STAY dominates CASE. The number of movements must be minimal and that is more important than respecting CASE. Let us see the results of this ranking for each situation:

- Object NP is the focus:

(T19) input: (V(x,y), Focus: y)

	ALIGNFOCUS	STAY	CASE
☞ a. [IP S V [VP Adv [VP O]]]		*	*
b. [IP S V [VP O [VP Adv [VP t]]]	*!	**	*
c. [IP S V [AgrOP O [VP Adv [VP t]]]	*!	***	

The result of (T19) is the same as obtained with the other ranking: if the object is the focus of the sentence, moving it will induce a violation of ALIGNFOCUS, which excludes both scrambling and object-shift. The crucial difference between the two grammars is represented in the next tableau:

- Adverb is the focus

(T20) input: (V(x,y), Focus: Adv)

	ALIGNFOCUS	STAY	CASE
a. [IP S V [VP Adv [VP O]]]	*!	*	*
☞ b. [IP S V [VP O [VP Adv [VP t]]]		**	*
c. [IP S V [AgrOP O [VP Adv [VP t]]]		***!	

Candidate (a) is ruled out because of the violation of ALIGNFOCUS. The adverb is not in the position where it can get the default focus stress. This is the same as in the previous ranking (ALIGNFOCUS » CASE » STAY). The crucial difference between the two grammars lies on the decision between candidate (b) and (c). In the previous grammar, the candidate with movement of the object to AgrOP was the winner, because the other one did not respect CASE. In this ranking, STAY dominates CASE. Candidate (b) violates STAY two times: the verb moves to I and the object moves once. Candidate (c) is ruled out because AgrOP is projected forcing one more movement of the verb: it moves to AgrO, then to I and the object moves to Spec,AgrOP yielding three violations of STAY. Because of this third violation, the optimal candidate is the scrambled one.

The situation with PP-complements is the same as the one described by the other two grammars:

- PP is the focus:

(T21) input: (V(x,y), Focus: y)

	ALIGNFOCUS	STAY	CASE
☞ a. [IP S V [VP Adv [VP PP]]]		*	
b. [IP S V [VP PP [VP Adv [VP t]]]	*!	**	

- Adverb is the focus:

(T22) input: (V(x,y), Focus: Adv)

	ALIGNFOCUS	STAY	CASE
a. [IP S V [VP Adv [VP PP]]]	*!	*	
☞ b. [IP S V [VP PP [VP Adv [VP t]]]		**	

As in the other two rankings, if the PP is the focus, it stays in situ, otherwise it scrambles. The properties of the grammar described by ranking III are:

- a) Nominal complements stay in their base position if they are the focus;
- b) Nominal complements scramble if they are not the focus;
- c) Prepositional complements stay in their base position if they are the focus of the sentence;
- d) Prepositional complements scramble if they are not the focus.

These are the properties previously described for Portuguese and Dutch. Note that, concerning Portuguese, this is consistent with the analysis proposed above for subjects. In both cases, ALIGNFOCUS outranks CASE. The only difference between this pattern and the situation discussed for subjects is that the split between the CASE constraints will play a role. In order to get the correct distribution of subjects, we saw that SUBJ-CASE has to dominate STAY. For the case of objects, and in order to get scrambling STAY has to dominate OBJ-CASE. This gives us a better understanding of the ranking of Portuguese: ALIGNFOCUS » SUBJ-CASE » STAY » OBJ-CASE. It still needs to be investigated whether SUBJ-CASE and OBJ-CASE are in a relation of subhierarchy (cf. Bakovic 1995, Bakovic and Keer 1996) or whether they work independently. Future work on the behavior of subjects in other languages will possibly permit to distinguish between these two options.

Dutch only falls under this analysis, if it is assumed that Dutch is I-final (which is a standard analysis). If in embedded sentences the verb is inside VP, there would be no difference between scrambling and object-shift in terms of violations of stay.<sup>12</sup>

The interaction between these two rankings predicts that if a language has object-shift, it will not have scrambling, since each of these processes are favored by conflicting constraints. The observation that

<sup>12</sup> Reuland (1990) presents an empirical argument against vacuous movement of V to I. His argument is based on the following two sentences:

- (i) dat Jan Marie herhaaldelijk op beide wangen gekust heeft  
that Jan Marie repeatedly on both cheeks kissed has
- (ii) dat Jan Marie op beide wangen herhaaldelijk gekust heeft  
that Jan Marie on both cheeks repeatedly kissed has

Each of these sentences has a distinct meaning: (i) means that John kissed Mary on both cheeks in several occasions; (ii) means that John kissed Mary several times on each cheek. Reuland's point is that, if right-adjunction of PP to VP is possible and if scope is defined hierarchically rather than linearly, (ii) should have the same reading as (i), by having the PP-right adjoined to the VP which contains the adverb. In order to keep my assumption about Dutch being I-final and circumventing the problem with Reuland's examples I have to assume that base right-adjunction to VP is impossible, in the spirit of the argument developed in Costa (in press) and Barbiers (1995). For a more detailed discussion of the problems of V-to-(final) I movement in Dutch, see Zwart (1993).

scrambling and object-shift are in complementary distribution comes from Webelhuth (1989) and Vikner (1994) (see however Vanden Wyngaerd (1989) and Mahajan (1990) for different proposals).

### 2.5. Conclusion.

From the interaction of three constraints that were known from the literature and the assumption that these are not absolute constraints, but instead they are violable, we managed to derive the behavior of subjects in English and Portuguese as well as the distribution of objects in Dutch, Portuguese, English and Icelandic. The rankings proposed for these languages are listed under (42):

- (42) a English:  
CASE » ALIGNFOCUS » STAY
- b Icelandic:  
ALIGNFOCUS » CASE » STAY
- c Portuguese:  
ALIGNFOCUS » SUBJ-CASE » STAY » OBJ-CASE
- d Dutch:  
ALIGN-FOCUS » STAY » CASE

Further, we managed to derive the observation that scrambling and object-shift are in complementary distribution.

## 3. Further issues.

### 3.1. ‘what happened?’ contexts and unmarked order.

One aspect of the interaction between word-order and focus that is derivable from the present analysis is that in contexts such as the answer to ‘what happened?’ in which the whole sentence is the focus, the unmarked order of the language emerges. For instance, in Portuguese, the SVO order is the most felicitous as an answer to such a question:

- (43) A: O que é que aconteceu?  
what happened
- B: O Paulo partiu a janela.  
Paulo broke the window  
#Partiu o Paulo a janela.  
#A janela, o Paulo partiu.  
#Partiu a janela o Paulo.  
#A janela, partiu o Paulo.

This follows from the analysis presented here, since all the constituents of the sentence want to be at the rightmost position, yielding an equal number of violations of ALIGNFOCUS. Since the number of violations of this constraint will be the same, the decision for the optimal candidate will be done by the other constraints (more specifically CASE and STAY). Tableau (23) illustrates this for two possible candidates which are possible word orders in Portuguese: SVO and VOS:

(T23) (input: V(x,y), Focus:(V(x.y))

	ALIGNFOCUS	STAY	CASE
☞ a. [IP S V [VP t t O]]	**	**	*

b. [IP V [VP O [VP S t t]]]	**	**	**!
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Since all constituents in the sentence want to be aligned to the right, the number of violations of ALIGNFOCUS is the same for both candidates, the result being that this constraint will play no role in deciding what the optimal candidate is. STAY is also violated two times by both candidates, hence the decision will be made by CASE. Since CASE is violated only once by candidate (a), this is the winner. Note that I left the VSO order out of this tableau on purpose. This order would be incorrectly predicted to be optimal, since it only has one violation of STAY, as (T24) shows:

(T24) (input: V(x,y), Focus:(V(x,y)))

	ALIGNFOCUS	STAY	CASE
a. [IP S V [VP t t O]]	**	**!	*
b. [IP V [VP O [VP S t t]]]	**	**!	**
⚡ c. [IP V [VP S t O]]	**	*	**

The solution for this wrong prediction might have to do with the interaction between VSO order and the way neutral sentence stress allows percolation of what can be interpreted as focus up in the sentence: as Cinque (1993) noted (see also Zubizarreta (1995), Reinhart (1995) among others), default sentence stress may determine the focus of the sentence by percolation, as (44) shows:

- (44) a John discussed phonology [with his advisor]<sub>F</sub>  
b John discussed [phonology with his advisor]<sub>F</sub>  
c [John discussed phonology with his advisor]<sub>F</sub>

Now, this is true as long as no constituent is placed in a position where it is marked as focus by some other process. For instance, (45) with contrastive focus preposing is not a legitimate answer to *what happened*:

- (45) a [Bananas]<sub>F</sub>, he bought at the market.  
b What happened?  
\*[Bananas, he bought in the market.]<sub>F</sub>

Leaving the subject in situ as in (T24c) creates a situation similar to that of (45). When this happens, the focus percolates up to the subject, but does not reach the verb, which may not be interpreted as in focus anymore.<sup>13</sup> Therefore, one might think that we have one extra violation of ALIGNFOCUS: it is violated twice because there are two constituents which cannot reach the right most position and also

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<sup>13</sup> This is actually not considered in Cinque (1993), who concentrates on languages with a more rigid word-order. However, if we look at the interaction between prosody and word-order in a language with a more flexible distribution of the constituents like Portuguese, we see that focus percolation is dependent on the position of the constituents. If a constituent is out of its canonical position, the percolation of the focus feature is blocked by this change. See Zubizarreta (1995), Costa (1996b) for developments of this idea for Spanish and Portuguese respectively.

because the verb cannot access the default sentence stress. However, this would be highly stipulative and it would imply making the definition of ALIGNFOCUS less straightforward and more complicated, which is quite undesirable<sup>14</sup>. If instead we make use of the independently motivated ranking between the CASE subconstraints and STAY we get the desired result. Because SUBJ-CASE dominates STAY, the latter will not make any requirements on the position of the subject. Tableau (24) gets thus the following appearance:

(T24') (input: V(x,y), Focus:(V(x,y)))

	ALIGNFOCUS	SUBJ-CASE	STAY	OBJ-CASE
☞ a. [IP S V [VP t t O]]	**		**	*
b. [IP V [VP O [VP S t t]]]	**	*!	**	**
c. [IP V [VP S t O]]	**	*!	*	**

In (T24'), candidate (a) is the optimal one in spite of having more violations of STAY than candidate (c). By making use of the ranking between SUBJ-CASE and STAY, we managed to confirm the relative ordering between these two rankings, which had already been proposed above and also to maintain the hypothesis that in *what happened?*-contexts ALIGNFOCUS does not play any role, the decision for the optimal candidate being made by the other constraints.

### Conclusion.

In this paper, I have looked at some phenomena in relation with the interaction between discourse and syntactic constraints. I hope to have shown that discourse requirements may force violations of constraints which are purely syntactic such as case licensing or economy and vice versa. The analysis proposed, based on constraints known from non-OT literature, suggests that these constraints are soft, in accordance with Optimality Theory, and allows me to derive some similarities and explain some differences between English, Portuguese, Dutch and Scandinavian languages.

In all cases discussed throughout the paper, syntactic constraints were only violated when they interacted with discourse constraints (see Menuzzi forthcoming for similar conclusions). I believe that by assuming that these constraints are violable and by identifying the contexts in which they are violated, we attain a better understanding of them than by reformulating the conditions in order to incorporate the apparent exceptions.

There are still some problems left unsolved, which will be the subject of future research, such as a proper characterization of the relation between the two CASE constraints (for which a closer look at Germanic subjects will be relevant) and how the behavior of *wh*-questions discussed in section 2 may be incorporated into the idea that discourse and syntactic constraint interaction may determine distribution of constituents crosslinguistically.

A major problem that will constitute the starting point for future research, as already mentioned, is the consequence for case theory of taking CASE to be a violable constraint. An explanation for the fact that morphological case is correct independently of the status of the NP with respect to case licensing

<sup>14</sup> An alternative that is most likely correct, suggested to me by Hotze Rullman and Jan Wouter Zwart, is that in these cases there is no violation of ALIGNFOCUS at all, since focus projects up to the sentence when there is no high stress in other constituents (cf. fn 13). This would yield no violation of ALIGNFOCUS in any of these sentences, hence the same results. I leave an analysis of these data incorporating this suggestion, and checking its predictions for other domains for further research.

has to be provided. Note, however, that this problem is general for current syntactic theory, since as noted by Collins and Thráinsson (1996), among others, even in feature-checking based theories, there is a disconnection between morphological case and position. This is shown by the following examples of Icelandic object-shift with all morphological cases:

(46) Icelandic (from Collins and Thráinsson 1996):

- a Ég las bókina ekki.  
I read the book(ACC) not
- b Ég henti bókinni ekki.  
I threw the book(DAT) not
- c Ég sakna Haraldar ekki.  
I miss Harold(GEN) not
- d Mér líka bækurnar ekki.  
I like the books(NOM) not

These sentences provide further evidence that more research on the relation between morphological case and case licensing in the phrase structure is needed in order to solve the problems left open in this paper and to investigate what the exact nature of object-shift is. One possible way to avoid this kind of problem is to follow Costa and Menuzzi's (1996) definition of CASE which proposes that it can be violated only if Case is not assigned in a canonic fashion.

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