VP-Fronting in Sardinian: a structural paradox*

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Abstract

This paper investigates the phenomena of Inversion and VP-fronting in Sardinian in examples like *Dormende sunt sos pitzinnos* 'sleeping are the children'. It is argued that the postverbal subject in these constructions cannot occupy the same position as the subject in general cases of Inversion, but raises to a higher position within the clause. This raising operation yields sharply ungrammatical sentences if VP fronting does not apply. However, these can be excluded by postulating general conditions (distinct from the Agree operation) on the structural relations which must hold at spell-out between overt heads and the elements which they license. It is argued that these conditions, along with further provisions which are necessary to accommodate the position of heavy subjects in Inversion constructions, may play a role in facilitating processing.

1. Introduction

The phenomenon of 'VP-fronting' in Sardinian[1] is illustrated in the examples in (1), which correspond to the canonical sentences in (2):

(1)a Dormende (bene) sunt (sos pitzinnos)
sleeping (well) are (the children)
b Lèghere su zornale cheret (Maria)
read.inf the newspaper wants (Mary)
c Telefonadu a su dotore at (Zuanne)
telephoned to the doctor has (John)

(2)a (Sos pitzinnos) sunt dormende (bene)
'The children / they are sleeping (well)'
b (Maria) cheret lèghere su zornale
'Mary / she wants to read the newspaper'
c (Zuanne) at telefonadu a su dotore
'John / he has telephoned the doctor'

Informally, VP-fronting[2] applies to a non-finite verb-phrase which is dependent on an auxiliary. Fronting can also apply to phrases of other categories, as shown in (3) (see Jones 1993: 332-345 for detailed discussion):

(3)a Bene sunt dormende (sos pitzinnos) (cf. (2a))
b Su zornale cheret lèghere (Maria) (cf. (2b))
c A su dotore at telefonadu (Zuanne) (cf. (2c))

VP-fronting shares many characteristics with other cases of Fronting. The fronted expression always bears main stress, with a relatively flat intonation contour in the remainder

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[1] Examples are given using the standardized orthography 'Limba Sarda Comune' adopted by the Regione Autonoma della Sardegna in 2006: http://www.sardegnacultura.it/documenti/7_25_20060427093224.pdf

[2] The term 'VP-fronting' is used here and throughout as a purely mnemonic label.

of the sentence. Typically, Fronting has a strong focussing effect, but it is also widely used in yes/no questions (and answers), particularly when the fronted item is a predicate (e.g. a verb-phrase), as in the following exchange:

(4) A Dormende sunt? 'Are they sleeping?'
B Emmo, dormende sunt 'Yes, they are sleeping'

In line with previous analyses (Jones 1993, Remberger 2010, Mensching & Remberger 2010), I will assume without further discussion that Fronted expressions of all types move to the same position as Wh-items, which I take to be Spec CP (alternative positions available within a cartographic approach (Rizzi 1997) do not bear directly on the issues discussed in this paper).

An important restriction which is central to this paper is that Fronting of all types is incompatible with a preverbal subject, a restriction which it shares with Wh-movement in direct questions:

(5)a *Telefonadu a su dotore Zuanne at
telephoned to the doctor John has
b *A su dotore Zuanne at telefonadu
to the doctor John has telephoned

(6)a *Cando Zuanne at telefonadu a su dotore?
when John has telephoned to the doctor
b Cando at telefonadu Zuanne a su dotore?
'When did John telephone the doctor?'

When the subject is overtly expressed, it must occur in a postverbal position, as shown by the DPs in parentheses in (1) and (3) above. In Jones (1993), the postverbal subjects in (1), (3) and (6b) were treated as instances of a general phenomenon of Inversion (which I will discuss in detail in $4) and examples like those in (5) and (6a) were excluded by a stipulation that Inversion of the subject is obligatory in Wh-questions and sentences in which Fronting occurs. Jones (1993) analyzes Inversion in terms of rightward movement of the subject from the canonical, preverbal position. The aim of this paper is to investigate the interaction between VP-fronting and Inversion within a broadly Minimalist framework in which Inversion is the result of failure to raise the subject from a position within the verb-phrase to the preverbal position (Spec TP). Following an analysis of Inversion along these lines in $2, it will be argued that this analysis leads to a fundamental structural paradox in cases involving VP-fronting which cannot be satisfactorily remedied by alternative accounts of Inversion and/or VP-fronting. I will further argue that a solution to this paradox requires a reassessment of the range of descriptive mechanisms available within a Minimalist framework.

2. Inversion

Inversion is illustrated in (7), where main stress falls on the final word (*mere* and *pitzinnas*), which is also interpreted as (part of) the focus of the sentence:

(7)a At telefonadu su mere
has telephoned the boss
'The boss has telephoned'
b Sunt arribadas sas pitzinnas
are arrived.F.Pl the girls
'The girls have arrived'

The sequences in (7) are also possible as instances of Right-dislocation (*At telefonadu, su mere* 'He has telephoned, the boss', *Sunt arribadas, sas pitzinnas* 'They have arrived, the girls') where main stress falls on *telefonadu* and *arribadas* and the dislocated element expresses non-focal (contextually given) information. As a notational convention, I will

separate dislocated elements from the rest of the sentence by a comma to distinguish cases of Right-dislocation from Inversion. Judgements for examples given without a comma are based on the stress/focus pattern outlined above. However, when an element is fronted, these differences are obscured by the fact that the fronted expression bears main stress and focus in any case. This observation has potential repercussions regarding the status of the postverbal subject in constructions with Fronting which will be discussed in $3.2.

The rightward movement analysis of Inversion proposed by Jones (1993) can be dispensed with by adopting the VP-internal subject hypothesis ((Koopman & Sportiche 1991). In Sardinian, finite verbs raise to T, as shown by the position of the verb relative to the adverb in (8):

(8)a *Zuanne semper leghet su zornale
'John always reads the newspaper'
b Zuanne leghet semper su zornale

Similar facts in (9) indicate that non-finite verbs also raise to a higher position across manner adverbs; e.g. to an Asp(ect) node:

(9)a *Zuanne at lestru iscridu sa litera
'John has quickly written the letter'
b Zuanne at iscridu lestru sa litera

Consequently, if the subject does not raise to Spec TP[3], the result is the 'inverted' (VS…) order, as shown in (10) for (9a):

(10) [$_{TP}$ T at [$_{AspP}$ Asp [$_{vP}$ su mere v [$_{VP}$ telefonadu]]]]

The derivation of (9b) is essentially the same except that the subject of an unaccusative verb like *arribare* is initially merged in Spec VP, rather than Spec vP. The optionality of Inversion can be captured by assuming that Nominative Case can be licensed either by φ-features of T or by a finite feature of C, under local c-command in both cases, so that T licenses Nominative Case to the subject within vP while C licenses the subject in Spec TP, and that the surface position of the subject is the position in which it its Case feature is licensed. Obligatory inversion in fronted constructions (also direct Wh-questions) can be accounted for by assuming that C in these constructions lacks the ability to license Nominative Case. Another instance of obligatory inversion, which follows rather naturally from this approach, is illustrated by the infinitival construction in (11) where an overt subject (with Nominative Case) follows the infinitive, which can show overt inflection in some Northern-Central dialects (see Jones 1992):

(11)a Non cherzo a cantare(s) tue
neg want.1sg to sing.(2sg) you
I do not want you to sing
b *Non cherzo a tue cantare(s)

Here, C is clearly non-finite (occupied by the infinitival complementizer *a*) and thus cannot license the subject in Spec TP, but arguably T has φ-features (potentially overt) which can license the subject in Spec vP.

In Sardinian, Inversion is generally infelicitous with indefinite subjects:

(12)a ?Ant cantadu tres pastores
Lit. 'Have sung three shepherds'
b ?Sunt arribadas tres pitzinnas
Lit 'Have arrived three girls'

[3] I assume that the EPP feature of TP is optional in null-subject languages which allow free Inversion. Alternatively, the EPP feature can be satisfied by a null expletive in Spec TP or by covert raising of the subject.

To the extent that these examples are acceptable, they appear to require a D-linked interpretation in the sense of Pesetsky 1987 (see Bentley 2004 and Remberger 2009 for detailed discussion). This restriction can be attributed to the dual system of Nominative Case licensing proposed above. Licensing by φ-features of T (to a subject within vP) is possible only for definite (or D-linked) subjects, whereas licensing of the subject in Spec TP by [finite] C is not restricted in this way:

(13)a Tres pastores ant cantadu
'Three shepherds sang'

b Tres pitzinnas sunt arribadas
three girls are arrived.F.Pl
'Three girls arrived'

The analysis outlined in (11) predicts that when the verb is accompanied by a complement, the inverted subject should occur between the verb and the complement; i.e. VSX, where X represents a complement. Absolute judgements in such cases are somewhat uncertain, but there is a gradation of relative judgements which can be characterized in terms of the degree of dependency between the verb and complement. The predicted order is fully acceptable with complement clauses (finite or infinitival):

(14)a At detzisu Zuanne de traballare
has decided John to work 'John decided to work'

b At nadu Maria chi fit proende
has said Mary that was raining 'Mary said that it was raining'

Examples with a PP complement are also moderately acceptable though informants' judgements are more hesitant:

(15)a (?)At telefonadu Zuanne a su dotore
has telephoned John to the doctor 'John telephoned the doctor'

b (?)Est bennidu Zuanne a sa festa
is come.past-part John to the feast 'John came to the feast'

Examples of the type in (15) are given as ungrammatical in Jones (1993). However, many speakers find them acceptable in sharp contrast to examples like (15) with a direct object, which are firmly rejected.

(16) *At lessu Zuanne su zornale
has read John the newspaper 'John has read the newspaper'

Prepositional accusatives (e.g. proper nouns and disjunctive pronouns[4] which are preceded by the preposition *a* in direct object position) are also moderately acceptable in these constructions:

(17) (?)At vistu Zuanne a Maria
'John saw Mary'

In the remainder of this paper the term 'direct object' will be used to refer only to 'bare' accusatives (without *a*).

The restriction illustrated in (16) is not a transitivity restriction; Inversion is perfectly acceptable with transitive verbs if the direct object is cliticized, fronted or moved by Wh-movement:

(18)a L'at lessu Zuanne
'John has read it'

b Su zornale at lessu Zuanne
'John has read **the newspaper**'

[4] See Jones (1993: 64-68, 203-208) for a summary of the distribution of prepositional accusatives in Sardinian; also Jones (1995, 1999) for more detailed discussion. The distinction between direct objects denoting an animate Goal and dative complements of unergative verbs is somewhat unstable (see Jones 1995), so that for some speakers *telefonare* can function as a transitive verb.

c Ite at lessu Zuanne?
'What has John read?'

Similarly, the mild deviance noted with respect to examples like (15) does not arise with ditransitive verbs when the object is extracted:

(19) Ite at dadu Zuanne a su pitzinnu?
'What has John given to the child'

The notion of 'dependency' alluded to above can be formulated in terms of Case. Complement clauses, which lack a Case feature, can be readily separated from the verb by the inverted subject. On the other hand, the presence of the subject between the verb and the ('bare') direct object DP in (16), which requires an Accusative Case feature licensed by the verb, has a clear detrimental effect on acceptability. Provisionally, this distinction can be captured by a 'surface filter' formulated as in (20), where KP represents a Case-dependent complement and L represents its licenser, and XP is an overt maximal projection (e.g. *Zuanne* in the above examples):[5]

(20) *[… L [XP … KP]]

This filter does not come into play when KP is moved to a higher position (as in (18)) or when the subject (XP) raises to Spec TP. The more hesitant judgements for examples like those in (15) and (17) can be accommodated by treating indirect objects and prepositional accusatives as 'weakly Case-dependent' on the verb, so that violation of the filter (20) has a milder detrimental effect on acceptability. The full acceptability of (19) suggests that only 'primary' indirect objects (without a direct object as in (15)) are treated as weakly Case-dependent, while 'secondary' direct objects are not Case-dependent. For the purposes of this paper I take the relevant idealization of the data to be the contrast between (15) and (16) rather than the more subtle difference between (15) and (14). I will use example (15a) as representative of verb-complement relations which are not Case-dependent, abstracting away from the uncertainties noted above.[6]

When the subject is particularly heavy, it can follow complements of all types, including direct objects:

(21)a At telefonadu a su dotore su babbu de su pitzinnu chi fit malàidu
Lit. 'Has telephoned to the doctor the father of the child who was sick'

b Fit leghende su zornale s'òmine chi isetaìat in su salottu
Lit. 'Was reading the newspaper the man who was waiting in the lounge'

However, VXS order is not possible with light subjects, with a neutral stress pattern:[7]

(22)a * At telefonadu a su dotore Zuanne

b *Fit leghende su zornale Zuanne

In the analysis of Jones (1993), this VXS order follows directly from rightward movement of the subject while VSX order requires a further extraposition operation which places the

[5] This suggestion is similar in spirit to that adopted by Belletti (2004: 26-27) for similar facts in Italian. However, Belletti treats the intervention of the subject as a blocking-factor on the Case assignment/checking (Agree) process itself whereas (20) is intended as an output condition on dependencies which have already been established in the course of the derivation. This approach is developed in more detail in §4.2.

[6] Examples like those in (14), with a clausal complement illustrate this case more clearly, as does (19). However, much of the discussion in this paper is based on comparison with examples in which the complement or the VP is fronted, neither of which are possible in (19) or felicitous with clausal complements; (i) is clumsy at best while (ii) is impossible for many speakers:

(i) ??Detzisu de traballare at Zuanne Lit. 'Decided to work has John'

(ii) ?*De traballare at detzisu Zuanne Lit. 'To work has decided John'

Corresponding examples with a finite complement clause are even worse.

[7] Length of the subject may not be the only factor permitting VXS order. Virdis (2000) argues that this order is also possible with relatively short subjects with a narrow focus interpretation and heavy stress, where the remainder of the sentence is contextually given (see also Belletti 2004 for discussion of similar cases in Italian).

complement to the right of the inverted subject. To exclude examples like those in (22), extraposition must apply unless the subject is heavy, with some further condition to rule out (16). On the other hand, the approach envisaged above treats VSX as the normal Inversion pattern and requires some extra mechanism, sensitive to heaviness, to permit VXS order in examples like (21); I will defer discussion of this matter to Section $4.3.

As noted above, Inversion is not generally possible with indefinite subjects. When the indefinite subject introduces a 'brand-new' entity into the discourse (Bentley 2004), the impersonal construction illustrated in (23) is strongly preferred:

(23)a B' at cantadu tres pastores
LOC.has sung three shepherds
Lit. 'There sang three shepherds'

b B' at arribadu tres pitzinnas
LOC.has arrived.M.Sg three girls
'There arrived three girls'

In these constructions there is no agreement between the finite verb and the indefinite DP and the perfective auxiliary is always *aere* 'have' (with no agreement of the past-participle) even with unaccusative verbs like *arribare* in (23b), which otherwise require *èssere* 'be' and agreement of the participle with the subject. Typically, these constructions are signalled by a (pleonastic) locative clitic *bi*, as in (23), or in some dialects *nche/ci*.[8] This construction is impossible with transitive verbs, regardless of the position of the direct object. However, it can occur with a PP complement (or modifier), usually following the indefinite DP (*B'at arribadu tres pitzinnas a sa festa*, 'There arrived three girls at the feast').The indefinite DP must be interpreted as (part of) the focus and normally bears main stress (even when followed by a PP) unless it is an unstressable item like *calicunu* 'someone': *B'at telefonadu calicunu* 'Someone has telephoned', with main stress on *telefonadu*.

An account of these properties is beyond the scope of this paper. For present purposes, I will assume that these constructions are structurally congruent with inverted constructions; i.e. the indefinite DP occupies Spec vP/VP. The approach to Case-licensing of subjects proposed above can be extended to these constructions in the following way: whereas Nominative Case is assigned to a definite DP in this position whose φ-features value those of T, a different Case (e.g. Partitive) is assigned when this DP is indefinite and the φ-features of T are valued as 3rd person singular by default.

3. A structural paradox

3.1. The problem

In the framework of Jones (1993) the VP-fronting phenomena raised no particular structural problems. Examples like those in (25) could be derived from the structure in (24) in essentially the same way, by fronting either the non-finite VP or the complement of the verb, with obligatory inversion (rightward movement) of the subject in both cases:

(24) [$_S$ Zuanne at [$_{VP}$ telefonadu [$_{PP}$ a su dotore]]]
'John has telephoned the doctor'

(25)a Telefonadu a su dotore at Zuanne

b A su dotore at telefonadu Zuanne

This unified analysis cannot be maintained within the approach to Inversion proposed in $2. While (25b) can be derived straightforwardly from the structure in (26) by raising *a su dotore*

[8] In some varieties the clitic can be omitted (see Secci 2006). This appears to be possible only in dialects (mainly Southern varieties) which lack *bi* and use *nche/ci* these constructions. Bentley (2004) suggests that *nche/ci* (unlike *bi*) retains some deictic value ('here') in impersonal sentences.

to Spec CP, fronting of the sequence *telefonadu a su dotore* is excluded since it does not form a maximal projection:

(26) $[_{CP}$ C $[_{TP}$ T $[_{VP(aux)}$ at $[_{vP}$ Zuanne $[_{v'}$ telefonadu a su dotore]]]

This problem can be circumvented by assuming that the subject raises out of vP (e.g. to the Specifier of a Voice projection immediately above vP, as shown in (27)), so that Fronting can apply to the remnant of the maximal projection vP:

(27) $[_{CP}$ C $[_{TP}$ T $[_{VP(aux)}$ at $[_{VoiceP}$ Zuanne$_j$ Voice $[_{vP}$ t_j $[_{v'}$ telefonadu a su dotore]]]]]

However, in order to ensure the correct position of the subject in cases of Inversion, shown in (28), it must be assumed that Voice occurs below the Asp position to which non-finite verbs raise (see examples (9) in $2), as shown in the substructure (29):

(28)a At telefonadu Zuanne a su dotore

b *At Zuanne telefonadu a su dotore

(29) … at $[_{AspP}$ telefonadu$_v$+Asp $[_{VoiceP}$ Zuanne$_j$ Voice $[_{vP}$ t_j $[_{v'}$ t_v a su dotore]]]]

The problem now is that *telefonadu a su dotore* is no longer a constituent. Moreover, there is no maximal projection which includes *telefonadu* and *a su dotore* but excludes the subject. Note that the subject can never be fronted along with the rest of the verbal expression, regardless of its position relative to the non-finite verb[9]:

(30)a *Zuanne telefonadu a su dotore at

b *Telefonadu Zuanne a su dotore at

Fronting of vP in (26) or of VoiceP in (27) would give (30a), whereas Fronting of AspP in (29) would give (30b).

There are various ways in which one might tinker with the movement processes affecting the non-finite verb and the subject DP to achieve the correct results. For example, one might suppose that raising of the verb to Asp does not occur in cases of VP-fronting, even though it appears to be obligatory in all other constructions, so that (25a) could be derived by raising vP to Spec CP in (27). However, it is far from clear how these differential conditions on V-to-Asp raising could be justified. A similar dilemma arises if the subject raises to a position outside AspP (but below T) in (29) to allow derivation of (25a) by Fronting of AspP. The fundamental paradox is that whatever assumptions we make to accommodate VP-Fronting, they yield sharply deviant results in other constructions. To permit Fronting of the verb and its complement(s), the subject must occupy a position outside the maximal projection which contains these elements, yet otherwise the subject never occurs between the auxiliary and the non-finite verb, even when Fronting applies to some other constituent:

(31)a *At Zuanne telefonadu a su dotore

b *A su dotore at Zuanne telefonadu

Either the analysis of Inversion proposed in $2 is wrong in crucial respects or the postverbal subject in cases of VP-fronting occupies a structural position which is defferent from that of the subject in other Inversion constructions, including those involving Wh-movement or Fronting of an expression other than VP.

In the following sections I will review some alternative approaches to VP-fronting and the status of the postverbal subject, mainly to show that this paradox is not simply an artefact of the assumptions made in $1 and $2 but also to highlight further properties of these constructions which an adequate analysis must account for.

3.2. The status of the postverbal subject

Two apparently simple solutions to the paradox raised in $3.1 are summarized below:

[9] The order in (28a) is possible if *Zuanne* is a left-dislocated element and *telefonadu a su dotore* is fronted separately: *Zuanne, telefonadu a su dotore at*.

(i) The subject raises to Spec TP and the auxiliary raises to C, allowing Fronting of the verbal expression (AspP) to Spec CP

(ii) The postverbal subject is a right-dislocated expression

Solution (i) sets VP-fronting apart from other cases of Fronting in that it requires the subject to raise to Spec TP (not only to derive grammatical examples, but also to exclude examples like (30) in $3.1 where the subject is fronted along with the rest of the VP) whereas other types of Fronting never allow an overt subject in Spec TP. This analysis also fails to capture the generalisation that VP-fronting, like all other instances of Fronting and Inversion, is infelicitous with indefinite subjects:

(32)a ??Cantadu an tres pastores Lit. 'Sung have three shepherds'

b ??S'Ave Maria an cantadu tres pastores
Lit. 'The Ave Maria have sung three shepherds'

Since indefinite subjects can occur readily in preverbal position (in Spec TP) but not in inverted position (cf. examples (12)-(13), p.3), the deviance of (32a) is unexpected within approach (i).

VP-fronting is not generally possible with impersonal constructions of the type discussed in $2 (examples (23)), presumably because the indefinite DP expresses new information and must appear in a position which allows a Focus interpretation. However, it can occur in impersonal constructions with the unstressed, non-focal items *calicunu* 'someone' and *carchi cosa* 'something':

(33)a Telefonadu b'at calicunu? 'Has anybody telephoned?'

b Sutzessu b'at carchi cosa? 'Has anything happened?'

To derive these examples, analysis (i) would require the indefinite DP to raise to Spec TP, an assumption which is not independently warranted; the indefinite DP can precede the verb in impersonal constructions, but this appears to be the result of Fronting (with stress and focus on the DP); e.g. ***Tres pastores*** *b'at cantadu*.

Raising of the finite auxiliary to C is consistent with the general facts concerning Fronting (and is postulated on theory-internal grounds by Mensching & Remberger 2010 and by Remberger 2010), though there is no direct independent evidence to support it. However, in combination with raising of the subject to Spec TP, it makes the wrong predictions regarding VP-fronting in sentences containing more than one auxiliary (e.g. *Zuanne at cherfidu ballare* 'John has wanted to dance'):

(34)a ?Ballare at cherfidu Zuanne

b ?Cherfidu ballare at Zuanne

c *Ballare at Zuanne cherfidu

Although the (a) and (b) examples in (34) are rather clumsy, the order in (c) predicted by analysis (i) is completely impossible.

Solution (ii) avoids the problems raised in $3.1 if the right-dislocated subject is coindexed with a null element (pro) in Spec VP, i.e. if (25a) corresponds to (35), rather than to *Zuanne at telefonadu a su dotore*:

(35) At [$_{vP}$ *pro*$_z$ telefonadu a su dotore], Zuanne$_z$

In this case, since the subject has no phonetic realization, there is no way of telling whether it is raised along with the rest of the verbal expression. Thus, (25a) could be derived by fronting the entire vP in (35) to Spec CP. Dislocation of the subject is certainly possible in such examples; the crucial issue is whether this is the only means of expressing the subject overtly in cases of VP-fronting. This is not a straightforward matter, since the properties which usually distinguish right-dislocation from Inversion (outlined at the beginning of $2) are partially obscured by the effects of Fronting. Since fronted items bear main stress and focus, the subject (e.g. *Zuanne* in (25)) is relatively unstressed and non-focal in any case.

Prima facie evidence that the postverbal subject need not be a dislocated element is provided by examples like (36) where the subject is followed by the complement of the fronted verb (see $3.2 for discussion of such examples):

(36) Telefonadu at Zuanne a su dotore

Further evidence is provided by phonological processes affecting the auxiliary. Words ending in a consonant typically show sandhi effects induced by the following segment, but they require an epenthetic vowel in sentence-final position; e.g. in Northern-central dialects *est* is pronounced [er] in *Er bennende* 'he/she is coming', but as [este] in *Bennende est*. In (37), both pronunciations are possible:

(37) Bennende est(,) Zuanne? 'Is John coming?' 'Is he coming, John?'

This variation follows naturally if *Zuanne* in (37) can be either a dislocated phrase (giving [este]) or an inverted subject (giving [er]). Moreover, the variant with [este] seems to require a higher degree of 'givenness' with respect to John, which is consistent with the typical effect of right-dislocation. This evidence is perhaps not conclusive; the phonological variation in (37) might reflect optionality of the pause before right-dislocated expressions rather than a structural difference, and the position of the indirect object in (36) might be the result of a 'marginalization' process (Antonucci & Cinque 1977) analogous to right-dislocation but without a corresponding clitic. Nevertheless, these observations give cause to doubt the hypothesis that specification of the subject in examples like (25a) can only arise as a result of right-dislocation.

Since Inversion (like dislocation) is generally infelicitous with indefinite subjects, substitution of an indefinite DP does not provide a reliable diagnostic for the status of the postverbal subject. However, impersonal examples of the type given in (33) above (e.g. *Telefonadu b'at calicunu?* 'Has anybody telephoned?') cannot be analyzed in terms of right-dislocation since items like *calicunu* and *carchi cosa* never allow dislocation:

(38)a *At telefonadu a su dotore, calicunu

b *Est sutzessu a Zuanne, carchi cosa

Consequently, even if a right-dislocation analysis is tenable for examples like (2a) with a genuine overt subject, the paradox raised in $3.1. must be resolved for cases like those in (33); i.e. the indefinite DP must be extracted from the fronted constituent which includes the non-finite verb even though this position is not available in the absence of VP-fronting: **B'at calicunu telefonadu*; **B'at carchi cosa sutzessu*. A solution to this paradox for these impersonal contructions would (presumably) extend to examples like (25a), thus avoiding the (somewhat counter-intuitive) assumption that the subject is always right-dislocated.

In the following discussion I will focus mainly on examples of the type in (25a) (*Telefonadu a su dotore at Zuanne*) and will explore various possible solutions to this paradox on the assumption that the post-verbal subject is potentially a 'structural' subject, occupying a position within the core sentence.

3.3. VP-fronting as head movement?

In the constructions under discussion, there is a tendency for the fronted element to be kept short. Although examples like (25a), involving Fronting of a verb with its complement, are judged grammatical and are well-attested, sentences in which the fronted expression consists solely of a verb, as in (39b) are generally considered more natural:

(39)a Su pitzinnu at dormidu
'The child has slept'

b Dormidu at su pitzinnu

When the verb has a complement, this preference is often satisfied by stranding the complement, usually by means of dislocation. Thus, (40c) is a somewhat more natural formulation of the question 'Have you read the newspaper' than (40b):

(40)a As lessu su zornale
'You have read the newspaper'
b Lessu su zornale as?
c Lessu l'as, su zornale?

Stranding of complements without dislocation (i.e. without a resumptive clitic) shows essentially the same pattern of relative judgements, based on Case-dependency, as those observed for VSX order in §2, though some speakers show a greater degree of tolerance with regard to stranding of direct objects, as in (41d) (cf. example (16) **At lessu Zuanne su zornale*):

(41)a Provadu as a dormire? 'Have you tried to sleep?'
b Arribadu est a sa festa? 'Has he arrived at the feast?'
c Telefonadu as a su dotore? 'Have you telephoned the doctor?'
d ??Lessu as su zornale? 'Have you read the newspaper?'

The more hesitant judgements for examples like (41d) may be due to interference from the dislocated variant (40c) combined with the prosodic effects induced by Fronting discussed in §3.2; some of my informants initially accepted examples like (41d) but almost always inserted a resumptive clitic when asked to repeat the example.[10]

These observations invite the possibility that the 'preferred' variants are derived by head-movement of the verb, adjoining it to C, rather than by phrasal movement of a constituent which contains the verb. This approach would allow a simple derivation of examples like (41a-c), whereas a phrasal-movement account requires an additional scrambling operation to extract the complement from the phrase which is fronted. Moreover, for examples where the verb is fronted on its own, it would eliminate the paradox raised in §3.1. entirely since *dormidu* as a head (corresponding to v in (42a) or, more plausibly, v+Asp in (19b)) clearly does not contain the subject:

(42)a $[_{CP}$ C $[_{TP}$ at $[_{vP}$ su pitzinnu $[_{v}$ dormidu]]]]
b $[_{CP}$ C $[_{TP}$ at $[_{AspP}$ dormidu$_v$+Asp $[_{vP}$ su pitzinnu t_v]]]]

However, this approach raises other problems.

Firstly and most obviously, it does not solve the paradox with respect to examples like (25a) where a complement is fronted along with the verb. At best one might maintain that it limits the problem to those cases which are less 'natural' in terms of the tendency observed at the beginning of this section. However, the 'brevity preference' noted above with respect to the fronted element also applies to the non-fronted portion of the sentence. The presence of a stranded complement in (41a-c) or postverbal subject in (39b) does not affect acceptability, but the presence of both gives a sentence, (43a) which is at least as clumsy as the variant (43b) in which the complement is fronted along with the verb:

(43)a Telefonadu a su dotore at Zuanne?
b Telefonadu at Zuanne a su dotore?

Consequently, the range of optimally acceptable examples cannot be equated with those in which the fronted element consists solely of the non-finite verb.

A further difficulty arises from the contrasts illustrated in (41). The unacceptability of examples like (44) with an overt subject can be attributed to the impossibility of (16) (**At lessu Zuanne su zornale*):

(44) ??Lessu at Zuanne su zornale
read has John the newspaper

The deviance of examples like (41d) with a null subject requires some further condition which inhibits Fronting of the verb if it Case-licenses a complement. However, no effect of

[10] Neverthless, attested examples of this type have also been cited in the literature, see Remberger (2010, p. 520). Possibly for speakers who accept such examples, a head-movement analysis of the sort discussed below is marginally available (see §4.4 for further discussion).

this sort is observed in other, less controversial instances of verb-movement. For example, in (45) the finite verb can, and must, raise across the adverb *semper* to T despite the presence of a direct object:

(45)a Zuanne leghet semper su zornale
b *Zuanne semper leghet su zornale
'John always reads the newspaper'

Moreover, if the Fronting operation applies to the complex Asp head, as in (42b), this condition would not apply at the point where the verb raises out of the vP.

This problem is avoided in a remnant phrase-movement account if Case-dependency is stated as a condition on the scrambling process which extracts the complement from vP prior to Fronting. This provision is independently necessary to account for the contrast in (46) where the fronted element includes an adverb *giai* 'already' and therefore cannot be the result of head-movement:

(46)a Giai telefonadu as a su dotore?
'Have you already telephoned the doctor?'
b ??Giai lessu as su zornale? 'Have you already read the newspaper?'

Moreover, in cases like (46a) the verb cannot be fronted on its own:

(47) *Telefonadu as giai a su dotore?

In short, the head-movement approach does not provide a complete solution even for those cases where the fronted element consists solely of a verb.

3.4. V-to-Asp movement revisited

The crux of the paradox presented in $3.1 is the hypothesis that the non-finite verb raises to the Asp position across the position of the inverted subject. In view of the strong empirical evidence that this operation is obligatory in other constructions, it cannot simply be maintained that it fails to apply (or that it applies covertly) when the VP is fronted. In this section, I will consider two possible refinements to this hypothesis.

The first, suggested to me by Ian Roberts (p.c), is to allow phrasal movement of vP to Spec AspP as an alternative to head movement of the verb to Asp. If the subject raises to Spec VoiceP, as contemplated in $2, this operation yields configurations of the type in (48):

(48) … at [$_{AspP}$ [$_{vP}$ t_j telefonadu a su dotore] Asp [$_{VoiceP}$ Zuanne$_j$ Voice t_{vP}]]

Examples like (43a) (*Telefonadu a su dotore at Zuanne*) could then be derived by raising *[$_{vP}$ t_j telefonadu a su dotore]* further to Spec CP. The derivation in (48) gives the VXS order which is only available with heavy subjects. This restriction could be accounted for in terms of economy. If phrasal movement of vP to Spec AspP is a more costly option than head movement, we would expect it to be available only when necessary to satisfy some other requirement; e.g. to allow a heavy subject to occur in final position, as in (21), p.$, or to permit subsequent Fronting of vP. In the absence of these conditions, the more economical option of raising the verb to Asp is imposed, giving (49), as described in $2:

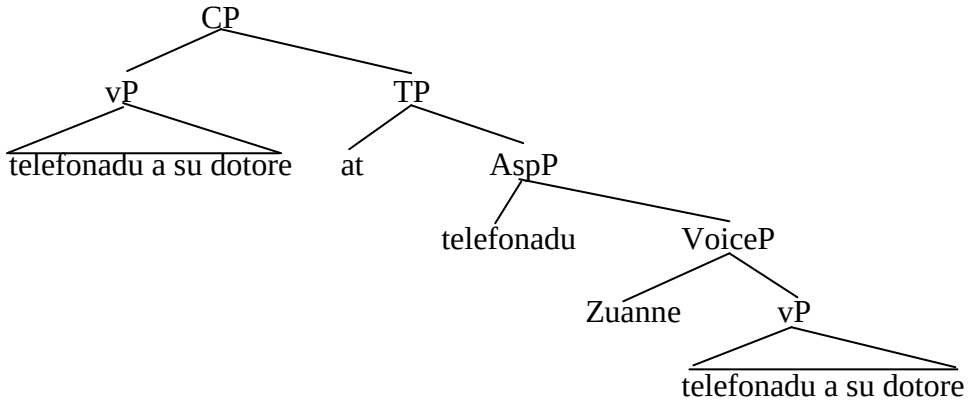
(49) At telefonadu Zuanne a su dotore

The second possibility exploits the decomposition of movement into separate copying and deletion operations. The copying stage of V-to-Asp movement is illustrated in (50):

(50) [$_{AspP}$ [$_{Asp}$ telefonadu + Asp] [$_{VoiceP}$ Zuanne [$_{vP}$ ~~Zuanne~~ telefonadu a su dotore]]]]

If nothing else happens, the lower copy of *telefonadu* is deleted under c-command, giving (25a) after merger with the auxiliary and T. However, if deletion of *telefonadu* does not occur immediately, Fronting of the vP will give (51):

(51)



Presumably in (51), the lower instance of vP is deleted under c-command by the copy in Spec CP, but we are still left with two exponents of the non-finite verb *telefonadu*, neither of which c-commands the other. The correct output can be derived by deletion of the copy in Asp: *Telefonadu a su dotore at Zuanne*.

This derivation simulates the effect of covert V-to-Asp movement mentioned at the beginning of this section, but it potentially offers a principled way of ensuring that the 'covert' option is only available when the vP is fronted. Unfortunately, the same procedure, applied to raising of the subject (*Zuanne*) to Spec VoiceP, would also allow the derivation of (30a), **Zuanne telefonadu a su dotore at*. If the copy of *Zuanne* in Spec vP in (50) is not deleted immediately it could presumably be fronted along with the rest of the vP, with subsequent deletion of the copy in Spec VoiceP.

A more concrete problem for both of the approaches envisaged above is that they cannot readily accommodate examples like (52), where the fronted expression contains an aspectual adverb, *giai* 'already' (cf. also (46)-(47) in §3.3):

(52) Giai telefonadu a su dotore at Zuanne?
Has John already telephoned the doctor

It is clear from the canonical sentences in (53) that *giai* occupies a position in or above AspP (e.g. in Spec AspP):

(53)a Zuanne at giai telefonadu a su dotore
b *Zuanne at telefonadu giai a su dotore

Consequently, if Fronting applies to vP in (48) or (50)-(51), the fronted expression cannot contain *giai*; i.e. *giai telefonadu a su dotore* is not a constituent. Moreover, (52) cannot be derived by Fronting of AspP, since this constituent contains the (overt copy of the) subject *Zuanne*. Possibly, (52) could be derived by late merger of *giai*. In a copy-delete approach to movement, this could be achieved by assuming that the fronted vP is not copied directly into Spec vP, but is copied into a work-space where it can merge with *giai* and the resulting constituent is inserted in Spec CP. This approach is in keeping with the view that movement is a sub-case of merge, but even if it is tenable, it offers only a partial solution to the problem at hand; although it provides a derivation for examples like (52), it does not explain why the vP cannot be fronted if *giai* is merged in its normal position within TP, as in (54):

(54) *Telefonadu a su dotore at giai Zuanne?

3.5. Inversion revisited

The discussion so far has been based on the following assumptions: (i) the postverbal position of the subject with VP-fronting is due to the general phenomenon of Inversion and (ii) in cases of Inversion the subject remains in a low structural position. The evidence presented in previous sections indicates that one (or both) of these assumptions is incorrect.

A radical departure from (ii) would be to adopt the analysis proposed by Kayne & Pollock (2001) for Stylistic Inversion in French, according to which the subject raises leftwards to a position above TP and the effect of inversion is achieved by raising the remnant of the TP to a still higher position. Adapting this analysis to Sardinian, the following derivation for examples like (25a) and (52) might be envisaged:

(55)a [$_{TP}$ at [$_{AspP}$ (giai) telefonadu$_v$ [$_{vP}$ Zuanne t$_v$ a su dotore]]

b [$_{XP}$ Zuanne$_j$ X [$_{TP}$ at [$_{AspP}$ (giai) telefonadu$_v$ [$_{vP}$ t$_j$ t$_v$ a su dotore]]]]

c [$_{YP}$ [$_{TP}$ at [$_{AspP}$ (giai) telefonadu$_v$ [$_{vP}$ t$_j$ t$_v$ a su dotore]]] Y [$_{XP}$ Zuanne$_j$ X t$_{TP}$]]

d [$_{CP}$ [$_{AspP}$ (giai) telefonadu a su dotore] [$_{YP}$ [$_{TP}$ at t$_{AspP}$] Y [$_{XP}$ Zuanne X t$_{TP}$]]

The stages (b) and (c) correspond, in simplified form, to the Inversion operations proposed by Kayne & Pollock for French. Since the subject in (55a) is raised out of the entire TP, VP-fronting can be analyzed as movement of the AspP (or some higher constituent within TP) which contains the verb adjoined to Asp and any higher adverb such as *giai* which may be present, as shown in (d).

If Fronting of AspP does not occur, the order resulting from (55b-c) (VXS) is one which is possible only with heavy subjects. VSX order (*At telefonadu Zuanne a su dotore*) can be derived by raising the indirect object (or other complement which is not Case-dependent on the verb) to a position immediately above TP before the operation in (55b:

(56)a [$_{TP}$ at [$_{AspP}$ (giai) telefonadu$_v$ [$_{vP}$ Zuanne t$_v$ a su dotore]]

b [$_{WP}$ a su dotore$_d$ W [$_{TP}$ at [$_{AspP}$ (giai) telefonadu$_v$ [$_{vP}$ Zuanne t$_v$ t$_d$]]]

c [$_{XP}$ Zuanne$_j$ X [$_{WP}$ a su dotore$_d$ W [$_{TP}$ at [$_{AspP}$ (giai) telefonadu$_v$ [$_{vP}$ t$_j$ t$_v$ t$_d$]]]

d [$_{YP}$ [$_{TP}$ at [$_{AspP}$ (giai) telefonadu$_v$ [$_{vP}$ t$_j$ t$_v$ t$_d$]] Y [$_{XP}$ Zuanne$_j$ X [$_{WP}$ a su dotore$_d$ t$_{TP}$]]]]

Movement of AspP in (56d) to Spec CP would give the variants of the type discussed in $3.3, where the complement is apparently stranded:

(57) (Giai) telefonadu at Zuanne a su dotore

The complement-scrambling operation in (56b) must be restricted to non-Case-dependent phrases to exclude examples like (16) in $2 (**At lessu Zuanne su zornale*) and cases of VP-fronting where the direct object is stranded as in (58):

(58) ??Lessu at Zuanne su zornale?
'Has John read the newspaper'

A similar condition is required for French Stylistic Inversion: **Quand a lu Jean le journal?* 'When did John read the newspaper?' vs *?Quand a téléphoné Jean au médecin?* 'When did John telephone the doctor?'.

One piece of evidence which Kayne & Pollock highlight to justify the 'high' position of the subject is that Stylistic Inversion in French is generally possible only with definite subjects. This restriction follows, they argue, if this higher position (Spec XP in (55)-(56)) requires a Topic interpretation. As noted in $2, a similar restriction applies to the simple case of Inversion in Sardinian. However, it was also pointed out in $3.2 that VP-fronting can apply to impersonal constructions with stranding of the indefinite DP, as in (59b) and (60b):

(59)a B'at telefonadu calicunu
Lit. 'There has telephoned someone' ('Someone has telephoned')

b Telefonadu b'at calicunu? 'Has anybody telephoned?'

(60)a B'at sutzessu carchi cosa
Lit. 'There has happened something' ('Something has happened')

b Sutzessu b'at carchi cosa 'Has anything happened?'

It is clear that *calicunu* and *carchi cosa* are not Topics. The problem is not with the (a) examples – it is quite possible that the inversion-like effect in impersonal constructions is not achieved by raising the indefinite DP to Spec XP. However, if these DPs do not raise, some

account of VP-raising must be devised which does not depend on the operations outlined in (55)-(56). This is essentially the same as the dilemma raised in relation to the right-dislocation approach in $3.2.

Another alternative to assumption (ii) would be to revert to a rightward-movement analysis of Inversion. Given the VP-internal subject hypothesis, this could be implemented by a process which raises the subject from its position within vP and adjoins it to the right of a higher category. As long as the adjunction site is AspP (or a higher category), VP-fronting can be analyzed as movement of the (inner) AspP to Spec CP, as in (61:

(61)a $[_{TP}$ at $[_{AspP}$ (giai) telefonadu$_v$ $[_{vP}$ Zuanne t_v a su dotore]]

b $[_{TP}$ at $[_{AspP}$ $[_{AspP}$ (giai) telefonadu$_v$ $[_{vP}$ t_j t_v a su dotore]] Zuanne$_j$]]

c $[_{CP}$ $[_{AspP}$ (giai) telefonadu$_v$ $[_{vP}$ t_j t_v a su dotore]] C $[_{TP}$ at $[_{AspP}$ t_{Asp} Zuanne$_j$]]]

The process in (61b) gives the inverted order appropriate with heavy subjects. The VSX order with normal subjects can be derived by adjunction of the complement to a position above the subject (as in (52c)), which also gives the 'short' variant of VP-fronting (*(Giai) telefonadu at Zuanne a su dotore*) if AspP is moved to Spec CP (62d):

(62)a $[_{TP}$ at $[_{AspP}$ (giai) telefonadu$_v$ $[_{vP}$ Zuanne t_v a su dotore]]

b $[_{TP}$ at $[_{AspP}$ $[_{AspP}$ (giai) telefonadu$_v$ $[_{vP}$ t_j t_v a su dotore]] Zuanne$_j$]]

c $[_{TP}$ at $[_{AspP}$ $[_{AspP}$ $[_{AspP}$ (giai) telefonadu$_v$ $[_{vP}$ t_j t_v t_d]] Zuanne$_j$] a su dotore$_d$]]

d $[_{CP}$ $[_{AspP}$ (giai) telefonadu$_v$ $[_{vP}$ t_j t_v t_d]] C $[_{TP}$ at $[_{AspP}$ t_{Asp} Zuanne$_j$] a su dotore$_d$]]

As noted at various points above(e.g. in relation to (16)-(17) and (56b)), the operation in (62c) must be restricted to complements which are not Case-dependent on the verb.

Leaving aside the theoretical issue of whether rightward movement is a legitimate operation, there are a number of purely descriptive problems with this approach to Inversion, some of which it shares with the 'high subject' account discussed above. Firstly, the VSX order involves an extra complement-scrambling operation (62c) beyond those required when the subject is 'heavy' (as in the derivation (61)) – this is also true of the derivations in (55) and (56). Moreover, this extra operation **must** apply when the subject is not heavy:

(63) *At telefonadu a su dotore Zuanne

It is not clear how this condition can be stated elegantly. A more natural assumption is that the VXS order results from an extra operation which is possible only with a heavy subject.

Note that the operations in (62b,c) give exactly the same sequence as (62a) (cf. the similar comment on (56) above). Consequently, for examples of Inversion without Fronting, rightward scrambling of the complement can be eliminated entirely, so that VSX examples have the structure (62a) while VXS can be derived by optional postposing of the subject if it is heavy. However, in cases of VP-fronting, this operation must apply, even with 'light' subjects, to ensure that the subject is not fronted along with the rest of the AgrP:

(64) *$[_{CP}$ $[_{AspP}$ (giai) telefonadu Zuanne a su dotore] at]

Again, it is not clear how this requirement can be conditioned by application of an operation later in the derivation.

Both of the approaches reviewed above offer the prospect of a solution constent with assumption (i) by providing Inversion structures which are consistent with VP-fronting as movement of a larger AspP from which the subject has been extracted. However, a fundamental question is whether structures of the type in (65), derived solely by head movement of the verb to Asp (or to T when finite), meet the requirements for convergence without further movement operations:

(65)a $[_{TP}$ Aux+T … $[_{AspP}$ v+Asp $[_{vP}$ DP$_{subj}$ t_v (Complement$_{[-Case]}$)]]]

b $[_{TP}$ v+T … $[_{AspP}$ Asp $[_{vP}$ DP$_{subj}$ t_v (Complement$_{[-Case]}$)]]]

If they do, then each of the analyses discussed in this section actually provides two derivations for inverted constructions; a 'simple' derivation (shown in (65)) and a

'complicated' one involving movement of various parts of the sentence (leftwards or rightwards) to positions which replicate the linear order in (65) higher in the syntactic structure. Economy considerations would dictate that the 'simple' derivation is preferred whenever it is available; i.e. in all cases except those which involve VP-fronting. Thus, although these 'complicated' derivations are capable of producing the set of strings which display the phenomenon of Inversion, they do not represent the way in which these strings are actually formed in the grammar (except for the VP-fronting cases). A corollary of this conclusion is that the strategy envisaged above undermines the very assumption that it was meant to preserve; namely, that the postverbal subject in VP-fronting constructions occupies the same structural position as in cases of simple Inversion. This observation does not in itself invalidate either of the approaches discussed above, but it invites the possibility of an alternative analysis in which the subject raises above AspP but to a position which does not mimic that of the subject in inverted sentences.

4. Towards a solution

4.1. A subject-raising approach

On the basis of the preceding discussion, the following conclusions can be drawn regarding VP-fronting:

(i) The constituent which is fronted is AspP (or some higher category within TP).
(ii) The subject must raise to a position outside AspP.
(iii) The structural position of the subject is different from that of the postverbal subject in cases of Inversion, including sentences like (25b) (*A su dotore at telefonadu Zuanne*) which can be derived straightforwardly from the structure in (65a).

Since the subject surfaces in a position to the right of the auxiliary, a simple assumption is that it can raise to a position outside AspP but within TP. A plausible landing site is the Specifier of the auxiliary VP – since VP-fronting is restricted to sentences containing an auxiliary, this position will always be present in these constructions. This operation, followed by obligatory raising of the finite auxiliary to T, is shown in (66):

(66)a $[_{TP}$ T $[_{AuxP}$ Zuanne$_j$ at $[_{AspP}$ telefonadu+Asp $[_{vp}$ t$_j$ t$_v$ a su dotore]]]]
b $[_{TP}$ at+T $[_{AuxP}$ Zuanne$_j$ t$_{Aux}$ $[_{AspP}$ telefonadu+Asp $[_{vp}$ t$_j$ t$_v$ a su dotore]]]]

Movement of AspP to Spec CP then gives (43a) (*Telefonadu a su dotore at Zuanne*). Note that raising of the subject to Spec AuxP is consistent with the account of Nominative Case licensing and its relation to definiteness proposed in §2. In (66) the subject is in the domain of T and is therefore licensed by agreement with φ-features of T, thus excluding VP-fronting (like simple Inversion) with indefinite subjects (cf. discussion of examples (12)-(13) in §2 and (32) in §3.2). However, unlike the 'high' position envisaged in the 'Kayne-Pollock' analysis in (55), Spec AuxP is not specifically a Topic position. Consequently, indefinite DPs can occur in this position in impersonal variants licensed by default φ-features of T, as in examples (33) in §3.2); e.g *Telefonadu b'at calicuna*.

As it stands, the sequence in (66b) is sharply deviant:

(67) *At Zuanne telefonadu a su dotore

If Fronting of AspP does not occur, the subject must raise to Spec TP, giving the canonical sentence *Zuanne at telefonadu a su dotore*. Conversely, fronting of AspP must be prevented if the subject does not raise to Spec AuxP:

(68) *$[_{CP}$ $[_{AspP}$ Telefonadu $[_{vP}$ Zuanne a su dotore]] $[_{TP}$ at t$_{AspP}$]]

Consequently, some independent principle must be formulated to exclude (67) and (68).

In §3.3 I argued that examples like (69), where the complement is stranded, are derived by first extracting the complement from AspP and then fronting the remnant AspP:

(69) Telefonadu at Zuanne a su dotore

The correct order can be achieved by raising the complement leftwards to a position immediately above AspP, as in (70a), followed by the operations in (66) and movement of AspP to Spec CP:

(70)a [$_{TP}$ T [$_{AuxP}$ at [$_{WP}$ a su dotore$_d$ W [$_{AspP}$ telefonadu [$_{vP}$ Zuanne t_v t_d]]]]]
b [$_{TP}$ T [$_{AuxP}$ Zuanne$_j$ at [$_{WP}$ a su dotore$_d$ W [$_{AspP}$ telefonadu [$_{vP}$ t_j t_v t_d]]]]]
c [$_{TP}$ at+T [$_{AuxP}$ Zuanne$_j$ t_{Aux} [$_{WP}$ a su dotore$_d$ W [$_{AspP}$ telefonadu [$_{vP}$ t_j t_v t_d]]]]]
d [$_{CP}$ [$_{AspP}$ telefonadu [$_{vP}$ t_j t_v t_d]] [$_{TP}$ at+T [$_{AuxP}$ Zuanne$_j$ t_{Aux} [$_{WP}$ a su dotore$_d$ W t_{AspP}]]]

The complement-scrambling operation in (70a) is analogous to that postulated in (56b) within the Kayne-Pollock approach except that it applies at a lower structural level. Like the operation in (56b) it must be restricted to complements which are not Case-dependent, to exclude examples where the direct object is stranded (*??Lessu at Zuanne su zornale*).

The sequence derived in (70a) is clearly ungrammatical as it stands and, unlike (67), it cannot be rescued by raising *Zuanne* to Spec TP:

(71)a *At a su dotore telefonadu Zuanne
b *Zuanne at a su dotore telefonadu = (70b)

A grammatical output can be achieved by fronting the complement (*A su dotore at telefonadu Zuanne*), though there is no need to suppose that (70a) is a necessary intermediate step in the derivation of such examples. Otherwise, complement-scrambling must be restricted to derivations in which AspP is subsequently fronted.

On the face of it, this approach does not look very promising. True, it avoids rightward movement and requires rather fewer functional categories and movement operations than the account based on Kayne & Pollock, but it overgenerates to at least the same extent as the accounts discussed in §3.4, sometimes giving outputs which are blatantly ungrammatical (e.g.(67), (68) and (71a)). Moreover, it appears to require 'anticipatory' conditions of the type just mentioned (and which were raised as problems for the analyses in §3.4) where one movement operation is conditioned by application of another operation (affecting a different constituent) later in the derivation. Consequently, the viability of this approach depends on there being some principled way of excluding the ungrammatical examples.

4.2. Output licensing conditions

In §2, in order to rule out examples like **At lessu Zuanne su zornale* with the structure in (72), I appealed to a 'surface filter' (20) which excludes structures in which a Case-dependent element (KP) is separated from its licenser (L) by an overt XP:

(72) *[$_{TP}$ at [$_{AspP}$ lessu$_v$+Asp [$_{vP}$ Zuanne t_v su zornale]]]
(20) *[… L [XP … KP]]

This filter, as formulated (20) does little more than state the attested facts, but it can be refined and extended in a way that is potentially interesting. The idea that I will pursue is that although features like Case are valued once and for all in the course of the syntactic derivation, they remain visible and are accessible to conditions which constrain the structural relation between the licenser (L) and the licensee (KP) at the end of the syntactic derivation;[11] essentially L must c-command KP or vice-versa, with an additional restriction in the former case:

(73) In the output of the syntactic derivation, either
(a) L must *immediately c-command* KP
or

[11] In §4.4 I will discuss what 'the end of the syntactic derivation' means within a phase-based model of spell-out; in the meantime it can be equated with what used to be called the 'surface structure'.

(b) KP must c-command L (possibly at a distance)

For the purposes of (a), 'immediate c-command' is defined as in (74b) – note that this definition does not exclude the possibility of a head which intervenes between L and KP.

(74)a X *c-commands* Y iff the category W which immediately dominates X also dominates Y, and X does not dominate Y

b L *immediately c-commands* KP iff L c-commands KP and there is no overt XP such that L c-commands XP and XP c-commands KP

Before discussing the effects of (73), some clarifications are in order. Firstly, L, KP and XP refer to phonologically realized elements only (e.g. in (73a) intervening null items like *pro* or traces left by movement are disregarded) and the relevant structural positions are those which these overt items occupy at the end of the derivation (not the positions of their traces). For KP and XP this is fairly straightforward. I take L to be the overt element which encodes the licensing features. For example, if the Probe which values Nominative Case is T with φ-features or finite C, then L is the item which bears these features (i.e. the finite verb); similarly with respect to Accusative Case, L is the transitive verb (or preposition). Again, in both instances, the relevant position is the one in which the verb (or preposition) surfaces, which may or may not be the same as that of the original Probe.

Not all intervening maximal projections give rise to ungrammaticality. For example, adverbs and floated quantifiers can occur between the verb and the direct object:

(75)a Zuanne leghet semper su zornale
'John always reads the newspaper'

b Sos pitzinnos mandican totu(s) sa pasta
'The children all eat pasta'

If, *pace* Cinque (1999), adverbs are adjoined to the phrases which they modify, examples like (75a) can be reconciled with condition (73a) by drawing a distinction between categories and segments with respect to c-command (Chomsky 1986, Kayne 1995). In the adjunction structure (76), *A* is not dominated by the category *XP*, only by one of its segments. Consequently, *A* does not c-command the lower *XP* or anything within it according to the definition given in (74a).

(76) $[_{XP}$ A $[_{XP}$ … X …]]

Similarly, if *semper* is adjoined to AspP (or vP) in (75a), it does not c-command *su zornale* and therefore does not qualify as an intervening XP with respect to (73a). However, this approach does not extend naturally to floating quantifiers. Possibly, the definition of 'immediate c-command' in (74b) should be restricted to cases where XP has an argument function. Alternatively, the exemption of adverbs and floating quantifiers might be related to the head-final effects observed in examples like *John quietly /*as quietly as a mouse left the room* and *an interesting (*to me) book*. I will leave this question open.

To a large extent, the conditions in (73) follow from independent assumptions which are (reasonably) well established. Condition (a) reflects the assumption that (with respect to Case licensing at least), the Probe targets a Goal within its local c-command domain, subject to some form of relativized minimality. Condition (b) is generally satisfied by the assumption that movement is always to a c-commanding position combined with the c-command requirement on the Probe-Goal (Agree) relation; thus, if KP moves to a position above L, it will always c-command not only its own trace but also L. In these two respects, (73) is redundant. However, there are four situations in which the conditions in (73) impose restrictions over and above those just mentioned:

(i) L moves across XP (by head movement).

(ii) XP moves from a position below KP to a position between L and KP.

(iii) KP moves as part of a larger category to a position above L.

(iv) L moves as part of a larger category from which KP has been extracted (remnant movement).

Cases (i) and (ii) lead to violations of (73a) as does (iv) if KP remains in a low position, whereas (iii) yields a violation of (73b).

An example of type (i) is the one that initially prompted the filter in (20); **At lessu Zuanne su zornale* with the structure in (72) repeated below, where the past participle *lessu* has raised across the subject to Asp:

(72) *[$_{TP}$ at [$_{AspP}$ lessu$_v$+Asp [$_{vP}$ Zuanne t_v su zornale]]]

The licensing relation between the finite auxiliary *at* and the Nominative subject *Zuanne* conforms to (73a); recall that intervening heads (here *lessu*) do not block immediate c-command according to the definition given above. However, as a result of v-to-Asp raising, *lessu* does not immediately c-command the object which it licenses (*su zornale*), because of the intervening subject. As noted in $2, grammaticality is restored if the direct object is raised by Wh-movement or Fronting (*Ite at lessu Zuanne?* 'What has John read?, *Su zornale at lessu Zuanne*), in which case the direct object c-commands its licenser in accordance with (73b). Raising the subject to Spec TP clearly gives a grammatical result (*Zuanne at lessu su zornale*) – since the intervening XP (*Zuanne*) has been moved, *lessu* immediately c-commands *su zornale*.

The relative acceptability of examples like *At telefonadu Zuanne a su dotore*, where the complement is not a direct object, follows trivially from (73). In so far as PPs are not Case-dependent the conditions in (73) do not apply to them (the DP *su dotore* is immediately c-commanded by its licenser *a*).

A recurrent question raised in connection with the various analyses reviewed in earlier sections is why the subject cannot be fronted along with the verbal expression (now identified as AspP), as in **Telefonadu Zuanne (a su dotore) at* with the (simplified) structure in (77):

(77) *[$_{CP}$ [$_{AspP}$ telefonadu Zuanne (a su dotore)] C [$_{TP}$ at t_{Asp}]]

Various proposals were made earlier which would allow the subject to be extracted from AspP prior to Fronting, but none of them explained why this extraction is necessary. The conditions in (73) provide a simple answer; in (77) *Zuanne* does not c-command its licenser (the finite auxiliary) and, in the derived structure it is clearly not c-commanded by it either. This is a case of type (iii) envisaged above.

A violation of type (ii) is the horrendously bad **At a su dotore telefonadu Zuanne* with the (simplified) structure (78), derived by the complement-scrambling operation discussed in relation to (70) above:

(78) *[$_{TP}$ at+T [$_{WP}$ a su dotore$_d$ W [$_{AspP}$ telefonadu [$_{vP}$ Zuanne t_v t_d]]]]

Here, *a su dotore* has moved from its position within vP to a position between *at* and AspP, with the result that *at* no longer immediately c-commands *Zuanne*, violating (73a). If *a su dotore* is fronted, condition (73a) is satisfied, and the resulting sentence (*A su dotore at telefonadu Zuanne*) is grammatical. However, as noted earlier, (78) cannot be rescued by raising *Zuanne* to Spec TP:

(79) *[$_{TP}$ Zuanne$_j$ at+T [$_{WP}$ a su dotore$_d$ W [$_{AspP}$ telefonadu [$_{vP}$ t_j t_v t_d]]]]

This result is unexpected. The deviance of (79) does not follow from the conditions in (73) since *Zuanne* now c-commands *at*, satisfying (73b), and there are no other Case-dependencies which must conform to (73).

Another sharply ungrammatical construction which is not covered by (73) is **At Zuanne telefonadu a su dotore*, derived by raising *Zuanne* to Spec AuxP with adjunction of the auxiliary to T, as discussed in relation to (67) in $4.1:

(80) *[$_{TP}$ at+T [$_{AuxP}$ Zuanne$_j$ t_{Aux} [$_{AspP}$ telefonadu+Asp [$_{vp}$ t_j t_v a su dotore]]]]

Again, this does not follow from (73) since *Zuanne* is immediately c-commanded by *at*. Curiously, Fronting of AspP in (80) yields a grammatical sentence (*Telefonadu a su dotore at Zuanne*), with the simplified structure in (81):

(81) $[_{CP}\ [_{AspP}$ telefonadu+Asp a su dotore] C $[_{TP}$ at Zuanne t_{Asp}]]

Scrambling of *a su dotore* in (80) gives a sentence which seems even worse than (80) or even (79) (**At Zuanne a su dotore telefonadu*):

(82) $*[_{TP}$ at $[_{AuxP}$ $Zuanne_j$ t_{Aux} $[_{WP}$ a su dotore W $[_{AspP}$ telefonadu+Asp]]]]

According to (73), this sentence should be fine, for the same reasons as (80). The deviance of (82) cannot be attributed to the cumulative effect of moving both the subject and the complement to non-canonical positions since movement of a further element to a non-canonical position, Fronting of the remnant AspP, puts everything right (*Telefonadu at Zuanne a su dotore*):

(83) $[_{CP}\ [_{AspP}$ telefonadu] C $[_{TP}$ at $[_{AuxP}$ $Zuanne_j$ t_{Aux} $[_{WP}$ a su dotore W t_{Asp}]]]]

The data in (79)-(83) can be accommodated by extending the conditions to cover the dependency relation between auxiliaries and the non-finite verb forms that they select, where the licensee (KP) is AspP (since this is the lowest maximal projection that contains the non-finite verb). This may seem a rather odd proposal since this type of dependency is quite different from Case-dependency in many respects. However, if it is adopted, all the rather puzzling facts in (79)-(83) fall neatly into place

Note that in (78), in addition to the violation of (73a) noted earlier with respect to *Zuanne,* AspP is also separated from its licenser *at* by the scrambled complement *a su dotore* giving a further violation of (73a). Raising *Zuanne* to Spec TP in (79) eliminates the first violation of (73a), but the second still remains. In (80), *Zuanne* intervenes between *at* and AspP, while in (82) there are two intervening XPs (*Zuanne* and *a su dotore*). In both cases, a legitimate structure is derived by fronting AspP, as in (81) and (83), since AspP now c-commands its licenser as permitted by (73b).

All of the analyses we have looked at involve some variant of the complement-scrambling operation in (78)-(79) and (80) which allows a non-Case-dependent complement to be extracted from vP. In some of these analyses (e.g. those in $3.4) this operation was required for VSX inversion cases like *At telefonadu Zuanne a su dotore,* and the contrast with **At lessu Zuanne su zornale* was attributed to the fact that complement-scrambling only applies to non-Case-dependent complements. The parallel contrast between *Telefonadu at Zuanne a su dotore* and *??Lessu at Zuanne su zornale* followed as an automatic consequence of this difference. Note that this restriction on complement-scrambling was simply stipulated as an empirical fact – no explanation for it was given. In the present analysis, complement-scrambling plays no role in the simple Inversion cases; the subject and complement remain *in situ* and the contrast between direct and indirect objects follows from condition (73a), as discussed $4.2 in relation to (72), while complement-scrambling applies only in examples of remnant Fronting of AspP (*Telefonadu at Zuanne a su dotore*). The present analysis provides a uniform account of the two cases based on (73a), which moreover obviates the need to stipulate any condition on complement-scrambling. Consider, (84), which is analogous to (83) except that the scrambled complement is a direct object:

(84) $??[_{CP}\ [_{AspP}$ lessu] C $[_{TP}$ at $[_{AuxP}$ $Zuanne_j$ t_{Aux} $[_{WP}$ su zornale W t_{AspP}]]]]

Although *lessu* (the licenser of the *su zornale*) is the only overt item in Spec CP, it is contained within AspP and thus does not c-command *su zornale*, contrary to the requirements of (73a) (but see $4.4 for further discussion). Even if *lessu* is construed as a bare head, the intervening subject prevents it from immediately c-commanding the direct object. However, the indirect object *a su dotore* in (83) is not Case-dependent on the verb, so the conditions in (73) do not come into play.

To summarize, the two conditions proposed in (73) provide a uniform solution to the problems raised at the end of $3.1. They eliminate all of the apparently disparate examples which the analysis proposed in $4.1 overgenerates, without the need for anticipatory conditions whereby the application of one operation is dependent on another later in the derivation. Moreover, they eliminate the need for any stipulatory condition on complement-scrambling to prevent it from applying to direct objects.

4.3. Inversion with heavy subjects

The analysis proposed in $2-$4.1 does not cover the VXS Inversion pattern found with heavy subjects illustrated in (85)

(85)a At telefonadu a su dotore su babbu de su pitzinnu chi fit malàidu
Lit. 'Has telephoned to the doctor the father of the child who was sick'

b Fit leghende su zornale s'òmine chi nos isetaìat in su salottu
Lit. 'Was reading the newspaper the man who was waiting for us in the lounge'

Examples of this type raise two main questions:- (i) What is the mechanism which places the subject in final position? and (ii) Why are examples like (85b) with a direct object acceptable in contrast to cases like (72) (**At lessu Zuanne su zornale*)?

A simple answer to (i) would be to allow rightward movement of the subject, e.g. adjoining it to vP as in (87), as envisaged briefly in $3.3:

(87) $[_{TP}$ at $[_{AspP}$ lessu$_v$ $[_{vP}$ $[_{vP}$ t_{subj} t_v su zornale] $[_{DP}$ s'òmine chi …]]]]

If this analysis is tenable in principle, the issue raised in (ii) can be resolved by appealing to the distinction between categories and segments discussed in $4.2, p.$. In the structure (87), the subject is not dominated by the category vP (only by one of its segments) and thus does not c-command *su zornale*. As a result, *lessu* immediately c-commands *su zornale* as required by (73a).

Another heretical solution would be to allow Specifiers to branch to the right when they are heavy, allowing the vP structure in (88):

(88) … $[_{vP}$ $[_{v'}$ t_v su zornale] s'òmine chi …]

This approach would require the addition of a linear dimension to the definition of 'immediate c-command':

(89) L *immediately c-commands* KP iff L c-commands KP and there is no overt XP such that L c-commands XP and XP precedes and c-commands KP

According to this revised definition, the heavy postverbal subject does not block immediate c-command of *su zornale* by *lessu*.

Alternative strategies involving leftward movement of some other constituent to simulate apparent rightward movement lead to violations of the conditions in (73). For example, movement of the complement to the Specifier of a functional category immediately above vP (as Kayne 1995:71-78, proposes for cases of heavy object shift) prevents *at* from immediately c-commanding the subject:

(90) $[_{TP}$ at $[_{AspP}$ lessu$_v$ $[_{XP}$ su zornale X $[_{vP}$ s'òmine chi … t_v]]]]

As noted in $3.5, the derivation based on Kayne & Pollock (2001) gives VXS order directly and might, therefore, be adopted for the heavy subject cases. However, in the resulting structure (simplified in (91)), the subject does not c-command its licenser (*at*), nor is it c-commanded by it.

(91) $[_{YP}$ $[_{TP}$ t_{subj} at lessu su zornale] Y $[_{XP}$ $[_{DP}$ s'òmine chi …] t_{TP}]]]

Another analysis which gives VXS order exploits the possibility of raising vP to Spec AspP as a more costly alternative to head movement of the verb, as discussed in $3.4. This analysis

would give the structure in (92)[12] in which the vP intervenes between *at* and the subject, again violating (73a):

(92) $[_{TP}$ fit $[_{AspP}[_{vP}$ t_{subj} leghende su zornale] $[_{VoiceP}$ s'òmine … $t_{vP}]]]$

This problem might be overcome by assuming that vP does not count as an intervening XP for the purposes of immediate c-command (like adverbs and floating quantifiers, see p.$). However, it is not at all clear why vP should be exempt in this way.

When a verb is fronted along with its complement, as in (93) the difference between heavy and light subjects is neutralized; the subject occurs in final position anyway, so there is no need to make any special provision for heavy subjects.

(93) Telefonadu a su dotore at su babbu de su pitzinnu chi fit malàidu

Examples like (94), where a heavy subject follows the stranded complement, can be analyzed as cases of right-dislocation: [13]

(94) Telefonadu at a su dotore su babbu de su pitzinnu chi fit malàidu cf (85a)

If this assumption is correct, the competing analyses are neutral with respect to the existence of examples like (93) and (94).

Ultimately the choice between these approaches to the position of heavy constituents rests on theoretical considerations. If the ban on rightward movement and/or right merger of Specifiers is absolute, the empirical validity of the conditions in (73) is seriously undermined. Nevertheless, it was shown in $4.2 that these conditions provide a simple and unified account of a disparate range of facts which do not appear to fall into place within other approaches. On the other hand, the putative counterexamples to these conditions form a natural class of special cases where a heavy subject occupies a position which is otherwise not generally available. A reasonable conclusion would be that the problem lies not with the conditions themselves but with the assumptions made about these special cases.

A radical solution would be to assume that heavy constituents are exempt from the conditions in (73)[14] – perhaps they are sufficiently prominent to be recognized as licensees outside the structural domains defined in (73). An alternative possibility is that heavy constituents can undergo merge or move operations which are not subject to these directional restrictions, allowing derivations of the sort discussed at the beginning of this section.

The theoretical basis for these restrictions, among others, is developed in detail by Kayne (1995), who argues that linear order is fully determined by the hierarchy formed by successive merge-move operations, such that if X asymmetrically c-commands Y, X must precede Y; the Linear Corresponence Axiom (LCA). In common with more traditional (stipulative) approaches to phrase-structure, Kayne assumes that the structures formed by merge-move represent hierarchical and linear relations simultaneously. Thus, the LCA imposes conditions on the class of structures which can be generated. In particular, it permits structures derived by left-adjunction, as in (95a), but rules out right-adjunction (95b):

(95)a $[_{XP}$ YP XP]

b *$[_{XP}$ XP YP]

[12] The provision of a VoiceP to which the subject raises is necessary to allow the remainder of the vP to move as a maximal projection. The analysis of inversion and VP-fronting proposed in $4.1 does not require this projection, but does not exclude it.

[13] Comparable examples with indefinites in an impersonal construction (cf. the (b) examples in (59)-(60)) do not arise since the items which permit VP-fronting (*calicunu* and *carchi cosa*) are not heavy enough to warrant a special order.

[14] In his discussion of heavy object shift, Kayne (1995:74) hints at a possibility which would give this result. He suggests tentatively that the position of the direct object in (i) may be lower than the normal direct object position; e.g. it does not raise to the position in which the Case of the object is licensed:

(i) John gave to Bill all his old linguistics books

Still more tentatively, he raises the possibility that 'lack of overt Case-licensing' is connected in some way with heaviness.

Kayne treats Specifiers as a type of adjunct, so Head – Spec order is also excluded as a sub-case of (95b). Consequently analyses of the type envisaged at the beginning of this section would violate the LCA.

A rather different conception of the relationship between hierarchy and linear order is adopted by Chomsky (1995). Observing that linear order appears to play no role at LF, Chomsky conjectures that the syntactic objects formed by merge-move are purely hierarchical; e.g. merger of two items A and B creates an unordered pair {A, B} (equivalently {B, A}). On the other hand, linear order is self-evidently essential for speech; i.e. at PF. Thus, from this perspective, Kayne's LCA can be construed as an algorithm which maps hierarchies onto linear sequences in such a way that the latter are intelligible, in the sense that the hierarchical structure can be recovered from linear order.[15] This construal of the relationship between hierarchy and linear order invites the possibility that other factors extraneous to the merge-move system may determine or affect the way in which structural hierarchy is linearized.

In principle, there is no limit to the complexity of the hierarchical structures that can be generated by merge-move. For example, the relatively complex object *su babbu…malàidu* can be merged as the Specifier member of the set {DP, v'} giving the sentence in (96) after linearization:

(96) ??At telefonadu su babbu de su pitzinnu chi fit malàidu a su dotore
Lit. 'Has telephoned the father of the child who was sick to the doctor'

In terms of the move-merge system and the linearization algorithm based on the LCA, (96) is perfectly well-formed. Presumably the oddness of (96) is due to the difficulty in processing the heavy subject in parallel with the sentence as a whole. This difficulty is avoided in the more 'user-friendly' version (85a) (*At telefonadu a su dotore su babbu de su pitzinnu chi fit malàidu*) which allows the two elements to be processed in sequence. I take this characterization to be fairly uncontroversial. The contentious issue is how the grammar makes the alternative linear order available to facilitate processing. If linear order is rigidly determined by the LCA (or something similar), this is achieved by adding extra hierarchical layers (functional categories which trigger movement) to the structure in the non-linear computation which yield the preferred order once the linearization algorithm (LCA) applies to it, as in the analyses represented in (90) and (91). Conceivably human language might be designed in this way, but I see no merit in assuming that this must be the case as a matter of theoretical principle. Note also that this procedure does not make any link between the operations which derive the alternative order and the factors which condition or favour it (heaviness of the subject); it merely allows an alternative order which facilitates processing when the subject is relatively complex.

The separation of linear order from the core computational component of the grammar allows alternative orders to be derived directly through the linearization procedure. Let us suppose that the LCA defines the default linearization algorithm, in so far as it maximizes intelligibility in terms of recoverability of the hierarchical structure which is relevant at LF, but it can be overridden by other linearization strategies which promote processing efficiency. For the cases under discussion, we can postulate the strategy stated informally in (97):

(97) The unordered set {DP, v'} can be linearized as <v', DP> if DP is heavy.

On this view, (85a) has exactly the same 'structure' as (96) in narrow syntax (merge-move), but differs in terms of the way that this structure is linearized at PF. Note, however, that the conditions in (73) must be sensitive to this difference since (56b) avoids the violation of (73a)

[15] Note that this recoverability is not guaranteed. Although the LCA ensures that a given structure maps onto a single linear order, the reverse does not hold, as the phenomenon of structural ambiguity amply illustrates.

which excludes examples like (16) (**At lessu Zuanne su zornale*) if the modification in (89) is adopted. Moreover, since these conditions refer to hierarchy (c-command), the linearization process cannot convert purely hierarchical structures into purely linear strings; rather it must add linear order to the structures formed in narrow syntax. This seems a sensible conclusion in so far as some phonological processes (e.g. those relating to prosody) require access to syntactic structure.

Possibly, the linearization approach sketched above is tantamount to a model in which narrow syntax is rigidly constrained by the LCA but which allows rightward movement processes of a 'stylistic' kind at PF. As such it is prone to problems of falsifiability which have beset previous suggestions of a distinction between 'core' grammar and a 'periphery'; without a clear independent definition of the 'periphery', it risks becoming a repository for phenomena which do not conform to claims about the 'core'. Alternative linearization is more tightly constrained than rightward movement in that it can only affect the order of elements which are sisters. In this respect, the falsifiability problem is attenuated.

I will not pursue these issues further here. The main point of the above discussion was to explore possible ways of reconciling examples like those in (85) with the conditions proposed in (73) by considering structural constraints which follow from the LCA in the broader context of the relationship between hierarchy and linear order, particularly with respect to heaviness and its effect on processing. I leave readers to decide for themselves whether these examples constitute compelling evidence against the conditions in (73) and the analysis presented in §4.1-§4.2. Note, however, that if this analysis is ruled out on these grounds, the paradox discussed in §3.1 remains unsolved.

4.4. The status of output licensing conditions

The foregoing discussion raises a number of questions regarding the theoretical status of conditions like those proposed in (73). What is their function within general language-design? Are they relevant to other languages? What exactly is the 'output' to which they apply? Conceptually, these questions are quite distinct, but they impinge on each other in ways that are potentially interesting.

Firstly, it must be emphasized that these conditions are not meant to replace the Agree process which establishes dependency relations by valuing features. Rather, they act on dependencies which have already been defined in the course of the derivation. It is also probably wrong to regard them as processing constraints. For example, (73a) does not claim that language-users are unable to look beyond an XP to locate the phrase which is dependent on L; rather it ensures that (in Sardinian) they never have to. The effect of these conditions is to limit the search-space in which the 'other' member of a licensing relation is located. Thus, proceeding left to right, if the licensee (KP) is encountered first, its licenser (L) will always be found within the constituent with which KP merges. The same holds if L occurs first, with the additional limitation that KP will be encountered before any XP which must be processed in parallel. This effect can be seen as the converse of whatever mechanism allows heavy subjects to be placed in final position. Whereas the latter extends the class of possible sentences to permit sequential processing of heavy constituents, the conditions in (73) restrict this class, excluding *inter alia* sentences which require any constituent (even relatively light ones) to be processed while the licensee is being searched for.

Clearly these conditions are not universal, but perhaps they can be parametrized according to the types of dependencies to which they apply, with the possibility that in some languages they might not apply at all. Unlike Sardinian (and Italian), Spanish allows VSO order, which is excluded for Sardinian by (73a) with respect to Case-licensing of the direct object:

(98) Todos los dìas compra Juan el diario
Lit. 'Every day buys John the newspaper'

In relation to Spanish examples like (98) (and similar facts in Rumanian) Belletti (2004) suggests a correlation between VSO as an Inversion option and the marking of certain types of direct object by a preposition, which occurs in Spanish and Rumanian, but not in Standard Italian (e.g. Spanish *Veo a Juan* 'I see John'). Sardinian conforms partially to this hypothesis in that VSO is moderately acceptable with prepositional accusatives (see $2, example (17)), but in Spanish, the possibility of VSO extends to bare accusatives like *el diario* in (98). In Belletti's analysis (p.24), Accusative Case is licensed by an element relatively high in the structure, so that the presence of the intervening subject in (98) prevents the object from being licensed in the normal way (giving the correct result for languages like Italian and Sardinian which do not allow VSO). To account for examples like (98), Belletti (p.34) tentatively postulates an abstract preposition which licenses the direct object in the same way as the overt preposition *a* in genuine prepositional accusatives. In the present approach, v values the Case feature of the direct object in the configuration $[_{vp}\ DP_{subj}\ V+v\ [_{VP}\ DP_{obj}\ t_v\ \ldots]]$ in Sardinian and Italian as well as in Spanish, but raising of the verb (to Asp or T) yields a violation of (73a) with respect to this dependency if the subject remains *in situ*. The acceptability of VSO order in Spanish follows if the conditions in (73) do not apply to Accusative Case-dependencies in Spanish. From this perspective, the existence of prepositional accusatives (and perhaps other forms of overt Case-marking in other languages) may be seen as a factor which exempts Accusative Case-dependencies from the conditions in (73).

A parametric approach allows for variation between languages, but it predicts that these conditions should hold uniformly across different constructions within a language. Potential counter-evidence to this prediction is presented by a range of so-called 'Aux-to-Comp' constructions in Italian, where the auxiliary can be separated from the dependent verb by a non-pronominal subject, as in (99), even though free Inversion is of the AuxVS… type predicted by (73a) as a condition on Aux-Asp dependencies, as shown in (100):

(99)a Fosse Maria arrivata in tempo, saremmo partiti prima
'Had Mary arrived on time, we would have left earlier
b Avendo Giovanni telefonato al medico, fummo tutti più contenti
Lit. 'Having John telephoned to the doctor, we were all happier'
c Maria affirmava aver Giovanni telefonato al medico
Mary asserted have.inf John telephoned to.the doctor
'Mary asserted that John had telephoned the doctor'

(100)a Ha telefonato Giovanni al medico
'John has telephoned the doctor'
b *Ha Giovanni telefonato al medico

Following Rizzi (1981, 1982), let us assume that the constructions in (99) are derived by head movement of the auxiliary to C whereas in cases of free Inversion the auxiliary remains in T (as proposed above for Sardinian). This difference may be significant in view of the status of CP as a phasal category (Chomsky, 2001).

So far, I have assumed informally that the conditions in (73) apply to the 'output' of the syntactic derivation; i.e. at the stage where no further movement of L or KP (or of an XP to an intervening position) is possible. In a phase-based model, the stage which meets this requirement is the point at which the higher element in the feature relation undergoes spell-out. In the configuration (101), completion of the derivation of the phasal category CP determines spell-out of material c-commanded by C (i.e. TP is spelled-out at this stage), whereas C and its Specifier are spelled-out in the domain of the next phase-head (PH) if there is one, otherwise at the root:

(101) (PH) … [$_{CP}$ (Spec) C [$_{TP}$ DP [$_{T'}$ T vP]]]

A consequence of this procedure for examples like (99) is that the auxiliary and the dependent verb belong to distinct spell-out domains (SDs). Thus, at the point where (73) is applicable (at the root phase), the elements bearing features dependent on the auxiliary have already been spelled-out, as shown in (102) for sentence (99a), where italics indicate material which has been spelled-out:

(102) [$_{CP}$ fosse$_{[Perf, Nom]}$+C [$_{TP}$ *Maria*$_{[Nom]}$ *arrivata*$_{[Perf]}$ *in tempo*]] …

For the current proposal to work at all, it must be assumed that the features of *Maria* and *arrivata* remain visible after spell-out. However, the hypothesis that the internal structure of the SD of the phase-head becomes inaccessible gives exactly the desired result. If (73a) is blind to the internal structure of TP in (102), it cannot 'see' that *Maria* c-commands *arrivata* and therefore counts as an intervening XP; in effect, spell-out of TP neutralizes the distinction between 'c-command' and 'immediate c-command' with respect to the relation between *fosse* and *arrivata*.

If this account is tenable, English sentences derived by Subject-auxiliary Inversion (e.g. *Has* John left) are consistent with the hypothesis that Aux-Asp dependencies are conditioned by (73) in English.[16] The same point can be maintained for Subject-clitic Inversion in French which differs sharply from Stylistic-Inversion in requiring AuxSV and VSO orders:

(103)a Est-il arrivé? 'Has he arrived?'

b Connaît-il Marie? 'Does he know Mary?'

However, the restriction to clitic subjects in (103) may also be crucial. If, as seems reasonable, *il* in (103) is not a maximal projection at the point where condition (73) applies, it does not qualify as an intervening XP and thus does not entail violation of (73a). Thus, examples like (103) are consistent with the conditions in (73) even if the finite verb does not raise to C, as has sometimes been argued.[17]

This refinement does not affect the analysis of Inversion and Fronting in Sardinian proposed in §2 and §4.1-§4.3. In the case of Inversion, all elements involved in the relevant feature dependencies occur within the same SD (within TP), so the structural relations between them are fully accessible at spell-out. Although Fronting places a phrase in CP, this phrase is the licensee (KP) and thus falls within condition (73b), which does not require immediate c-command in any case.[18] This refinement does have a bearing on an issue raised briefly in §3.2; namely, whether the finite verb raises to C in cases of Fronting (as Mensching & Remberger, 2010, envisage as a means of satisfying a Focus-Criterion). There does not appear to be any direct empirical evidence to support or exclude this possibility. However, raising of the finite verb to C would undermine the prediction of (73a) with respect to examples like **A su dotore at Zuanne telefonadu* with the structure (104), since invisibility of the internal structure of TP at the CP phase would allow *at* to immediately c-command AspP according to the refinement proposed above:

(104) *[$_{CP}$ A su dotore at+C [$_{TP}$ [$_{AuxP}$ *Zuanne* t$_{Aux}$ [$_{AspP}$ *telefonadu* vP]]]]

[16] *There*-constructions like *There was a man reading the newspaper* are consistent with this hypothesis if *a man* occurs in Spec vP and the KP which is licensed by *was* is the vP.

[17] See also Belletti (2004:31) and Ordóñez (2005:266) for discussion of cases in Italian and Spanish where subject pronouns allow Inversion patterns which are not available with lexical subjects.

[18] The looser requirement in (73b) was intended to allow for the fact that a KP (e.g. a direct object) may raise indefinitely high in the structure, potentially across several XPs (e.g. by successive Wh-movement). However, in the phase-based model, the tighter 'immediate c-command' restriction can probably be extended to (73b) for such cases. Since this modification does not have any direct empirical consequences for the analysis of Fronting and Inversion, I will not explore it here.

In §3.3 it was noted that some speakers find examples like (41d), repeated below, more acceptable than corresponding examples with simple Inversion (**At lessu Zuanne su zornale*):

(41)d ??Lessu as su zornale? 'Have you read the newspaper?'

This was attributed to possible confusion with the right dislocated variant. In terms of the conditions in (73), this sentence should be excluded since *lessu* is contained within the fronted AspP and thus does not c-command *su zornale*. However, if *lessu* is construed as a bare head (perhaps via a head-movement derivation of the sort discussed in §3.3), condition (73a) is satisfied. The refinement proposed above with respect to phases predicts that (44), *??Lessu at Zuanne su zornale*, with the structure in (105) should also be acceptable on this construal since the structural relation between *Zuanne* and *su zornale* is not accessible at the CP phase:

(105) [$_{CP}$ lessu [$_{TP}$ *at Zuanne su zornale*]]

I have found one speaker who accepts both (41d) and (105). However, the same speaker also accepts examples like *??Giai lessu as su zornale?* 'Have you already read the newspaper?' where the participle is modified by an adverb and thus cannot be construed as a bare head. The status of examples like (41d) and (105) merits closer investigation.

The phasal status of transitive/unergative vP has no direct effect on the analysis presented here since the only relevant elements which remain within the SD of v (i.e. within VP) are the complements of the verb, of which only the direct object (in Spec VP) is Case-dependent on a head outside this domain.

5. Conclusion

In this paper I have argued that the the postverbal subject in cases of VP-fronting cannot occupy the 'low' position (within vP) which is tenable for other Inversion constructions, including those in which Wh-movement or Fronting of a non-VP expression. Moreover, the discussion in §3 strongly suggests that a uniform account of postverbal subjects cannot be maintained under different assumptions regarding the syntax of Inversion, though clearly such arguments can never be conclusive. The analysis proposed in §4.1 posits two movement operations which are exclusive to VP-fronting constructions: raising of the subject to Spec AuxP, which allows the verb and its complements and/or modifiers to be fronted as a constituent (AspP), and a complement-scrambling operation which allows complements to be stranded. Free application (or non-application) of these two operations allows the derivation of sharply ungrammatical examples. However, these can be excluded by postulating 'output licensing conditions' on the structural relations which must hold between feature-dependent phrases and the overt head which encodes the licensing features. In addition, these conditions provide a unified account, based on Case-dependency, of the types of complement which can occur in VSX constructions and those which can be left stranded by VP-fronting, without the need to stipulate conditions on the complement-stranding operation.

This analysis requires some additional mechanism to allow VOS constructions with heavy subjects. The strategy of postulating leftward movement of material across the subject seems to be inconsistent with the conditions proposed in (73). Consequently, this analysis requires some relaxation of the directional constraints on move/merge for variations in constituent order which are sensitive to properties such as heaviness.

These conclusions can be taken in either of two ways. When I began work on this topic, my aim was not to justify extra descriptive mechanisms of the sort proposed in (73) or to undermine the LCA. The discussion in §3 reflects, in part, my own search for an orthodox solution to what looked initially like a simple descriptive problem. For those who remain skeptical about these conclusions, the contribution of this paper may simply be to identify a challenge, which others may be able to take up more successfully than I have. A more

positive view, which I have defended in §4.3-§4.4, is that the conclusions reached in this paper from an essentially descriptive perspective shed light on properties of grammars which are not constrained exclusively by an optimally parsimonious computational system defined by rigid principles of Universal Grammar but which are designed to facilitate processing.

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