A Remove-based theory of the Complementarity Effect in Breton

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Abstract

In this paper, I discuss the so-called Complementarity Effect of ϕ-agreement in the Celtic language Breton: Verbal ϕ-agreement is only ever overt if the agreement controller (i.e. the subject) is covert. I argue that this peculiar phenomenon provides an argument that the covertness of the subject should be analysed as being due to syntactic removal rather than due to the presence of a phonologically empty element in the subject position. Theories of pro-drop in terms of an empty *pro* have no handle to derive why verbs only agree with elements that are phonologically null. In an alternative theory of pro-drop which makes use of the syntactic operation REMOVE, it can be modelled that removal of a pronoun from the subject position leaves the ϕ-features of the pronoun unattached and in accordance with the reintegration property of the operation, these features will be reattached on a functional head that eventually will be realized as a part of the verb. Under these assumptions, the presence of ϕ-features on the verb is an immediate consequence of removal of the pronoun and therefore straightforwardly models the complementary distribution of verbal agreement and its controller.

1. Introduction: Pro-Drop and Remove

Theories of syntax differ crucially as to whether they assume the existence of Dark Matter, i.e. syntactic elements that seem to have some syntactic effect but themselves cannot be observed directly. One of the poster childs for the existence of Dark Matter in the syntax is the phenomenon of pro-drop: Some languages entertain the possibility to leave a subset of arguments of a clause phonologically unexpressed. But even though these arguments are unexpressed, they still seem to induce some syntactic effects. Given the right syntactic configurations, they trigger agreement on the verb or other elements of the clause and potentially license anaphors, etc.

According to the theories which allow for the existence of Dark Matter, these effects are usually derived by positing a phonologically empty element in the syntactic position where usually the respective arguments are located. The element, typically referred to as *pro*, has the appropriate morphosyntactic features to trigger agreement and license anaphors, etc but does not have phonological features.

Being one of the prototypical instances of Dark Matter in the syntax, the phenomenon of pro-drop, in principle, lends itself to a derivation that fits into the general spirit of this volume. The operation that is *Structure Removal* is specifically designed to derive Dark Matter effects where, representationally speaking, seemingly invisible elements seem to trigger syntactic processes.

Despite this obvious overlap between the theoretical operation that is REMOVE and the empirical phenomenon of pro-drop, no attempts have, so far, been undertaken to propose a coherent theory of pro-drop making use of the operation REMOVE. Presumably, the reason for this lies in the very nature of the phenomenon itself. As noted above, the standard theory of pro-drop, at least within the current Minimalist framework, is the assumption of a phonologically empty element in argument position. And needless to say, distinguishing between an empty element in argument position and a removed element in argument position is not an easy task.

The main contribution of this short paper is to provide one small argument that a REMOVE-based theory of pro-drop may help us explain some facts about pro-drop that otherwise are highly problematic. The empirical domain of the paper will be what is known as the *Complementarity Effect* of ϕ-agreement found in many Celtic languages. ϕ-agreement on the verb or on prepositions in these languages depends on the covertness of its trigger. Only dropped arguments can trigger agreement. Given the current minimalist assumptions about the architecture of grammar, it seems highly implausible that the phonological shape of a pronoun (overt vs covert) can be held responsible for a difference in syntactic behavior. This suggests that difference between an overt and a covert pronoun is to be located in the syntax. I will propose an alternative account according to which it is the syntactic operation REMOVE that conditions ϕ-agreement in the syntax.

The paper is structured as follows: In Section 2, I will introduce the complementarity effect. I will focus my discussion on the language Breton as the effect has been investigated in this language in great detail. In Section 3, I will outline the dilemma for theories of the complementarity effect already

anticipated by Stump (1984). I will also outline the current approach proposed by Jouitteau & Rezac (2006) and discuss some of its shortcomings. In Section 4, I will then outline an alternative in the spirit of this volume making use of the operation REMOVE. Section 5 discusses some additional facts mentioned by Jouitteau & Rezac (2006) and sketches a solution to these issues. Section 6 concludes.

2. The Complementarity Effect

Agreement in Celtic languages has been the study of some time since it displays various intricate restrictions concerning (a) the syntactic or linear position of the agreement controller with respect to the agreement target and/or (b) whether the target is actually phonologically overt or not. In this paper, I will discuss agreement in the Celtic language Breton where only restrictions of the latter type are at play.

As other Celtic languages, Breton exhibits ϕ-agreement on verbs with the subject of the respective clause. Notably, this kind of agreement is subject to what Stump (1984) calls the *Complementarity Principle* given in (1):

(1)   *Complementarity Principle:*
       Within a clause, overt argument noun phrases never appear with concording personal affixes.

<div align="right">Stump (1984:292)</div>

The crucial word of this principle is *overt*. In other words, we see ϕ-agreement only if the trigger of agreement is phonologically null. Consider the examples in (2). Here, the subject is unexpressed and therefore the verb displays a form alternation indexing the ϕ-features of the unexpressed subject. In (2a), the form *lennan* unambiguously indexes a first person singular subject whereas the form *lennont* in (2b) indexes a third person plural subject. The present tense paradigm of verbal agreement of the verb *lenn-* is given in (3). It shows that there is a one-to-one mapping between function and form. Each set of ϕ-features receives a unique morphological form.[1]

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[1]I adapted the glosses as well as part of the morphological segmentation from the relevant sources to match for reasons of readability. The glosses follow the standard of the Leipzig Glossing Rules. The gloss PTCL refers to a special preverbal particle, referred to as *rannig* in Breton (which is why Rezac (2004) and Jouitteau & Rezac (2006) gloss it is R). In accordance

(2)   a.   Levrioù a=lennan
              books   PTCL=read.1SG
              'I read books.'
        b.   Levrioù a=lennont
              books   PTCL=read.3PL
              'They read books.'   Stump (1984)

(3)   *Present tense forms of* lenn- *('read'):*

1.SG.	lennan
2.SG.	lennez
3.SG.	lenn
1.PL.	lennomp
2.PL	lennit
3.PL	lennont

                                                                   Stump (1984)

Compare now the corresponding counterparts with an overt pronoun in (4).
The sets of ϕ-features involved are identical to the examples in (2) but there is
no agreement on the verb. The verb appears in the form of the third singular
present tense.

(4)   a.   Me a=lenn   levrioù
              1SG PTCL=read books
              'I read books'
        b.   Int a=lenn   levrioù
              3PL PTCL=read books
              'They read books'   Stump (1984:291)

The pattern extends of course to full NPs which do not trigger agreement on
the verb either. In (5), the subject is plural but still the verb shows up in the
form of the third person singular.

(5)   a.   Levrioù a=lenn   ar vugale
              books   PTCL=read the children
              'The children read books.'

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with its morphophonological behavior I have used the '='-symbol to indicate that it is cliticized
to the verb.

b. *Levrioù a=lennont   ar vugale
books   PTCL=read.3PL the children
'The children read books.'   Stump (1984:292)

The examples in (6) show that at least in Breton, the complementarity effect is independent from the word order in the respective clauses. Regardless of whether the subject is pre- or postverbal, it will never trigger agreement if it is overt.

(6)   a.   Ar vugale a=lenn   levrioù
the children PTCL=read books
'The children read books.'
b. *Ar vugale a=lennont   levrioù
the children PTCL=read.3PL books
'The children read books.'   Stump (1984:292)

As for postverbal pronouns, we find that overt pronouns are not available independent of whether we have actual ϕ-agreement or not.[2]

(7)   a. *Levrioù a=lenn   me
books   PTCL=read I
'I read books.'
b. *Levrioù a=lennan me
books   PTCL=read I
'I read books.'   Stump (1984:302)

Verbal agreement is unaffected by the thematic role of the subject. The Complementarity Principle holds for transitive subjects (as in all previous examples) as well as for subjects of passives or unaccusatives:

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[2]Stump (1984:302) mentions that emphatic pronouns can occur postverbally and interestingly, they do seem to trigger agreement in that configuration.

(i)   Levrioù a=lennan=me   /*lenn=me
books   PTCL=read.1SG=EMPH.1SG
'*I* read books.'

But he argues that, in that cases, the emphatic pronouns are not the actual arguments of the verb but rather elements in an A'-position which are merely associated with an empty pronoun. I will follow this argumentation assuming that these cases are no real exceptions to the *Complementarity Principle*.

(8)   a.   Dec'h   e=veze   gwelet ar   merc'hed.
            yesterday PTCL=was.3SG seen   the girls
            'The girls were seen yesterday.'

       b.   Alies e=kouezhe   an delioù
            often PTCL=fall.3SG the leaves
            'The leaves fell often.'   Jouitteau & Rezac (2006)

The Complementarity Principle in (1) does not make reference to the agreement target being a verb. And indeed we find that the pattern extends to inflected prepositions in Breton. Some prepositions in Breton show agreement with their complement if the complement is covert. The examples in (9) show that the preposition *gan(t)-* 'with' covaries with the ϕ-features of its complement. Its full paradigm is given in (10). Again, we see that every set of ϕ-features receives a unique form. Note also that unlike verbs, inflected PPs also distinguish gender in the third person singular.

(9)   a.   Ul levr   brezhonek a   zo ganin
            a   book Breton   PTCL is with.1SG
            'I have a Breton book.'

       b.   Ul levr   brezhonek a   zo ganto
            a   book Breton   PTCL is with.3PL
            'They have a Breton book.'

(10)   *Forms of* gan(t)- *('with'):*

1.SG.	ganin
2.SG.	ganit
3.SG.MASC	gantan
3.SG.FEM	ganti
1.PL.	ganeomp
2.PL	ganeoc'h
3.PL	ganto

                                                    Stump (1984)

But, as with verbs, the inflection vanishes as soon as the agreement controller is overt as in (11), where it is a full NP. Interestingly, with prepositions, it is not the third person singular form that appears but the bare stem of the preposition.

(11)   a.   Ul levr   brezhonek a   zo gant Yannig
             a   book Breton   PTCL is with Yannig
             'Yannig has a Breton book.'

        b.   *Ul levr   brezhonek a   zo gantan   Yannig
             a   book Breton   PTCL is with.3SG Yannig
             'Yannig has a Breton book.'

So, it seems that the *Complementarity Principle* in (1) is a pretty robust generalization about the syntax of Breton. There are some residual cases which cast doubt on the validity of the principle such as preverbal subjects in negative clauses but Stump (1984) argues convincingly that these are in fact no real counterexamples as these are presumably left dislocated topics (as they are emphatic). Thus they do not invalidate the principle in (1) as they are, by assumption outside the clause.

3. Analyses of the Complementarity Effect

In this section, I will address some previous accounts to deriving the *Complementarity Effect*. I will briefly address the two camps already anticipated by Stump (1984), namely the incorporation approach as well as the agreement approach and list some of their respective shortcomings. I will then spend a little more time discussing a recent approach by Jouitteau & Rezac (2006) who propose a hybrid approach trying to combine the properties of both types.

3.1. The Incorporation approach

The first approach is the incorporation approach. Discussions of this approach are found in Anderson (1982) and Stump (1984) of which only the former actually argues for it. According to the incorporation approach, there is no verbal subject agreement in Breton. What looks like exponents of agreement features on the verb *is* actually an exponent of the pronoun itself. The pronoun incorporates into the verb and leads to distinct verbal affixes depending on its feature specification. The verb is in (or has moved to) a clause-initial position and a postverbal pronoun subsequently incorporates into it.

(12) $[_{IP}$ V $[_{VP}$ Pron$_{Subj}$ t$_V$ Obj]]

The straightforward advantage of this account is that it nicely derives the complementary distribution of the subject and the subject agreement on the verb. If they are one and the same thing, the *Complementarity Effect* falls out as completely natural. However, there are a number of quite severe problems with such an account. First, it is far from clear what this movement step is and how it relates to general theories of movement. If we take the account literally as incorporation, then we find quite clearly that it does not exhibit any of the hallmark properties of incorporation as identified by Baker (1988) and many others. It is unclear in the first place whether incorporation of transitive subjects is attested to begin with. Only a handful of languages have been claimed to exhibit subject incorporation and in many cases, only very few subject-verb combinations are allowed. This kind of incorporation here, however, is independent of the verb and completely productive. Further, incorporation of pronouns is impossible even in object incorporation languages. Incorporation is typically restricted to non-specific indefinites.

So, we conclude that this kind of incorporation cannot be of the Bakerian type. An alternative would be to view it as some kind of clitic movement as evidenced by some Romance languages. In these languages, typically objects (but sometimes also subjects) cliticize to the main verb of the clause and form a syntactic and phonological constituent with it. However, a closer look at the morphological footprint of the operation at hand reveals that it does not at all look like cliticization of the Romance type. It looks much more like agreement. Even in languages with what Zwicky (1977) calls special clitics, we typically see some morphophonological similarities between the clitic and its non-clitic counterpart. But in the case at hand, there are no similarities of that sort. Compare the forms in the following table:

(13)   *Comparison between pronouns and verbal agreement exponents:*

	Verbal Agr.	Pronoun
1.SG.	-an	me
2.SG.	-ez	te
3.SG.Masc/Fem	-∅	eñ/hi
1.PL.	-omp	ni
2.PL	-it	c'hwi
3.PL	-ont	int

Stump (1984)

The same point of criticism applies to incorporation approaches where the incorporation is more of a superficial morphophonological operation applying in a postsyntactic, prosody-sensitive component (Adger 2000, Ackema & Neeleman 2003). If the process of incorporation were simply prosodic amalgamation, then we would expect there to be phonological overlap between the paradigms.

I thus take the incorporation approach to be insufficient to derive the complementarity effect in Breton. It has a straightforward way of deriving the effect itself but suffers from several severe problems.

3.2. The Agreement approach

The alternative to an incorporation approach is to say that the form alternations on the verb in Breton are due to agreement with some sort of empty element *pro* in subject position. The crucial problem for such an approach is the very nature of the *Complementarity Effect*. Why is it that only the empty element can agree but overt pronouns or full NPs cannot? It seems that in one way or another, it has to be stated that the agreement process itself makes reference to the phonological overtness of the pronoun. This is explicitly stated in the account proposed in Stump (1984) who adopts the language-specific constraint for Breton in (14):[3]

(14)   The argument position encoded by AGR must be occupied by a null element.

<div align="right">Stump (1984:316)</div>

Another version is given in Jouitteau & Rezac (2006):

(15) ϕ-*PHON constraint:*
        ϕ-Agree is limited to phonologically empty goals.

<div align="right">Jouitteau & Rezac (2006)</div>

Apart from the fact that (14) and (15) are simply stipulations which restate the observed facts in more theoretical terms, it is clear that a formulation along those lines is highly problematic for the current assumptions about the architecture of grammar. Largely independent of framework-internal

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[3] See also the similar treatment of McCloskey & Hale (1984) for Irish.

specifics, most frameworks adopt the famous *Principle of Phonology-free Syntax* (Zwicky & Pullum 1986, Miller et al. 1997):

(16)   *Principle of Phonology-Free Syntax:*
        In the grammar of a natural language, rules of syntax make no reference to phonology.
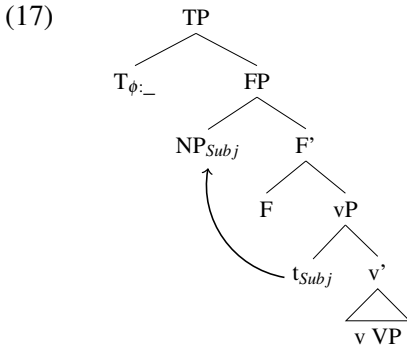
$$\text{(Miller et al. 1997: 68)}$$

If the ability to control agreement were simply a matter of being phonologically null, then this would be a strong violation of (16). Thus, since most theories adhere to the principle in (16), I take it that the difference between the overt and the covert pronoun must be an issue of syntax. In Section 4, I will argue that the overt and the covert pronoun structures are derived from the same underlying source but the two derivations differ as to whether the pronoun undergoes syntactic removal. Before I will come to present an alternative approach, I will briefly discuss the theory by Jouitteau & Rezac (2006) which tries to combine the agreement and the incorporation analysis.
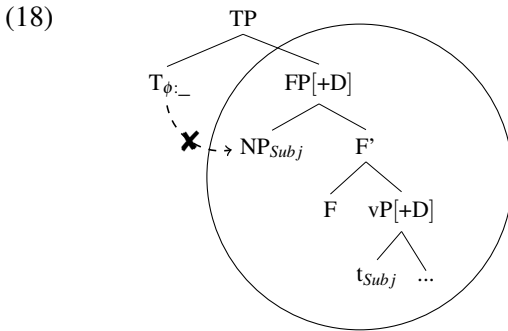
3.3. Hybrid Account

In the previous subsections, we have seen that both the incorporation approach and the agreement approach suffer from severe problems. Jouitteau & Rezac (2006) propose a hybrid account which makes use of both, incorporation and agreement claiming to overcome the problems of the individual approaches. Their approach features both an agreement probe on the verb (or more accurately on T) and an incorporation process by which a pronoun adjoins to T. I will go through the relevant structures one by one. They assume that the position of the verb is in T, which also bears a ϕ-probe in order to collect the features of the subject of the clause. The subject itself has evacuated the vP landing in an intermediate specifier of a projection they call FP.[4]

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[4]Jouitteau & Rezac (2006) discuss whether FP corresponds to the projection AgrP used in McCloskey (1996) for postverbal subjects in Irish but ultimately decide to remain neutral about this question. Crucially, they need the additional assumption of a derived subject position for various structures involving raising or copula predicates. Also, Rezac (2004) shows that vP-fronting in Breton leaves the subject behind. He therefore concludes that the subject evacuated the vP before the vP has undergone remnant movement.
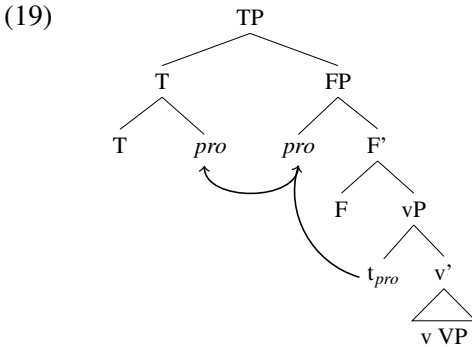
(17)

```
            TP
          /    \
    T_{φ:_}     FP
              /    \
        NP_{Subj}   F'
           ↑      /   \
                 F     vP
                      /   \
                 t_{Subj}  v'
                           /\
                          v VP
```

Building on the work by Jouitteau (2005), they argue extensively that the vP has nominal properties in Breton which they model by assuming the presence of a feature [+D] on vP and FP.[5] This renders the FP, so they claim, opaque to ϕ-agreement from T. T probes for the features of the subject but only finds the FP and due to Relativized Minimality, it cannot probe deeper. Thus, it is stuck with the default features on FP itself.

(18)

```
              TP
            /    \
      T_{φ:_}     FP[+D]
         ✗      /      \
           NP_{Subj}    F'
                       /   \
                      F     vP[+D]
                            /   \
                       t_{Subj}  ...
```

The underlying idea according to Jouitteau & Rezac (2006) is to have the *Complementarity Effect* reduce to locality effect induced by Relativized Minimality. Agreement with subjects is blocked in Breton because they are themselves embedded into a projection with nominal properties. In order to derive the actual agreement with covert pronouns, they additionally assume an incorporation rule of the type discussed in Section 3.1. *pro* can move out of FP and adjoin to T, thereby handing its features over to T.

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[5]From the discussion they offer, it does not become entirely clear why FP bears the [+D]-feature as well. While their arguments that the vP has nominal properties are largely convincing, they do not offer any insights whether the same holds for FP and if so why.

(19)

```
                        TP
                  ┌─────┴──────┐
                  T            FP
              ┌───┴───┐    ┌───┴───┐
              T      pro  pro      F'
                      ↺    ↺   ┌───┴───┐
                               F       vP
                                    ┌──┴───┐
                                  t_pro    v'
                                          ╱╲
                                         v  VP
```

Unfortunately, Jouitteau & Rezac (2006) are not particularly explicit about the properties of this movement step but from the discussion, it becomes clear that they imagine this step to be somewhat parallel to cliticization movement in Romance. But clearly, many questions about this movement step remain unanswered. They admit that they do not really know what the trigger for this movement step is as they only note that it cannot be for reasons of case assignment or ϕ-feature checking. Further, it remains unclear why agreement is blocked by the [+D]-feature on the maximal projection of FP but movement of the subject pronoun is not. Finally, it must be said that the approach suffers from the same drawbacks as the other incorporation approaches discussed in Section 3.1. If this were actual cliticization, we would expect there to be some morphophonological overlap between the respective paradigms. As noted above, the verbal paradigm looks very much like a run-of-the-mill agreement paradigm and not like the result of cliticization.

To conclude, the hybrid approach tries to incorporate both approaches to derive the *Complementarity Effect*. And, in a sense, trying to reduce the absence of verbal agreement with regular subjects to a locality effect due to the nominal properties of v is - given the evidence for it - a nice touch. But ultimately, the actual agreement is nonetheless derived by means of a very obscure incorporation operation that neither fits the established footprints for incorporation nor cliticization. In the next section, I will present an approach that straightforwardly derives the agreement on the verb as the immediate consequence of the absence of a subject. The underlying idea is that the removal of the subject itself from the syntactic derivation is responsible for the transfer of the agreement features onto T. This is the only possibility to get

the ϕ-features of the subject onto T. Hence, removing the subject is the only possibility to ever get verbal agreement.

4. A REMOVE-based alternative

4.1. The Reintegration Property of REMOVE

The operation *Structure Removal* (Müller 2017, Müller & Murphy 2017, Müller to appear) is specifically designed to derive Dark Matter effects in the syntax where a seemingly invisible element X has some syntactic effects but cannot be observed directly. The logic behind the operation is that syntactic structure is built up as usual and X is merged into the syntactic structure as every other element. At some point X undergoes structure removal, an operation that is triggered by a nearby functional head, which removes X from the syntactic derivation alltogether. The result of structure removal is that not only is X ultimately invisible on the surface but it is also invisible to subsequent syntactic processes. In this respect, syntactic structure removal is crucially different from other deletion operations such as impoverishment or obliteration (see e.g. Nevins 2012). Both, impoverishment and obliteration are used to delete morphosyntactic objects towards the end of the derivation so as to not have them appear in the surface string.
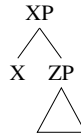
Crucially, the operation REMOVE is an extremely local operation as it is subject to the Strict Cycle Condition and interacts with syntactic structure building via MERGE. A head Y can only trigger REMOVE of its complement or its specifier or the respective heads of the complement or the specifier. In the case at hand, we are dealing with subjects, thus we will be concerned only with REMOVE targeting specifiers.

A further property of REMOVE is what I will call the reintegration property. If a REMOVE-feature [-Y-] on a head X targets the head of its complement Y which itself is merged with an element ZP, then REMOVE will delete Y including all of its projections and reintegrate ZP as the new complement of X. This is illustrated in (20) and (21):
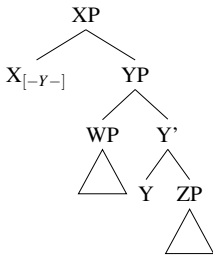
(20)   *Before Removal of Y*:

```
        XP
       /  \
  X[−Y−]   YP
          /  \
         Y    ZP
              /\
             /__\
```
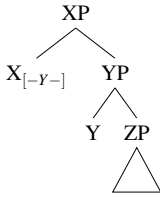
(21)   *After Removal of Y*:

```
      XP
     /  \
    X    ZP
        /\
       /__\
```
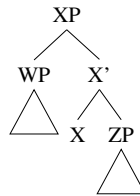
If Y has multiple arguments (or possibly even adjuncts), reintegration will apply such that the respective c-command relations and the respective phrase structural status of the elements involved will be maintained. An element formerly known as a specifier of Y will end up as the specifier of X:

(22)   *Before Removal of Y*:
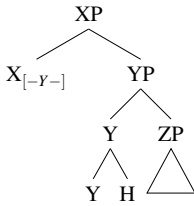
```
           XP
          /  \
     X[−Y−]    YP
             /    \
           WP      Y'
           /\     /  \
          /__\   Y    ZP
                      /\
                     /__\
```

(23)   *After Removal of Y*:

```
          XP
         /  \
       WP    X'
       /\   /  \
      /__\ X    ZP
                /\
               /__\
```

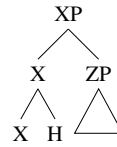Based on this process of reingration which maintains the phrase structural status of syntactic elements, I would like to suggest that the same process can under certain circumstances also apply to morphosyntactic elements adjoined to the deleted element itself. Consider the situation in (24). The head Y which is to be removed has an adjunct H (presumably created by means of head-movement of H to Y). The question is, of course, what happens to the element H when Y is removed. In accordance with the reintegration property sketched above, I would like to argue that H is reintegrated maintaining its phrase structural status as an adjunct to a head as in (25):

(24)   *Before Removal of Y*:   (25)   *After Removal of Y*:

```
        XP                                        XP
       /  \                                      /  \
  X_[−Y−]   YP                                  X    ZP
           /  \                                /  \   /\
          Y    ZP                             X   H  /__\
         /\    /\
        Y  H  /__\
```

The result of this kind of REMOVE-operation is that X obtains features of Y without actual agreement but only if X removes Y from the derivation. The connection to the *Complementarity Effect* in Breton is straightforward: Only if the relevant functional head in the verbal spine removes its specifier from the derivation does it obtain its ϕ-features. This essentially means that only removed items will be able to control form alternations on the verb.

4.2. The Derivations

In this section, I will apply the general idea developed in the previous subsection to the concrete derivations in order to derive the basic facts about Breton verbal agreement. As for the general clause structure of Breton, I follow Jouitteau & Rezac (2006) in assuming a derived subject position outside of the vP. Whether this is SpecAgrP as assumed by McCloskey (1996) for Irish, SpecFP as in Jouitteau & Rezac (2006) or SpecTP as in Jouitteau (2007) is not really relevant for the purposes of this paper.

For the sake of concreteness and comparability, I will adopt the structure used above in Section 3.3, but it should be clear that the structures are all compatible as long as they provide for a derived position outside of the vP that hosts all sorts of subjects (recall from Section 2 that the *Complementarity Effect* holds for transitive, unergative and unaccusative subjects alike). I will also follow the structures above in labelling the projection hosting the derived subjects FP but as Jouitteau & Rezac (2006), I remain agnostic as to whether this projection can be identified with other positions.

As for the position of the verb, I assume that it moves to a high position in the clause, which hosts the preverbal particle *e* or *a* in all the examples above.[6]

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[6]The particle, typically referred to as the *rannig-verb*, i.e. small part of the verb alternates depending on the syntactic category of its specifier (see Anderson (1981), Urien (1999), Rezac (2004), Jouitteau (2007), Weisser (2019)) but unambiguously belongs to the verbal spine as it

Again, there is some debate as to whether this position is C^0 (as proposed by Schafer 1995), T^0 (as proposed by Rezac (2004)) or Fin^0 (as proposed by Jouitteau (2007)). But crucially, as Breton is a V2-language in matrix clauses, whatever the exact final landing site of the verb is, we must ensure that there is exactly one specifier in the left periphery. For the sake of concreteness, I thus adopt the following clause structure for an example with a postverbal NP-subject and some non-subject XP in the preverbal position:

(26)

FinP
XP   Fin'
Fin+V+v+F+T   TP
t_T FP
NP_{Subj} F'
t_F vP
t_{Subj} ...
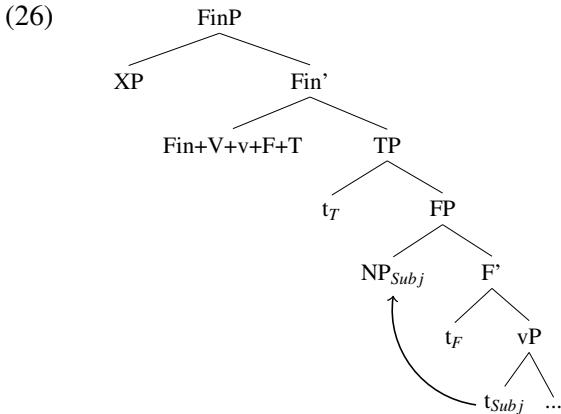
In order to derive the Complementarity Effect, a few preliminary assumptions need to be made. I assume that pronouns are at least minimally complex in the sense that they consist of a D-like element to which the respective ϕ-features are adjoined. Whether this structure is base-generated as such or whether it is the result of head movement, does not play a role for now. Further, I assume that even though the D-element shares a number of properties with determiners or determiner phrases (at least in terms of syntactic distribution), it is still featurally sufficiently distinct. I will code this by using a little index *pro*. Thus, pronouns in this theory are represented as in (27). Note that overt and covert pronouns are featurally completely identical. The difference will arise as to whether they are affected by REMOVE or not.

(27) D_{pro}
D_{pro} ϕ

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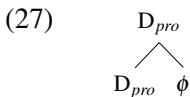
undergoes morphophonological processes triggered by other verbal elements. It e.g. competes for the position with other verbal clitics such as the object clitics and negation.

With (27), we have all the background assumptions in place to model the Complementarity Effect. In order to do that, I assume that the functional head F^0 has a feature that allows it to remove pronominal arguments from its specifier: $[-D_{pro}-]$. If the subject is a pronoun and has moved to SpecFP, then REMOVE will apply, removing the pronoun from F's specifier. This, by assumption, will leave the adjoined ϕ-head in (27) unattached (since only D is removed) and as discussed in the previous subsection, the reintegration property of REMOVE will reattach the ϕ-head while maintaining its phrase structural status as an adjunct to a head. As F is the only available head in the current cycle, it will attach the ϕ-head to F. This is illustrated in (28) and (29). In the structure in (28), the pronoun has moved to SpecFP. The head of the current cycle bears a feature that allows it to remove D. This process leaves the adjoined head ϕ unattached and consequently, ϕ is then attached to F. In the resulting structure in (29), F has obtained the features of its specifier by removing it from the derivation.
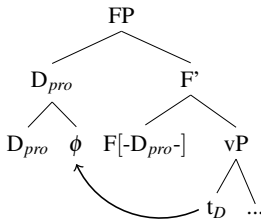
(28)   *Before Removal:*   (29)   *After Removal:*
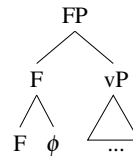
In the subsequent cycles, F will undergo head movement all the way to Fin carrying the adjoined ϕ-head along. It is only in this configuration that the complex head including the verb, can obtain the subject features. Since none of the functional heads in Breton have a proper agreement probe, REMOVE of a subject pronoun is the only option for the verb to show form alternations depending on the subject features.

We thus see how, in the case of a pronominal subject, the ϕ-features end up on the verbal complex. Importantly, since SpecFP is, by assumption, a position dedicated to subjects, the verb can only ever show subject agreement. Also, it is important that the feature on F is relativized to affect only pronominal subjects. Full NP subjects cannot be removed by F. I would like to attribute this fact to the recoverability property of REMOVE. It seems plausible to assume that full NPs cannot be recovered semantically and therefore cannot

be removed. In that case, I assume that the respective feature on F is simply deleted without effect.

A final note concerns preverbal pronouns. Postverbal pronouns are obligatorily affected by REMOVE and therefore deleted from the derivation. In order for postverbal pronouns to arrive safely in preverbal position (i.e. SpecFinP), we would need to assume that they have a way of avoiding removal. One possibility would be to assume that elements which move to the preverbal position bear at least information structural features such as [topic] or [focus] as the preverbal position in Breton is, as in other V2-languages, associated with features of this type (see Schafer 1995, Rezac 2004). As these features are presumably located on D itself, REMOVE would also delete non-recoverable material. As with full NPs above, I would like to submit that pronouns bearing additional information structural features cannot be deleted. Again, the respective [-D-]-feature on F is deleted without effect.[7]

5. Extending the analysis

In this section, I discuss some additional data that need further consideration. First, I discuss the cases of inflected prepositions which also seem to obey the Complementarity Principle (Section 5.1). I will then devote a short subsection to the question of different types of defaults which Jouitteau & Rezac (2006) take as strong evidence for their approach. I will argue that the conclusions they draw are not forced and may receive an alternative explanation. Finally, I will discuss the only verb of the Breton language *eus* ('have') where the Complementarity Principle breaks down (Section 5.3). *eus* is inflected regardless of whether its subject is covert or overt.

5.1. Inflected Prepositions

In this short subsection, I will briefly discuss the pattern of inflected prepositions. Building on data from Jouitteau & Rezac (2006), it is shown that for those, an analysis in terms of morphophonological amalgamation is much more plausible. Ultimately, this shows in my opinion that deletion operations can apply at different stages of the derivation.

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[7]Another possibility how to make sure that preverbal pronouns avoid being removed would be to assume that they manage to get there without making an intermediate stop-over in SpecFP. At this point, I do not see, however, how this can be avoided without look-ahead-like mechanisms.

One of the arguments against a morphophonological amalgamation approach which derive the complementarity effect by means of cliticization of the subject pronoun to the verb was that we find absolutely no overlap between the morphophonological form of the pronouns and the verbal inflection throughout the whole paradigm in (13). With inflected prepositions however, the situation is at least somewhat different. Compare the forms of the respective rows in (30).

(30)   *Comparison between pronouns and agreement exponents of* gan-
        ('with'):

	Prepositional Agr.	Pronoun
1.SG.	-in	me
2.SG.	-it	te
3.SG.Masc/Fem	-tañ/-ti	eñ/hi
1.PL.	-omp	ni
2.PL	-c'h	c'hwi
3.PL	-(n)to	int

<div align="right">Stump (1984)</div>

With the exception of the first person pronouns, there *is* a substantial overlap in morphophonological terms (and even those all include a nasal). In the second person, both forms include a /t/ (in the singular) and a /c'h/ (in the plural). In the third persons, the singular has a straightforward overlap and, in the plural as well if we assume that the nasal consonant of the pronoun merges with the stem-final nasal of the preposition.

Morphophonological similarities are suggestive but do not constitute a knock-down argument against a REMOVE-based approach to inflected prepositions in Breton. However, Jouitteau & Rezac (2006) give a strong argument that there is fundamental difference between the treatment of inflected verbs in Breton and inflected prepositions. The argument involves conjunction with pronouns as the first conjunct of (a) the subject of verbs and (b) the complement of prepositions. Consider the conjunction of subjects in (31). In (31a), we see a conjoined subject with a full NP as the first conjunct. In line with the *Complementarity Principle*, we do not see agreement. The verb surfaces in the default. In (31b), we see that it is not possible to have an empty *pro* as the first conjunct of the complex subject.

(31)   a.   Dec'h   e=erruas   [Nolwenn hag ar gorrien]
            yesterday PTCL=arrived.3SG Nolwenn and the dwarves
            'Yesterday arrived Nolwenn and the dwarves.'
       b.   *Dec'h   e=erruas   [*pro* hag ar gorrien]
            yesterday PTCL=arrived.3SG 3SG and the dwarves
            'Yesterday arrived she and the dwarves.'

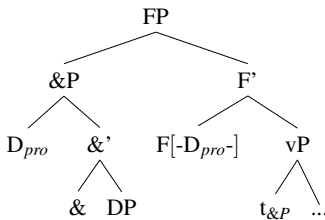   Jouitteau & Rezac (2006)

Compare the pair in (31) with the pattern of inflected prepositions in (32).
Here, it is possible to have the first conjunct incorporate into the preposition.

(32)   Chom a=rae   [etrezi   [*pro* hag ar gorrien]]
       stay PTCL=did.3SG between-3SG.FEM 3SG and the dwarves
       'S/He stayed between her and the dwarves.'

                                            Jouitteau & Rezac (2006)

The minimal pair in (31) follows straightforwardly under a REMOVE-based
account.[8] As mentioned above, REMOVE is designed as a strictly local
operation. A functional head X can only remove (the head of) its specifier or
its complement but nothing embedded into the specifier or the complement.
Thus, it follows that, under standard asymmetric &P-accounts to coordination
structures,[9] it follows that both conjuncts are too deeply embedded into the
&P to be affected by REMOVE:

(33)   *Removal Impossible:*

```
                        FP
                _____|_____
              &P                 F'
           ___|___           ____|____
        D_pro     &'     F[-D_pro-]    vP
               ___|___             ____|____
              &    DP            t_&P   ...
```

But since REMOVE is a strictly local operation, we have no immediate way of
accounting for the pattern of inflected PPs in (32). If the Complementarity

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[8]It also follows under the assumptions by Jouitteau & Rezac (2006) if the movement step that
is cliticization into the verb obeys the Coordinate Structure Constraint (cf. Ross 1967).

[9]For arguments and discussion, see e.g. Munn (1987), Zoerner (1995), Johannessen (1998),
Mitrovic & Sauerland (2014), Weisser (2015), Nevins & Weisser (2019).

Effect with prepositions were also due to syntactic REMOVE, then (32) would be a huge problem.

I thus follow the proposal by Jouitteau & Rezac (2006) and argue that inflected prepositions in Breton do not involve *Structure Removal* but are to be derived by means of postsyntactic amalgamation along the lines of Ackema & Neeleman (2003, 2004). The inflected PP in (34a) thus derives by means of morphophonological cliticization from a source as in (34b):

(34) a. [etrezi   [∅ hag ar gorrien]]
          between.3SG.FEM   and the dwarves
      b. etrez [hi hag ar gorrien]

Before concluding, I would like to remark that the pattern of inflected prepositions shows that there is a fine line between cyclic removal of structure and more surfacy morphological rules that are better analyzed in terms of context-sensitive spell-out. In particular, I would like to suggest that empirical problems such as the Complementarity Effect in Breton, which comes in various guises shows that some deletions operations apply in the syntax (i.e. REMOVE) but some may apply in the morphosyntax (i.e. OBLITERATION or IMPOVERISHMENT) or even later in the (morpho)phonology. I think that such patterns substantiate the claims made in Nevins (2012) that deletion is a general operation which is available at various points of the derivation including syntax proper. I would like to extend his typology of deletion processes to include a genuinely syntactic operation: REMOVE.

5.2. Two types of defaults

In this subsection, I very briefly address an issue raised by Jouitteau & Rezac (2006). They claim that it is a strong argument for their theory that verbs and prepositions show two different types of defaults in the presence of an overt subject/complement. Verbs show 3.SG default agreement but prepositions do not. They show the bare stem:

(35) a. Levrioù a=lenn-∅   ar vugale
          books   PTCL=read-3SG the children
          'The children read books.'
      b. Ul levr brezhonek a=zo   gant (/*gantañ)   Yannig.
          a book Breton   PTCL=BE with   with.3SG.MASC Yannig

'Yannig has a Breton book.'   Stump (1984)

According to their theory, this follows because in the case of the verbs, T probes for agreement features but finds merely the vP. And since the vP has nominal properties, it values the probe on T with default features 3SG. In contrast, a preposition does not probe for features at all and thus remains a bare stem if nothing cliticizes to it. In a sense, it can be said that the 3SG is a syntactic default which is inserted as the result of failed agreement and the bare stem is a morphological default which surfaces in the absence of cliticization.

I want to point out that while the story nicely accounts for the pattern, it is far from the only conclusion that can be drawn from the facts. Note that we cannot really say whether verbs show 3SG-agreement or the bare stem since the forms are both identical. So, we can simply state that both verbs and prepositions occur in the bare stem in the absence of ϕ-features.

But, more concretely, even if we found that verbs and prepositions exhibit different default patterns, nothing forces us to assume that these correspond to a syntactic default on the one hand and a morphological default on the other. It could simply be the case that prepositions have a fully specified 3SG-exponent (presumably because they also express gender) whereas verbs do not:

(36) *Verbal VIs:*

    a. $[_V [_\phi \ 1\text{SG}]] \leftrightarrow$ /-an/
    b. $[_V [_\phi \ 2\text{SG}]] \leftrightarrow$ /-ez/
    c. $[_V [_\phi \ 1\text{PL}]] \leftrightarrow$ /-omp/
    d. $[_V [_\phi \ 2\text{PL}]] \leftrightarrow$ /-it/
    e. $[_V [_\phi \ 3\text{PL}]] \leftrightarrow$ /-ont/
    f. $[_V [_\phi \ ]] \leftrightarrow$ /-∅/

(37) *Prepositional VIs:*

    a. $[_P [_\phi \ 1\text{SG}]] \leftrightarrow$ /-in/
    b. $[_P [_\phi \ 2\text{SG}]] \leftrightarrow$ /-it/
    c. $[_P [_\phi \ 3\text{SG.M}]] \leftrightarrow$ /-an/
    d. $[_P [_\phi \ 3\text{SG.F}]] \leftrightarrow$ /-i/
    e. $[_P [_\phi \ 1\text{PL}]] \leftrightarrow$ /-omp/
    f. $[_P [_\phi \ 2\text{PL}]] \leftrightarrow$ /-c'h/
    g. $[_P [_\phi \ 3\text{PL}]] \leftrightarrow$ /-o/
    h. $[_P [_\phi \ ]] \leftrightarrow$ /-∅/

I thus take it that the different defaults for verbs and prepositions can be accounted for in various ways including a straightforward morphological one and thus do not distinguish between different analyses.

5.3. Agreement with the verb *eus* ('have')

The final pattern I want to mention is the verb *eus* ('have') which constitutes the only actual counterexample against the Complementarity Principle in Breton as it shows agreement regardless of whether its subject is phonologically overt or covert:[10]

(38) a.   Bremañ o=deus   Azenor ha Iona un ti
           now   PTCL=have.3PL Azenor and Iona a   house
           'Azenor and Iona have a house now.'
      b.   Bremañ o=deus   un ti
           now   PTCL=have.3PL a   house
           'They have a house now.'   Jouitteau & Rezac (2006)

Since it can be shown that this verb derives from a combination of the copula and a preposition, Jouitteau & Rezac (2006) adopt the prepositional analysis of Schafer (1994) in which the subject of 'have' is located in the specifier of a PP. The preposition itself will undergo head movement into a copula higher up in the tree.

    It is not entirely clear how we accomodate these facts in our REMOVE-based account. Comparing the agreement morphology on the verb *eus*('have'), however, suggests that we are dealing with a rather impoverished agreement paradigm that it is quite different from the typical agreement paradigm of verbs in Breton.[11]

(39)   *Agreement of* -eus:

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[10]Jouitteau & Rezac (2006) note that the verb *eus* ('have') can also function as an auxiliary. Its behavior with respect to the Complementarity Principle is however unaffected. Even as an auxiliary, it will always show agreement.

[11]The table in (i) only gives the versions in Spoken Breton. Jouitteau & Rezac (2006) also give the versions in written Breton as well as various dialect forms. As far as I can see, the other forms do not add a whole lot of additional information.

	Spoken Breton
1.SG	meus
2.SG	teus
3.SG.Fem	neus/deus
3.SG.Masc	deus
1.PL	meump
2.PL	peus
3.PL	neunt

Jouitteau & Rezac (2006)

Given the facts that this kind of agreement is arbitrary both in terms of its morphological exponency and also inasmuch as it ignores the Complementarity Principle, I would tentatively like to suggest that this preposition is special inasmuch as it is the only element in the Breton language that bears a ϕ-feature probe. Thus, it is able to collect the features of the subject *before* the subject moves to the postverbal subject position SpecFP where it is potentially removed. I will readily admit that this is a mere restatement of the observed facts but I assume such a stipulation will be necessary one way or another to derive the exceptional character of this construction.[12]

6. Conclusion

In this paper, I put forward an argument that null subject constructions in the Celtic language Breton should be derived by means of syntactic structure removal. The argument is based on the fact that agreement in Breton is subject to the Complementarity Principle which states that only covert pronouns can control agreement on the verb. It has been shown that both types of theories are empirically and theoretically problematic for the facts in Breton. If the complementarity effect in Breton were due to a process of incorporation, this process would be fundamentally different from other incorporation/cliticization processes. If we were to derive the complementarity effects by means of

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[12]Jouitteau & Rezac (2006) assume that the PP that hosts the subject in this construction is - unlike the vP - transparent for ϕ-agreement of T. Thus, the case involving *have* emerge as the default case in a way as they are the only configuration where Breton exhibits successful ϕ-agreement with the subject. But it seems to me that it is equally stipulative to assume that this PP is exceptionally transparent for agreement (usually the arguments of PPs of course do not agree). Further, nothing is said about why the exponents of the agreement features in this case are so radically different from other verbs.

actual ϕ-agreement, we would face the problem that agreement seems to make reference to the phonological properties of the agreement controller; an assumption which violates the Principle of Phonology-free Syntax. Thus, both existing analyses face severe problems deriving the Breton facts.

I proposed an alternative analysis in terms of Structure Removal. I argued that pro-drop of postverbal subjects is to be derived by removing it from the derivation. But due to the reintegration property of REMOVE, this process leads to a situation where the ϕ-features of the removed subject reattach to the functional head which eventually will be realized as part of the verbal spine. Crucially, this is the *only* option for the verb to obtain the features of the subject. Since none of the typical functional heads in Breton bear a ϕ-feature probe, they will not agree unless REMOVE has taken place. Under this approach, the Complementarity Effect is straightforwardly derived. ϕ-agreement is an immediate consequence of removing the subject. Alternative approaches cannot employ any similarly direct implementation without violating the Principle of Phonology-free Syntax.

One final advantage of the present analysis, I would like to mention is that it provides a straightforward explanation for the question why the empty subject is structurally confined to the postverbal position. In typical *pro*-theories in which the empty pronoun is an active syntactic element, we would need additional machinery (i.e. licensing, etc.) to make sure that *pro* does not occur in the position before the finite verb leading to verb-initial matrix clauses, something that is unattested in Breton. In the present account, it is clear why the preverbal position cannot be occupied by the empty pronoun. The impression of an empty pronoun is created by syntactic removal of the subject in postverbal position. Thus, since the pronoun is literally removed (and not merely phonologically empty) it is clear why it cannot move to the preverbal position subsequently. This is a clear case of a syntactic opacity effect which poses a strong argument for the syntactic nature of REMOVE.

I further discussed various empirical issues in Breton including the issue of inflected prepositions. I argued (or rather, followed the argumentation in Jouitteau & Rezac 2006), that inflected prepositions which, at first sight, also obey Complementarity effects, are to be derived using more PF-like operations involving context-sensitive spell-out. This discussion showed that syntactic structure removal in a sense fits into Nevins' (2012) typology of deletion operations applying at different points of the derivation.

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