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## Book Section:

Brown, Dunstan orcid.org/0000-0002-8428-7592 and Sells, Peter orcid.org/0000-0003-4284-6947 (2016) Archi as a basis for comparing different frameworks. In: Bond, Oliver, Corbett, Greville, Chumakina, Marina and Brown, Dunstan, (eds.) Archi. Oxford University Press , Oxford , pp. 233-260.

https://doi.org/10.1093/acprof:oso/9780198747291.003.0008

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# Chapter 8. Archi as a basis for comparing different frameworks

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## 8.1 Introduction[1]

So far we have seen how the different frameworks approach Archi agreement on their own theoretical terms. Our aim now is to understand where they need to adopt similar ideas in order to deal with the data, and what Archi can tell us about the areas where they diverge. A particular challenge is understanding how the different levels of structure in each of the theories can be compared. Minimalism, for instance, relies at its core on a notion of constituency, while this is less fundamental for HPSG and LFG. The basic distinction between the means by which syntactic structure is built up, on the one hand, and linear order on the other allows for accounts where there may be crossing agreement relations within the clause. The clause is the limiting case of a canonical agreement domain, as we see in §8.2.1 with numeral phrases, where it is not possible for agreement to cross the clause boundary. This contrasts with the biabsolutive construction, which does not show canonical clausal properties and allows for crossing agreement, as we note in §8.2.2. For the biabsolutive construction each of the theories faces the challenge of creating separate domains in which agreement is associated with one of the two absolutive arguments. Biabsolutive constructions provide us with a particularly useful basis for comparison, which is why this chapter does not take the form of a large-scale comparison. Instead we note that numeral phrases give us good insight into basic clausal agreement, while biabsolutives represent the difficult end of the scale of clausal agreement.

As we shall see, the analyses of the Archi data in the biabsolutive construction entail some predictions with regard to agreement on adverbs, and also in relation to the scope of negation. We discuss these in §8.2.3. The status of these predictions raises a number of broader theoretical considerations, not least the issue of the relationship between syntactic structure and semantic scope. It is fair to say that many, if not most, syntacticians hold to the hypothesis that there should be a reasonably direct relationship between syntactic structure and semantic scope (Szabolcsi 2011: 1606). In §8.3 we introduce four necessary properties that the frameworks require in order to deal with the biabsolutive construction. These basically facilitate the differentiation of agreement domains, but the differentiation of these domains also raises questions about how much other syntactic phenomena, such as negation, should pattern with them. Throughout §8.3 we compare each of the frameworks for the four different properties. We note that the theories differ in where they locate the information about what is special in the biabsolutive construction. For HPSG and LFG what is special about the construction has its locus in the specification associated with the converb, while for Minimalism there is a special higher $v_2$ associated with this. All three differ in how they define a structural domain with one absolutive argument.

Despite clear differences between the approaches, one assumption might be that we could use constituent structure to account for agreement. This amounts to the theoretical claim that, in the default instance, agreement domains and other types of syntactic constituent should line up. Indeed, all of the three frameworks under consideration have available to them some notion of constituent structure, but they differ in the extent to which it is applied to agreement. In Minimalism reference to constituency is standard for defining agreement in terms of the Agree relation (Adger 2003: 169). HPSG has a number of means for accounting for agreement. One is constituency-based, and, according to Borsley (Chapter 5), this provides the best account of the Archi data. The alternative is the use of order domains, based on linear

order (Kathol 2000). Borsley (2009) argues that the linear order account is the best way to deal with agreement in Welsh. This provides an interesting point of contrast with Borsley's HPSG analysis of Archi, although even here an interaction of constituency and order domains is necessary, to 'liberate' forms that are required to be sisters for the purpose of agreement, but may have surface positions incompatible with a sisterhood relationship. Constituency in LFG is usually associated with c-structure, but this is not the natural locus in the framework for accounting for agreement. Agreement relations hold at f-structure (see Dalrymple 2001). This is a design feature of LFG that goes back to Bresnan (1982). However, it is not a straightforward matter just to say that some general notion of constituency plays no role in the LFG treatment of agreement. In his comparison of different frameworks Manning (1995: 3) actually equates LFG c-structure with HPSG order domains and Dowty's phenogrammatical structure, and LFG f-structure with the 'composition structure' of Kathol's (2000) HPSG, or what is simply syntax in classical HPSG (as of 1995).

At least as far as Archi agreement is concerned, HPSG and Minimalism converge on some role for what is generally considered constituency, although for HPSG, as the contrasting treatment of Welsh demonstrates, this is not a requirement in the way it must be for Minimalism. At a more general conceptual level the role of deeper syntactic mechanisms in the agreement system of Archi -- whether Minimalist constituency, HPSG mother-daughter relations, or LFG f-structures that create what is effectively clausal constituents -- is probably not surprising. Nakh-Daghestanian languages can be included among the usual suspects when it comes to other matters of agreement, such as long-distance agreement (LDA) (Polinsky & Potsdam 2001). A graph-theoretic notion, such as constituency, is a relatively efficient basis for distributing featural information, either through movement or some feature percolation mechanism.

Of course, the roles allotted to linear order and constituency have been, and continue to be, a big issue within syntactic theory. In a paper first written in 1989, Dowty (2012) draws on a distinction between *tectogrammatical* and *phenogrammatical* structure (Curry 1963). The former refers to the steps by which sentence structure is abstractly built up, and the latter refers to the surface order of the words. In a system where there is some kind of tectogrammatical structure, involving notional constituents such as VP (e.g. a verb and its object, yet to combine with its subject), an important consideration is that certain domains are what we might call "bounding". For instance, in the Archi biabsolutive construction, adverb agreement can be controlled by the object or by the subject, and should be associated with a different part of a constituent structure in the two cases (tectogrammatical structure in the terms used by Dowty). Yet Archi adverbs can also be 'liberated' outside of a lower VP structure (in the biabsolutive construction), suggesting the need for a separation of the phenogrammatical from the tectogrammatical. Some important questions are therefore how readily such bounding categories can be identified and defined in each of the theories, and how these categories relate to the actual surface strings that we find.

## 8.2. Clauses and agreement in Archi

Archi does not permit agreement relations that cross clause boundaries, apart from the cases of LDA noted above. We demonstrate the core agreement domain in the next section using the numeral phrases as a diagnostic. In contrast, the Archi biabsolutive construction shows two agreement domains, and yet has been shown to be a mono-clausal structure. Interestingly, it permits crossing agreement relations in some instances. This means that it requires some mechanism like a clause boundary to limit the relevant agreement domains.

## 8.2.1 Clausehood and numeral phrases

Numeral phrase agreement is a good diagnostic for determining the maximal agreement domain in Archi. These agreement data seem to show quite clearly that there are certain generalisations about the subject DP and about constituency within clauses. It seems to us that each of the three theoretical frameworks we are considering here can account for the behaviour in a similar way. Our purpose here is to understand the nature of agreement in terms of basic clausal structure before we move on to consider what the more challenging Archi biabsolutive construction can show.

In §3.2.4 and §4.2.2 we saw that the numeral imposes on its noun the requirement that it be in the singular, irrespective of whether it has singular or plural denotation. The numeral is still required to agree with the gender and number of the noun. This is illustrated in (1).

(1)  łippu        do:zu-b          ans
     three.III.SG  be.big.ATTR-III.SG  bull(III)[ABS.SG]
     'three big bulls'

Where the nouns have non-human denotation (either non-human animate or inanimate) agreeing items external to the numeral phrase will still have singular agreement. We can see this in (2) and (3).

(2)  os    e‹b›di-li        e‹b›di-t'u      arša      łippu        do:zu-b          ans
     one   ‹III.SG›be.PST-EVID  ‹III.SG›be.PST-NEG  Archi.LOC  three.III.SG  be.big.ATTR-III.SG  bull(III)[ABS.SG]
     'Once upon a time there were three big bulls in Archi.'[2] (= (21a), §4.2.2)

(3)  *os   edi-li          edi-t'u        arša      łippu        do:zu-b          ans
     one   [III/IV.PL]be.PST-EVID  [III/IV.PL]be.PST-NEG  Archi.LOC  three.III.SG  be.big.ATTR-III.SG  bull(III)[ABS.SG]
     Intended: 'Once upon a time there were three big bulls in Archi.' (= (21b), §4.2.2)

As the noun *ans* 'bull' does not denote a human, the (semantic) plural agreement on the verb is not possible here.

In contrast, if a noun has a human denotation, it is possible to have plural agreement in certain contexts, as we saw in §4.2.2. We can see this with overt pronouns when they have human referents, since there may be a choice of alternative agreements on converbs and verbs.[3] Of the logical combinations, one is ungrammatical and this allows us to infer the domain of agreement. This provides a benchmark or starting point for understanding simple agreement within clauses, as well as indicating that it is possible to make useful comparisons across the frameworks.

In (4) the free pronoun precedes the numeral phrase. The pronoun in this instance is in apposition to the rest of the DP. The noun meaning 'girls' in (4) is absent but recoverable from the context.

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[2]The English 'once upon a time there was/were' is an idiomatic translation of the combination of numeral 'one' and the past evidential form of the verb 'to be' followed by the negated past form of the verb 'to be', a construction that appears in Archi stories.
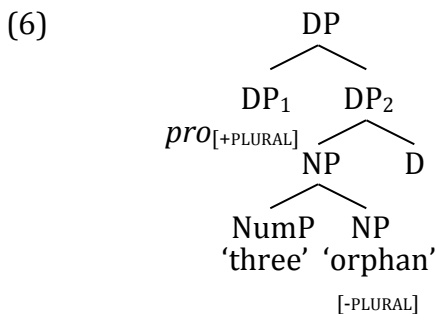
[3] In Archi pronouns can regularly be omitted, and this choice of syntactic or semantic agreement is still possible when people are being talked about.

(4) nen                q’ˤwe‹r›u      do-q’c’o-li          q’a‹r›di-li
    1PL.EXCL[ABS]      two‹II.SG›      II.SG-reconcile.PFV-CVB      ‹II.SG›sit.PFV-EVID
    'we two (girls) having reconciled (by then) were sitting there...' (Based on Sisters: 25)

In (4) the numeral 'two' could be situated in the higher clause, requiring singular agreement with the verb meaning 'sit', or it is situated in the lower clause, requiring singular agreement with the verb meaning 'reconcile'. It is also possible that for one of the clauses there is no overt argument, as is quite common in Archi. In (5), on the other hand, both the converb and the main verb are in the plural:

(5) nen                q’ˤweˤr›u      q’oc’o-li          q’iˤjdi-li
    1PL.EXCL[ABS]      two‹II.SG›      [1PL]reconcile.PFV-CVB      [1PL]sit.PFV-EVID
    'we two (girls) having reconciled (by then) were sitting there...' (Based on Sisters: 25)
    (= (58), §7.4.3.2)

The structure of this example can be treated in a similar fashion in all three frameworks, with the pronoun and numeral as part of a pronominally headed structure. This analysis is proposed by Polinsky, in (56b) in §7.4.3.2, repeated here as (6). The pronominal head is plural and the converb in the embedded clause is co-indexed with (agrees with) it.

(6)
```
                      DP
                    /    \
              DP₁      DP₂
        pro[+PLURAL]  /    \
                   NP      D
                  /   \
             NumP    NP
            'three' 'orphan'
                  [-PLURAL]
```

In a nutshell, plural agreement appears on the verb(s) when the index 1 of $DP_1$ is projected to the whole DP; and in the earlier examples showing singular agreement, it is the index 2 of $DP_2$ which projects. In each case, the entire DP is effectively the subject of both verbs in (2), (4), and (5).

Borsley's HPSG treatment makes use of the distinction between CONCORD and INDEX features (§5.4.3). In a numeral phrase, a noun with human denotation has a singular CONCORD feature and a plural INDEX feature. In examples like (5) there is agreement with the plural INDEX feature. LFG can also provide a similar treatment of data such as these.

In addition to these instances of all-singular or all-plural agreement, there are two further possibilities, one of which is ungrammatical. These provide us with a useful diagnostic for clause structure. The combination of singular and plural agreement in (7) is grammatical. As noted by Borsley (2013), the agreement in (7) does not involve crossing agreement relations, because the embedded converb clause agrees in number with the numeral phrase, and the main verb agrees with the pronoun in the higher clause.[4]

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[4] We are not in a position to rule out a simple linear effect whereby the first verb following the numeral is singular while the more distant one has plural (i.e. semantic) agreement.

(7)     nen          q'ˤwe‹r›u      do-q'c'o-li          q'iˤjdi-li
         1PL.EXCL[ABS]     two‹II.SG›       II.SG-reconcile.PFV-CVB      [1PL]sit.PFV-EVID

'we two (girls) having reconciled (by then) were sitting there...' (Based on Sisters: 25)
(= (59a), §7.4.3.2)

However, the reversed situation in (8) is ungrammatical.

(8)     *nen         q'ˤwe‹r›u      q'oc'o-li          q'a‹r›di-li
         1PL.EXCL[ABS]     two‹II.SG›       [1PL]reconcile.PFV-CVB      ‹II.SG›sit.PFV-EVID

'we two (girls) having reconciled (by then) were sitting there...' (Based on Sisters: 25)
(= (60), §7.4.3.2)

In (8) the crossing agreement relations are not possible, because the converbial clause is embedded within a matrix clause. This gives us evidence for the maximal agreement domain in Archi. For (7), the two indexed DPs are not a surface constituent, even though they are contiguous in the string. DP$_1$ is the subject of 'sit', in the main clause, and DP$_2$ is separate, and is the subject of 'reconcile', in the embedded clause (see (60) in Polinsky analysis (§7.4.3.2)). The ungrammaticality of (8) shows, as would be expected, that the plural pronoun alone cannot control singular agreement and the 'singular' numeral 'two' alone cannot control plural agreement.[5]

Crossing agreement relations are possible only within a clause. As we shall see in §8.2.2-§8.2.4, the Archi biabsolutive construction may involve crossing agreement relations, because it involves only one clause, in contrast with other related languages, such as Tsez, that have the biabsolutive construction (see Gagliardi, Goncalves, Polinsky & Radkevich 2014). The biabsolutive highlights some key differences in the frameworks.

## 8.2.2 Clausehood and the Archi biabsolutive

In the previous section we showed how numeral phrases can be used as a diagnostic for the maximal agreement domain. We now turn to how the different frameworks treat the biabsolutive construction. We were introduced to this in §4.3 and it has been discussed for each of the theoretical frameworks in their appropriate chapters. Here we revisit the basic data from §4.3. In (9) we see a basic Archi transitive clause, with a transitive subject in the ergative case. The auxiliary and the associated lexical verb agree with the object in the absolutive case. In (9) the object in the absolutive case is the gender III noun χˤošon 'dress'.

(9)     to-r-mi          χˤošon           b-a-r-ši          b-i
         that-II.SG-SG.ERG    dress(III)[SG.ABS]    III.SG-make-IPFV-CVB    III.SG-be.PRS
         'She is making a dress.'

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[5] It should be noted that this example would still be ungrammatical if the overt pronoun were omitted.

As noted in §4.3, an alternative construction to (9) is possible. This is where both of the arguments are in the absolute case; hence the term biabsolutive construction. As with the standard transitive in (9) the lexical verb takes the form of a converb. This can be the -*ši* converb or the -*mat* converb. For the -*ši* converb the biabsolutive construction is optional, so that either an ergative subject is possible, as in (9), or an absolute subject, as in (10).

(10)  to-r                 χˤošon              b-a-r-ši                    d-i
      that-II.SG[ABS]      dress(III)[SG.ABS]  III.SG-make-IPFV-CVB       II.SG-be.PRS
      'She is making a dress.'

As it is a pervasive rule of Archi syntax that agreement targets agree with the absolute argument, there is only one choice of controller in (9) for both the lexical verb and the auxiliary. They both agree with the object in the absolute case. For the biabsolutive construction, in contrast, there are two possible controllers. As we see in (10), the lexical verb agrees with the absolute object (Gender III), while the auxiliary agrees with the absolute subject (Gender II). This shows that there are two agreement domains involved: an outer or higher structure involving the absolute subject and the auxiliary, and an inner or lower structure involving the absolute object and the lexical verb.

In contrast with the -*ši* converb, if the -mat converb is used, the biabsolutive construction is obligatory. The equivalent of (11) with an ergative-marked subject would be ungrammatical.

(11)  to-r                 χˤošon              b-a-r-mat                  d-i
      that-II.SG[ABS]      dress(III)[SG.ABS]  III.SG-make-IPFV-CVB       II.SG-be.PRS
      'She is still making a dress.'

As with the -*ši* converb, the biabsolutive construction with the -*mat* converb involves agreement of the auxiliary with the absolute subject, while the lexical verb agrees with the absolute object. Both biabsolutive construction structures have progressive meaning, but the structure with -*mat* has the additional meaning of continuation in that the action is going on longer than anticipated. This is reflected in our translation of (11).

All of our discussion from this point on is based around a fundamental starting point. The data appears to show that within a single clause, a VP containing an absolute DP is one agreement domain (the "lower" domain) with a second absolute DP introduced above that VP, a "higher" agreement domain, consisting of the rest of the clause above VP. The first piece of evidence for this comes from the contrasting agreement behaviours of the auxiliary and the lexical verb, the former agreeing with the absolute subject, and the latter agreeing with the absolute object, as in (11).

In the next section, §8.2.3, we introduce the issue of scope as it applies to adverb agreement and negation, as these are particularly relevant for determining the adequacy of the different accounts. However, there are a number of issues that remain open, and we shall propose a number of predictions which need further investigation. These, in particular, involve diagnostic tests for which negation and the interpretation of adverb agreement are especially important. Before we move on to discuss the scope issues it is worth recapitulating some basic points about the relationship between the two converb types and the marking of aspect and negation, in order to frame our following discussion.

As noted in §4.3, the -*ši* converb is based on the imperfective stem, and the -*mat* converb must occur with the imperfective stem in the biabsolutive construction (although it can be

used with the perfective stem in other constructions). This is, of course, why the biabsolutive construction is associated with progressive meaning. When the biabsolutive construction involves the *-mat* converb, any negation marker must appear on the auxiliary. As we shall see later, the auxiliary is associated with the 'higher' structure related to the absolutive subject, and so there should be no problem allowing for the higher absolutive subject to be included in the scope of negation. Although not a biabsolutive construction, Kibrik (1977b: 152) provides an example of negation with the *-mat* converb, repeated here as (12), while making the point that negation applies only to the 'continue' meaning, and that there is no entailment that the event did not occur.

(12)     tu-w             w-irχ:ʷim-mat            w-i-t'u
        that-I.SG[ABS]     I.SG-work.IPFV-CVB      I.SG-be.PRS-NEG
        'He is not working.' (i.e. 'He is not continuing to work.') (Kibrik 1977b: 152)

While this is an intransitive example, it follows naturally that negation of a biabsolutive construction transitive clause involving *-mat* converbs should have a similar structure, as continuation (beyond the expected) is a salient feature of the semantics of that construction.

      As far as we can tell, the biabsolutive structure with the *-ši* converb, in contrast, may allow negation either to appear on the converb or on the auxiliary. This is probably related to a point made by Kibrik (1977a: 250): while it is not possible to create a negative form from the imperfective stem, it is possible to do so with a potentialis stem. Kibrik puts this down to the semantics: it is not possible to conceive of a negated event as simultaneous (i.e. imperfective), as simultaneity is a property of events, not their negation. Hence, the choice as to where the negation appears in the structure of the biabsolutive construction with the *-ši* converb is determined by whether the stem is imperfective or potentialis (contrast (19) with (17) and (18) in §8.2.3.2), and this is probably associated with a subtle difference in meaning. If the negation marker appears on the converb, then this must be in the potentialis form, where it means 'it was not possible to X'. The alternative where the negation marker appears on the auxiliary, involves the *-ši* converb remaining in the imperfective, and it would be reasonable to assume that, as with the structure of the biabsolutive construction associated with the *-mat* converb, that it is the imperfective element itself that is negated. Bearing this in mind, we proceed to consider scope in the next section.

### 8.2.3 Issues of scope

#### *8.2.3.1 Adverbs*
Data on adverb agreement was introduced in §3.3.4 and §4.4.2. In contrast with lexical verbs and auxiliaries, where agreement is fixed with the object and subject respectively, in the biabsolutive construction, adverbs can alternate between agreement either with the subject or with the object. For the *-mat* converb agreement it appears to be easier to obtain agreement with the absolutive subject. If, as appears to be required by the different theoretical approaches (see §8.2.4), there is a 'higher' and a 'lower' structure involved in the biabsolutive construction, then we would expect there to be some correlation in meaning. This does appear to be borne out by the examples in (13) with the *-ši* converb, repeated from §4.3.2.1 and discussed by Borsley, Sadler and Polinsky (Chapters 5-7).

(13) a.

| Pat'i | ditːa‹b›u | qˤʷib | b-o‹r›kɬin-ši | d-i |
|---|---|---|---|---|
| Pati(II)[SG.ABS] | early‹III.SG› | potato(III)[SG.ABS] | III.SG-‹IPFV›dig.IPFV-CVB | II.SG-be.PRS |

'Pati is digging the potatoes out early.' (It is too early for the potatoes to be ready.) (= (42a), §4.2.3.1)

b.

| Pat'i | ditːa‹r›u | qˤʷib | b-o‹r›kɬin-ši | d-i |
|---|---|---|---|---|
| Pati(II)[SG.ABS] | early‹II.SG› | potato(III)[SG.ABS] | III.SG-‹IPFV›dig.IPFV-CVB | II.SG-be.PRS |

'Pati is digging the potatoes out early.' (Pati got up early.) (= (42b), §4.2.3.1)

In (13a) the adverb *early* agrees with the absolutive object, while in (13b) it agrees with the absolutive subject. There is a difference in meaning. In (13a) it is too early for the potatoes to be dug up, whereas in (13b) Pati got up early to dig the potatoes. This appears to bear out the structural distinctions required by the different analyses, which we discuss later in §8.3.

However, there are also examples where this difference in scope does not appear to pattern with agreement. Borsley (Chapter 5) shows how the crossing agreement in (14) can be accounted for by allowing the VP complement to be discontinuous. This means that sisterhood is defined, following Dowty's terms, on the basis of the tectogrammatical structure (or HPSG DTRs). The element that is externalized, or 'liberated' is still a sister in constituency terms, but does not form a linearly contiguous entity. This can be the case with adverbs in Archi. The adverb is treated as being a constituent of the VP, and given the rule that an agreeing element such as an adverb agrees with its absolutive sister, the adverb correctly gets the gender IV agreement with its constituent structure sister, the absolutive object *q'onq'* 'book'. However, given what we have in (13), one should also expect the reading associated with the object, rather than the subject. The current translation of (14) indicates that *early* scopes over the subject; (14) should mean 'It is too early for him to be reading a book (e.g. he is too young)'.

(14)

| tu-w | q'onq' | o‹r›kɬin-ši | w-i | ditːa‹t'›u |
|---|---|---|---|---|
| that-I.SG[ABS] | book(IV)[SG.ABS] | [IV.SG]‹IPFV›read-CVB | I.SG-be.PRS | early‹IV.SG› |



'He is reading a book early.' (= (45), §4.3.2.1)

If this distinction between higher and lower domains is reflected in the semantics, then in fact the other alternative agreement in (15) should be the one with the 'higher' reading where the subject gets up early to read the book.

(15)

| tu-w | q'onq' | o‹r›kɬin-ši | w-i | ditːa‹w›u |
|---|---|---|---|---|
| that-I.SG[ABS] | book(IV)[SG.ABS] | [IV.SG]‹IPFV›read-CVB | I.SG-be.PRS | early‹I.SG› |

'He is reading a book early.'

It turns out, however, that our consultants differ in how they interpret these sentences, indicating that the relationship with the semantics is not that straightforward. We turn now to the issue of negation, and how it might be associated with the structures posited for the different analyses.

### 8.2.3.2 Negation

We noted earlier that the biabsolutive construction with the *-mat* converb permits negation only on the auxiliary, and that the associated meaning most likely involves negation of the continuous aspect element only. In contrast the biabsolutive construction with the *-ši* converb allows negation on either the auxiliary or the converb, but possibly with a difference in meaning. The Archi word *kʷihoːnu* 'nobody' is a negative polarity item (NPI) in the familiar sense (see e.g. Giannakidou (2011)). As such, it appears in structures containing sentential negation yielding a reading equivalent to a single logical negation, as demonstrated in (16), from Chumakina et al. (2007b). It cannot be used as a one word answer to a question such as, 'Who came to work today?'; this shows that it is not inherently negative, but needs a true negation to license it.

(16)  jasqi    ari-li-tːi-k                 kʷihoːnu                qʕa-tʼu
      today    work(IV)-SG.OBL-SUP-LAT     nobody(IV)[SG.ABS]     [IV.SG]come.PFV-NEG
      'Today nobody came to work.'

In the biabsolutive construction in (17) negation appears on the converb, that is, in the lower structure taken to be required in some form by the different theories.

(17)  kʷihoːnu              qˤʷib                o‹b›kɬnaː-tʼu-ši            edi
      nobody(IV)[SG.ABS]    potato(III)[SG.ABS]  ‹III.SG›dig.POT-NEG-NEG-CVB   [IV.SG]be.PST
      'Nobody was digging the potatoes (though they were supposed to).'

Given that the negation on the verb must license the appearance of the NPI in the higher structure, then it would appear that the negation on the converb in (18) must be able to scope over the whole clause. (Note also that the converb agrees with the object, as expected.) This might be an issue for a given theory, depending on how the domain for negative scope is defined.

(18)  doːˤzi-m-me-tːi-k                oj                  ačoː-tʼu-ši           e‹r›di-li
      be.big-ATTR-PL.OBL-SUP-LAT      ear(IV)[SG.ABS]     [IV.SG]put.POT-NEG-CVB  ‹II.SG›be.PST-EVID
      jamu-r                          ɬːonnól
      that-II.SG                      woman(II)[SG.ABS]
      'That woman was not listening to the elders.' (lit. 'without putting her ear to the elders was that woman')

(17) and (18) indicate that negation scopes over the whole clause, even when it is marked on the lexical verb in the lower structure. A question that arises is whether we would expect the domain of agreement to coincide with other domains, such as that of the scope of negation.

The *-mat* converbs are less problematic as they only permit the negation to appear on the auxiliary, which is in the higher structure, as shown in (19).

(19)  Patʼi             kʼob                  o‹r›cʼu-r-ši                    d-i-tʼu
      Pati(II)[SG.ABS]  clothes(IV)[SG.ABS]   [IV.SG]‹IPFV›wash-IPFV-CVB     II.SG-be.PRS-NEG
      'Pati is not washing the clothes.' (= (88), §6.4)

Example (19) is fine, because the negation has scope over the whole clause.

We have seen that there are structures that are problematic for the different frameworks, given their reliance on some assumption of a higher or lower domain to account

for the behaviour of the biabsolutive construction. However, there are still a number of points of uncertainty as regards the data. As we noted, a difference should be predicted for (14) and (15).  The data for negation scope, so far, do not appear to support the proposed structures, while there are some interesting predictions about the interaction of negation and agreement on adverbs. For instance, in a variant of (18) that contained the adverb 'early', we would not expect this to be able to agree with the subject and be within the scope of negation. However, (16) already suggests that negation does scope over the subject, in which case the theoretical accounts will need further refinement.

So far we have been using the notions of 'higher' and 'lower' structure in a loosely defined way. In the next section we show how each framework makes use of some concept that gives us a higher or lower verbal domain. As we have seen, there is an expectation that the higher and lower domains will interact with negation and adverb agreement. Examination of the three different theoretical accounts shows that there are four key properties that each require in some form or another. They represent key fixed points from which we can compare the different theories.

## 8.3 The frameworks and the four necessary properties

For the biabsolutive structures, we have identified four salient properties (20i-iv below) which are necessary in some form in any theoretical account. These are obtained by abstracting over the generalisations in the data as well as the proposals for specific analyses within each of the frameworks. The biabsolutive construction involves a lexical verb (in the form of a converb) and an auxiliary verb. The data suggests that within a single clause, a VP containing an absolutive DP is one agreement domain (the "lower" domain) and then a second absolutive DP is introduced above that VP, which is then in a "higher" agreement domain of the rest of the clause above VP.

From these observations, the four necessary properties for the analysis of biabsolutives are the following:

(20)  i.     relative to a V in a regular transitive clause, a special lower V, v1
      ii.    relative to a V in a regular transitive clause, a special higher V, v2
      iii.   a mechanism to ensure that the lower domain VP is built within the higher
             domain clause
      iv.    a mechanism for agreement to be stated over a structural domain which
             contains exactly one Absolutive DP

We now move on to consider how these key properties are instantiated in each of the theories. We refer the reader back to the individual chapters for the details. All three frameworks have some way of expressing the distinctions between higher and lower domains in (20i-ii), to enable the biabsolutive construction at all. For (20i), our observation is that the lexical verb, which is the lower verb, must differ from a regular transitive verb in not requiring an ergative-marked higher argument above the domain of the lower absolutive argument. For a regular transitive verb, the domain of agreement would simply extend to the whole clause, ignoring – for agreement purposes – the higher argument. For (20ii), the auxiliary verb must select for a subject and a transitive verb, yet sanction absolutive not ergative marking on that subject. The frameworks differ more substantially in how they ensure that the lower domain is built within the higher one (20iii) and the means by which a

structural domain is defined that contains just one absolute DP with which agreement can be defined (20iv). We consider first HPSG, before moving to LFG and Minimalism.

## 8.3.1 HPSG and the four necessary properties

As Borsley notes (§5.1), there are a number of ways in which HPSG can handle agreement. One is a constraint on argument structure, in the form of ARG-ST lists, and this is a standard assumption within much of HPSG, because ARG-ST lists are used to represent null subjects and unbounded dependency gaps. As these are often involved in agreement, ARG-ST is a natural place to situate constraints on agreement. The reason for ruling ARG-ST out as the means for encoding constraints on agreement in Archi is that agreement is not limited to a head and its arguments.[6] While verbs agree with the absolutive argument, other items do as well. In (21), repeated from §3.3.3, the ergative argument agrees with the absolutive argument. This is because the ergative argument is a first person plural inclusive pronoun, which has an agreement slot. The ergative does not show agreement if it is a noun, and when it is a pronoun it only agrees in certain person, number and case combinations (see §3.3.3, Table 3.4).

(21)  ja-b       pəlow               nena‹b›u            bu-kneː-t'u

      that-III.SG pilaw(III)[SG.ABS]  1PL.INCL.ERG‹III.SG›  III.SG-eat.POT.NEG-NEG

      'We will not eat that pilaw.' (based on T9: 17) (= (42), §3.3.3)

Furthermore, as we saw in §3.3.3, not only can one argument of a verb agree with another, as in (21), but it is also possible for the argument of a postposition phrase to agree with an argument of the verb. We see this in (22). This means that the PP must have AGR-C on it, inherited from the P head. It is not clear, however, that AGR-C is passed from head to projection on any other phrase.[7] The postposition governs the dative case and in this instance the governed item is a pronoun. This is one of the pronouns in dative case which must agree with the absolutive argument, here the unexpressed subject of the intransitive verb 'go'. However, the ARG-ST lists of the postposition 'behind' and the verb 'go' are two separate lists, so an agreement relation between the verb's argument and the postposition's argument cannot be stated.

(22)  d-ez       χir      d-e‹r›qˤa-r-ši        d-i

      II.SG-1SG.DAT behind   II.SG-‹IPFV›go-IPFV-CVB    II.SG-be.PRS

      'She follows me.' (male speaking) (= (50). §3.3.3)

Another example of agreement which is not between a head and its arguments involves adverbs, as we saw in §3.3.4, but such an adverb could belong to the same ARG-ST as the absolutive: this would give a flat structure and enable agreement with the absolutive sister.

      Having ruled out ARG-ST lists as the locus of agreement constraints for Archi, HPSG then has the choice between stating the agreement constraint as one defined on members of the

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[6] We believe that a case could still be made for the use of ARG-ST. It may well be possible to state the relevant agreement constraints on ARG-ST lists, with a special treatment for PPs to allow them to be permeable. The biabsolutive data provide the strongest argument against the use of ARG-ST, but this argument holds only if the scope distinction between high and low domains holds (see §8.2.3).

[7] In contrast, the VP in the biabsolutive structure is not allowed to inherit the AGR-C value, as there would then be too many absolutive sisters.

same order domain, or in terms of constituency, where an agreeing item in the same constituent can agree with its sister. (Note that when the term 'sister' is used it is in the tectogrammatical or constituency sense, rather than as an order domain notion.) As Borsley notes (§5.4.2), it is hard to distinguish between the two possibilities. However, Borsley argues that the biabsolutive structures in Archi do provide a means for distinguishing between the two. Recall from our discussion of (8) in §8.2.1 that it is not possible for agreement relations to cross from one clause to another. In other words, Archi clauses are bounding categories out of which elements cannot be 'liberated'. We can contrast this property of Archi converbial clauses with participial and infinitival clauses in Finnish, for instance, as these are not bounding categories for liberation (Dowty 2012: 8 in ms; Karttunen 1989: 48). Unlike Archi complex clauses (see §8.2.1 above), Archi biabsolutive constructions do allow crossing agreement relations, as Borsley notes. Example (14), repeated here as (23), is just such an example.

(23)     tu-w           q'onq'          o‹r›kɬin-ši         w-i           diˑaˁt'ˈu
        that-I.SG[ABS]    book(IV)[SG.ABS]   [IV.SG]‹IPFV›read-CVB   I.SG-be.PRS   early‹IV.SG›
        'He is reading a book early.' (= (45), §4.3.2.1)

Borsley argues that this provides evidence of a mismatch between order domains (DOM) and constituency (DTRS). Agreement is defined through constituency. There are two agreement domains of DTRS in (23) but only one linear ordering domain DOM. The agreement in (23) can therefore be accounted for in terms of a rule that constrains an agreeing item to agree, in its index feature (clausal agreement), with a sister that is in the absolutive case. We repeat Borsley's (§5.4.2) rule here as (24).

(24)  [DTRS [1]<... [AGR–C [2]] ...>]      ⇒   [DTRS [1]<... [CASE *abs*, INDEX [2]] ...>]

      Crucial for Borsley's analysis is the view that constituency need not be binary branching.[8] Clausal agreement provides evidence for constituency, irrespective of how many daughters it contains, while linear order provides evidence, naturally, of the order domain.

*8.3.1.1 HPSG and the special lower V*

As we saw in the earlier chapters, in all of the frameworks nothing special (in the context of Archi grammar) is required for domains when the verb combines with its higher (ergative) argument. But in the biabsolutive construction something special is required. Borsley refers to this as a VP in his HPSG analysis, but there is something equivalent in each theory. In fact, it is only in the biabsolutive construction that we perhaps find an identifiable VP structure across the theories. The special lower V associated with property (20i) is achieved in HPSG,

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[8] Flatter constituency is not a problematic notion for HPSG, and indeed more broadly it is possible to make powerful arguments against treating syntax as reducible to binary branching structures. These include the point that the derivations required to make binary branching work can present a learnability problem (Culicover & Jackendoff 2005: 112), and that learnability is only a problem when there is a choice to be made between branching types; if a theory has stipulated a type in advance, there is no problem (Culicover & Jackendoff 2005: 112). Culicover & Jackendoff (2005) also refer to Johnson & Lappin's (1999) point that any operation is minimally binary; we do not need to assume that there is anything special about the relationship between binary branching structure and minimalist merge in its simplest form, contra Collins' (1996) claim. For Archi, in terms of the two structural means available in HPSG, there is a relatively transparent relationship that should facilitate learnability. Agreement provides evidence for constituency, and order domains can be observed in the linear order.

because the lexical verb in the biabsolutive construction is a special one that selects for two absolutive arguments. We repeat Borsley's HPSG structure for the biabsolutive construction in (25) below. We discuss the specifications for [INV] on the verbs in §8.3.1.5 below.

(25) The HPSG analysis of the biabsolutive construction (= (52), §5.4.2)



But:a(I)[SG.ABS]    grain(III)[SG.ABS]    III.SG-‹IPFV›sort-IPFV-CVB    I.SG-be.PRS
'Butta is sorting grain.'

The lower V in (25) requires as its arguments two absolutive NPs. One is indexed [1] in the higher structure, and the other is indexed [4] in the lower structure. These are picked up in the ARG-ST list associated with the lower V. While they may differ in details of implementation, a similar strategy has to be applied in the other two frameworks.

Given that many syntacticians would assume a fairly direct relationship between scope and syntactic structure, the question naturally arises what other phenomena, other than agreement, this distinction accounts for. We saw in §8.2.3 that there appears to be some evidence for scope effects, because adverb agreement can alternate between being subject-oriented or object-oriented in the biabsolutive construction. However, while this was the case for some examples, for others where the difference in syntactic structure should reflect a difference in the scope readings for the adverb 'early' we have insufficient information, but there are clear predictions about how the agreement should pattern. Negation, as noted in §8.2.3.2, must be marked on the auxiliary if the *-mat* converb is used, whereas it may vary between the converb and the auxiliary if the *-ši* converb is used. All three frameworks, we expect, might make similar predictions about the scope of negation, as well as the interaction of negation and adverb agreement. [9] When the negation is marked on the *-ši* converb it is not clear how it can have scope over the subject in the higher structure in (25), a point that holds

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[9] One possibility that we are not in a position to rule out is that the scope of negation is simply the clause.

for all of the frameworks given their similar reliance on the structure associated with the lower V.

We will return to the predictions associated with negation and adverb agreement in our concluding discussion. We now turn to the second of the four necessary properties, the special higher V that is required relative to a V in a regular transitive clause.


### 8.3.1.2 HPSG and the special higher V

In (25) the auxiliary verb is treated as [INV+],[10] and it has both the (biabsolutive) VP and the subject NP as its sisters, while the converb in the lower VP is [INV-] because it takes only the absolutive object as its sister.

While auxiliaries are [INV+] in non-biabsolutive constructions and biabsolutive constructions alike, in order for them to occur in structures such as (25) they require a different ARG-ST specification. We repeat Borsley's constraint from §5.4.2 in (26).

(26)    [ARG-ST <[1]NP, VP[SUBJ <[1]>]>]

Unlike the standard specification for auxiliaries in non-biabsolutive constructions, the constraint specifies a VP – only required for the biabsolutive construction – and the subject of the VP must be the subject of the higher structure, as indicated by the index [1] in (26). We saw this structure in (25). Structure-sharing is also involved, because the higher V, the auxiliary, and the lower VP share the same element, the NP subject (in this example *But:a*). Hence, the higher V, the auxiliary, selects for a lower VP whose subject is the NP in the higher structure associated with that V.

The special properties of the higher V are a necessity for each of the theories. The LFG analysis (Sadler, Chapter 6) also assumes a mechanism whereby the higher auxiliary selects for a main verb, although Borsley's specification in (26) makes reference to the VP, rather than the actual main verb within the VP. Polinsky's Minimalism analysis (Polinsky, Chapter 7) uses a little *v2* to define a higher domain. While all theories have some way of providing a higher and a lower V, the HPSG analysis provides a contrast between the higher V and the lower V in terms of the INV feature, also suggesting that there is something special about the binary structure of the lower VP in contrast with the flatter structure into which it is embedded. For Minimalism, on the other hand, these structures are treated as being similar in nature.

We now consider the means by which HPSG situates the lower V within the higher one.


### 8.3.1.3 HPSG's means for situating the lower V within the higher one

In clauses that are not biabsolutive HPSG has a flat structure, so that the absolutive sister rule (24) can apply throughout the whole clause. However, in order for there to be a lower VP for the biabsolutive construction, HPSG needs a special ID rule that builds the lower VP within the higher domain. All of the frameworks require something of this sort, but what is more important is which of the verbs the rule is associated with. In HPSG, as with LFG, it is associated with the lower one, while in Minimalism, it is associated with the higher one.

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[10] Formally "INV" stands for "inverted". However, the relevant property is that a verb with this specification combines with all of its arguments at once; an [INV –] verb only combines with its non-subject arguments.

*8.3.1.4 HPSG's means for defining a structural domain with one absolute argument*

We have observed that the HPSG analysis requires a mechanism for agreement to be stated over a structural domain which contains one absolutive DP; usually there would be one such DP per clause. We can express Borsley's rule in (24) informally as (27):

(27)    An agreeing element agrees with an absolutive argument that is a sister.

In a regular clause, this means that all arguments and adjuncts have to combine at once, to ensure the correct sisterhood relationship. In turn, this would mean that adjuncts have to be represented on an extended ARG-ST or other VALENCE list, with the ID-rule saturating the entire valence list at once.

In the biabsolutive construction, there are two agreement domains of the type entailed by (27). On the surface, crossing agreement dependencies arise from the liberation into order domains from the combinatoric constituency which (27) refers to. Returning to our earlier discussion, this means that Borsley's HPSG analysis of agreement in Archi treats it as a 'tectogrammatical' phenomenon in Dowty's terms. It is a less 'superficial' kind of agreement than is found in Welsh. Crossing agreement relations are essentially diagnostic of a mismatch between constituency and linear order. However, because on the HPSG analysis agreement in Archi expresses constituency it should help a learner acquiring the language to determine the constituency.

As noted above, there must also be a separate ID-rule to create the lower domain VP. An important role for this ID-rule is to prevent the verb in the lower domain from combining with its subject. The VP created by the ID-rule VP could not be part of a full clause unless it is selected by a higher predicate. The higher predicate in the biabsolutive construction is, of course, the auxiliary which is the special V2 in the HPSG analysis. Further, it is important to note that if there are other elements agreeing in the higher domain they must notionally be dependents of the auxiliary, not of the converb located in the lower domain.

When we consider adjunct agreement (e.g. involving adverbs) Borsley's rule (27) requires a choice between two basic possibilities for agreement with the higher absolutive subject in the biabsolutive construction. The first of these choices requires the converb in the lower VP to combine with all of its arguments (excluding the subject) and any adjuncts that may agree with it, with the exception of any adverb that agrees with the higher absolutive subject. (We understand 'combine' here in its tectogrammatical, constituency-oriented sense.) Then, in the higher domain the auxiliary must combine with the subject argument and all remaining adjuncts that agree with the subject. So the auxiliary saturates everything that was not saturated in the VP. Hence, if potential mismatches arise between the scope of the adverb and its agreement, this may be problematic, especially because we would expect deeper constituency-based agreement to be more likely to line up with semantic requirements than its more superficial counterpart.

The second of the choices that are compatible with Borsley's rule (27) is cleaner structurally, but may be empirically more problematic. This requires everything that agrees with the higher absolutive subject to be solely on the valence list of the auxiliary. The reason why we consider this to be empirically problematic is because the set of agreeing items in Archi is large, and this essentially means that we would require multiple valence list specifications for auxiliary verbs, potentially including ones for agreeing pronouns, the postposition *eq'en*, as well as adverbs. The set of analytical approaches to adverb agreement in the Minimalist Program that Polinsky adopts (§7.4.1) in her (38) all appear, to a greater or lesser extent, to assume the same property as this second option.

As we have seen, the HPSG treatment of the biabsolutive relies on a very general rule for Archi, namely Borsley's rule that states that agreement targets agree with an absolutive sister. Sisterhood is defined in terms of the deeper, tectogrammatical, notion of constituency, with crossing agreement relations being explained by 'liberation' out of constituents according to order domains. In order to facilitate the agreement with the absolutive there is an assumption that constituent structure need not be binary branching. There is also the deeper question of whether the constituency assumed, particularly for the VP in the biabsolutive construction, should reflect properties of scope, or at least have some clear semantic correlate. It might be reasonable to require that it should, given that analysis of agreement in Archi is not as surface-oriented as for other languages. Furthermore, the treatment of the biabsolutive construction requires a number of supplementary distinctions that one could argue complicates things unnecessarily. These include a special lower V marked as [INV -], rather than the default [INV +]. In addition to this, a special ID rule is required to restrict the [INV -] marked lower V to combination with just its complements, as sisters of the same constituent. A special auxiliary is required to select for a VP[INV-].[11] This is because a regular auxiliary would select for a V and inherit all its arguments by argument composition. However, it may be that the analysis would work without using the INV feature at all, because a special ID rule is required anyway, and there is a special auxiliary that selects for the biabsolutive construction's VP. Another important observation that Borsley makes below (50) in §5.4.2 is that the lower VP itself cannot inherit the AGR properties of its head, because, if it did, the auxiliary in the higher domain would have two sisters marked as absolutive, and therefore there would be a problem determining which of the sisters the auxiliary would agree with, according to Borsley's rule. This contrasts with the PP in Borsley's chapter, his example (58), which does inherit the AGR properties of its head. The question naturally arises whether the treatment in (58) would be compatible with a biabsolutive construction that also contained the agreeing postposition *eq'en*.

This concludes the discussion of the HPSG analysis, and we turn now to look at how the LFG analysis relates to the four properties.


### 8.3.2 LFG and the four necessary properties

In LFG, agreement refers to f-structure information; two or more different nodes in the c-structure put constraints on the same piece of f-structure. Sadler (Chapter 6) employs a feature[12] PIV (pivot) for agreement in f-structure, a use which follows Falk (2006a) and Belyaev (2013), to pick out the single GF (grammatical function) of an intransitive and the lower GF of a transitive in Archi – these are the arguments which will be in the absolutive case. Agreement within the clause (the f-structure nucleus) then refers to PIV. In addition to verbs, other elements within the clause which agree with the absolutive are associated with a constraint which states that they agree with the PIV of their nucleus – with an extension for personal pronouns (Sadler's examples (42) and (45), for instance).


*8.3.2.1 LFG and the special lower V*

The special lower V (the converb) in the biabsolutive construction is accounted for by (95) in Sadler's analysis (§6.4), repeated here as (28).

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[11] We believe that it cannot just select for [INV -].
[12] For consistency with the rest of the chapter, we use "feature" here instead of the usual LFG term "attribute".

(28)     BAC(FN) ≡  (↑ PRED) = 'FN < SUBJ, OBJ > '
                    (↑ SUBJ CASE) = ABS
                    (↑ OBJ CASE) = ABS

This is a template which assigns absolute case to both arguments of a biabsolutive transitive verb, instead of making the standard requirement that the higher argument be ergative. As we have noted above, the special lower V (such as (28)) does co-occur with a higher V which will complete the analysis. This is accounted for in the LFG analysis through appeal to the selectional properties of the auxiliary. In the other direction, though, it would appear that nothing in the LFG analysis as given requires there also to be an auxiliary in the structure as well as the converb (see §8.3.2.3), so this might require some further specification.

### 8.3.2.2 LFG and the special higher V

The higher V is an auxiliary that selects for aspect – the feature ASP on the auxiliary needs a value, which is supplied by the lower main V. This copular verb has different agreement properties from other verbs, not referring to PIV; it is specified also to agree with its own SUBJect, if that SUBJect has absolutive case, as in (98) in §6.4. The determination of case on the SUBJ actually comes from the lower verb, as we saw for (28) just above (though see 8.3.2.4 below).

### 8.3.2.3 LFG's means for situating the lower V with respect to the higher one

The analysis as given has the consequence that the higher verb only appears when the lower does, as the lower one provides the value of ASP for the higher verb. Yet the analysis does not seem to require the lower verb to appear only in the presence of the higher auxiliary. It would be straightforward to code something into the analysis, using constraining equations. This is the only possibility for an Aux-Feature analysis, which Sadler adopts. Specifically, the converb would need to constrain a value for some feature which is supplied by the right kind of auxiliary. In fact, though, this perhaps should not be unexpected, as the notion of a "converb" must mean that another verb should be in the structure, and the constraining equation would be a formalisation of that dependency.

It would be straightforward to analyse the co-dependence between the converb and the auxiliary using an Aux-Pred analysis, but this is not preferred on other grounds, as it implies a biclausal structure. For instance, the Aux-Pred analysis cannot straightforwardly account for the negation in (29).

(29)     doːˤzi-m-me-tːi-k          oj                 ačoː-tʼu-ši
         be.big-ATTR-PL.OBL-SUP-LAT  ear(IV)[SG.ABS]    [IV.SG]put.POT-NEG-CVB

         e‹r›di-li                 jamu-r             ɬːonnol
         ‹II.SG›be.PST-EVID        that-II.SG         woman(II)[SG.ABS]

         'That woman was not listening to the elders.' (lit. 'without putting her ear to the elders was that woman') (= (18), §8.2.3.2)

With an Aux-Pred analysis the prediction would be that negation could only scope in the inner nucleus, headed by 'put', rather than scoping over the whole clause/outer nucleus headed by 'be'. In her analysis Sadler presents an example of negation that goes the other way, with the negation marking appearing on the auxiliary, arguing that it can only appear on the copula (Sadler, example (88) in §6.4). While it is not clear what patterns are allowed for

negation marking, it does appear to be the case that it needs to scope over both agreement domains in the biabsolutive construction, indicating that an Aux-Pred analysis with LFG would require some work to overcome the monoclausal nature of the biabsolutive construction.

The LFG analysis could assign a completely flat c-structure for all Archi clause structures, including the biabsolutive ones, as all agreement relations are stated on f-structure (see §8.3.2.4 below). This is an important contrast with both the HPSG analysis and the Minimalist one. And, of course, it should be borne in mind that the evidence for the VP constituent associated with the biabsolutive construction in the other analyses is indirect. There is one piece of clear evidence that there are two agreement controllers in the biabsolutive construction, the basic facts of verb agreement as in (10). The question is whether this notion of two controllers should be equated with two domains, in some representation of constituent structure.

As we noted earlier, Manning (1995: 3) equated LFG c-structure with HPSG order domains. If this comparison is valid, what the Archi data allow us to see is that the c-structure of LFG is much more surface oriented than the notion of constituency as applied from the HPSG or Minimalism perspective. In the LFG analysis, there is no particular motivation for a "lower VP" in the c-structure of the biabsolutive construction; a flat(ter) c-structure containing two Vs, either in a verbal cluster, or simply as daughters of S, would serve equally well.

It is not straightforward to define two domains at f-structure in the biabsolutive construction, so LFG raises most pointedly the question of whether two actual domains (as opposed to two agreement controllers) are motivated.

### 8.3.2.4 LFG's means for defining a structural domain with one absolutive argument

Agreement in the LFG analysis is standardly stated over a domain which contains one PIVot, which is structure-shared with the content of the lowest absolutive DP. As we have noted, there is no "constituent" as such which is a domain of agreement in the c-structure sense – rather, it is a nucleus in f-structure with a PIV. It would not matter what (configuration of) structure that nucleus corresponds to.

In the biabsolutive construction there are notionally two agreement domains. This means that the assumption of a mechanism involving a single PIV as agreement controller needs to be augmented in order to determine the application of agreement. However, allowing two nuclei in f-structure (one PIV per nucleus) would imply a bi-clausal analysis, and this is rejected, as discussed above in §8.3.2.3, by Sadler (Chapter 6), and also in the typological account of the biabsolutive in earlier chapters. The relevant elaboration to allow for different controllers for agreement can be accounted for by making agreement sensitive to the PIV of the nucleus or the absolutive SUBJect. In fact, an absolutive SUBJ will only be distinct from PIV in the case of the biabsolutive construction. Sadler's analysis makes the following initial prediction for the biabsolutive construction: the only thing that the auxiliary can agree with is the absolutive subject; and this is borne out by examples such as (30). This creates, to a certain degree, "lower" and "higher" agreement domains, without any actual constituency being invoked, and just in the case of the biabsolutive construction.

(30)  Pat'i            dit:a‹b›u      qˤʷib              b-o‹r›kɬin-ši           d-i
      Pati(II)[SG.ABS]   early‹III.SG›   potato(III)[SG.ABS]   III.SG-‹IPFV›dig.IPFV-CVB   II.SG-be.PRS
      'Pati is digging the potatoes out early.' (It is too early for the potatoes to be ready.)
      (= (42a), §4.3.2.1)

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However, if adverb agreement is sensitive to the 'higher' domain, as appears to be the case in (31), then further elaboration of the adverb's agreement options is needed.

(31)    Pat'i        diːtʔa‹r›u     qˤʷib           b-o‹r›kɬin-ši        d-i
      Pati(II)[SG.ABS]    early‹II.SG›    potato(III)[SG.ABS]    III.SG-‹IPFV›dig.IPFV-CVB    II.SG-be.PRS
      'Pati is digging the potatoes out early.' (Pati got up early.) (= (42b), §4.3.2.1)

What we know for sure is that each verb should agree with its own absolutive dependent. This would imply that the converb itself should not assign absolutive case to the subject of the biabsolutive construction; rather, it should be the auxiliary that does this. One way to do this would be to alter the LFG analysis so that the template in example (95) in §6.4 says that the case of the biabsolutive construction subject is not ergative (↑SUBJ CASE ≠ ERG). In the entry for the auxiliary in (98) in §6.4, the second option says that the subject's case is absolutive, and the auxiliary agrees with that subject. In this second option, effectively it is the auxiliary that assigns absolutive case, not the main verb, if the template in Sadler's (95) is altered as suggested above.

      In conclusion, LFG does not define a "structural domain" relative to each absolutive argument, as the only domains that the theory makes naturally available are f-structure nuclei, which correspond roughly to clauses. This seems to be a point of contrast with the other approaches. We move now to consider the Minimalist account.


### 8.3.3 Minimalism and the four necessary properties

In the Minimalist analysis put forward by Polinsky (Chapter 7), the main verb is itself a V-v complex: a combination of a verbal root and a "little $v$" which performs some functional properties within the clause. The agreement analysis revolves around the properties of different little $v$'s in the structure. Starting with the lowest $v$, the closest DP is probed by that $v$, the DP receives absolutive case from $v$, and $v$ picks up the value for the Gender feature from the DP. The Gender feature is expressed as [uGENDER] ("unvalued GENDER feature") on each element which needs to receive a value. Hence $v$ has [uGENDER] initially.

      Subsequently, other phrases higher up in the structure, which have a need to value [uGENDER] probe to their closest (lower) $v$.[13] In this way, these other agreeing elements within the clause have access to the agreement information: importantly, they do not directly agree with the absolutive DP itself, but rather indirectly through $v$ or a chain of $v$'s.


#### 8.3.3.1 Minimalism and the special lower V

In a regular clause the lower $v_1$ can value absolutive case on a DP and pick up the Gender value from that DP. This $v_1$ combines with a higher $v_2$ which values or checks ergative on another DP, but otherwise does not disturb the chain of agreement with respect to the $v$'s (see §7.3.2.2). In the biabsolutive construction, the same $v_1$ combines with a different $v_2$ which also selects for a DP, and also values absolutive case, and thereby starts a new agreement domain.

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[13] We concentrate here on Polinsky's proposal (38b) where the adverb is adjoined to $v$P and probes the closest constituent ($v_2$). This analysis assumes a role for the verb as an agreement controller, a possibility anticipated in Kibrik (2003: 564) and Corbett (2006:69-70).

In the Minimalist account, the lower $v_1$ is the same in both clause types. The fact that it is the same lower $v_1$ – it is not 'special' – is a point of difference with the HPSG and LFG analyses.

### 8.3.3.2 Minimalism and the special higher V

The role of $v_2$ is discussed immediately above; this is the locus of the difference between a regular clause and the biabsolutive construction. In the Minimalist analysis, after $v_1$ has combined with its absolutive DP, other arguments and adjuncts may be merged in, and these would also agree in this lower agreement domain if they have [uGENDER]. The higher agreement domain only "starts" when the special $v_2$ is introduced into the structure; any agreeing elements introduced higher in the structure would agree with the GENDER of the DP which $v_2$ agrees with. There is a certain convergence of approaches here, because each theoretical account posits a special kind of higher verb for the biabsolutive construction.

### 8.3.3.3 Minimalism's means for situating the lower V within the higher one

It must be a property of the analysis that the different kinds of $v_2$ select for the same $v_1$, to create a standard ergative-absolutive clause, or to create a biabsolutive clause. There appears to be no formal mechanism for expressing this in the Minimalism: it is usually not explicitly stated what properties a lower $v$ has such that a higher $v$ can successfully select for it. In the HPSG analysis, the difference in the higher V (the Aux) is that it selects for a V in regular clauses but a VP in the biabsolutive construction. (That VP also has the specification [INV –], so that too could be accessed.) In LFG, there could be some "unvalued" feature such as ASP (see §8.3.2.3 and §8.3.2.4 above) with regard to the higher V, for which the lower V provides the value. This would not be selection in the formal sense, but only the right combinations of lexical items would lead to a well-formed f-structure. A development of the Minimalist account so that the relations between $v$'s can be stated explicitly might involve a similar "feature-valuation" approach.

### 8.3.1.4 Minimalism's means for defining a structural domain with one absolutive argument

The key to ensuring that agreement is (apparently) only with an absolutive DP is that such a DP must be merged with the relevant head $v_1$ before any other argument or adjunct. Any other phrases which merge in in "the domain of $v_1$" will also agree with the Gender value of the absolutive DP, via the value of GENDER on $v$.

The biabsolutive construction arises because $v_2$ introduces the external argument but checks it for absolutive, not ergative. This $v_2$ corresponds only (and exactly) to an auxiliary verb – it is not simply an abstract combinatoric possibility available in the language, unlike many of the other $v$'s. Once $v_2$ is merged, an absolutive DP must be merged next, in order for $v_2$ to get its [uGENDER] feature valued. Then any successive agreeing phrases above $v_2$ will agree in gender with this second, higher DP.

In addition, the Minimalist approach might be able to put an upper bound on the domain of agreement – deriving the effect that the farthest that the domain can expand is to the highest $v$P, but not into any higher functional layers. This means that any clause elements which merge in a projection above $v$P (e.g. TP, CP) should never display agreement, as Polinsky (§7.4.1) shows. Such a prediction would follow if it can be ensured that the probing from an agreeing element such as an adverb cannot pass from a higher functional layer down into the highest $v$P (where the relevant valued agreement feature would be present on the $v$ head).

## 8.4 Conclusion

The Archi data highlights some interesting points of intersection and divergence in the different theoretical frameworks, as well as bringing to the fore the more abstract meta-level question of whether the mechanisms involved in agreement -- irrespective of how they are named -- should be associated with those associated with linear order. At this general level of abstraction, it could be argued that both the HPSG and LFG analyses are in accord, because the former opts for an analysis based on constituency (in HPSG terms) rather than linear order (order domains), while the latter opts, as is standard for LFG, for an f-structure based analysis rather than c-structure. As we have noted earlier, equating LFG c-structure with the notion of constituency in other frameworks is not necessarily the right comparison. What is clear is that both the LFG and HPSG analyses choose options that are nearer to the tectogrammatical end of the spectrum when considered on their own terms. For the Minimalist analysis, the tighter relationship between the constituency and the linear order can be maintained by the use of zero exponents and movement.

   Of the four necessary properties we identified for analyzing the Archi biabsolutive construction, Minimalism differs from both HPSG and LFG with regard to the first of these in that the lower V is not special compared with the 'standard' constructions in Archi; in contrast, the HPSG analysis requires the lower converb to select for two absolutives, and in the LFG analysis the biabsolutive construction template used by the converb plays a similar role. The Minimalist analysis requires that the little $v$ in the lower domain is associated with absolutive case, as with the standard ergative-absolutive construction. As for the second logical property, what all of the theories have in common is that the higher V has to be special in some way. There are still subtle differences between the theories here, of course; the LFG analysis assumes that the higher auxiliary makes reference to a converb, while the HPSG one refers to a VP, and the higher $v_2$ in the Minimalist analysis is special with regard to the lower $v_1$ and the other $v$'s in the structure. The third property addresses the issue of how the lower V is located with respect to the higher one. HPSG, for instance, has an ID rule that builds the lower structure within the higher one, and all of the approaches require something that does this, but both LFG and HPSG differ from Minimalism in a crucial way in that the rule that creates the lower structure is associated with the lower V, while in Minimalism it is associated with the higher V.  If we take these three abstract properties together, LFG and HPSG pattern in opposition to Minimalism. Where there is perhaps greater differentiation between all of the theories is the means by which a structural domain is defined in which there is only one absolutive argument. For HPSG this is achieved by separate ID rules, for LFG by differentiating the status of PIV and SUBJ in relation to absolutive, and for Minimalism by associating each structural domain with a little $v$. We summarize the basic differences below (cf. (20) above).

|  | HPSG | LFG | Minimalism |
|---|---|---|---|
| **Special Lower V** | Special | Special | Not Special |
| **Special Higher V** | Special | Special | Special |
| **Verb for Lower VP** | Lower | Lower | Higher |
| **Structural domain** | Separate ID rules | SUBJ ≠ PIV | Domain = little $v$ |

For the Minimalist analysis it is the possibility of a special higher $v$ that must be crucial for the biabsolutive, while for the other analyses the locus of what is special appears to originate in the lower V and the structure associated with it. But what is perhaps also important is that the 'standard' structures in Archi, from the perspective of the HPSG and LFG analyses do not really need any articulated constituent structure. For Minimalism a key reason why the lower

V is not special is because constituency is not special. One could, of course, put forward the argument that it is precisely a lack of case differentiation that requires differentiation at the tectogrammatical level to arise. That is, the HPSG and LFG analyses require a deep (constituency or f-structure) distinction precisely at the point where the arguments fail to be distinguished by case.

One interesting analytical issue that has arisen, and is dealt with differently in the different frameworks, is the characterization of an "agreement domain", a domain which for Archi is defined in terms of the presence of an absolutive DP. On one kind of approach, the domain is to be defined by an (abstract) constituent such as $v$P or VP ('abstract' here because of the surface effects of scrambling in Minimalism or liberation in HPSG). In another approach, reference can be made directly to the absolutive DP without any consideration of any structure within which the DP is hosted. The LFG analysis in terms of PIVot/SUBJect has this property.

In comparing the different frameworks we have identified some new data questions which will need to be addressed if some of the key details of the specific analyses are to be well motivated, in particular those relating to scope and the higher and lower domains. These new data questions only arose through the comparative aspect of the project: through considering how different frameworks aim to capture the four key properties, and the consequences of theory-internal assumptions that would be necessary. The four key properties are necessary to deal with the challenging patterns found in the biabsolutive construction, as part of the grammatical architecture that accounts for the whole agreement system of Archi. And yet they are more than that: they provide fixed points from which we can compare and contrast the different frameworks.

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Without the kind of careful analysis that is found in the chapters of this volume, it may appear that there is simply irreconcilable competition between different frameworks. Indeed, there are aspects that are not easily compared. Yet different frameworks do make differences in prediction, as demonstrated in this volume, and by abstracting out to the level of the four key properties identified in this chapter, we are able to identify clear points of comparison, and we can find clear points of convergence.

Those four properties relate to only a small part of Archi grammar, but they serve as locally fixed points in the evaluation, and we have used them in this chapter as the basis of proof of concept of meaningful framework comparison. We suggest that there is much to be learned and gained in syntactic theory through the identification of such fixed points, with a clear understanding of how each framework addresses them. As we have shown here, based on the analyses of a given phenomenon from different perspectives, we can identify the core theoretical properties that any analysis must instantiate. We then use those fixed points to feed back into the considerations of how each framework accounts for them, in terms of empirical viability, theoretical consistency or elegance, or any other relevant measures that linguists may wish to use.

It is an exciting open question as to which aspects of which frameworks might be validated as truly important or even necessary foundations of syntactic theory. We believe that the volume here provides a strong case that such progress in the field is achievable.