C-agreement revisited: core syntax or morphological ornament?

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1. Introduction

- <u>C-agreement (C-AGR) in many Continental West Germanic dialects</u>: the subject's φ-features are reflected not only on the verb, but also on complementizers (or C-related elements like wh- and relative pronouns):[1]

(1) a. ob-st   du noch Minga kumm-st   *Bavarian*
        whether-2SG you to   Munich come-2SG
        '...whether you come to Munich'
     b. ob-ts   ees/ihr noch Minga   kumm-ts
        whether-2PL you.PL to   Munich come-2PL
        '...whether you (pl) come to Munich'

- <u>Basic research questions</u>:
  (i) How are the relevant inflectional features structurally represented?
  (ii) How are these features licensed/valued?

- C-AGR does not seem to lend itself to an analysis in terms of Spec-Head agreement (but see e.g. Shlonsky 1994 for a relevant proposal).

- <u>Traditional syntactic analysis</u>: C-AGR is a reflex of a dependency between T (INFL/AGR) and C (cf. e.g. Bayer 1984, Hoekstra & Marácz 1989, Zwart 1993a, 1993b, 1997).

- <u>Recent minimalist work (Carstens 2003, van Koppen 2005, Haegeman & van Koppen 2012)</u>: C hosts a separate set of φ-features that is valued/checked by the subject's phi-set under closest c-command (i.e., by the operation Agree, cf. Chomsky 2000 and subsequent work)[2]

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[1] Cf. e.g. Bennis & Haegeman (1984), Bayer (1984), Altmann (1984), de Haan & Weerman (1986), Hoekstra & Marácz (1989), Haegeman (1990, 1992), Zwart (1993a, 1993b, 1997), Shlonsky (1994), Weiß (1998, 2005), Hoekstra & Smits (1999), de Vogelaer et al. (2002), van Koppen (2005, 2006, 2012<), and most recently Haegeman & van Koppen (2012).

[2] Further questions arise if it is assumed that T inherits its feature content (φ-features) from the phase head C before agreement with the subject is established (Chomsky 2004, 2008 and subsequent work). Chomsky (2012), adopting proposals by Ouali (2006, 2008), suggests that C-AGR can be accounted for by assuming that C may keep a copy of the φ-set transferred to T, which then initiates a separate Agree operation targeting the subject's φ-set. However, this proposal is at odds with arguments put forward in Richards (2007) that the logic of phase-driven derivation requires that all uninterpretable features (uF) of C must be eliminated from the syntactic computation (via feature inheritance and subsequent Transfer/Spell-out) as soon as they have been valued (but see Richards 2012 for an attempt to reconcile C-AGR with the idea of feature inheritance).

- Alternative perspective: C-AGR is a non-syntactic, "ornamental" phenomenon established by phonological/morphological operations (cf. e.g. Kathol 2001, Ackema & Neelema 2004, Fuß 2005, 2008, Zwart 2006, 2012, Miyagawa 2009, Bayer 2013).
- This paper:
  i.   Review of the arguments supporting a syntactic approach to C-AGR;
  ii. Presentation of evidence suggesting that at least in some varieties, C-AGR is established post-syntactically;
  iii. Theoretical proposal: In the relevant dialects,
       a. C-AGR does not involve a dependency between C and the subject, but rather between C and the finite verb/T (cf. van Haeringen 1939).
       b. C-AGR results from the post-syntactic insertion of valued agreement features (= a copy of T's φ-set).
  iv. Exploration of the possibility that a unified post-syntactic account can be given, focusing on phenomena like double agreement, first conjunct agreement (FCA), or external possessor agreement, which are commonly taken to represent conclusive evidence of the syntactic nature of C-AGR.

2. Arguments in favor of a syntactic (Agree-based) analysis

- Arguments in favor of a syntactic analysis of C-AGR usually focus on data indicative of the presence of a separate set of phi-features in C, that is, instances where C-AGR differs from verbal agreement.
- "Double agreement" dialects: C-AGR and verbal agreement differ in shape (cf. Zwart 1993a, 1993b, van Koppen 2005):

(2) ... datt-**e**   wij   speul-**t**
     that-1pl   we   play-1pl
     'that we play'
     (East Netherlandic; Zwart 1993b: 253)

- First conjunct agreement (FCA): The complementizer agrees with the first conjunct of a complex coordinated subject, while the verb agrees with the whole coordinated subject (subject to **resolution**; cf. van Koppen 2005, 2006, 2012; Haegeman & van Koppen 2012):

(3) Ich   dink   de-**s**   [doow   en   ich]   ôs   kenn-**e**   treffe.
     I   think that-2SG [you.SG and   I]   each.other.1PL can-PL   meet
     'I think that you and I can meet.'
     (Tegelen Dutch, van Koppen 2006)

- External possessor agreement (EPA): Haegeman & van Koppen (2012) discuss a particular construction in which the complementizer agrees with a dislocated possessor (*die venten* in (4)), while the verb agrees with the possessee (*underen computer* in (4)):

(4)   ... omda-**n**   [die   venten]ᵢ toen juste [tᵢ underen computer] kapot   **was**.
        because-PL those guys   then just   their   computer broken was
        '...because those guys' computer broke just then.'
        (West Flemish, Haegeman & van Koppen 2012)

- FCA/EPA: The fact that C-AGR signals features values distinct from verbal agreement seems to suggest that C-AGR results from a separate agreement operation triggered by a set of phi-features in C.

3. Asymmetries between C-AGR and verbal agreement

- General asymmetries between C-AGR and verbal agreement:
    i.   C-AGR typically signals less distinctions than verbal agreement;
    ii. C-AGR can be dispensed with under certain conditions (adjacency effects, sensitivity to the presence of the finite verb).[3]

3.1 C-AGR is defective
- Reduced inventory of markers: The paradigm linked to C-AGR is typically limited to a subset of the markers used to signal verbal agreement/T-AGR.[4]
- Hoekstra & Smits (1999) on Dutch varieties:

(5)   *PNT (Person Number Tense)-condition*
        C-AGR can be agreement for person and number but it may not express tense.

(6)   *The Identity Generalization*
        C-AGR only occurs when the agreement ending of the inverted auxiliary in the present tense is identical to the agreement ending of the inverted auxiliary in the preterit.

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[3] Moreover, Hoekstra & Smits (1999: 199) note that at least in some Dutch varieties, C-AGR is merely optional.

[4] In many varieties (Bavarian, Frisian, Limburg, Overijssel, Brabants), complementizer agreement is found only in 2nd person contexts (mostly 2sg). In dialects of the Eastern Netherlands, it is restricted to 1pl, in South Holland to plural contexts. However, more elaborate paradigms exist in e.g. West Flemish (Haegeman 1990, 1992), North Holland varieties (Hoekstra & Smits 1999), and a number of Bavarian/Franconian dialects (cf. e.g. Weiß 2005).

- The defective character of C-AGR seems to raise difficulties for Agree-based accounts (e.g., prima facie, it is not clear why C should not be able to host tense features; but see van Koppen 2005, 2012 for some discussion).
- Historical explanation for the limited range of C-AGR: At least in some Germanic varieties, C-AGR emerged as a side effect of the reanalysis of subject clitics as agreement markers in inversion contexts.
- In Bavarian, C-AGR is confined to cells of the paradigm where new (verbal) agreement formatives developed (Fuß 2005):

(7) Reanalysis: XP V$_{fin}$+subj. clit. ... >>> XP V$_{fin}$+AGR ...
  a. 2sg: /-s/ + /t/   (< clit. 2sg *t(hu)*, 8th/9th century)
  b. 2pl: /-t/ + /s/   (< clit. 2pl *(ee)s*, 13th century)
  c. 1pl: /-an/ → /ma/ (< clit. 1pl *ma*, 18th century; e.g., in some Lower Bavarian and Carinthian varieties)
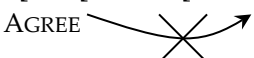
- More generally, it seems that inversion contexts play a special role in changes affecting the make-up of verbal agreement morphology (cf. e.g. Aalberse 2007 on deflection and the rise of double agreement phenomena in Dutch varieties).

3.2 Adjacency effects

- Observation: In a number of C-AGR-varieties (usually double agreement dialects, cf. van Koppen 2012), the presence of material which intervenes between C^0 and the subject blocks the availability of complementizer agreement (cf. e.g. Ackema & Neeleman 2003, 2004 on the East Netherlandic variety Hellendoorn):[5]

(8) dat/*dar-re [op den wärmsten dag van't joar] wiej tegen   oonze wil
     that/that-1PL on the warmest   day of-the year we against our   will
     ewärkt   hebt.
     worked   have
     'that on the warmest day of the year we have worked against our will'

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[5] According to Haegeman & van Koppen (2012) no such adjacency effect can be observed in West Flemish. Other varieties such as Frisian always require strict adjacency between the (inflected) complementizer and the subject. That is, violations of the adjacency requirement lead to ungrammaticality and not to non-inflected complementizers (Germen de Haan, p.c.).

- Adjacency effects and Agree-based accounts of C-AGR:
- Carstens' (2003): intervening adverbials bear a Case feature that identifies the adverbial as a possible goal for C's φ-set, giving rise to an intervention effect.
- Problem: This seems to wrongly predict that adverbials that intervene between T^0 and the base position of the subject should block the realization of (regular) subject-verb agreement:

(9) $[_{T'}$ T $[_{vP}$ adv $[_{vP}$ subject ... $]]]$
     AGREE

- More generally, the fact that relevant examples can be rescued by the omission of C-AGR is somewhat unexpected: Under standard minimalist assumptions, the presence of an unchecked/unvalued phi-set in C should lead to a crashing derivation.[6]

3.3 Right node raising

- Observation: In some Bavarian varieties and West Frisian, C-AGR becomes less acceptable if the finite verb is elided in right node raising (RNR) constructions; again, we observe rescue-by-omission: the relevant examples are fine when the complementizer does not carry inflection:[7]

(10) a. ??[dass-sd   du   noch Minga]   und [dass da Hans
         that-2SG you to   Munich and   that   the Hans
      noch Truchtlaching   geht]
      to   Truchtlaching   go-3SG
   b. [dass-∅ du noch Minga] und [dass da Hans noch Truchtlaching geht]
      (Josef Bayer, Günther Grewendorf, p.c.)

(11) a. ??... datsto   nei Ljouwert   en   dat Gurbe nei Snits   ta giet
         that-2SG=you to   Leeuwarden and that Gurbe to   Sneek to goes
      '...that you are going to Leeuwarden and Gurbe to Sneek'
   b. ... dat   do   nei Ljouwert   en   dat Gurbe nei Snits   ta giet
      that you to   Leeuwarden and that Gurbe to   Sneek to goes
      (West Frisian, Siebren Dyk, p.c.)

- Problem for syntactic, Agree-based analyses: Although the complementizer is string-adjacent to the subject, overt inflection on C leads to a degraded result.

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[6] Note that the rescue-by-omission facts cannot be explained by assuming that the phi-set is merely optionally added to C: This would fail to account for (i) the observation that C-AGR is obligatory in other contexts and (ii) rescue-by-omission is not possible with regular verbal agreement.

[7] It appears that these facts are subject to a considerable amount of speaker variation. Generally, it seems however, that the absence of the finite verb renders C-AGR less acceptable.

- Moreover, if we adopt the assumption that this type of right node raising is to be analyzed in terms of PF-deletion (cf. e.g. Hartmann 2000), the data in (10) and (11) show that

  i. the realization of C-AGR can be affected by post-syntactic operations (ellipsis/right node raising);

  ii. the availability of C-AGR seems to depend on the presence of an overt finite verb.

- From these observations, we can construct an argument based on the order of operations in the derivation: if C-AGR is dependent on the outcome of a post-syntactic operation (verbal ellipsis), then C-AGR must also be the result of post-syntactic operations.

3.4 Comparative deletion

- <u>Bavarian</u>: In comparatives, C-AGR leads to ungrammaticality if the finite verb is elided, cf. (12b) (cf. Bayer 1984: 269; Gruber 2008 on the Austro-Bavarian variety of Gmunden). The sentence becomes acceptable when C bears no inflection, cf. (12c):

(12) a. D'Resl   is gresser [ois   wia-st du   bist]
          the-Resl is taller   than as-2SG you are
          'Resl is taller than you are.'
      b. *D'Resl   is gresser [ois   wia-st du]
          the-Resl is taller   than as-2SG you
      c. D'Resl   is gresser [ois   wia du]
          the-Resl is taller   than as   you

- Similar facts can be observed in West Frisian (Siebren Dyk, p.c.):

(13) a. Gurbe is grutter asto   bist.
          Gurbe is taller   than-2SG=you are
      b. *Gurbe is grutter asto.
          Gurbe is taller   than-2SG=you
      c. Gurbe is grutter as   do.
          Gurbe is taller   than you

- Again, it appears that the presence/absence of the inflected verb at PF is crucial for the availability of C-AGR.

4. Interim summary

- When a broader range of facts is taken into account, we seem to face a paradox:

- Data suggesting a syntactic analysis: Cases where C-AGR differs from the inflection carried by the finite verb (double agreement, first conjunct agreement and external possessor agreement) seem to suggest that C-AGR results from a separate Agree relation where C itself probes the subject's φ-set (cf. van Koppen 2005, Haegeman & van Koppen 2012);
- Data suggesting a morpho-phonological analysis:
    i. General asymmetries between C-AGR and 'regular' (verbal) agreement (e.g., defectivity, optionality/omissibility)
    ii. Adjacency effects;
    iii. Sensitivity to (post-syntactic) processes such as RNR or comparative deletion: these data seem to show that C-AGR does not involve a (checking/matching) relation between C and the subject – neither in the syntax nor at PF.[8]
- Moreover, the observed sensibility to verbal ellipsis suggests that
    ➤ the inflection found in the C-domain is mediated by/parasitic on the presence of the finite verb;[9]
    ➤ the operation establishing C-AGR is ordered after the relevant rules/processes that lead to elision of the finite verb; if the latter are part of the post-syntactic computation (cf. e.g. Hartmann 2000 on RNR, Lechner 1999, 2001 on comparative deletion), then C-AGR must also be derived by post-syntactic mechanisms (see also Ackema & Neeleman 2004, Fuß 2005, 2008)
- The conflicting pieces of evidence may be taken to reflect the existence of different types of C-AGR that call for different modes of analysis:
    i. **Syntactic C-AGR**: Agree triggered by a separate phi-set in C
    ii. **Post-syntactic C-AGR**: established by operations at the interface to PF.
- In the remainder of the paper, I would like to explore whether a unified account in terms of a single, post-syntactic analysis is feasible.

5. Towards a post-syntactic account of C-AGR

- Background assumptions: realizational model of grammar (Distributed Morphology (DM), Halle & Marantz 1993):
    ➤ The morpho-phonological component (called *Morphological Structure*, henceforth MS) operates post-syntactically;

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[8] Cf. Ackema & Neeleman (2004) for an analysis of C-AGR in terms of a PF feature checking rule which applies if C and the subject are part of the same prosodic phrase.

[9] This analysis is in line with the observation that across Germanic, there are no languages with C-AGR but without verbal agreement, while there are many languages that exhibit verbal agreement in the absence of C-AGR (Hoekstra and Smits 1999). Thus, it seems that cross-linguistically, the availability of C-AGR is dependent on the overt realization of verbal agreement morphology.

> ➤ The syntactic computation manipulates bundles of abstract morpho-syntactic features (such as [+pl] or [+past]), which are realized by the post-syntactic insertion of Vocabulary items/phonological exponents (Vocabulary Insertion);
> ➤ The structure derived in the syntax can be modified by the post-syntactic insertion of inflectional heads/features (this mechanism is often used to account for case and agreement phenomena (Marantz 1992, Halle & Marantz 1993, Embick 1997, Halle 1997, Noyer 1997, Harbour 2003, Bobaljik 2008).

5.1 A hybrid model of agreement

- <u>'Canonical' subject-verb agreement</u>: T's set of uninterpretable/unvalued φ-features (a result of feature inheritance) is valued by an Agree operation accessing the subject's set of interpretable φ-features (Chomsky 2004, 2008):

(14) [$_{CP}$ ... [$_{TP}$ φT ... [$_{vP}$ subject ...]]]
      AGREE

- In contrast, 'ornamental' forms of (multiple) agreement may be established by post-syntactic operations:
  - ➤ C-AGR results from post-syntactic **feature insertion**.
  - ➤ Feature matching between C and the subject does not take place directly, but is *mediated* by another φ-set that has been valued in the syntax (via Agree):

(15) *C-AGR as feature insertion*
      C-AGR is established during the post-syntactic computation by:
      i.   a *copy* operation that targets (a subset of) T's φ-set (valued in the syntax);[10]
      ii. an operation of *feature insertion* that adds φ[T] to C's feature content.

- Note that structure-modifying operations such as (15) apply prior to Vocabulary Insertion (cf. e.g. Embick & Noyer 2001): (15) serves to endow C with an abstract bundle of valued agreement features, which is then realized by the insertion of an appropriate phonological exponent.
- Arguably, (15) does not apply generally, but is confined to contexts where relevant phonological exponents are available.

5.2 Single agreement dialects (C-AGR = T-AGR)

- <u>Single agreement dialects</u>: In the most basic case, the mechanism in (15) leads both to
  i.   identity of the φ-sets in T and C and
  ii. identity of the exponents realizing the respective phi-sets:

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[10] See Bayer (1984) for a related idea. Note, however, that Bayer assumes that the relevant copy/indexing operation takes place in the syntax. See also Sternefeld (2007: 208f.) for an analysis based on the intuition that C-AGR involves a dependency between C and the φ-set of the finite verb.

(16) ob-st   du   noch Minga   kumm-st
      whether-2SG you   to   Munich come-2SG
      '…whether you come to Munich'

   a. Copy, targeting T's phi-set ([+2, –pl], identified with the subject's phi-set via
      Agree);
   b. Feature insertion, adding the relevant valued phi-set to C;
   c. Vocabulary Insertion: C-AGR is realized by the same exponent that realizes
      T-AGR, /-st/.

- This analysis also captures the observation that in single agreement dialects, C-
  AGR is not affected by modification or extraction of the subject (Tegelen Dutch,
  van Koppen 2012: 137): Post-syntactic feature insertion should not be affected by
  material intervening between C and the subject/T, or absence of the subject:

(17) a. …de-s/ *det   doow   morge   kum-s
         that-2SG/that you2SG tomorrow come-2SG
         '…that you will come tomorrow'
      b. …de-s/*? det [auch doow] merge   kum-s
         that-2sg/that also you.SG tomorrow come-2SG
         '… that you too will come tomorrow'

(18) DOOW denk ik de-s/ *det   de wedstrijd winnen   zal-s.
      you.SG think I that-2SG/that the game   win   will-2SG
      'YOU, I think will win the game.'

5.3 Double agreement dialects (C-AGR ≠ T-AGR)
- Cases where C-AGR differs from verbal agreement: general problem for all
  approaches that analyze C-AGR in terms of a dependency between C and T (cf.
  e.g. Haegeman & van Koppen 2012):
- Double agreement dialects:
   i. Embedded clauses: C-AGR and verbal agreement differ in shape;
   ii. Main clauses: C-AGR replaces 'regular' verbal agreement in inversion
       contexts (i.e., C-AGR is identical to verbal agreement in inversion contexts):

(19) …darr-e   wiej den besten bin-t
      that-AGRc we   the best   are-AGRt
      '…that we are the best'

(20) a. Wiej bin-t/*binn-e   den besten!
         we   are-AGRt/are-AGRc the best
         'We are the best!'

b. Binn-e/*binn-t   wiej   den besten?
   are-AGRc/are-AGRt we   the   best
   'Are we the best?'
   (Hellendoorn Dutch, van Koppen 2012: 138)

- Proposal: The insertion of different agreement formatives can be treated as an instance of **contextual allomorphy**:
  - ➢ Double agreement can be captured by assuming that the phonological exponents realizing C-AGR are specified for additional features that relate to the insertion context.
  - ➢ More precisely, let's assume that in double agreement dialects, the realization of C-AGR is sensitive to the presence of an identical phi-set in the minimal prosodic domain (Ackema & Neeleman 2004, Richards 2012):[11]

(21) $[+C, +1, +PL]$ $\leftrightarrow$ /-ə/ / { __ [+1, +PL]}   (Hellendoorn Dutch)

- In inversion contexts, the realization of C-AGR takes precedence over the realization of T-AGR (moved to C with the finite verb) (cf. Carstens 2003, Fuß 2005 for solutions which ensure that in a complex head adjunction structure, only the hierarchically highest AGR-node is targeted by Vocabulary Insertion).

5.4 Mixed patterns

- Lower Bavarian: Variation on the general theme, including both single and double agreement patterns (2sg, 2pl: single agreement; 1pl: double agreement).[12]
- "Double agreement" in the context of 1PL in Lower Bavarian varieties:
  - ➢ Embedded clauses: C-AGR realized by /-ma/; T-AGR realized by /-an/;
  - ➢ Main clauses/V2: C-AGR replaces 'regular' verbal agreement in inverted and non-inverted orders (in contrast to Dutch varieties):

(22)   a. wem-**ma**   mia noch Minga   kumm-**an**
        when-1PL we to   Munich come-1PL
        '...when we come to Munich'
    b. Gem-**ma** mia noch Minga?
        go-1PL   we to   Munich
        'Are we going to Munich?'
    c. Mia gem-**ma** noch Minga.
        we go-1PL   to   Munich
        'We are going to Munich.'

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[11] Note that the proposal in (21) differs from the approach taken by Ackema & Neeleman (2004), in that it concerns the realization (via Vocabulary Insertion) and not the checking/valuation of C's phi-set.

[12] Cf. Bayer (1984), Kollmer (1987), Wiesinger (1989), and Weiß (1998, 2005). Similar mixed patterns occur in Austro-Bavarian dialects, e.g. Carinthian (Lessiak 1963; Wiesinger 1989; see also Gruber 2008).

- Analysis in terms of contextual allomorphy: /-ma/ restricted to C:

(23) a. [+T, +PL] ↔ /-an/ verbal agreement (1pl and 3pl are identical)
    b. [+C, +1, +PL] ↔ /-ma/ C-AGR

- Diachronic extension to T-AGR (i.e., loss of double agreement; cf. Fuß 2005): The exponent of C-AGR cannot be used to realize regular verbal agreement as long as it carries an additional specification related to C (this follows from the Subset Principle, Halle 1997); loss of the categorial specification facilitates extension to T-AGR contexts.

5.5 Adjacency effects

- Recall: In double agreement dialects, the realization of C-AGR is subject to adjacency effects (van Koppen 2012):

(24) *Adjacency effects in Hellendoorn Dutch*
    a. dat/*dar-re XP subject ...
    b. dat/*dar-re [focus particle subject] ...
    c. [CP2 SUBJECT ... [CP1 dat/*dar-re tsubject ...]]

- Proposal: Adjacency effects can also be captured by the realization rule (21), repeated here for convenience:[13]

(25) [+C, +1, +PL] ↔ /-ə/ / { __ [+1, +PL]} (Hellendoorn Dutch)

- None of the contexts in (24) meets the contextual restriction in (25):
  a. Due to the presence of the scrambled XP, C and the subject are not in the same minimal prosodic domain;
  b. the presence of a focus particle leads to an intonation shift, breaking up the prosodic domain;
  c. deleted copies are not visible to Vocabulary Insertion, therefore the restriction in (25) cannot be met.
- Question: Why can't the phi-set copied onto C be realized by regular agreement?
- Two possible answers:
  i. Adding the regular agreement marker /-t/ to *dat* does not make a phonological difference (problem: What about other complementizers?);
  ii. the exponent for regular verbal agreement is specified for categorial features of T; as a result it cannot be inserted into C.

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[13] This idea goes back to Richards (2012).

5.5.1 Absence of adjacency effects in Lower Bavarian

- Despite the presence of double agreement in 1pl contexts, certain Lower Bavarian varieties apparently do not exhibit adjacency effects (Helmut Weiß, p.c.):

(26)   dass-sd   [bei dem Brachdwedda]   seibsd du   in den   Biargoadn geh-sd
       that(-2SG)   in   this   splendid weather even   you to the   pub   go-2SG
       'that even you go to the pub in this splendid weather'

(27)   dass-sd   [seibsd   du]   in den   Biargoadn geh-sd
       that(-2SG)   even   you   to the   pub   go-2SG
       'that even you go to the pub in this splendid weather'

(28)   a. Du$_i$ moan=e   ned   dass-sd=n   t$_i$ gseng   host.
          you think=I   not   that-2SG=him   seen   have
          'I don't think that you saw him.'
       b.*Du$_i$ moan=e   ned   dass=n   t$_i$ gseng   host.
          you think=I   not   that=him   seen   have
          'I don't think that you saw him.'

(29)   a. Mia$_i$ moan=e   ned   dass-ma=n   t$_i$ gseng   hom.
          we   think=I   not   that-1PL=him   seen   have
          'I don't think that we saw him.'
       b.*Mia moan=e   ned   dass=n   gseng   hom.
          we   think=I   not   that=him   seen   have
          'I don't think that we saw him.'

- The absence of adjacency effects can be attributed to the feature specifications of the relevant exponents of agreement morphemes in Lower Bavarian:
  - Exponents of 2sg, 2pl: underspecified for categorial features, compatible with both C-AGR and T-AGR;
  - Exponent of 1pl/C-AGR (/-ma/): /-ma/ is specified for C, but does not impose any further restrictions on its insertion context (in particular, it does not require the subject to be adjacent to C).

5.6 Sensitivity to ellipsis

- Absence of C-AGR in comparatives/RNR: Elided elements are marked for deletion at the point of Transfer/Spell-Out (cf. e.g. den Dikken 2012); they are therefore invisible for operations that apply at MS (including Vocabulary Insertion and the licensing of post-syntactically inserted φ-sets):

(30)   [$_{CP}$ ... [$_{TP}$ ~~V+v+φT~~ ... [$_{vP}$ ...]]]
                                 invisible for operations at MS

5.7 First conjunct agreement

- <u>FCA – recall</u>: The complementizer agrees with the first conjunct of a complex coordinated subject (if there is a relevant marker available), while the verb agrees with the whole subject (involving **resolution**, i.e., an operation combining the φ-sets of the two conjuncts).[14]

- <u>FCA (C-AGR) is subject to crosslinguistic variation (van Koppen 2005, 2006)</u>:
  - i. FCA is impossible (i.e., C-AGR = T-AGR/resolution; Tielt Dutch, Lapscheure Dutch)
  - ii. FCA is obligatory (Tegelen Dutch)
  - iii. Both FCA and T-AGR/resolution are possible (Bavarian, cf. Bayer 2013).[15]

(31) Oa-n   [Bart en Liesje]   nie   ipletn [...]   **resolution**
      if-3PL   Bart and Liesje   not   watch.out
      'If Bart and Liesje don't watch out [...]'
      (Tielt Dutch, van Koppen 2005)

(32) Ich   dink de-s   [doow   en   ich]   ôs   kenn-e treffe. **FCA**
      I   think that-2SG [you.SG and I]   each.other.1PL can-PL meet
      'I think that you and I can meet.'
      (Tegelen Dutch, van Koppen 2005)

(33) a. dass-**sd** [du   und da Hans] noch Minga   geh-**ts**   **FCA**
         that-2SG   you.SG   and the Hans] to   Munich go-2PL
         'that you and Hans are going to Munich'
      b. dass-**ts** [du   und da Hans] noch Minga   geh-**ts**   **resolution**
         that-2PL   you.SG   and the Hans] to   Munich go-2PL
         'that you and Hans are going to Munich'
         (Bavarian)

- <u>Adjacency requirement</u>: Second conjuncts may not trigger C-AGR; if a marker is available, the complementizer must agree with the whole coordinated subject (Bayer 2013):

---

[14] In many languages, agreement with coordinated subjects is subject to language-specific rules: (i) agreement with one of the two conjuncts; (ii) resolution, i.e., a combination of the respective phi-sets (cf. Corbett 1983, 2000). Resolution typically leads to plural agreement and favors agreement with 1st/2nd person (although there are some exceptions; see below).

[15] I am indebted to Josef Bayer, Günther Grewendorf, and Helmut Weiß for sharing their intuitions on FCA in Bavarian.

(34) dass-**ts** [da Hans und du]   noch Minga   geht-**ts**
      that-2PL the Hans and you.SG to   Munich go-2PL
      'that Hans and you are going to Munich'

- The adjacency effect also shows up in matrix/inversion contexts: While FCA is generally impossible in subject-initial clauses, the verb (preferably) agrees with the first conjunct of an inverted subject:

(35) a. [Du und da Hans] hoab-**ts**/*hoa-**st**   an   Hauptpreis gwunna.
          you and the Hans have-2PL/have-2SG the   first.prize won
          'You and Hans won the first prize.'
      b. Gesdan   hoa-**st**/?hoab-**ts**   [du   und da Hans] an Hauptpreis
         yesterday have-2SG/have-2PL   you   and the Hans the first.prize
         gwunna.
         won
         'Yesterday, you and Hans won the first prize.'
         (Bavarian)

- <u>Proposal/FCA</u>:[16]
- **Syntax**: In the case of coordinated subjects, [&⁰], the head of the whole coordinated subject, contains an ordered pair of φ-sets corresponding to the feature content of the two conjuncts DP1, DP2. This combined φ-set is accessed by an Agree operation initiated by T:

(36)

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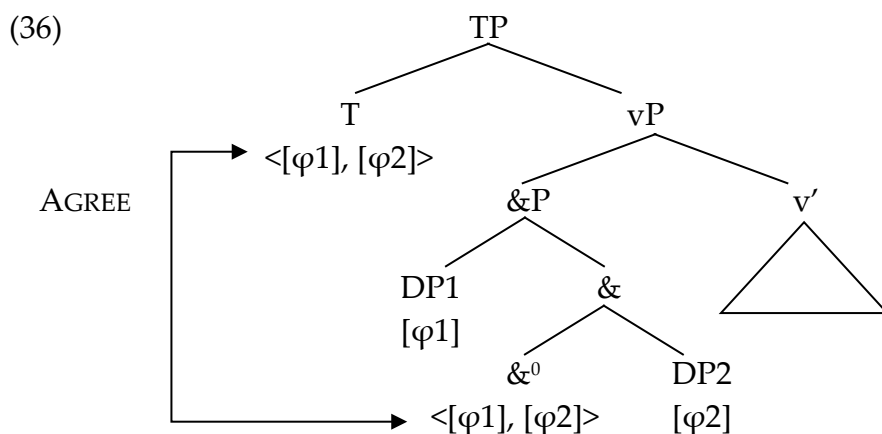
[16] Cf. Bhatt & Walkow (2011) for the claim (Hindi) that agreement with only a single conjunct (i.e., absence of resolution) is a characteristic of post-syntactic/"phonological" agreement.

(37) Result of AGREE in the case of coordinated subjects: ordered pairs of φ-sets in T, e.g.,

    a. <[+2, –pl],[–pl]> (2sg + 3sg)
    b. <[+2, +pl], [+pl]> (2pl + 3pl)
    c. <[+1, –pl], [+2, –pl]> (1sg + 2sg)
    etc.

- C-AGR: Subsequently, the ordered pair located in T is copied onto C by the operation outlined in (15) above.

- However, ordered pairs of phi-sets cannot be directly targeted by Vocabulary Insertion, since Vocabulary items/exponents are usually not specified accordingly. This calls for post-syntactic **repairs**:

    i.   Resolution, combining the feature values present in the ordered pair;

    ii. Impoverishment, deleting one phi-set of the ordered pair.

- <u>Resolution as post-syntactic repair</u>: Resolution of person features is subject to cross-linguistic and even dialect-internal variation, which is typical of *morphological* differences between languages.

- <u>Bavarian</u>: Coordination of a 2sg and a 3sg subject usually triggers 2pl agreement on the verb. However, there are some speakers who prefer 3pl agreement in this context (similar facts hold for Standard German):

(38) dass-**st** [du   und da Hans] noch Minga   geh-**ts**/%geng-**an**.
      that-2SG you.SG and the Hans to   Munich go-2PL/go-3PL
      'that you and Hans are going to Munich'

(39) *Resolution rules (Bavarian)*:
    a. Unification of feature sets, i.e., <[A], [B]> → [A, B]
    b. <[+1], [+2]> → [+1]
    c. <[αPL], [α/–αPL]> → [+PL]

(40) a. ... *du und da Hans ... geh-ts*   ⇒   <[+2,–PL], [–PL]> → [+2, +PL]
    b. ... *I und du ... geng-an*   ⇒   <[+1, –PL], [+2, –PL]> → [+1, +PL]
    c. ... *I und ihr/ees ... geng-an*   ⇒   <[+1, –PL], [+2, +PL]> → [+1, +PL]
    d. ... *da Hans und da Peter... geng-an* ⇒   <[–PL], [–PL]> → [+PL]
    etc.

- <u>FCA as post-syntactic repair</u>: FCA results from an Impoverishment rule that deletes the second member of the ordered pair of phi-sets if the minimal prosodic domain contains a phi-set identical to the first member of the ordered pair:

(41) <[φ1], [φ2]> → [φ1] / {__ [φ1]}

- Further support for this proposal comes from the observation that in Bavarian, the choice between FCA and resolution (i.e., C-AGR with the whole coordinated subject) is dependent on prosodic phrasing (Bayer 2013):

(42) a. # dass-**st** [du # und d'Maria] an Hauptpreis gwunna hoab-**ts**
          that-2SG you and the Mary the first.prize won have-2PL
      b. dass-**ts** # [du und d'Maria] # an Hauptpreis gwunna hoab-**ts**
          that-2PL you and the Mary the first.prize won have-2PL

- (42a): C and the first conjunct *du* form a prosodic unit: **Impoverishment/FCA**
- (42b): The coordinated subject forms a separate prosodic unit (i.e., Impoverishment cannot apply): **Resolution**
- Analysis of adjacency effects linked to FCA:
  i. Verbal agreement/T-AGR: FCA is confined to inversion contexts, since verbs in (a) clause-final position and (b) subject-initial clauses do not meet the structural description of the Impoverishment rule in (41):

(43) a. Gesdan hoa-**st**/?hoab-**ts** [du und da Hans] an Hauptpreis
          yesterday have-2SG/have-2PL you and the Hans the first.prize
          gwunna.
          won
          'Yesterday, you and Hans won the first prize.'
      b. [Du und da Hans] hoab-**ts**/*hoa-**st** an Hauptpreis gwunna.
          you and the Hans have-2PL/have-2SG the first.prize won
          'You and Hans won the first prize.'
      c. *dass-**st** [du und da Hans] an Hauptpreis gwunna hoa-**st**
          that-2SG you and the Hans the first.prize won have-2SG

  ii. When the coordinated subject undergoes long topicalization, only resolution is possible on the embedded complementizer (Helmut Weiß, p.c.):

(44) a. *[Du und da Hans]$_i$ moan=e ned dass-**sd**=n t$_i$ gseng hoab-ts.
          you and the Hans think=I not that-**2SG**=him seen have-2PL
          'I don't think that you and Hans saw him.'
      b. [Du und da Hans]$_i$ moan=e ned dass-**ts**=n t$_i$ gseng hoabts.
          you and the Hans think=I not that-**2PL**=him seen have-2PL
          'I don't think that you and Hans saw him.'

- Moreover, this analysis also captures the observation that FCA-effects also occur in (standardized) Germanic varieties without C-AGR (cf. e.g. Duden 2006: §§1602ff. on German, Munn 1997, 1999 on English):

(45) a. There is [a man and a woman] in the room.

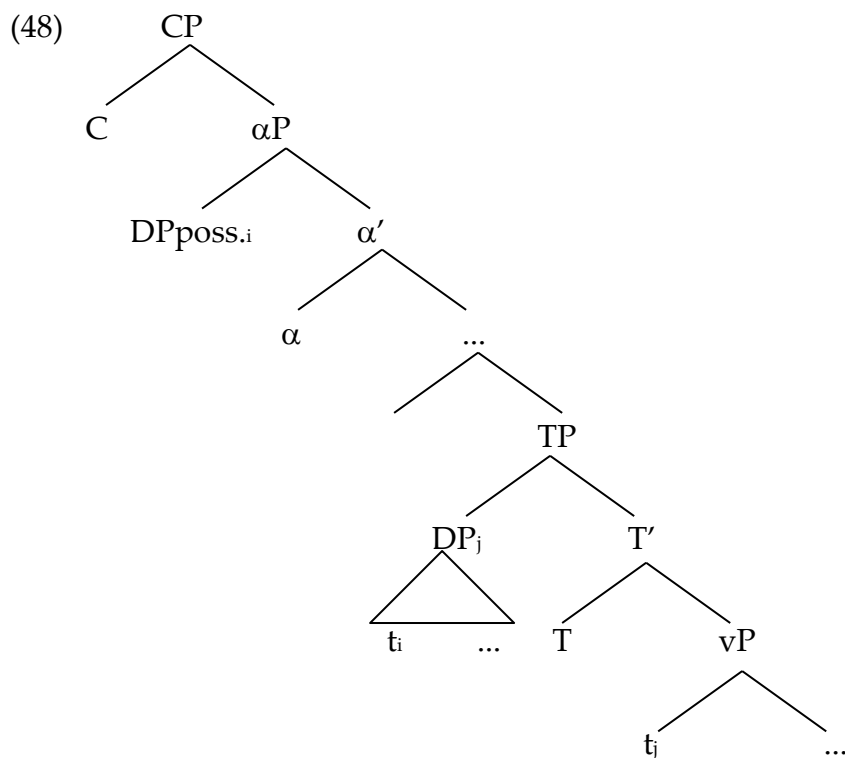b. *[A man and a woman] is in the room.
   (Munn 1999: 654)

(46) a. Da ist [ein Mann und eine Frau] im Zimmer.
      b. *[Ein Mann und eine Frau] ist im Zimmer

5.7 External possessor agreement in West Flemish

- Haegeman & van Koppen (2012) discuss a particular construction in which the complementizer agrees with a dislocated possessor (*die venten* in (47)), while the verb agrees with the possessee (*unteren computer* in (47)):

(47) ... omda-n   die   venten toen juste unteren computer kapot   was.
         because-PL those guys   then just their   computer broken was
         '...because those guys' computer broke just then.'

- As noted above, the fact that C-AGR and T-AGR reflect different feature values in examples like (47) (plural vs. singular) seems to suggest that complementizer agreement results from a separate agreement operation and cannot be reduced to a connection between C and T.
- Haegeman & Koppen (2012) present evidence that the raised possessor occupies an A-position above TP which they label SpecαP:

(48)

```
           CP
          /  \
         C    αP
             /  \
      DPposs.ᵢ   α'
               /  \
              α   ...
                 /  \
                    TP
                   /  \
                 DPⱼ   T'
                /△\   /  \
               tᵢ  ... T   vP
                          /  \
                         tⱼ   ...
```

- In (48), C-AGR is established by an Agree operation between C and the possessor's φ-set (in SpecαP), while regular verb agreement results from an Agree operation between T and the whole subject (headed by the possessee) in SpecvP.

- But note that this structure is also compatible with a post-syntactic analysis of C-AGR in terms of feature insertion if we assume that the relevant copy operation does not target T's φ-set, but rather the φ-set of α (which enters into an agreement relation with the possessor in the syntactic computation).

6. Conclusions

- Review of arguments for and against a syntactic, Agree-based analysis of C-AGR

- Cases where the realization of C-AGR is sensitive to post-syntactic processes such as RNR or comparative deletion suggest that C-AGR is established in the post-syntactic components of grammar

- In the relevant varieties,

  ➢ C-AGR does not involve a (checking) relation between C and the subject. Rather, it seems to depend on the presence of the finite verb at MS/PF.

  ➢ C-AGR is a **morphological ornament**, resulting from the post-syntactic insertion of φ-features (a copy of T's φ-set) under structural adjacency with T.

- Phenomena like double agreement, first conjunct agreement, or external agreement are amenable to a post-syntactic analysis;

- Cross-dialectal variation (e.g. concerning sensitivity to verbal ellipsis): Evidence for the existence of different (syntactic vs. post-syntactic) types of C-AGR?

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RESTE

2.1 A conceptual problem

> ➢ Richards (2007) argues that the logic of phase-driven derivation requires that all uninterpretable features (uF) of C must be eliminated from the syntactic computation (via feature inheritance and subsequent Transfer/Spell-out) as soon as they have been valued.[17]

> ➢ Richards' argument that C must pass all its uFs down to T raises obvious questions about the validity of Agree-based approaches to C-AGR.

- At least for a subset of speakers, similar adjacency effects can be observed in Bavarian:

(49) dass(?? -sd) [bei dem Brachdwedda] seibsd du in den Biargoadn gehsd

that(-2SG) in this splendid weather even you to the pub go-2SG
'that even you go to the pub in this splendid weather'

(ii) Impoverishment rule that makes reference to the presence of a similar feature set in the same prosodic domain (Advantage: no need for a special vocabulary item, relation with the existing verbal paradigm; however, from a diachronic perspective, it seems that at least in Bavarian, special vocabulary items are required!)

(III) OCP effect???

1. <u>Assumption 1</u>: The copy/insertion procedure giving rise to the presence of φ-features on C operates in a strictly local fashion, requiring *structural adjacency* between C^0 and T^0 (cf. e.g Halle & Marantz 1993 and Embick & Noyer 2001):

(50) *Locality of feature insertion*
The post-syntactic insertion of φ-features can target a functional head X only if X is *structurally adjacent* to a functional head Y hosting a (valued) φ-set.

---

[17] "By the PIC [Phase Impenetrability Condition], phase heads are not spelled out at the same time as their complements, and therefore uF on the phase head is not transferred until the phase following the phase in which it is valued, denying Value-Transfer simultaneity [...]. Consequently, the derivation is doomed if valued uF remains on the phase head. The only way to overcome this fatal flaw and ensure that uF on C/v* is indeed valued as part of Transfer is for C/v*'s uF to be transmitted onto the category that *is* transferred, namely, the complement (T/V)." (Richards 2007: 569)

(51) *Structural adjacency*
   A head X is structurally adjacent to a head Y iff
   (i)   X c-commands Y
   (ii) There is no head Z that
         (a) is c-commanded by X and
         (b) c-commands Y.

- According to (49), a head X is structurally adjacent to the head Y of its complement. Hence, C-AGR can only be inserted as a copy of T's φ-set if T is locally c-commanded by C.

- Assumption 2: Scrambled XPs do not adjoin to IP/TP but occupy the specifier of a functional projection above TP that is only projected if it serves to implement certain information-structural distinctions (cf. Frey 2004, Grewendorf 2005; see Jayaseelan 2001, Belletti 2002, and Haeberli 2002 for related proposals).

- Illustration: in (50) the scrambled XP is located in the specifier of a projection (simply labeled FP), the head of which disrupts structural adjacency between C^0 and T^0. As a result, the insertion of C-AGR is blocked:

(52) *[$_{CP}$ C^0+AGR [$_{FP}$ [XP] [$_{F'}$ F^0 [$_{TP}$ subj. [$_{T'}$ T^0+AGR]]]]]
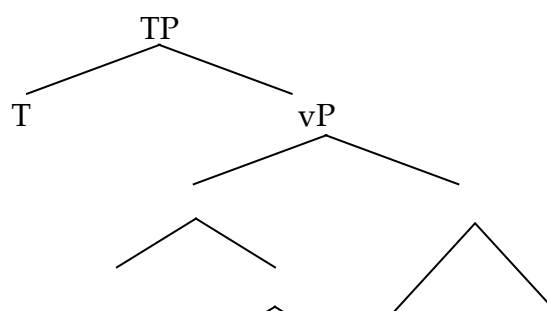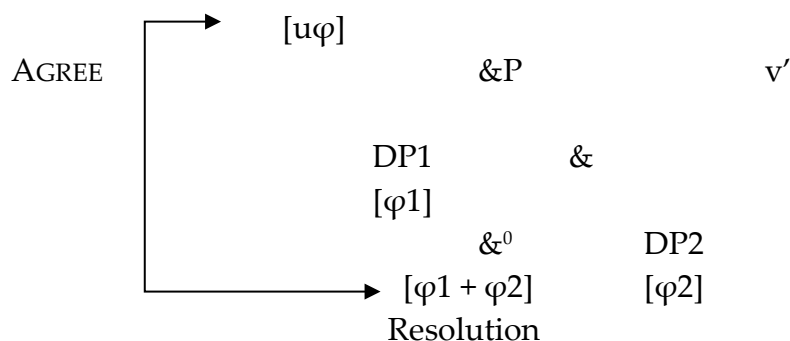
(53)
&P
DP1 &'
[φ1]
&^{0} DP2
[φ1+φ2] [φ2]
Resolution
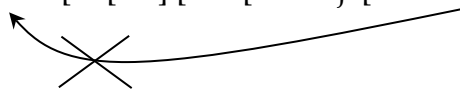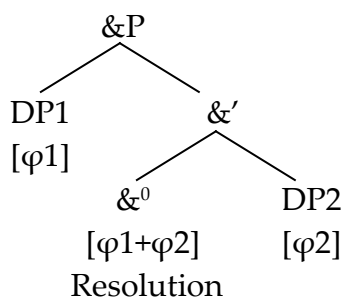
- Similar to van Koppen (2005, 2012), I assume that

   1. Both the phi-set of the first conjunct and the combined feature sets of the two conjoined subjects (resolution, cf. Dalrymple & Kaplan 1997) are in principle accessible to T, i.e., T may agree with &P or DP1:

(54)
TP
T vP

```
                    [uφ]
AGREE  ┌──────►              &P                      v′

       │          DP1              &
       │          [φ1]
       │                  &⁰          DP2
       └────────►  [φ1 + φ2]    [φ2]
                    Resolution
```

2. However, the result of the Agree operation triggered by the phi-probe in T depends on the interaction between Move/Internal Merge and Agree. More precisely, Georgi (2013) argues that there are two types of Internal Merge:

> "edge feature-driven IM applies *after* Agree and non-edge feature-driven IM applies *before* Agree initiated by H. The consequence of this order is that the former type of IM applies *too late* to change possible Agree relations (the DP that is to be internally merged is still in its base position when Agree applies); the latter type of IM changes structural relations *before* Agree applies and can thus feed or bleed Agree relations (depending on the input), because Agree is structure-sensitive." (Georgi 2013: 414)

3. Effect (to be derived):
   a. Agree before Move: If SpecTP is the final landing site of the subject, T can agree with both the whole coordinated subject and the first conjunct; in contrast, when
   b. Move before Agree:

4.

iii. The copy operation establishing C-AGR may target

i. the complete φ-content of T (C-AGR = T-AGR/resolution, Tielt Dutch, Lapscheure Dutch)

ii. the first φ-set of the ordered pair (**FCA**, Tegelen Dutch, Bavarian).

> ALTERNATIVE: (i) Copy operates prior to resolution, targeting the ordered pair of phi-sets resulting from Agree with complex subjects; (ii) Upon Vocabulary Insertion, either resolution applies (Tielt Dutch); in those varieties, however, where the exponents realizing C-AGR requires the presence of a similar phi-set in the same minimal prosodic domain, only the first feature set of the ordered pair can be realized (ok for Hellendoorn, but wrong results for varieties where the adjacency requirement shows up only with FCA!).

Analyse: (feature insertion) copy operation may access either (i) the whole feature geometry or (ii) a subpart of it (e.g., speechPart).

5.

- Ineffability effects: For certain combinations of subjects, there do not seem to exist fully well-formed candidates. E.g., coordination of 2pl+1sg subjects generally leads to more 'mixed' results (although FCA should in principle be possible):

(55) a. % dass-**ts** [ihr/ees und I] noch Minga miaß-**n**
           that-2PL you.PL and I to Munich must-PL
      b. */?? dass-**ts** [ihr/ees und I] noch Minga miaß-**ts**
           that-2PL you.PL and I to Munich must-PL

➤ Lack of FCA with fronted subjects: (FN 14 on Bavarian)

➤ Tegelen Dutch (van Koppen 2012): Adjacency effects only in the context of FCA:

(56) a. de-s /*?det auch doow merge kum-s
           that-2sg also you.sg tomorrow come-2sg
      b. DOOW denk ik de-s/*det de wedstrijd winnen zal-s.
           you.sg think I that-2sg/that the game win will-2sg

(57) a. de-s / *det [doow en ich] s treff-e
           that-2.sg / that [you.sg and I]-1.pl each.other-1.pl meet-pl
      b. [Doow en Marie] denk ik, *de-s / ?det het spel zull-e winnen.
           [you.sg and Marie] think I that-2.sg / that the   game will-pl win