*I woass dass'ts ihr kongruierts, owa i woass net wie'ts.

A post-syntactic approach to complementizer agreement in Germanic

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1. Introduction

- <u>Well-known fact</u>: Apart from features such as clause-type, subordination, modality etc., the C-domain may also host *inflectional* features, giving rise to instances of *multiple agreement* where the subject's φ-features are reflected not only on the verb, but also on C⁰ (or some head of a split-C structure).
- Relevant questions concern (i) the structural representation of these features in the C-domain, and (ii) the way these features are licensed/evaluated.
- Prevalent in the literature: syntactic approaches, e.g. movement of an inflectional head to C⁰ (Hoekstra & Marácz 1989, Zwart 1993, 1997), the presence of a separate AgrP in the C-domain, the content of which is licensed via spec-head agreement (Shlonsky 1994), or the presence of a φ-set on C⁰ which initiates an AGREE operation accessing the subject in SpecTP (Carstens 2003).
- <u>Claim</u>: Certain distributional facts about complementizer agreement (adjacency effects, sensitivity to PF-deletion processes) suggests that this form of multiple agreement is established by post-syntactic components of grammar/the mapping to PF.
- <u>Analysis</u>: Complementizer agreement results from the post-syntactic insertion of agreement morphemes, the licensing of which is parasitic on the presence of an agreement morpheme which has been evaluated in the syntax.

2. Complementizer agreement in Germanic

• In many non-standard varieties of Germanic, complementizers inflect for person and number of the subject, cf. the following examples from West Flemish and Bavarian:¹

(1) a. da-n *(=k) ik werk-en that-1SG=CLIT.1SG I work-1SG 'that I work'
b. da-t *(=j) gie werk-t that-2SG=CLIT.2SG you work-2SG

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Cf. Bayer (1984), Altmann (1984), Weiß (1998), (2002) on Bavarian; Bennis & Haegeman (1984), Haegeman (1990), (1992), Shlonsky (1994), de Vogelaer et al. (2002) on (West) Flemish; de Haan & Weerman (1986), Hoekstra & Marácz (1989) on Frisian; Zwart (1993), (1997) on dialects of the eastern and southern Netherlands; Hoekstra & Smits (1999) for an overview.

- c. da-t *(=j) ij werk-t that-3SG=CLIT.3SG.MASC he work-3SG
- d. da-t (=ze) zie werk-t that-3SG=CLIT.3SG.FEM she work-3SG
- e. da-t (=t) tet werk-t that-3SG=CLIT.3SG.NEUT it work-3SG
- f. da-n (=me) wunder werk-en that-1PL=CLIT.1PL we work-1PL
- g. da-t *(=j) gunder werk-t that-2PL=CLIT.2PL you.PL work-2PL
- h. da-n (=ze) zunder werk-en that-3PL=CLIT.3PL they work-3PL
- (2) a. ob-st du noch Minga kumm-st whether-2SG you to Munich come-2SG '...whether you come to Munich'
 - b. ob-ts ihr noch Minga kumm-ts whether-2PL you to Munich come-2PL '...whether you (pl) come to Munich'
- Only West Flemish shows a full paradigm; in other varieties complementizer agreement is usually restricted to certain person/number combinations (Bavarian: 2nd person (+1pl in some varieties), eastern dialects of Dutch: 1pl, southern dialects: 1pl and 3pl, Frisian: 2sg (plus 2pl in some varieties).²

3. Problems for syntactic accounts

3.1 Adjacency effects

- Observation: in dialects where the shape of complementizer agreement differs from the shape of verbal agreement, the former replaces the latter in inversion contexts, cf. the following examples from the Dutch dialect Hellendoorn (Ackema & Neeleman 2003, 2004):³
- (3) datt-e wiej noar't park loop-t that-1PL we to-the park walk-1PL 'that we are walking to the park'
- (4) a. Wiej loop-t noar't park. we walk-1PL to-the park 'We are walking to the park.'
 - b. Volgens miej lop-e wiej noar't park. according-to me walk-1PL we to-the park 'According to me we are walking to the park.'

² See Fuß (to appear) for a diachronic explanation of these person/number restrictions.

³ Similar phenomena can be observed with 1pl in some Lower Bavarian dialects, see e.g. Bayer (1984), Weiß (1998).

- The presence of an (scrambled) adjunct which intervenes between C⁰ and the subject blocks the availability of complementizer agreement. This restriction holds for both main and embedded clauses:
- (5) a. dat/*datt-e [op den wärmsten dag van't joar]
 that/that-1PL on the warmest day of-the year
 wiej tegen oonze wil ewärkt hebt.
 we against our will worked have
 'that on the warmest day of the year we have worked against our will'
 - b. Volgens miej loop-t/*lop-e [op den wärmsten dag according-to me walk-1PL/walk-1PL on the warmest day van't joar] ook wiej noar't park. of-the year also we to-the park 'According to me we are also walking to the park on the warmest day of the year.'
- Similar adjacency effects can be observed in other Germanic varieties which exhibit complementizer agreement, cf. the following examples from Bavarian:
- (6) a. *obwoi-st [woartscheints] du ins Kino ganga bist although-2SG probably you to-the movies gone are 'although you probably to the movies'
 - b. obwoi [woartscheints] du ins Kino ganga bist although probably you to-the movies gone are 'although you probably went to the movies' (Bavarian; Günther Grewendorf, p.c.)
- West Flemish and 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 uninflected complementizers (Liliane Haegeman, Germen de Haan, p.c.):4
- (7) a. *da-n [morgen] Pol en Valère werk-en (West Flemish) that-3pl tomorrow Pol and Valerie work-3pl
 - b. *da [morgen] Pol en Valère werk-en that tomorrow Pol and Valerie work-3PL 'that Pol and Valerie are working tomorrow'
- (8) a.*hy leaude datst [moarn] do komme soest. (Frisian) he believed that-2sg tomorrow you come should-2sg
 - b.*hy leaude dat [moarn] do komme soest. he believed that tomorrow you come should-2sg

⁴ Frisian: non-inflected complementizers in cases of embedded V2 (Germen de Haan, p.c.):

- (i) hy leaude datsto moarn komme soest.
 - he believed that-2SG-you tomorrow come should-2SG
- (ii) hy leaude dat do soest moarn komme. he believed that you should-2SG tomorrow come
- (iii) *hy leaude datsto soest moarn komme he believed that-2sg-you should-2sg tomorrow come 'He believed that you should come tomorrow.'

Infl-to-C movement?

• This adjacency effect is totally unexpected in an approach based on INFL-to-C movement (Hoekstra & Marácz 1989, Zwart 1993a,b, 1997): in general, the presence of an intervening XP should not block X⁰-movement. Even worse, complementizer agreement is not available in examples such as (5b) where exactly this operation has taken place!

Agree?

- <u>Carstens (2003)</u>: C hosts its own set of uninterpretable φ-features which is valued under closest c-command (i.e., AGREE) by the interpretable φ-features of the subject in SpecTP.
- <u>Carstens' analysis of adjacency effects</u>: Intervention effect in the sense of Chomsky (2000, 2001). By assumption, the intervening adverbial bears an abstract Case feature that identifies the adverbial as a possible goal for the φ-set in C⁰. As a consequence, the adverbial "disrupts closest c-command of the subject by C⁰" (p. 398), thereby blocking the evaluation and realization of complementizer agreement.
- <u>Problems</u>: (i) Non-standard assumptions (PP adverbials carry a case feature); (ii) false predictions: adverbials that intervene between T⁰ and the base position of the subject should give rise to similar intervention effects.

Spec-head?

- <u>Shlonsky (1994)</u>: the inflection found in the C-domain is licensed in a specifier-head relation between a separate AgrC-head and the subject which moves to SpecAgrCP. Subsequently, AgrC⁰ moves to C⁰, leading to inflected complementizers:
- (9) [C' that+AgrC [AgrCP subject [AgrC' tAgrC [IP PP [IP tsubject ...]]]]]
- Strict adjacency between C⁰ and the subject (in SpecAgrCP) is ensured by ruling out adjunction to AgrCP (stipulation).
- Examples with an intervening PP (and without complementizer agreement) can then be attributed to the following structure (without AgrCP):
- (10) [C' that [IP PP [IP subject ...]]]
- <u>Preliminary conclusions</u>: (i) analysis in terms of head movement cannot account for the facts; (ii) Agree-type analysis has to rely on ad-hoc assumptions and leads to wrong predictions; (iii) Spec-head analysis can account for the data (by ruling out adjunction to AgrCP), but has to postulate different structures for e.g. (3) and (5a).

3.2 Sluicing

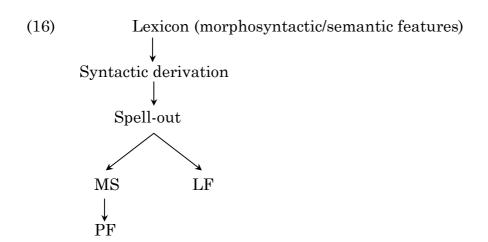
- Complementizer agreement is blocked in sluicing constructions, that is, instances where an IP within a *wh*-CP is elided (cf. e.g. Ross 1969, Merchant 2001):
- (11) a. I woass dass-ts ihr a Madl gseng hoabts,
 I know that-2PL you a girl seen have-2PL
 owa I woass net wo-ts ihr a Madl gseng hoabts.
 but I know not where-2PL you a girl seen have-2pl)
 - b. I woass dass-ts ihr a Madl gseng hoabts,
 I know that-2PL you a girl seen has-2PL
 owa I woass net wo (*-ts) ihr a Madl gseng hoabts.
 but I know not where -2PL (you a girl seen have-2pl)
 'I know that you've seen a girl, but I don't know where (you've seen a girl).'
 (Günther Grewendorf, p.c.)
- In examples such as (11), we can observe that complementizer agreement is not available after the lowest IP has been deleted in the mapping toat PF. This sensitivity to post-syntactic operations cannot be accounted for if it is assumed that complementizer agreement is established by syntactic mechanisms.
- 4. Toward a post-syntactic account of complementizer agreement
- Ackema & Neeleman (2004) propose an analysis of complementizer agreement in terms of a PF feature checking rule which applies if C and the subject occur in the same prosodic phrase (marked by braces):
- (12) Germanic complementizer agreement $\{[C (Prt) (Add) (Plr)] [D (Prt) (Add) (Plr)]\} \rightarrow \{[C (Prt_i) (Add_j) (Plr_k)] [D (Prt_i) (Add_j) (Plr_k)]\}$ (Ackema and Neeleman 2004: 241)
- The rule in (12) serves to identify the set of φ-features associated with C (Prt = Participant, Add = Addressee, Plr = Plural) with the relevant (interpretable)
 φ-features of the subject.
- <u>Adjacency effects</u>: due to the presence of an intervening XP between C and the subject, rule (12) cannot apply since the complementizer and the subject are in two different prosodic domains (marked by braces):
- (13) a. [$_{CP}$ C [$_{IP}$ XP [$_{IP}$ subject ... [$_{VP'}$... V ...]]]] b. {C XP} {subject} {...} {...V...}

- The Bavarian Sluicing data can then be attributed to the fact that the subject has been deleted at/prior to PF. Therefore, it cannot participate in PF checking processes.
- <u>Conceptual problem</u>: PF has powerful, syntax-like properties (e.g., a version of AGREE which is sensitive to prosodic domains).
- Empirical problem: Data from comparatives in Bavarian show that the realization of complementizer agreement does not depend on the presence of the subject (at PF). Rather, it appears that it is the presence/absence of the inflected verb which is crucial for the availability of complementizer agreement:
- (14) a. D'Resl is gresser [als wia-st du bist] the-Resl is taller than as-2SG you are 'Resl is taller than you are.'
 - b.*D'Resl is gresser [als wia-st du] the-Resl is taller than as-2SG you
 - c. D'Resl is gresser [als wia du] the-Resl is taller than as you (Bayer 1984: 269)
- In comparatives, overt agreement on C leads to ungrammaticality if the finite verb is absent from the structure, cf. (14b). The sentence becomes acceptable when the complementizer bears no inflection, cf. (14c).

• Conclusions:

- (i) Agreement between the complementizer and the subject cannot be implemented in terms of a checking relation between C⁰ and the subject neither in the syntax nor at PF. Otherwise one would expect examples such as (14b) to be grammatical.
- (ii) In some way, the inflection found in the C-domain is mediated by/parasitic on the presence of the finite verb.
- (iii) The facts in (11) and (14) suggest that complementizer agreement must operate <u>post-syntactically</u>: Sluicing and comparative deletion are standardly analyzed as the result of post-syntactic operations that delete material in the second clause, as shown in (15) for comparatives (cf. Bresnan 1973, Lechner 2001).
- (15) D'Resl is gresser [als wia (*-st) du bist] the-Resl is taller than as-2sg you (are) 'Resl is taller than you are.'
- If licensing of complementizer agreement were to take place in the syntax, no interaction with PF-deletion of the finite verb is expected: the finite verb would be present throughout the whole syntactic derivation, being subject to deletion only after the structure has been transmitted to the post-syntactic components of grammar.

- 5. The proposal: post-syntactic insertion of agreement morphemes
- <u>Background</u>: Realizational model of grammar (Distributed Morphology (DM), Halle & Marantz 1993) the morphological component (called *Morphological Structure*, henceforth MS) operates post-syntactically; syntactic terminal nodes (called *morphemes*) are supplied with phonological content after syntax:



• The constituent structure derived in the syntax can be modified by the post-syntactic insertion of inflectional heads/features. In DM, this mechanism is often used to account for case and agreement phenomena (cf. e.g. Marantz 1992, Halle & Marantz 1993, Embick 1997, Halle 1997, Noyer 1997, Harbour 2003).⁵

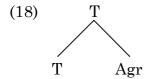
Basic assumptions: hybrid model of agreement

• 'canonical' subject-verb agreement results from the presence of agreement features on T which are evaluated in the syntax by the operation AGREE (Chomsky 2000):

(17) [CP ... [TP T+Agr ... [
$$_{vP}$$
 subject ...]]]

AGREE

• The agreement features present on T are represented as an agreement morpheme which adjoins to T prior to Merge of T with vP:

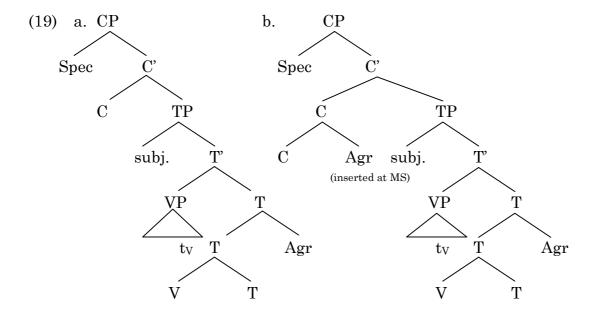


- Recall:
 - (i) Complementizer agreement operates post-syntactically.
 - (ii) Agreement on C⁰ depends on the presence of the inflected verb.

⁵ Embick (1997) calls these post-syntactically inserted morphemes 'dissociated', since they are not present in the syntactic derivation and merely reflect (relational) properties expressed by structural configurations in the syntax.

• Implementation:

- (i) Complementizer agreement results from a morphological operation, the post-syntactic insertion of an Agr-morpheme at the level of MS (henceforth **Agr-on-C**).
- (ii) Feature matching between Agr-on-C and the subject does not take place directly, but is *mediated* by another Agr-morpheme that has been valued by a syntactic AGREE relation:⁶
- The insertion process is illustrated by the following pair of phrase markers. In (19b), an agreement morpheme has been added to C at MS.



- Licensing/evaluation of Agr-on-C:
- (20) A post-syntactically inserted Agr-morpheme is parasitic on the presence of an Agr-morpheme that has been valued in the syntax.
- More technically: post-syntactically inserted Agr-on-C is a *copy* of Agr-on-T (only the latter has been valued by a syntactic AGREE relation).
- This mechanism ensures feature identity between these different types of Agrmorphemes (which both reflect the φ-feature content of the same argument).
- This account explains the restriction on complementizer agreement observed in Bavarian comparatives if we assume that at MS, the insertion of Agrmorphemes applies after the deletion of the syntactic terminal node which corresponds to the inflected verb (cf. e.g. Embick & Noyer 1999 for the ordering relations between different types of MS/PF operations).

⁶ The idea that complementizer agreement is parasitic on verbal agreement is further supported by the observation that across Germanic, there appear to be no languages with complementizer agreement but without verbal agreement, while there are many languages that exhibit verbal agreement in the absence of complementizer agreement (Hoekstra & Smits 1999). Thus, it seems that cross-linguistically, the availability of complementizer agreement is dependent on the overt realization of verbal agreement morphology.

5.1 Adjacency effects

- DM: morphological rules which involve dependencies between syntactic terminals/heads (such as Impoverishment or Morphological Merger) are usually subject to strict locality conditions. That is, the relevant syntactic heads must be *structurally adjacent* (cf. Halle & Marantz 1993).
- Adjacency effects (no XP may intervene between C⁰ and the subject): The relation between the syntactically valued Agr-morpheme on T and its post-syntactically inserted copy on C⁰ must be sufficiently local.
- This can be achieved by the following condition on the insertion of 'morphological' Agr-morphemes (and the definition of structural adjacency in (22)):
- (21) Insertion of morphological Agr-morphemes
 A post-syntactically inserted Agr-morpheme can attach to a functional head X only if X is *structurally adjacent* to another functional head Y hosting an Agr-morpheme that has been valued in the syntax.
- (22) Structural adjacency
 A terminal node X and the closest terminal node Y c-commanded by X are
 structurally adjacent.
- According to (22), a head X is structurally adjacent to the head Y of its complement. Hence, Agr-on-C can only be inserted as a copy of Agr-on-T if C⁰ is structurally adjacent to T⁰, the latter hosting a valued Agr-morpheme.
- Adjacency effects: Following Grewendorf (2005), scrambled XPs are not adjoined to IP/TP, but occupy the specifier of a functional projection (TopP/FocP, above TP) that is only projected if it serves to implement certain information-structural distinctions (e.g., the distinction between old/new information).⁷
- In (23), the PP *op den wärmsten dag van't joar* is located in the specifier of a TopP/FocP (simply labeled FP in (23)) which disrupts structural adjacency between C⁰ and T⁰.
- (23) *[CP datt-e [FP [PP op den wärmsten dag van't joar] [F F⁰ that-1PL on the warmest day of-the year [TP wiej tegen oonze wil ewärkt hebt.]]] we against our will worked have 'that on the warmest day of the year we have worked against our will'
- <u>Observation</u>: Not all elements that intervene between C⁰ and an additional subject (or rather, the TP) block the realization of complementizer agreement.
- In Bavarian, modal particles such as *aber*, *halt*, *ja* and clitic object pronouns may intervene between inflected C⁰ and TP/the subject (cf. e.g. Altmann 1984, Nübling 1992):

⁷ See Rizzi (1997) for a similar approach to the presence of TopP/FocP in the left periphery.

- (24) dass-st <u>oaba</u> du ibaroi dabei bis-st that-2SG PRT you everywhere with-it are 'that you really are involved everywhere' (Altmann 1984: 205)
- (25) wia-sd=<u>n</u> du gseng hoasd when-2SG=CLIT.3SG you seen have 'when you saw him' (Pfalz 1918: 231)
- Similarly, object clitics may intervene between the subject and the inflected complementizer in West Flemish, which otherwise requires strict adjacency between C and the subject (Liliane Haegeman, p.c.):
- (26) da-<u>n</u> ze Valère en Marie nie gezien een that-3PL her Valère and Marie niet seen have-3PL 'that Valerie and Marie have not seen her'
- <u>Assumption</u>: The structural positions of clitics and modal particles differ from the position of scrambled XPs (only the latter move into a specifier position of a TopP or FocP intervening between C⁰ and TP).
- <u>Modal particles</u>: are base-generated as adjuncts (here: TP-adjuncts) (cf. e.g. Abraham 1995). Accordingly, they do not require the projection of a separate TopP or FocP and do not disrupt the structural adjacency between C⁰ and TP.
- (Object) clitics: ultimate surface position is determined by late MS-processes such as Prosodic Inversion (cf. Bonet 1991, Halpern 1992, Schütze 1994). Therefore, they reach their surface position after the insertion and valuation of late-inserted Agr-morphemes has been completed. Again, no interaction between these two processes is expected.

6. Conclusion

- The sensitivity of complementizer agreement to post-syntactic processes suggests that complementizer agreement is established in the post-syntactic components of grammar.
- In addition, the licensing of complementizer agreement seems to depend on the presence of the finite verb at MS/PF.
- Inflectional features present in the C-system are added post-syntactically to the structure via the insertion of an Agr-morpheme which adjoins to C⁰ (Agr-on-C)
- The feature content of Agr-on-C is identified under structural adjacency with another Agr-morpheme that has been valued in the syntactic derivation (i.e., Agr-on-C is a copy of Agr-on-T).
- Hybrid theory of agreement: we have to recognize the existence of a *morphological* mechanism giving rise to agreement phenomena, in addition to the purely syntactic licensing of Agr-morphemes.

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