Phi-Agree versus phi-feature movement: Evidence from floating quantifiers

Milan Rezac, UMR 7023 CNRS / Paris 8

Chomsky 2000 proposes a key shift in the analysis of phi-agreement. In Chomsky 1995, agreement is the displacement of a pronoun-like terminal containing interpretable phi-features to the agreeing head, or \textit{D-agreement}. In Chomsky 2000, agreement becomes the valuation of uninterpretable phi-features on an independent terminal, \textit{Agree}. A new argument for the Agree model is developed from floating quantifiers. It permits directly contrasting agreement with minimal pronouns: clitics and \textit{pro}. Agree is the right analysis for phi-agreement alone, and D-agreement for clitics, \textit{pro}, and clitic doubling.

1 The shift to Agree

In Chomsky (1995: 272-6), phi-agreement moves from the agreeing argument to the target such as $T^o$ a minimal $X^o$ containing the argument's interpretable phi- and other formal features, (1)a. This $X^o$ should have properties similar to those of a pronoun at LF, such as capacity to control and bind (p. 272). Here this is called \textit{D-agreement}. It reflects a common diachronic origin and synchronic shape of agreement morphology (Fuß forthc).

In Chomsky (2000: 119, 146 note 71), movement of interpretable material is eschewed, and agreement reflects the valuation of uninterpretable features on $T^o$ through \textit{Agree}, (1)b. Being uninterpretable, they are deleted prior to LF and thus have no effect there.

\begin{itemize}
  \item[(1)a] \hspace{1cm} \text{Move of interpretable } i\phi \text{ terminal, bind at LF.}
  \begin{equation}
  [TP \text{ there } T^o+[D i\phi], \ [VP \text{ seem to themselves, [TP } \ldots \ [i\phi \text{ some linguists}]]]}
  \end{equation}
  \item[(1)b] \hspace{1cm} \text{Agree for uninterpretable } u\phi \text{ features, deleted at LF.}
  \begin{equation}
  [TP \text{ there } [T^o u\phi], \ [VP \text{ seem to themselves, [TP } \ldots \ [i\phi \text{ some linguists}]]]
  \end{equation}
\end{itemize}

The empirical motivation for the shift is Den Dikken's 1995 and Lasnik's 1999 demonstration that phi-agreement is invisible for syntax and interpretation. In (2)b, if agreement were a pronoun-like phi-set on the verb, it would be expected to license the anaphor, (1)a, much like the A-moved (pro)noun in (2)a. It does not. This follows if agreement is uninterpretable and deleted after Agree, so that it cannot bind at LF: (1)b.

\begin{itemize}
  \item[(2)a] \text{Some linguists/they, seem to them(selves, to have been given good job offers.}
  \item[(2)b] \text{There seem to them(*selves, to each other, to have been some linguists, given good job offers.}
\end{itemize}

The same inertness of agreement for binding has been found in Icelandic (Jónsson 1996: 206), Italian (Cardinaletti 1997a: 526 note 7, Chomsky 2000: 147 note 71), and Tsez (Polinsky and Potsdam 2001: 620, 2006: 178), which differ in \textit{pro}-drop, expletives,
Phi-agreement lacks the binding capacity of pronouns. Agree predicts it: agreement is syntactic phi-feature transmission deleted by LF.\footnote{Chomsky 1995: 272-6, Cardinaletti 1997a propose that the postverbal subject of an expletive construction can control PRO only if it agrees, but in nowhere has the correlation panned out: see Rezac (2004: chapter 4) for an overview, to which is to be added Legendre (1990: 116-124). The Agree view does leave space for elements licensed by syntactic phi-transmission through Agree alone, as Chomsky (2008: 148), Reuland (2006) propose for se-type anaphora. Preminger (2009) develops an independent argument distinguishing Agree from clitic movement.}

2 Floating quantifiers

This section adds a new diagnostic for the inertness of phi-agreement of the Agree model: its failure to license floating quantifiers, FQs. It extends evidence beyond expletive constructions to other subject "inversions", and in them permits a direct contrast with pronouns of the poorest kind, which do license FQs: clitics and pro.

FQs are licensed by (pro)nouns in c-commanding A-positions (see section 3 for the mechanism). Agreement alone fails to license them. An instantiation of this generalization is the expletive construction (3). The underlined FQ all is licensed by the c-commanding subject in (3)a, but not in (3)b, where only agreement with the subject c-commands the FQ. The paradigm is part of Baltin's 1978 argument that FQs are anaphoric. It also follows from it that agreement unlike (pro)nouns does not license FQs.\footnote{Baltin's pattern holds of French, but is unrevealing about agreement, since in French expletive constructions agreement is frozen to 3SG. For this reason, (2) is irreplicable. To the extent anaphora binding can be tested in inversion, it is out as in Italian (Cardinaletti 1997b: 526 note 7). Different is the subject-oriented reflexive clitic se, which can be bound even by the nonagreeing in-situ subject of expletive constructions (Legendre 1990: 102f.). Se depends on argument structure (Reinhart and Siloni 2005), or on the Agree of note 1 for person, invisible but perhaps motivated in expletive constructions (Chomsky 2000: 149 note 90, Rezac 2004: 267ff.).}

(3)  
\begin{enumerate}
\item a. 〈All of〉 the portraits of Picasso had 〈all〉 hung.3PL on the mantelpiece.
\item b. There had 〈*all〉 hung.PL on the mantelpiece 〈all of〉 the portraits by Picasso.
\end{enumerate}

In English and French, the FQ diagnostic can be applied to other "inversion" constructions, with an agreeing subject below the FQ. Baltin 1978: 28 finds that FQs are not licensed in French \textit{Stylistic Inversion}, (4), and later work concurs: Déprez 1990: 56, Hulk and Pollock 2001: 8, Kayne and Pollock 2001: 157 note 77, Lahousse 2006: 437, 445. Culicover and Levine 2001: 301 find the same for English \textit{Locative Inversion}, (5).

(4)  
\begin{enumerate}
\item a. Je voudrais savoir ce que 〈tous〉 les hommes ont 〈tous〉 mangé. \\
I would.like know what that 〈all〉 the men have.3PL 〈all〉 eaten
\item b. Je voudrais savoir ce qu' ont 〈*tous〉 mangé 〈tous〉 les hommes.
\end{enumerate}

* I thank M. Jouitteau, two anonymous reviewers, and the editors for very helpful comments, as well as J.-F. Bourdin, N. Guilliot, P. Pica, and A. Rouveret for discussion of various points, and to those who shared their judgments, and wondered. Errors are mine.
Both inversions are usually analysed as in (6) (Collins 1997, Culicover and Levine 2001 for English; Déprez 1990, Lahousse 2003, 2006 for French; Alexiadou and Anagnostopoulou 2001 for both). The subject is structurally below the FQ, perhaps in-situ, in contrast to a noninverted subject in [Spec, TP] above the FQ, and the EPP of T° is satisfied by the fronted PP, A'-phrase, or a special C°. These works present arguments for a lower A-position of the inverted than of the preverbal subject, such as subextraction that group objects and inverted subjects against preverbal ones. The failure of the inverted subject to license FQs is one such argument, and logically independent from the failure of agreement with it to do so.\footnote{The principal P&P alternative to (6) is Kayne and Pollock (2001): subjects raise to [Spec, TP] in Stylistic Inversion as when preverbal, leave behind a silent subject clitic, raise higher, followed by TP fronting. See Lahousse (2003, 2006) for extensive counterarguments, only partly based on FQs: both subjects in [Spec, TP] and subject clitics license FQs, so it is hard to block them in inversion. See further note 6. Closely similar to the FQ evidence is a Condition C effect between a clitic to T° and inverted but not preverbal subjects, (i), brought up by Kayne and Pollock (2001: 157) (cf. Panagiotidis and Tsiplakou 2006). They do not interpret it as indicating a low position for the inverted subject, because of (ii) where the subject of voulu originates higher than the clitic yet still cannot be coreferential with it in inversion. Yet it seems to be rather the placement of the inverted subject in (ii), and more strikingly (iii), that is problematic: the subject follows the infinitival V°, not VP, above which it originates (Bonami and Godard 2001; cf. Kayne and Pollock 2001: 140, Lahousse 2006: 431). X° raising may solve both issues: in (ii), [\[X° lui téléphoner\] raises past les amis de Jean, and lui c-commands out of it as for instance out of [\[X° lui ont[T+AUX]\] in (i)].}

(5) Into the cafeteria have.3PL (*both) gone (both (of)) the students, I think.

Both inversions are usually analysed as in (6) (Collins 1997, Culicover and Levine 2001 for English; Déprez 1990, Lahousse 2003, 2006 for French; Alexiadou and Anagnostopoulou 2001 for both). The subject is structurally below the FQ, perhaps in-situ, in contrast to a noninverted subject in [Spec, TP] above the FQ, and the EPP of T° is satisfied by the fronted PP, A'-phrase, or a special C°. These works present arguments for a lower A-position of the inverted than of the preverbal subject, such as subextraction that group objects and inverted subjects against preverbal ones. The failure of the inverted subject to license FQs is one such argument, and logically independent from the failure of agreement with it to do so.\footnote{The principal P&P alternative to (6) is Kayne and Pollock (2001): subjects raise to [Spec, TP] in Stylistic Inversion as when preverbal, leave behind a silent subject clitic, raise higher, followed by TP fronting. See Lahousse (2003, 2006) for extensive counterarguments, only partly based on FQs: both subjects in [Spec, TP] and subject clitics license FQs, so it is hard to block them in inversion. See further note 6. Closely similar to the FQ evidence is a Condition C effect between a clitic to T° and inverted but not preverbal subjects, (i), brought up by Kayne and Pollock (2001: 157) (cf. Panagiotidis and Tsiplakou 2006). They do not interpret it as indicating a low position for the inverted subject, because of (ii) where the subject of voulu originates higher than the clitic yet still cannot be coreferential with it in inversion. Yet it seems to be rather the placement of the inverted subject in (ii), and more strikingly (iii), that is problematic: the subject follows the infinitival V°, not VP, above which it originates (Bonami and Godard 2001; cf. Kayne and Pollock 2001: 140, Lahousse 2006: 431). X° raising may solve both issues: in (ii), [\[X° lui téléphoner\] raises past les amis de Jean, and lui c-commands out of it as for instance out of [\[X° lui ont[T+AUX]\] in (i)].}

(6) a. C [TP (PP) T\(Agr\) \[… FQ … [\[vP? SU …]]\]] (inversion)
   b. C [TP SU T\(Agr\) \[… FQ … [\[vP? tSU …]]\]] (noninverted preverbal subject)

Beyond indicating that agreement does not license FQs, French permits developing a minimal contrast between it and clitics (indicated in italics). The point of departure is the observation that object clitics at T° license FQs, while nonclitic objects in the VP do not:

(7) a. Elle \(les_j\) \(leur_k\) a (tous/jk) présentés comme ses frères.
   she \(them.ACC\) has all introduced as her brothers.

   b. Elle s’est (*tous,i) présentée à eux,i / à EUX,i / aux charpentiers,i.
   she REFLEX has all introduced to them / to THEM / to the carpenters
Clitics therefore license FQs, and they are the weakest element on the scale strong > weak > clitic pronoun of Cardinaletti and Starke 1999. Other things being equal, this suggests that agreement lacks the pronominal properties of even this weakest of pronouns.

However, other things are not equal in the examples given so far. One can imagine that FQs are licensed by clitics in (7) but not by agreement in (4) because the agreement co-occurs with a DP, the subject, while the object clitics do not. Such is Belletti's 2005: 25 explanation for the failure of an inverted subject to a preceding FQ (see (14) below). Proposing that "Topic (or topic-like) cannot be 'less informative' than Focus, if they are related", an FQ is illicit if less focal and less informative than the following subject.

To eliminate this possibility, we need constructions where clitics double strong pronouns, object and subject. Such doubling clitics continue to license FQs, and now contrast directly with agreement doubling an overt subject, which does not license FQs:

(8) a. *AGR...FQ...SU b. clitic_{acc/dat}...FQ...O c. clitic_{nom}+AGR...FQ...SU

Consider first object clitic doubling (8)b, contrasted with subject agreement. In French, dative and accusative clitics may or must double strong pronouns, although not DPs (Kayne 2000: chapter 9, Zribi-Hertz 2008: 600 note 11, cf. De Cat 2007: 509-11). The strong pronoun bears contrastive focus, (9), or is associated to a focus particle, aussi in (10). The doubling clitic licenses FQs, in contrast to the solitary strong pronoun in (7)b:

(9) Je ne suis pas sur que les filles ont fait le mur.
I am not sure if the girls have gone over the wall.
Par contre les garçons je peux vous assurer,
The boys on the other hand I can assure you,
je les, ai tous, vus EUX, sauter le mur (en marchant sur mes rosiers).
I them.ACC have all seen THEM jump the wall (stepping on my rosebushes).

(10) D'abord nous avons contacté les victimes, puis les témoins.
First we contacted the victims, then the witnesses.
{Quand on les, a tous, interrogés eux, aussi,} /
When we them.ACC have all interrogated them too
{Quand on leur, a tous, parlé à eux aussi,}
When we them.DAT have all spoken to them too,
nous avons clos l'enquête.
we closed the investigation.

Some judge commas necessary even so: _Je lui ai parlé_ "(,) à _ELLE_ 'I her.DAT(clitic) have spoken to HER(strong, focus)'. Impressionistically, their intonation does not differ from that of others. If ECM subjects cannot be clitic right-dislocated (Sportiche 1996: 222), (9) indicates that even for these speakers, the focused pronoun is not dislocated. Participle agreement in these examples is only orthographic and requires more investigation.
To minimally contrast this clitic...FQ...object configuration with agreement, one should like an inversion agreement...FQ...subject as in (4), but with the subject a focused strong pronoun. Some accept such strong pronouns in inversion (Kayne and Pollock 2001: 116f.). For them, inverted pronouns do not license preceding FQs, unlike when preverbal:

(11) Eux aussi / EUX, ont tous été interrogés.
they also / THEY have all been interrogated

(12) Nous n'avons pas remis en cause le comportement des filles.
We did not question the behaviour of the girls.
Par contre les garçons, je peux vous assurer,
The boys on the other hand I can assure you,
sitôt que ∅ sont, (*tous) arrivés EUX, (tous) à la maison,
as soon as ∅ have (*all) arrived THEY (all) at the house,
nous leur avons posé des questions.
we asked them questions.

(13) D'abord nous avons parlé aux victimes, ensuite aux témoins.
First we spoke to the victims, then to the witnesses.
Quand ∅ ont (*tous) été interrogés eux, aussi, nous avons clos l'enquête.
When ∅ have (*all) been interrogated they also, we closed the inquiry.

The way to fix (12)/(13) is to insert the weak subject pronoun ils ‘they’ in the position marked ∅. However, this forces dislocation of the strong pronoun eux aussi/EUX, since weak pronouns cannot double strong ones (Cardinaletti and Starke 1999: 169).

Much contemporary spoken French has a different grammar of pronouns and permits contrasting subject clitics with agreement for FQ licensing, (8)c. Weak subject pronouns have become clitics, and strong pronouns may or must doubled by them (cf. Zribi-Hertz 1994). The strong pronouns in (12)/(13) require the subject clitic ils at position ∅ doubling the nondislocated eux, and by ils, the underlined FQ is licensed. Thus there is a minimal contrast between the earlier grammar, where agreement fails to license FQs in (12)/(13), and this one, where a subject clitic is available, obligatory, and licenses FQs.  

5 Many refuse inverted pronouns wholly, including Kayne and Pollock’s (2001: 116) Quand ont téléphoné EUX? ‘When have.3PL telephoned THEY?’; despite having (11), the inversion and FQ pattern (4), and (variably) inverted pronouns in coordinations with 3PL agreement, l’appartement qu’habitaient/*habitez Claire et toi à l’époque ‘the flat that lived.in.3PL/*2PL Claire and you at the time’ (Bonami and Godard 2001: 123, Grevisse and Goosse 2008: 1156; cf. note 6).

6 Incidental changes required to (12)/(13) are 1PL nous … avons > on … a (and vice versa in (10)) and sitôt > aussitôt. Inverted focused pronouns (12)/(13) or Kayne and Pollock’s (2001: 116) are sharply excluded, though (11) is not. Stylistic Inversion with DPs is absent (Kayne and Pollock 2001: 117), unless combined with subject clitic doubling, (i) (cf. Auger 1993). This has sweeping repercussions: FQs are licensed, combien-subextraction excluded because the subject is definite, and postverbal 1/2PL coordinations are doubled by a 1/2PL subject clitic and so exclude 3PL
The failure of agreement with overt subjects to license FQs extends to pro-drop languages and in those languages contrasts with pro. For Italian, variants of Belletti’s 2005: 27 paradigm in (14) are discussed by Rizzi 2000: 98, Cardinaletti 1997b: 50, Frascarelli 2008: 284. FQs are licensed by preverbal subjects (14)a and by pro-drop agreement (14)b, but not by postverbal subjects in inversion (14)c. The same FQ pattern is adduced by Baltin 1978: 32f., 34f. for Persian and Rumanian, Jaeggli 1981: 84 for Spanish, Costa 2004: 51f. for Portuguese, and Alexiadou 2000: 134 for Greek.

(14) a. I linguisti / loro hanno tutti parlato
    the linguists / they(strong) have.3PL all spoken
b. pro hanno (tutti) parlato(, [i linguisti] / [loro, i linguisti])
c. Hanno (*tutti) parlato [(tutti) i linguisti] / [loro, i linguisti]

This paradigm (14) has been invoked to support, among other points, the preverbal position of pro (Rizzi, Cardinaletti) and the lower position of inverted subjects (Costa). It shows equally that agreement with an inverted overt subject does not license FQs, while pro does, although reflected by the same agreement morphology. Pro in turn cannot be inserted in (14)c to license the FQ: it is a weak pronoun rather than a clitic (Cardinaletti 1997b, Cardinaletti and Starke 1999), and weak pronouns cannot participate in doubling (Cardinaletti and Starke 1999: 169), as seen with the overt counterpart of pro in Italian, the weak pronoun egli ‘he’: Egli parlerà *(,) lui ‘He will talk he’ (Belletti 2005: 28). It follows that in Italian inversion (14)c, there is not an agreeing pro in the preverbal position: either nothing, or a silent expletive analogous to English there (Rizzi 1982: 131, Burzio 1986: 89, Cardinaletti 1997b: 53-6, Holmberg 2005: 545; vs. Alexiadou and Anagnostopoulou 1998). The Italian pattern is thus a subset of those seen for French: agreement with a subject does not license FQs, pro as a weak pronoun does, but then cannot double a nondislocated subject in (14)c, and no subject clitic is available to do so.\(^7\)

### 3 Consequences for the theory of agreement

agreement (cf. note 5). These differences, expected from the absence or presence of a subject clitic, are obstacles for positing one in classical Stylistic Inversion as in note 3.

(i) Le travail commence quand *(elles, [ez]) ont (toutes,) fini les patronnes, de parler.

The work begins when they have all finished the bosses to talk

7 The inversions here contrast with heavy inversions, where a special postverbal subject – exhaustive focus in French, focus and in a separate prosodic domain in English – does license a preceding FQ: I refer the reader to Lahousse (2006) and the references there for French, Culicover and Levine (2001) for English (as well as Valmara (2006: 841) for Spanish). Heavy inversions differ from regular ones on such key parameters as co-occurrence with direct objects, placement after adjuncts, and binding. Although analyses differ, there is convergence among them that in heavy inversions the subject raises to a higher position than in regular inversion, indeed to the same one as a preverbal subject or higher (followed by remnant movement of the rest of the clause past it or HNPS of the subject from the clause).
Agreement with an overt subject does not license floating quantifiers; clitics, weak pronouns, pro, and strong pronouns do. This constrains the theory of agreement: its syntax must be different from that of these pronouns, including when doubling a DP. As the weakest pronominal element, clitics in clitic-doubling have been the canonical model of D-agreement: the clitic and the nominal originate in the same “big DP”, share phi-features by concord, and become dissociated by movement (Rouveret 1991, Uriagereka 1995, Belletti 1999, Kayne 2000, Anagnostopoulou 2003). Agreement must be different.

How different is indicated by theories of FQ licensing. They come in two groups: stranded adnominals and anaphoric adverbs. On the stranding approach, the FQ originates in a QP constituent together with its DP (Sportiche 1988). The QP moves into the middle field and there the DP A-moves out, stranding the quantifier, (15)a. Clitics participate in the same derivation, (15)b, first moving out of a doubled DP if there is one (perhaps via A-movement prior to cliticization, ti). Agreement as the movement of a D-agreement element should be fully parallel, (15)c. However, agreement as the Agree valuation of uninterpretable features on T from the interpretable features of the in-situ subject cannot give rise to an occurrence of an interpretable phi-set in the middle field, and so to the constituent [QP all 3PL] of (15)c, and thus there is no FQ to be stranded.

(15) a. Theyi haveT [QP all ti] come tij. (Movement approach to FQs)
b. She themi(clitic) hasilT (…ti…) [QP all ti] seen [tij (DP)].
c. *… have+3PLi [QP all ti] come [tij DP].

Of the adverbial approaches, the most recent synthesis is Fitzpatrick (2006: chapter 2). FQs are middle-field adverbs like always but like adnominal quantifiers in need of an e-type variable to quantify over. Thus they attach to a predicate: the vP with the trace of movement in (16). Their further special properties derive from having an internal variable pro as restrictor, the null equivalent of them in They have all of them left. As a variable, this pro needs to be bound from a c-commanding A-position. The subject they and the clitic them in (16) is the requisite binder. A D-agreement element should serve as such a binder as much as a clitic (cf. Chomsky 1995: 272). The valued uninterpretable features of the Agree approach on the other hand are deleted by LF and so cannot bind.

(16) a. Theyi haveT [AdvP all proi] [vP come tij]. (Adverbial approach to FQs)
b. She themi(clitic) hasVT [AdvP all proi] [vP seen [tij (DP)]].
c. *… have+3PLi [AdvP all proi] [vP come [tij DP]].

Thus the Agree analysis correctly expects agreement not to license floating quantifiers, whereas it should do so if it reflects D-agreement. There are three moves available in the D-agreement approach to avoid this conclusion by weakening the agreement-clitic parallelism. First, the D-agreement morpheme could be structurally poorer than a clitic on the strong > weak / pro > clitic scale of Cardinaletti and Starke 1999, and thus unable to host the FQ in (15)b or act as the restrictor pro in (16)b. In this fashion agreement may be stripped of any interpretable properties that it is empirically found to lack, up to all those potentially detectable through the sensitivity of other elements to them. Pursued to this
end-point, the proposal would converge in its predictions with the uninterpretable-and-deleted features of Agree. Second, agreement might be base-generated on T° coindexed with the subject, and this relationship posited not to license FQs, while clitics move from an argument position or the DP there that they double. A special syntactic coindexation mechanism invisible for FQs and anaphora seems to come down to the Agree relationship, whose hallmark is LF invisibility. Third, agreement morphemes might attach to their host in a manner different from clitics, so that clitics but not agreement morphemes bind out of the resulting complex T°+V° complex and thereby license the pro of the adverbial account of FQs (cf. Chomsky 1995: 275f., and, indirectly, the options discussed in Alexiadou and Anagnostopoulou 1998: 521-3). This is a technical stipulation that cannot, at any rate, be supported by overt realization, for pro is realized in the same manner as agreement yet licenses FQs like clitics.

These solutions echo Bresnan and Mchombo’s 1987 distinction between pronouns, which introduce an argument, and agreement, which occurs with an independent argument. On their proposal, agreement is poorer than pronouns both content-wise, in lacking a predicate core, and phrase-structurally, in lacking a terminal of its own: it is phi-features alone. The Agree model takes this line of thought to its logical endpoint: agreement is the valuation of an unvalued and uninterpretable phi-set on an element such as T°, lacking its own terminal, any other content, and deleted by LF. It must therefore be inert for all LF purposes. Its behaviour bears this out. On the diachronic road from pronouns to agreement, the final step is the elimination of interpretable content and its dedicated phrase-structural representation.

---

References


