

### Epistemic adverbs, the theory of phases and the prosody-syntax interface

**Introduction** Epistemic adverbs in Italian (for instance, *probabilmente* (probably) ), as well as in other languages, can appear in several positions inside the clause. Cinque (1999) proposed that the basic position of adverbs, epistemic ones included, is unique and that the different orders are due to the movement of the other phrases around them. This solution had a big heuristic impact and proved largely successful. However, in the light of more recent hypotheses about the structure of clauses and the properties of the interfaces, it can be refined to account for more fine-grained phenomena. The present work takes into account epistemic adverbs in Italian, but it can be extended to other left-periphery, “high”, adverbs, such as evidential and evaluative ones. The goal of this work is twofold: on one hand the empirical coverage of the theory of adverbs and clausal structure will be broadened, on the other it provides an argument in favor of the analysis of v\*P as a phase.

**The hypothesis** According to the Minimalist framework (Chomsky 2000, 2001) there are two Phases, CP and v\*P. Both projections have the property of being *propositional* (Chomsky 2000). Epistemic adverbs, together with evidential (*allegedly*) and evaluative (*fortunately*) ones, might be defined as *propositional adverbs* (I’ll also address some questions concerning the non-propositional usage of epistemics) in that, by means of their presence, the speaker – or the superordinate subject for embedded contexts – qualifies the whole subsequent domain. I propose therefore that there are two basic positions for these kind of adverbs, one for each phase: one above v\*P and a second above IP, in the domain of the C-layer, i.e., Cinque’s position.

This hypothesis accounts for some phenomena concerning the scope of negation and for the differences with respect to the parenthetical usage of the same adverbs. Moreover, it agrees with similar results in recent literature on evaluative items in other languages, such as Armenian and Palermitan (Giorgi and Haroutyunian 2011, Giorgi and Sorrisi 2012).

**The data** Consider now the following paradigms. The paradigm in (1) corresponds to a “flat” intonation:

- (1) (probabilmente<sub>1</sub>) Gianni (probabilmente<sub>2</sub>) ha (probabilmente<sub>3</sub>) mangiato (probabilmente<sub>4</sub> DP-scope only) la torta (\*probabilmente<sub>5</sub>)  
(probably<sub>1</sub>) Gianni (probably<sub>2</sub>) has (probably<sub>3</sub>) eaten (probably<sub>4</sub>) the cake (probably<sub>5</sub>)

The position of *probabilmente<sub>5</sub>* is ruled out (cf. Cinque 1999) and the one of *probabilmente<sub>4</sub>* has only scope on *la torta*. Hence, the rightmost available position is the one on the left of the participle.

Consider now the paradigm with the *comma intonation* associated to *probabilmente*:

- (2) (probabilmente<sub>1</sub>,) Gianni (,probabilmente<sub>2</sub>,) ha (,probabilmente<sub>3</sub>,) mangiato (,probabilmente<sub>4</sub>,) la torta (,probabilmente<sub>5</sub>,).  
(probably<sub>1</sub>,) Gianni (,probably<sub>2</sub>,) has (,probably<sub>3</sub>,) eaten (,probably<sub>4</sub>,) the cake (,probably<sub>5</sub>,).

In this case, all positions are available and the scope of the adverb is always on the whole sentence. Namely, the comma intonation is not compatible, at least under normal circumstances, with a local scope.

Consider now the co-occurrence of *probabilmente* with sentential negation, with flat intonation:

- (3) (probabilmente<sub>1</sub> prob>NEG) Gianni (probabilmente<sub>2</sub> prob>NEG) **non** ha (#probabilmente<sub>3</sub>) mangiato (#probabilmente<sub>4</sub>) la torta (probabilmente<sub>5</sub> NEG>prob)  
(probably<sub>1</sub>) Gianni (probably<sub>2</sub>) NEG has (probably<sub>3</sub>) eaten (probably<sub>4</sub>) the cake (probably<sub>5</sub>)

The occurrences 1 and 2 do not present any special problem. The occurrence in 3, however, is found very odd by speakers, who report difficulties in having intuitions about the meaning of the sentence. The occurrence in 4 gives the same effect, even if some speakers seem able to assign it the NEG>prob reading, with the local scope of the adverb, a reading where NEG is not a sentential negation but focuses *la torta* (probably *the cake*). In 5, again NEG is not a sentential negation, but focuses the adverb. Hence, 1 and 2 are the only positions truly compatible with sentential negation. In particular, occurrences 3 and 4 sharply contrast with the same positions in the parenthetical paradigm:

- (4) (probabilmente1,) Gianni (,probabilmente2,) **non** ha (,probabilmente3,) mangiato (,probabilmente4,) la torta (,probabilmente5).  
 (probably1,) Gianni (,probably2,) NEG has (,probably3,) eaten (,probably4,) the cake (,probably5).

Both *probabilmente* and NEG always have sentential scope. I will also consider some cases in which data seem to go in the opposite direction, i.e. where occurrences in positions 3 and 4 are grammatical with sentential scope of the negation, even without the comma intonation:

- (5) Gianni non ha probabilmente avuto occasione di telefonarle  
 Gianni NEG has probably had occasion to call her  
 (6) Gianni non è probabilmente stato felice a Parigi  
 Gianni NEG has probably been happy in Paris

I propose that both these sentences instantiate a structure in which the projections of the verb have very different properties, making (5) and (6) possible.

**Towards an explanation** Positions 1 and 3 are the base-generated ones in “flat” structures. Position 2 is derived (Cinque, 1999) by movement of the subject to a higher position. Both positions are higher than sentential negation (Zanuttini, 1997), hence in both cases *probabilmente* and *non* have sentential scope. Position 3 is base-generated and is lower than negation. Therefore, on one hand this structure *can* be base-generated, but on the other it turns out to be un-interpretable with sentential scope of the negation. Hence, the contrast between the full grammaticality of position 3 in (1) and its oddness in (3). The explanation runs as follows: a) Negation has scope on *probabilmente*, due to its structural position, b) *probabilmente* must have propositional scope, because the position right above v\*P is a “propositional” position, c) BUT negation is part of the propositional content, and *probabilmente* cannot have scope on it, d) a conflict arises, and this gives rise to a typical pattern of judgments. Syntactically, this might be formally expressed as a case of *freezing*. In 4 and 5 *probabilmente* is in the scope of negation, but it is not generated in a “propositional” position, having only local scope. Occurrence 4 is presumably inside the DP. Occurrence 5 is not licensed in absence of the negation, as expected.

The comma intonation makes all occurrences possible, with or without negation. According to the analysis developed in Giorgi (2011 and to appear), these parentheticals – together with several other types of parentheticals – are syntactically integrated and are generated in a position on the left of CP, in a layer called KommaP (KP), where the head K is the *pause* – idealizing on the complex characterization (see for instance, Dehé and Kavalova, 2007) of the comma intonation. The adverb occupies the Spec position of K:

- (7) [<sub>KP</sub> *probabilmente* K [<sub>CP</sub> Gianni (non) ha mangiato la torta] ]  
 probably Gianni (NEG) has eaten the cake

All parenthetical occurrences are derived from this basic one, by means of topicalization of a constituent in a still higher position. See for instance (8), where the spec of the higher K is occupied by the subject:

- (8) [<sub>KP</sub> Gianni K [<sub>KP</sub> *probabilmente* K [<sub>CP</sub> *e* (non) ha mangiato la torta] ] ]  
 Gianni, probably, (NEG) has eaten the cake

In these cases, a K also appears at the left of the adverb, hosting the topicalized part. I will provide a detailed discussion of these derivations.

**References:** Cinque, 1999, *Adverbs and Functional Heads* OUP; Chomsky, 2000, *Minimalist Inquiries: The framework*. In R. Martin, D. Michaels, J. Uriagereka, *Step by Step - Essays in Minimalist Syntax in honor of Howard Lasnik*, MIT Press.; Chomsky 2001 *Derivation by Phase*. In Kestowicz, M., Ken Hale: *A life in Language*, MIT Press.; Dehé and Kavalova, 2007, *Parentheticals*, John Benjamins; Giorgi, 2011, *The Syntax of Commas: an analysis of two types of parentheticals*, Beijing, GLOWinAsia; Giorgi, to appear, *Prosodic signals as syntactic formatives in the left periphery*, <http://ling.auf.net/lingbuzz/001625>; Giorgi and Haroutyunian 2011, *The Armenian Aorist and Temporal Anchoring: The role of perfectivity*; Giorgi and Sorrisi, 2012, *Forme verbali valutative: un caso dal palermitano*, *Quaderni dell'ASIT*, Padova [http://asis-cnr.unipd.it/documenti/ql14/ASIt14\\_6Sorrisi\\_Giorgi.pdf](http://asis-cnr.unipd.it/documenti/ql14/ASIt14_6Sorrisi_Giorgi.pdf); Zanuttini, 1997, *Negation and Clausal Structure*, OUP.