

ANNA GAVARRÓ (Barcelona)

Modals and aspectuals as functional projections: implications for acquisition and agrammatism

En aquest article presentem uns quants arguments a favor de la caracterització funcional de les perífrasis verbals romàniques d'interpretació modal i aspectual. Tot seguint l'anàlisi exclusivament funcional d'aquestes perífrasis (Cinque 2000), ens fixem en dades provinents de l'adquisició i de l'agramatisme en les llengües romàniques. Pel que fa a l'adquisició, els errors en la interpretació de complexos verbals funcionals, que no es donen amb els complexos de verbs primaris, indiquen una divisió fonamental entre les dues classes de verbs; d'altra banda, els errors en l'ordre de paraules trobats en el francès infantil indiquen la mateixa divisió, i corroboren una anàlisi funcional de la primera classe. Pel que fa a l'agramatisme, l'observació dels corpus publicats del francès i de l'italià demostra que els pacients tenen dificultats amb modals i auxiliars, però no amb verbs primaris, en consonància amb la disrupció de les projeccions més altes de l'arbre sintàctic – d'acord amb la hipòtesi de la truncació arbòria de Friedmann (1998).

The idea has been put forward that modals and aspectual verbs are functional heads, and thus part of the functional structure of the sentence, above the VP. Notably, this has been developed by Cinque (1998, 1999, 2000). If this characterisation is correct, we should expect this set of verbs to behave in a differentiated way in adult grammar, and also in acquisition. To the extent that agrammatism is constrained by grammatical principles, we can also make predictions on the grammar of modals and aspectuals in this language pathology.

While adult grammar has been extensively studied cross-linguistically with this outlook in mind, the same is not yet true for acquisition and agrammatism. Hence it is the purpose of this paper to explore this area of research in view of some Romance data – from Catalan, French and Italian. We proceed as follows: after a brief introduction to our assumptions on modals (section 1), we consider language acquisition in section 2, mainly reexamining data available in the literature. In section 3 we consider the spontaneous production of two agrammatic patients under our basic hypothesis and an auxiliary assumption on agrammatic production. Conclusions are recorded in section 4.¹

1. *Modals and aspectuals as functional heads*

Cinque (1998, 1999, 2000) includes modals and aspectuals in the set of functional heads available in the natural languages. The relative order of these heads follows from a universal hierarchy; this accounts for the otherwise mysterious fact that

¹ I wish to acknowledge discussion with Brenda Laca and the audience at the *18è Col·loqui Germano-Català* in October 2001. I have received financial support of the Ministry of Science of Spain through the project BFF2000-0403-C02-02. The following abbreviations appear in the glosses: CL = clitic, INF = infinitive, NEG = negation, PART = past participle.

historically unrelated languages display the same rigid word order patterns when it comes to verbal periphrases (or: restructuring verbs). Syntactic phenomena known as transparency effects (amongst which clitic climbing in many Romance varieties) are also found with the same set of verbs in the languages of the world. A subset of the hierarchy postulated by Cinque (2000) appears in (1):

- (1) ModPepistemic > TPpast > TPfuture > ... > ModPaletic >
 AspPrequentative > AspPvolitional > ... > AspPterminative >
 AspPcontinuative > AspPprospective > ... > ModPobligation >
 ModPability > AspPfrustrative/success > ModPpermission > ... >
 AspPconative > Voice P > ... > VP

Cinque further argues that such a hierarchy cannot be taken to follow from semantic principles, as it is possible to paraphrase some of the restructuring verb combinations altering the given order once an alternative to a restructuring verb is given; hence the claim that the hierarchy must be syntactic in nature. Thus it will be assumed for the remainder of the paper that modals and aspectual / temporal auxiliaries in general are functional heads, and exclusively so: transparency effects, as mentioned above, follow from the functional characterisation; lack of those effects is not attributed to a different structure; modals and aspectuals do not require a double lexical entry, nor a rule (à la Rizzi 1982) to relate biclausal and monoclausal structures. The reader is referred to the literature for the general analysis; for Catalan, a functional analysis for the functional heads in (1) is considered in Gavarró (to appear).

2. *Modals and aspectuals as a special class in acquisition*

On the basis of the characterisation above, there are some syntactic patterns to be expected, for instance: since restructuring verbs do not subcategorise for a clause, no subject of the lower verb is postulated. Second, word order is determined in part by the basic word order, and restructuring verbs are then higher than VP constituents; any phenomena affecting selectively a part of a tree may make the distinction between restructuring verbs and verbs in VP apparent. These kinds of phenomena are the ones which will be illustrated for the acquisition of Romance.

First, as a consequence of the absence of an embedded clause, no referential subject is to be found following a modal. Certain referential relations will thus not emerge. Previous work by Escobar and Gavarró (2002) brings to light a contrast between restructuring and non-restructuring verbs, the second class including verbs which take a sentential complement. In particular, the interpretation of sentences such as those in (2a) and (2b) was very different amongst 3 and 4-year-olds.

- (2) a. La nena_i la_{j/*i} veu ballar.
 ‘The girl sees her dance.’

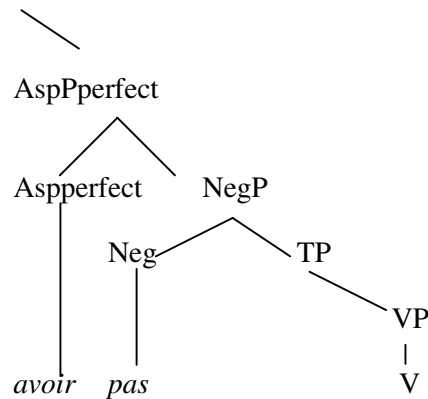
On closer scrutiny, the errors encountered involve no auxiliaries. The following table redistributes the data in Verris and Weissenborn's (1992) table VII according to our main dichotomy: functional heads vs. main (or: primary) verbs.

(5) *Error rate with main and functional verbs in French child language*

	Fabienne	Benjamin	Philippe	
main V _{fin} + Neg	0	0	41	
Neg + main V _{non-fin}	2	19	16	
* Neg + V _{fin}	2	5	0	
* V _{non-fin} + Neg	0	1	1	
<i>être</i> (cop.) + Neg	31	79	8	
<i>avoir</i> (poss.) + Neg	15	53	2	
<i>aller</i> (mainV) + Neg	4	0	0	
total main V	54	157	69	
total errors main V	2	6	1	
error rate with main V	2/54	6/157	1/69	9/280
	3.7%	3.8%	1.45%	3.2%
<i>être</i> (fin) aux + Neg	0	0	0	
<i>avoir</i> (fin) aux + Neg	1	8	1	
<i>aller</i> (fin) aux + Neg	0	0	0	
error rate with auxiliaries	0%	0%	0%	

Is there any reason why word order errors should be expected for main verbs and not for functional elements such as auxiliaries? The answer to this question will be related to the placement of auxiliaries, such as the aspectual perfect *avoir*, in the functional structure of the clause:

(6)



Given our assumptions, auxiliaries and other heads may be merged higher than Neg (and VP); since Neg doesn't raise, auxiliaries are predicted to occur always before negation; V, on the other hand, may raise (depending on various factors: a

finiteness feature, etc.).² That means that if the French child has mastered V raising, the finite V moves higher than Neg and the target adult word order results; otherwise, the finite V remains in its basic position and an erroneous ‘Neg + V_{fin}’ results (as in (4) above). These are virtually the only errors encountered; errors of the type ‘non-finiteV + Neg’ (with a raised non-finite V), unexpected given the basic word order, are quantitatively negligible (2/280 for all the children), following Platzack’s (2001) criterion. Word order deviations due to lack of verb raising have been argued for by Platzack (1996) and Zuckerman (1999); in their view, errors derived by raising further than the target are not expected. Hence the pattern which the Verrips and Weissenborn (1992) data for French acquisition present is entirely consistent with our predictions and back up the idea that auxiliaries are indeed outside and higher than VP.³ To summarise, our account of the French data is based on (i) economy driving the acquisition process and (ii) the functional characterisation of auxiliaries, which implies that they merge in a high position and do not select a CP. The set of functional heads is universally available (part of UG), although their emergence in the child grammar depends on exposure to a language that realises them, as in Roeper’s feature-splitting (Roeper 2002b).

3. *Modals and aspectuales in agrammatism*

If modals and other functional heads can be distinguished by their syntactic behaviour, it may happen that the contrast between the two surfaces in language breakdown, for instance in agrammatic aphasia; to my knowledge there is no specific study of this matter, nor are there any databases of agrammatic production in Catalan on which to base a first exploration of the topic in Romance. So we turn to French and Italian, all the Romance data available in Menn and Obler (1990). In this work, for French, Nespoulous *et al.* (1990) discuss two case studies: those of Mr. Clermont and Mrs. Auvergne, patients suffering from a more and a less severe agrammatism respectively – although both

² Note that, in adult French, in contrast with what happens with primary verbs (as in (3)), non-finite auxiliaries precede Neg:

- (i) Il préférait n’avoir pas pleuré.
 he preferred not have-INF NEG cried ‘He preferred not to have cried.’
 Il était content de n’être pas perdu.
 he was happy of not be-INF NEG lost ‘He was happy not to be lost.’

However, this is not the only possible word order: *ne pas avoir pleuré* and *ne pas être perdu* are also accepted by speakers of standard French; see [XXX<??complete>](#) for an analysis of this variation.

³ Data open to the same treatment are naturally found in other languages; so, for instance, Müller’s (1998) data on German language acquisition show a split between primary V and modals / auxiliaries amenable to the analysis here (proviso some basic assumptions on German syntax). See also Roeper (2002a) for the behaviour of auxiliaries, which occur readily in inverted constructions in English.

diagnosed with moderate aphasia. The neurological history of the two patients can be found in the source above. The following table provides basic information on the subjects:

(7) *French-speaking subjects*

patient	age	literacy	years of education	handed-ness	tested
Mr. Clermont	59	high level	15	right	5 y after onset
Mrs. Auvergne	30	minimal	10	right	7 y after onset
control 1	56	high level	15	right	—
control 2	23	adequate	11	right	—

The analysis that follows draws on the transcriptions of the productions of these patients through some narratives.

Friedmann's (1998) and Friedmann and Grodzinsky's (1997, 2000) hypothesis of tree pruning for the production of agrammatic speech makes some predictions on functional heads in the following way. Friedmann and Friedmann and Grodzinsky contend that agrammatism affects the production of syntactic trees, in the availability of the higher nodes of the tree. Now, if a patient has difficulty in producing the higher part of the tree, namely the CP layer, we expect him / her to be unable to produce embeddings (which involve a subordinate CP), relatives, and wh-questions involving movement to Spec, CP. A patient more severely affected may have problems with lower nodes such as those in the TP field (and all those above TP, then). The initial observation motivating this hypothesis is the dissociation initially noted in Hebrew-speaking patients, whose tense inflection was severely impaired while their agreement inflection – checked at lower nodes – was intact.

The implication with regard to modals and other functional heads following this hypothesis is that patients showing impairment of the higher nodes may be unable to access the syntactic sites for these projections, while VP remains intact. The following table shows the percentages of correct and incorrect sentential productions with auxiliaries, main verbs, *have* and *be*, and subordinating conjunctions:

(8) *Deviant and non-deviant forms in the production of some constructions in French*

	ok	%	incorrect	%	omission	%	total
Mr. Clermont							
main V	120	92%	4	3%	7	5%	131
<i>have / be</i> V	7	50%	0	0%	7	50%	14
auxiliaries	10	50%	1	5%	9	45%	20
subord. conj.	0	0%	0	0%	3	100%	3

Mrs. Auvergne							
main V	92	96%	4	4%	0	0%	96
<i>have / be</i> V	22	96%	0	0%	1	4%	23
auxiliaries	27	77%	5	14%	3	9%	35
subord. conj.	5	100%	0	0%	0	0%	5

The data in (8) indicate a difference for both patients in the production of auxiliaries and main verbs: only 50% of Mr. Clermont's constructions with auxiliaries are wellformed, while his use of main verbs is 92% correct; for Mrs. Auvergne, there is a less marked contrast: 77% correct with auxiliaries, 96% with main verbs. In both cases, auxiliaries are impaired, while main verbs can be considered unimpaired; this fulfils the prediction of the Tree Pruning hypothesis, insofar as auxiliaries reside in a higher part of the tree than main verbs. Examples of the errors produced appear in (9), and (10) illustrates the only modals produced:

- (9) a. Je perdu la parole. (Mr. Clermont)
 I lost(PART) the word (= 'I have lost my speech.')
- (target: J'ai perdu la parole)
- b. Ma femme appelé un ami et les pompiers.
 my wife called(PART) a friend and the firemen
- (target: Ma femme a appelé un ami et les pompiers)
- c. Mis un épouvantail pour chasser les oiseaux.
 put(PART) a scarecrow to chase the birds
- (target: Il a mis un épouvantail pour chasser les oiseaux)
- d. Je suppose la femme réveillé l'homme.
 I suppose the woman woken(PART) the man
- (target: Je suppose que la femme avait reveillé l'homme)
- (10) a. Je voulais tour force me redresser. (Mr. Clermont)
 I wanted all might me(CL) sit-up
- (target: Je voulais à toute force me redresser)
- b. Je pouvais plus me lever. (Mrs. Auvergne)
 I could no-more me(CL) get-up

This problem in producing auxiliaries goes hand in hand with inability to produce subordinate clauses (i.e. CP structures) as illustrated by example (9d) above. Further, if we compare the productions of the patients with those of the control adult French speakers, a contrast emerges in the frequency of the categories used: agrammatic patients produce auxiliaries and modals much less frequently than the controls (and generate fewer contexts for those categories), the same way they produce fewer subordinate clauses and relative clauses. This discrepancy between aphasics and controls is not found with e.g. main verbs.

(11) *Frequency of actual grammatical categories in patients and controls*

	Mr. Clermont		Mrs. Auvergne		Control 1		Control 2	
	N	%	N	%	N	%	N	%
main verbs	124	17%	96	15%	201	13%	109	14%
<i>have / be</i> V	7	1%	22	3%	44	3%	25	3%
auxiliaries	11	1%	32	5%	79	5%	36	5%
relatives	2	0.3%	8	1%	33	2%	15	2%
subord. conj.	0	0%	5	0.8%	49	3%	12	2%

Nespoulous *et al.* conclude that the speech of Mrs. Auvergne and Mr. Clermont display what they term a preferential error pattern: “omission of auxiliary verbs (in Mr. Clermont’s corpus in particular, while main V are supplied quasi-systematically (...) and *have/be* main verbs tend to be omitted as frequently as auxiliary verbs” (Nespoulous *et al.* 1990: 661). Tense, on the other hand, is used felicitously in the narratives, but complex verb tenses and moods are, according to them, absent; finally, subordinate clauses are also problematic and relative clauses almost absent. Infinitival clauses (often introduced by a preposition, e.g. *pour* ‘for’, exemplified in (9c)) are used alternatively.

Although the data available are probably insufficient from a quantitative point of view to draw definite conclusions, they fit in with our expectations assuming the Tree Pruning hypothesis and the functional character of modals and aspectual restructuring verbs: the tree is spared for both subjects as high as TP, but does not project systematically higher than that: at the nodes of PerfP/ModP, although less so in Mrs. Auvergne’s case. Problems with constructions involving CP (namely relatives and subordinate clauses) follow. Infinitive-type clauses like those introduced by *pour* ‘for’ are considered by Nespoulous *et al.* structurally simpler (given their lack of tense, etc; see Nespoulous *et al.* 1990: 659), which may be interpreted as not involving CP; if this is so, the situation is reminiscent of what happens in Hebrew and Arabic: subordination in the spontaneous speech of agrammatic patients is impaired (12% correct constructions on average), but untensed embedding is spared (99% correct); see Friedmann (2001).

The fact that *be* and *have* even if not auxiliaries are also impaired in Mr. Clermont’s corpus may indicate that these verbs do not merge as low as other main verbs – an issue for future research.

Another piece of data worth mentioning is the general impairment of clitics for both patients, who often omit them:

(12) *Clitic production and omission in agrammatic French*

	clitic		omission		* clitic	
Mr. Clermont	42	33%	19	53%	5	14%
Mrs. Auvergne	17	68%	6	24%	2	8%

In the table, target clitic production is compared to the absence of an obligatory clitic (omission) and the production of a clitic other than the target one. Assuming

a clitic phrase (Sportiche 1998) higher than TP and AspPperfect/ModP would make us expect that clitics are scarcely produced, a prediction which seems to be borne out; we could equally assume that the clitic has to move to a preverbal position (higher than auxiliaries), which may not be available if tree pruning occurs.⁴

Alternatively, it could be argued that modals and auxiliaries are problematic because they select an embedded clause – if CP is not available, the class of ModP and AspPperfect, for example, would be impaired too, but by virtue of the element they selected. The corpus of Mr. Clermont, however, indicates that this cannot be the case: his subordination is worse than auxiliary distribution, which implies that the second impairment is not subsumed by the first.

Let us consider now the two cases of agrammatism in Italian in Menn and Obler (1990), studied by Miceli and Mazzucchi.

(13) *Italian-speaking subjects*

patient	age	years of education	etiology	tested
Mr. Rossi	44	17	ruptured MCA aneurysm	16 months after onset
Mr. Verdi	20	14	intracerebral hemorrhage	18 months after onset
control 1	40	17	—	—
control 2	25	15	—	—

The two Italian patients share one of the features encountered in the productions of the French patients: difficulty in constructions involving subordination (subordinate embedded clauses and relative clauses); for the remaining syntactic structure, the severity of their impairment varies. The quantified results of Miceli and Mazzucchi are partially presented in (14).

(14) *Deviant and non-deviant forms in the production of some constructions in Italian*

	ok	%	incorrect	%	omission	%	total
Mr. Rossi							
main V	70	67%	13	12%	21	20%	104
<i>have / be</i> V	12	40%	1	3%	17	57%	30
auxiliaries	26	100%	0	0%	0	0%	26
modals	0	0%	0	0%	0	0%	0
clitics	1	17%	0	0%	5	83%	6
subord.conj.	5	62%	0	0%	3	38%	8
relative pron.	0	0%	0	0%	0	0%	0

⁴ See also the work of Chinellato (2002) on the clitics of the Venetian varieties, which shows dissociation in agrammatism: subject (higher) ones are absent for some patients, lower ones may be spared, depending on the severity of impairment.

Mr. Verdi							
main V	86	89%	7	7%	3	3%	96
<i>have / be</i> V	19	84%	2	8%	2	8%	23
auxiliaries	6	75%	0	0%	2	25%	8
modals	2	100%	0	0%	0	0%	2
clitics	25	83%	2	7%	3	10%	30
subord. conj.	7	78%	0	0%	2	17%	9
relative pron.	3	100%	0	0%	0	0%	3

Observing the table it is quite clear that there are considerable individual differences between Mr. Verdi and Mr. Rossi, apparent even in the case of structures involving CP: Mr. Verdi is much less severely affected than Mr. Rossi. Examples of the errors found appear in (15)-(16):

- (15) a. Linguaggio scomparso. (Mr. Rossi)
 speech disappeared
 (target: Il linguaggio è scomparso)
- b. Che stanno ...?
 what are-they
 (target: Che stanno dicendo? 'What are they saying?')
- c. E arresta.
 and arrests
 (target: E lo arresta 'And he arrests him.')
- d. Il marito sta ... la sveglia.
 the husband is the alarm-clock
 (target: Il marito sta x-ndo la sveglia 'The husband is x-ing the alarm-clock.')
- (16) a. L'occhio sinistro aperto. (Mr. Verdi)
 the eye left open
 (target: L'occhio sinistro si è aperto 'The left eye has opened.')
- b. Mangiato il cane.
 eaten the dog
 (target: Lo ha mangiato il cane 'The dog has eaten it.')

As before, these results cannot be interpreted in isolation: while e.g. relative pronoun production may be 100% correct for Mr. Verdi, his relative clause production rate may be very different from that of normal speakers (it is, indeed, different); so, compare the rate of production of different syntactic categories in the two agrammatic patients and the two controls:

(17) *Frequency of actual grammatical categories in patients and controls*

	Mr. Rossi		Mr. Verdi		Control 1		Control 2	
	N	%	N	%	N	%	N	%
main verbs	83	15%	92	23%	104	18%	151	21%
<i>have / be V</i>	12	2%	21	5%	17	3%	17	2%
auxiliaries	26	5%	6	3%	28	5%	23	3%
modals	0	0%	2	0.5%	5	1%	0	0%
pron. clitics	1	0.2%	19	5%	42	7%	26	4%
relatives	0	0%	3	1%	11	2%	19	3%
subord. conj.	5	1%	10	3%	30	5%	15	2%

Mr. Verdi's productions conform to our expectations given the Tree Pruning hypothesis: he has difficulty with subordinate conjunctions and, although he produces three wellformed relative clauses, he produces overall fewer relatives than neurologically intact speakers; his ratio 'main / subordinate clause' is 7.3, while the controls' are 1.28 and 0.94. This indicates that the higher part of the tree (CP) isn't being projected as in unimpaired speakers. Lower than that, clitics are also slightly impaired, and so are auxiliaries: only 75% of them are produced correctly; the rate of production of modals is lower than in unimpaired speakers. Lower than that again, tense is produced correctly (Miceli / Mazzucchi 1990: 736), and main verbs, including the Italian counterparts of *be* and *have*, are correctly provided in 84% of cases or more, and are not less frequent than in normal speakers; so that the lower part of the IP field is relatively spared.

Mr. Rossi's case is more surprising. On the one hand, his subordination is impaired and he produces no relative clauses at all (as expected under the assumptions of the Tree Pruning hypothesis). His ratio for main / subordinate clauses is 16.5. Also his clitics – whether pronominal or adverbial – are severely impaired. On the other hand, he has a completely normal behaviour with respect to auxiliaries, both in grammaticality and frequency, but his main verbs (including the counterparts of *be* and *have*) are once again abnormal. Resort to tenses is also reduced in this patient. All of this would indicate impairment at the lowest part of TP and reaching down to VP, were it not for the sparing of auxiliaries. Modals, however, conform to our expectations, as they are absent from Mr. Rossi's speech. This last case, therefore, remains to be accounted for, perhaps on grounds independent of tree pruning having to do with some other feature of main verbs. The main verbs affected are, however, often selected by auxiliaries – as in (15d) above (in 8 out of 32 of the sentences analysed by Miceli and Mazzucchi [1990], i.e. in 25% of instances). Therefore, for a subset of the main verbs affected, impairment may be attributed to the auxiliary itself (as a problem of selection of the higher constituent). Such an interpretation of these errors is analogous to that of Friedmann (in press) for unsuccessful wh-questions: incomplete questions with a wh-word are not regarded as failure of the node below CP, but rather of CP

itself, the site for wh-questions. If this is correct, percentages of errors for main V and auxiliaries should be modified.

4. *Conclusion*

Based on data available in the literature for Romance (basically French and Italian), this study, within the limits of its scope, has shown how modals and auxiliaries can be identified both in acquisition and in agrammatism. Their behaviour is amenable to an analysis of their syntactic classes as functional projections: assuming the two general hypotheses of economy of derivation for acquisition and Tree Pruning for agrammatism, which are independently motivated, allows us to predict the behaviour encountered without purpose-built stipulation.

References

- Chien, Y. C. / Wexler, Kenneth (1990): Children's knowledge of locality conditions in binding as evidence for the modularity of syntax and pragmatics. In: *Language Acquisition* 1, pp. 225-295.
- Chinellato, Paolo (2002): Mild agrammatism and dialect variation. Paper presented at the Euroconference on the Syntax of Normal and Impaired Language, Corinth.
- Cinque, Guglielmo (1998): Restructuring and the order of aspectual and root modal heads. In: *University of Venice Working Papers in Linguistics* 8, <??pages>.
- (1999): *Adverbs and Functional Heads. A Cross-linguistic Perspective*. New York: Oxford University Press.
- (2000): *Restructuring and functional structure*. Venice: University of Venice (ms.).
- Escobar, Linda / Gavarró, Anna (2002): The acquisition of Catalan clitics and its implications for complex verb structure. In: Lasser, Ingeborg (ed.): *The Process of Language Acquisition*. Frankfurt am Main / Berlin: Peter Lang, <??pages>.
- Friedmann, Naama (1998): *Functional categories in agrammatic production: a cross-linguistic study*. Tel Aviv: Tel Aviv University (doctoral dissertation).
- (2001): Agrammatism and the psychological reality of the tree. In: *Journal of Psycholinguistic Research* 30:1, pp. 71-88.
- (in press): Question production in agrammatism: the tree pruning hypothesis.
- / Grodzinsky, Yosef (1997): Tense and agreement in agrammatic production: pruning the syntactic tree. In: *Brain and Language* 56, pp. 397-425.
- / — (2000): Split inflection in neurolinguistics. In: Friedemann, Marc-Ariel / Rizzi, Luigi (eds.): *The Acquisition of Syntax: Studies in Comparative Developmental Linguistics*. Geneva: Longman, 84-104.
- Gavarró, Anna (to appear): Modals in Catalan: acquisition, structure and word order. In: *Proceedings of the 4th Hispanic Linguistics Symposium*. Somerville: Cascadilla Press.

- / Laca, Brenda (2002): Les perífrasis temporals, aspectuals, modals. In: Solà, Joan *et al.* (eds.): *Gramàtica del Català Contemporani*. Vol. 3. Barcelona: Empúries, pp. 2665-2738.
- Menn, Lise / Obler, Loraine (eds.) (1990): *Agrammatic Aphasia. A Cross-language Narrative Sourcebook*. Amsterdam / Philadelphia: Benjamins.
- Miceli, Gabriele / Mazzucchi, Anna (1990): Agrammatism in Italian: two case studies. In: Menn / Obler (eds.), vol. 1, pp. 717-816.
- Müller, Natascha (1998): Transfer in bilingual first language acquisition. In: *Bilingualism: Language and Cognition* 1:3, pp. 151-171.
- Nespoulous, Jean-Luc *et al.* (1990): Agrammatism in French: two case studies. In: Menn / Obler (eds.), vol. 1, pp. 623-716.
- Platzack, Christer (1996): The Initial Hypothesis of Syntax: A minimalist perspective on language acquisition and attrition. In: Clahsen, Harald (ed.): *Generative Perspectives on Language Acquisition*. Amsterdam / Philadelphia: Benjamins, pp. 369-414.
- (2001): 'The vulnerable C-domain'. In: *Brain and Language* 77, pp. 364-377.
- Rizzi, Luigi (1982): A restructuring rule. In: *id.*: *Issues in Italian Syntax*. Dordrecht: Foris, pp. 1-48.
- Roeper, Tom (2002a): *Multiple grammars and computational complexity: is AGR inside TP?* Boston: University of Massachusetts (ms.).
- (2002b): Finding fundamental operations: feature-merging, feature-splitting, feature-command, and abstract. Paper presented at the Universitat Autònoma de Barcelona, Bellaterra.
- Sportiche, Dominique (1998): Subject clitics in French and Romance: complex inversion and clitic doubling. In: *id.*: *Partitions and Atoms of Clause Structure. Subject, agreement, case and clitics*. London / New York: Routledge, pp. 308-341.
- Verrips, Maaïke / Weissenborn, Jürgen (1992): Routes to verb placement in early German and French: the independence of finiteness and agreement. In: Meisel, Jürgen (ed.): *The Acquisition of Verb Placement*. Dordrecht: Kluwer, pp. 283-331.
- Zuckermann, Shalom (1999): Economy-based markedness as a universal for language acquisition. Paper presented at the GLOW Conference, Berlin.