

Production/comprehension asymmetry at syntactic level: Evidence from Catalan-speaking children

Merce Prat-Sala (University of Winchester) & Ulrike Hahn (Birkbeck, University of London)
merce.prat-sala@winchester.ac.uk

The results of some studies indicate that children are able to produce morphological/grammatical forms *before* they are able to comprehend them (e.g., Johnson, de Villiers and Seymour, 2005; van Hout, Harrigan, & de Villiers, 2010). This has led to a debate about the causes of the production/comprehension asymmetry with some attributing the asymmetry to psycholinguistic factors (e.g., Unal & Papafragou, 2016); others to methodology issues (e.g., Bates et al., 1995; Brandt-Kobele & Hohle, 2010); and others to perceptual saliency and cue reliability (Legendre et al., 2014). To further this debate, evidence from native Catalan-speaking children is presented that suggests a superiority of production over comprehension in the context of grammatical development for *some* grammatical structures but not for others. The structures examined were active clauses (e.g., *The train runs over a rabbit*), passive clauses (e.g., *A rabbit is being run over by a train*), and object-dislocated clauses (e.g., transliteration: *to the rabbit, him the train runs over* – translation: *the rabbit, the train runs over it*). We report the results of 2 production and 2 comprehension studies.

Studies 1 and 2 - Language Production: 10 cartoon-like pictures drawn in black ink on white paper, each depicting an inanimate agent and an animate patient (e.g., *A train running over a woman* - see Figure 1) were used for the elicited production task. Each of the two studies used different participants and different verbs to ensure the results were not limited to a few selected verbs. Participants were asked to tell a soft toy animal ‘what is happening in the picture’ to elicit production.

Results: The results show that Catalan children at all ages produce both active and object-dislocated clauses, but not passive clauses [see Tables 1A and 1B]. Only Adults produce a certain amount of passive clauses in addition to actives and object dislocated clauses.

Studies 3 and 4 - Language Comprehension: to assess comprehension, participants were asked to choose two soft-toy animals and to act-out what the experimenter said (e.g. “*can you make the dog squash the rabbit? Make the dog squash the rabbit*”). For this task the same verbs used in the 2 production studies were used. Each study included different set of participants.

Results: The results show that at all ages children comprehend the active clause. *Crucially*, the results also show a mismatch between comprehension and production of the passive and object-dislocated structures [see Tables 2A and 2B]. In the case of the *passive* structure, children comprehend this structure well in advance of its production. However, the **opposite** was found with the *object-dislocated* structure, where children younger than 10 years of age failed to comprehend this syntactic structure [compare Tables 1(A&B) and 2 (A&B)]. Note that adults comprehend all the syntactic structures.

Discussion: These results fully expand on the current literature on the asymmetry between comprehension and production. Furthermore, the results cannot be accounted by methodological or psycholinguistic factors. The results are explained based on a language learning system that acquires syntactic knowledge in a gradualistic fashion involving what are initially only partial representations.

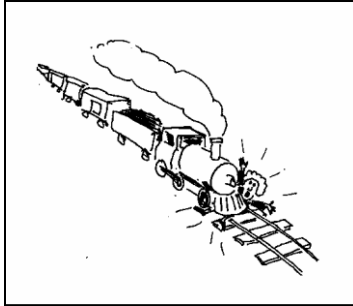


Figure 1: Elicited production

Table 1A - Study 1: Total number (and percentages) of different syntactic structures produced by children in each age group (scorable material)

| Part. | Mean Age | Actives | Object-Dislocated | Total |
|-------|----------|------------|-------------------|-------|
| N=14 | 4;1 | 9 (34.5%) | 17 (65.5%) | 26 |
| N=15 | 5;0 | 16 (22.5%) | 55 (77.5%) | 71 |
| N=20 | 6;1 | 48 (51%) | 46 (49%) | 94 |
| N=20 | 7;0 | 56 (42.5%) | 76 (57.5%) | 132 |
| N=15 | 7;9 | 37 (40.5%) | 54 (59.5%) | 91 |

Table 1B - Study 2: Total number (and percentages) of different syntactic structures produced by children in each age group (and adults) (scorable material)

| Part. | Mean Age | Actives | Passives | Object-Dislocated | Total |
|-------|----------|----------|----------|-------------------|-------|
| N=12 | 6;2 | 25 (64%) | 0 | 14 (36%) | 39 |
| N=20 | 7;0 | 44 (56%) | 1 (1%) | 33 (42%) | 78 |
| N=19 | 8;1 | 42 (51%) | 2 (2%) | 39 (47%) | 83 |
| N=19 | 9;0 | 48 (67%) | 1 (1%) | 23 (32%) | 72 |
| N=22 | 10;8 | 69 (63%) | 0 | 41 (37%) | 110 |
| N=21 | Adults | 54 (48%) | 29 (26%) | 29 (26%) | 112 |

Table 2A - Study 3: Total number (and percentage) of children in each age group comprehending each syntactic construction

| Part. | Mean age | Object-disloc. | Passives | Actives |
|-------|----------|----------------|------------|---------|
| N=15 | 4;0 | 0 | 1 | 100% |
| N=14 | 5;2 | 0 | 2 | 100% |
| N=19 | 6;1 | 0 | 1 | 100% |
| N=21 | 7;0 | 2 (9.5%) | 8 (38%) | 100% |
| N=25 | 8;2 | 6 (24%) | 17 (68%) | 100% |
| N=23 | 9;7 | 6 (26%) | 19 (82.5%) | 100% |

Table 2B - Study 4: Total number (and percentage) of children in each age group (and adults) comprehending each syntactic construction

| Part. | Mean Age | Object-Disloc. | Passive | Actives |
|-------|----------|----------------|-------------|---------|
| N=14 | 6;2 | 0(0%) | 1 (7%) | 100% |
| N=21 | 7;0 | 2(10%) | 12 (57%) | 100% |
| N=21 | 8;1 | 4(19%) | 10 (47.50%) | 100% |
| N=20 | 9;0 | 4(20%) | 17 (85%) | 100% |
| N=21 | 10;8 | 13(62%) | 19 (91%) | 100% |
| N= 19 | Adults | 100% | 100% | 100% |

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