# Early (20 to 27 months) Formation of syntactic processing: Input & Output

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**Hypothesis**: transitional constructions, resulting from learning processes, would appear between the "two-word" phase and the first complete Sentences.

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**METHOD:**  *Dense Longitudinal study of a Spanish monolingual child (Madrid) from ages 1;8 to 2;3. Input & Output analyses. Five Time slots: T1 (1;8), T2 (1;9), T3 (1;11), T4 (2;1)  and T5 (2;3). Total 12 sessions.*
**OUTPUT:**
CHAT transcription supported by Praat, & phonetical transcription, SAMPA, of all tokens with additives. CLAN analyses; interjudges agreement (4 judges).

Coding: five categories for pre-syntactic construction:
-**NOR: (Non-Sentences)** "Two-word utterances", with one, two, or more words, with no syntactic structure.
-**EPS:** Adult like elliptical utterances. If they contain one morphosyntactic error, coded as **NEP.**
-**ROR:** Adult like full Sentences. If they contain one morphosyntactic or phonological error, coded as **ORE.**
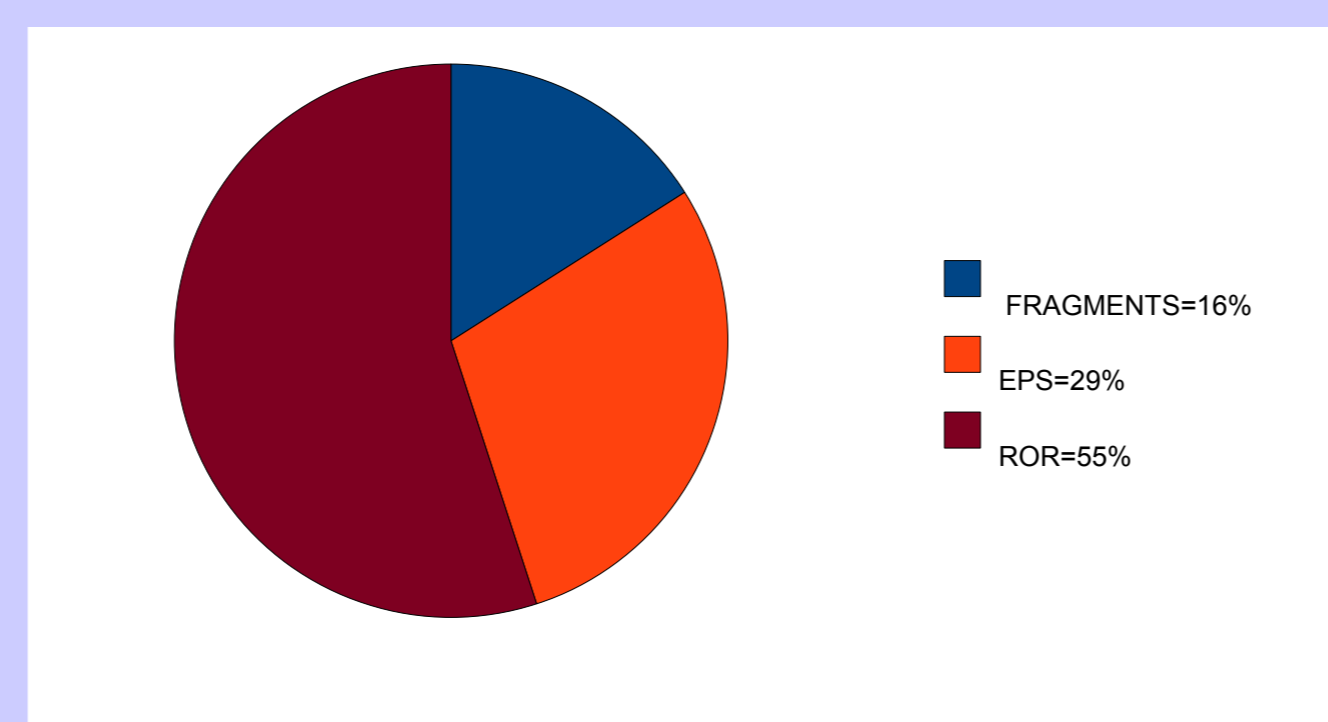**INPUT (CDS=Child Directed Speech):**
**Times: T-1, T-3 and T-4. First 100 productions from one sesión per Time. N=300 CDS productions.**
**Coding: Fragments,  EPS, ROR.**
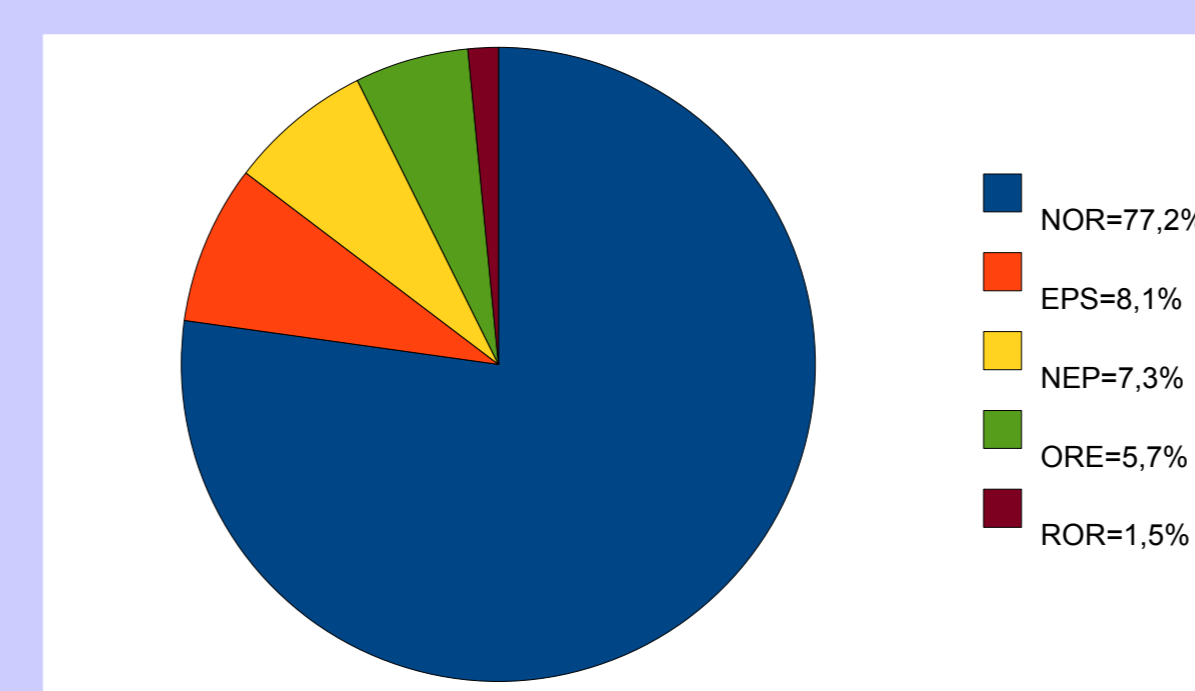
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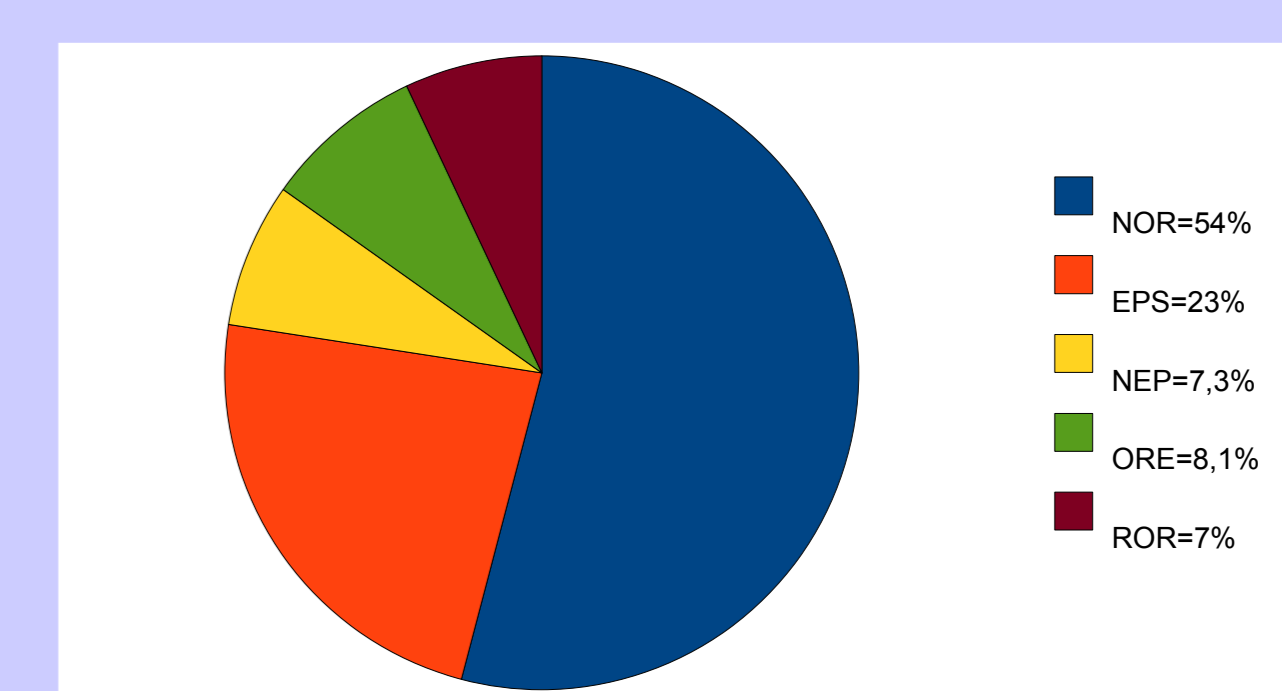### 1.-*What is the syntactic structure of INPUT like?*

RESULTS
Consistently, along Time:
- 29% of productions directed to the child
  by the mother, are Elliptical.
- 16% of productions directed to the child
  by the mother, are Fragments of 1, 2 or more words
- 55% of productions directed to the child
  by the mother, are Full Sentences.

**INPUT**



FRAGMENTS=16%
EPS=29%
ROR=55%

**T1&T3&T4: mean values**

### 2.- *What is the pre-syntactic structure of OUTPUT like?*



NOR=77,2%
EPS=8,1%
NEP=7,3%
ORE=5,7%
ROR=1,5%

NOR=54%
EPS=23%
NEP=7,3%
ORE=8,1%
ROR=7%

Age 1;8          P< 0,001          Age 2;3
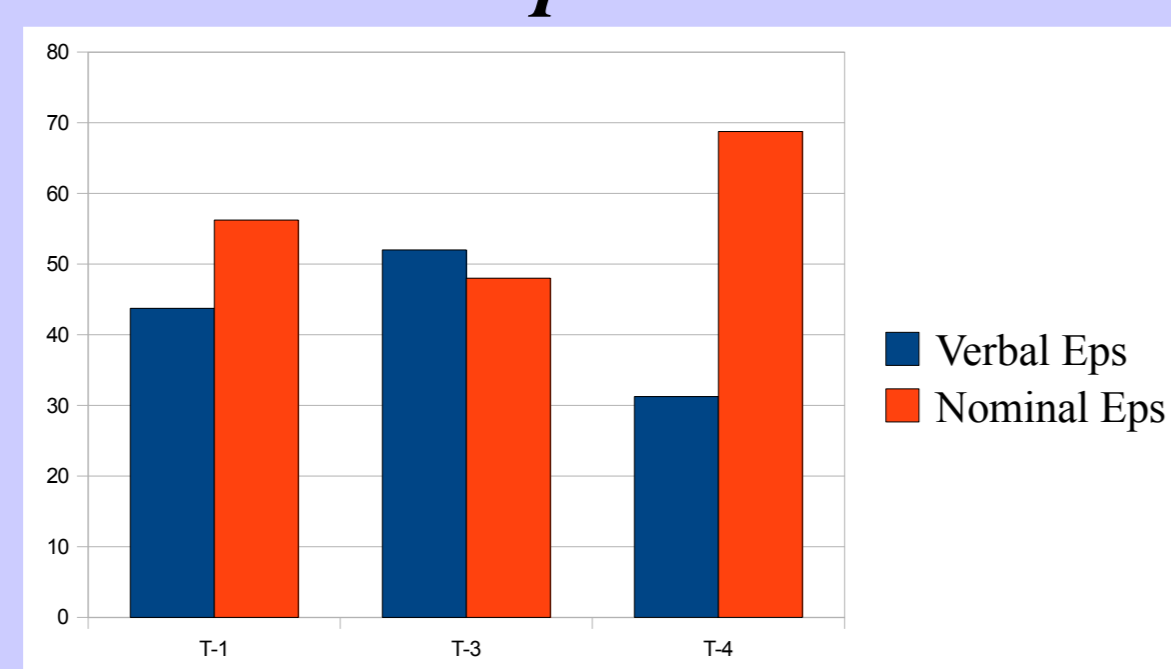Along 7 months, the "two-word utterances" (NOR) significantly decrease, giving way to pre-elliptical constructions, possibly with lighter processing demands than full Sentences. By T5, Sentences increase their marginal presence.
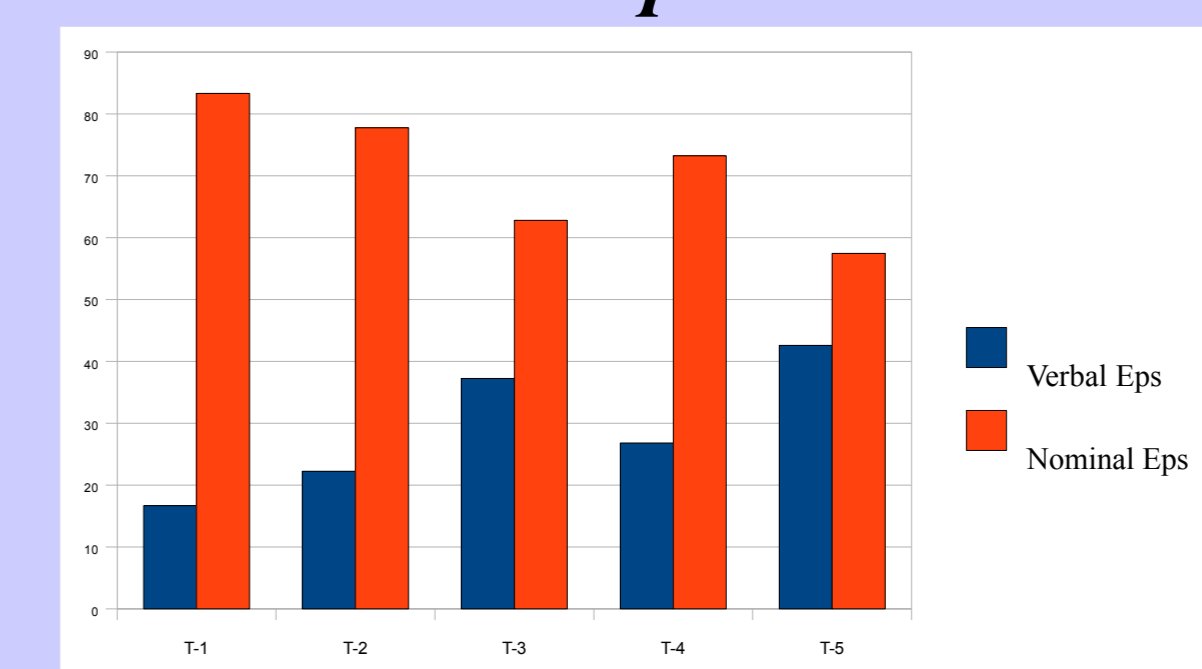
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### 3- "Zoom" on Grammar:  *Is the omitted constituent Verbal or Nominal?*

*Input*



Verbal Eps
Nominal Eps

*Differences non significant*

*Output*



Verbal Eps
Nominal Eps

*T1-T5 differences significant at p<0.05*

**In INPUT:** Nominal and Verbal ellipsis, exist in equivalent frequencies.
**In OUTPUT:** Nominal ellipsis, more frequent only in T-1. Verbal ellipsis increases in T-5

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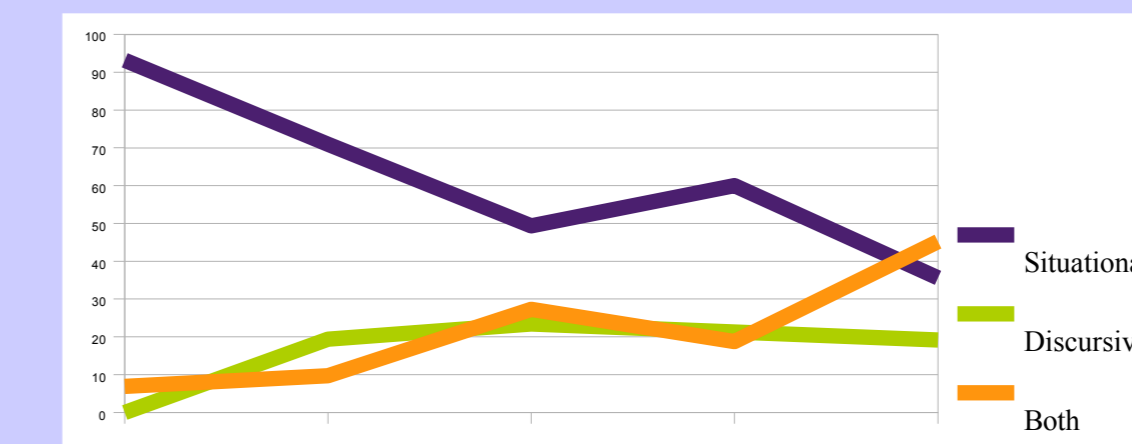### 4- Pragmatic "Zoom":  *Locus of the omitted constituent*

The omitted constituent can be present in the speech´s context (Situational ellipsis), in the previous speech (Discursive ellipsis), or in Both.

*Input*



Situational
Discursive
Both

*Differences non significan*t
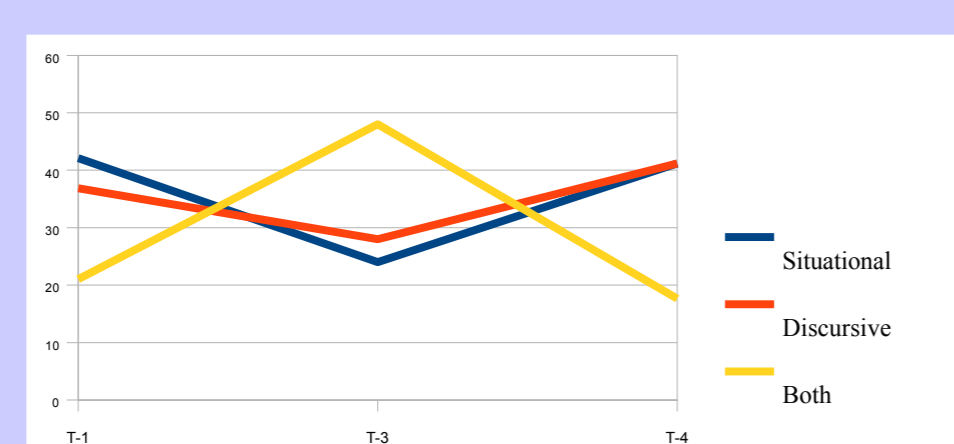
*Output*



Situational
Discursive
Both

**p< 0.000**

**In Input (CDS),** both types of Ellipsis share equivalent frequencies.
**In Output,** at T1, almost all Ellipsis are situational. Discursive Ellipsis increases in T3, within dialogue. All Discursive ellipsis are vertical.
By T3 the child becomes capable of tuning the structure of her speech to that of the mother (discursive ellipsis). The child started –T1- tuning it (situational ellipsis) to her own speech context.
→*The joint results of these analyses are coherent: Input´s structure (grammatical and pragmatic) along Time, is constant. Output´s structure along Time, isn´t.*
*Also: In OUTPUT:  Nominal EPS tends to be, also, situational.  Verbal EPS tends to be, also, discursive or Both. Discursive EPS omits Verbs like: to be, to be called, to miss(lack), to want. With action Verbs like to sing, to draw, to paint, if the action is taking place at the same time, EPS tends to be "Both".*

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## CONCLUSIONS

Betwen the "two-word" stage and the first full sentences (still marginal by age 2;3):
**INPUT**: CDS contains a 29% of elliptical constructions, plus a 16% of fragments. Full sentences constitute a 55%.  Nominal mard Verbal ellipsis are as frequent, along Time. The same goes for situational, discursive or Both ellipsis.
**OUTPUT**: Early syntax acquisition in Spanish includes an increasing proportion of pre-Ellipsis, while the "two-word" utterances decrease.
Learning Process: the child´s pre-Ellipsis are Nominal and Situational at first (T1). They gradually become Verbal (T5) and Discursive (T3). The Discursive ones are vertical Ellipsis, in DIALOGUE.
Data on early syntactic acquisition should be sampled within dialogue, not within *output* nor *input* samples
This change process looks as experience-dependent: EPS in Output corresponds to EPS in Input. It also looks as experience-independent, as dependent on the learning system itself: at T1, child massively produces Nominal and Situational ellipsis, which do not represent Input.