Introduction
Given the poverty of the stimulus, a) language must at least partly come from within and, b) the evidence needed to set the parameters that account for language variety should be readily available.

We will address the problem of how the infant gets attuned to the language of exposure.

What can rhythm tell us about language and more specifically about language acquisition? That is, how far can we get just with rhythm?

1. segmenting:
   \[ V\% \text{ (Ramus, Nespor and Mehler 1999)} \]
   \[ \text{high } V\% \to \text{ simple syllabic repertoire } \to \text{ longer words} \]
   \[ \text{low } V\% \to \text{ complex syllabic repertoire } \to \text{ shorter words} \]

2. acquiring grammar
   Prominence at the phonological phrase level
   Prominence at the intonational phrase level

How does one acquire the word order of the language of exposure?
Assuming that some info must be acquired quite early (no mistakes with the first combination of words etc.) and given Mazuka’s (1996) paradox, prosody is a good candidate for the trigger of at least the basic parameters.

Mazuka’s paradox: assuming the X-bar schema is innate, a child must determine the relative order of heads and complements. But: if s/he recognizes heads and complements in a sequence of words, s/he already knows how they are ordered.

Prosody is by and large independent from the specific lexical items and from the analysis into constituents. Segmentation into words is thus not a prerequisite to prosodic bootstrapping. It is sufficient to segment into big (prosodic) chunks. And infants are able to hear these.

Let us see which information the different aspects of prosody convey.

Certain prosodic properties are universal. Such is for instance final lengthening. This helps segmenting into chunks.
In order for prosody to cue certain syntactic properties that vary across languages, 1) there must be variation in the prosodic pattern across languages and 2) there must be a systematic correlation between a certain pattern and the value of a certain syntactic parameter.

**Phonological Phrase**

(1) \([w^s][w^s][w^s][w^s][w^s]\) (right branching)
(2) \([sw][sw][sw][sw][sw]\) (left branching)
(3) The phonological phrase and language acquisition

Rhythmic Activation Principle (RAP) (Nespor, Guasti and Christophe 1996; Christophe et al. submitted)

When you hear a sequence of \((w^s)\) within I, set the Recursivity Parameter to the right.
When you hear a sequence of \((sw)\) within I, set the Recursivity Parameter to the left.

(4) a. detectability of f boundaries:
- Christophe (1993): 3 days old infants can discriminate between two sequences of two syllables identical as to the segmental composition, but different only for the presence vs. absence of a boundary in between the two. matematiqué vs. panorama typique.
- de Pijper and Sanderman 1994: adult speakers are sensitive to boundaries of roughly the size of f’s even in speech where all the phonemic information is disrupted, leaving only prosodic information.
- both adults and infants exploit phonological phrase boundaries on-line to drive lexical access (Christophe et al. (in preparation); Gout et al. (in preparation)).

b. ability to spot the most prominent syllable of a f.

Sansavini et al. (1997): Italian newborns discriminate between pairs of bisyllabic words with identical segmental material but with stress either on the first or the second syllable.

The main problem I will address today is how to fix the order of different phrases within a sentence.

**Intonational Phrase**

Main prominence at the intonational phrase level is a signal to focus. Does it also convey some information about the syntactic structure of a sentence? Does it concern nonuniversal properties of syntax so that infants might conceivably use it to bootstrap some syntactic properties of the language of exposure?

Proposal: As prominence at the p-phrase level cues the order of words within a phrase, prominence at the I-phrase level cues the possible orders of phrases within a sentence.

(5) **Focus set** (Donati and Nespor 1991)

The focus set of a sentence includes:

a) the word bearing the main prominence
b) all the constituents of the connected subtree containing the word bearing main prominence

(6) a. Mary ate three cookies.

b. IP
   
   DP      I'
   
   Mary   I°      VP
   
   V°          DP
   
   ate        D'
   
   D°              NP
   
   three      N°

(7) a. Aslı yeni kitabını okudu
Asli new book-acc read
'Asli read the new book'

b. IP
   
   DP      I'
   
   Aslı   VP      I°
   
   DP       V°
   
   okudu    D°
   
   NP      D°
   
   AP      N'
   
   yeni     N°
   
   kitabını

From the point of view of the infant:
- Stress at the right edge of I gives no language specific information.
- Which information can be derived from I main prominence in different locations?

  (8) a. I sent a **present** to Julia  
    b. **Julia** arrived

I main prominence is different from emphatic prominence phonetically, phonologically and pragmatically (cf. Nespor & Guasti 2001).

  (9) a. **Luca è diventato capostazione**  
      b. Luca è **diventato capostazione**  
      c. Luca è diventato **capostazione**  
      d. * **Luca è diventato capostazione**  
      ‘Luca became head of the station

  (10) a. **John just bought a blackbird**  
      b. John just **bought a blackbird**  
      c. John just bought **a blackbird**  
      d. * John just bought a **blackbird**

  (11) a. Luca è **ANTIconunista**  
      b. Luca è TURCO  
      c. *Luca è un **GIOVANE GIORNALISTA**

  (12) a. I always thought John was **ANTIconmunist**  
      b. I always thought John was WELSH  
      c. *I always thought John was a **YOUNG JOURNALIST**

  (13) [**Vorrei un cane per il mio compleanno**]I  
  (14) [I want a dog for my birthday]I  
  (15) [**Vorrei un CANE**]I [per il mio compleanno]I  
  (16) [I want a **DOG**]I [for my birthday]I

Different pragmatic situations: emphatic prominence in contexts of correction (contrastive focus) and neutral prominence to convey new information (focus *tout court*).

Assumption: the phonetic and/or phonological properties of the two types of foci are audible enough to allow the infant to keep them apart (but notice that, as we will see below, this is not crucial for all languages).

**Syntactic correlates of prominence location in I**

**English**

  (17) context: the relevant shared information is that Julia sent a letter to somebody  
      appropriate sentence: Julia sent a letter to Bruce

  (18) context: the relevant shared information is that Julia sent something to Bruce  
      appropriate sentence: Julia sent a **letter** to Bruce
**Italian**

(19) context: the relevant shared information is that Julia sent a letter to somebody

appropriate sentence: Julia ha spedito una lettera a Bruce
- Julia has sent a letter to Bruce
- 'Julia sent a letter to Bruce'

(20) context: the relevant shared information is that Julia sent something to Bruce

appropriate sentence: Julia ha spedito a Bruce una lettera
- Julia has sent to Bruce a letter
- 'Julia sent a letter to Bruce'

**Turkish**

(21) context: the relevant shared information is that Ali wrote a letter to somebody

appropriate sentence: Ali küçük mektubu güzel kiza yazdı
- Ali wrote a letter to the beautiful girl

(22) context: the relevant shared information is that Ali wrote something to the beautiful girl

appropriate sentence: Ali güzel kiza küçük mektubu yazdı
- Ali wrote a letter to the beautiful girl

Proposal: focus is not a syntactic feature, but a byproduct of the output of the syntactic computation: a pair of LF and PF representations.

A. Languages in which different word orders are allowed (Italian and Turkish): merging in one position or the other makes no difference for syntax, only for information structure.

B. Languages with rigid word order (English): arguments must occupy a precise position.

**A. languages: 'displaced constituent' strategy**

**B. languages: 'displaced prominence' strategy**

(23) a. E’ arrivato Mario.
- Is arrived Mario
  - 'Mario arrived'

b. Mario è arrivato.
- Mario is arrived
  - 'Mario arrived'

The only difference between (23a) and (23b) is informational.

(24)a. Mary arrived
b. Mary arrived
  - 'Mary arrived'
c. *Arrived Mary

Languages like Italian, unlike languages like English have a morpheme-like pronominal element, which fills the syntactic positions connected with arguments. and does feature checking.
The only way to insert the direct object of (14) or the subject in (20) in the focus set is the displaced prominence strategy.

Thus main prominence in the intonational phrase provides direct access to a crosslinguistic variation, i.e. whether a given language uses ‘displacent prominence’ or ‘displaced constituent’.

Further proposal: The selected focus strategy is in turn forced by a proper syntactic Parameter (contra Zubizarreta 1998), traditionally defined as pro-drop parameter.

References