

# Does joint attention predict earliest skills of gestural and linguistic communication?

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# Outline

- I. The birth and development of mentalizing ability – longitudinal project
- II. Joint attention as prerequisite of social-cognitive verbal abilities
- III. Methods
- IV. Results
- V. Conclusions and further directions

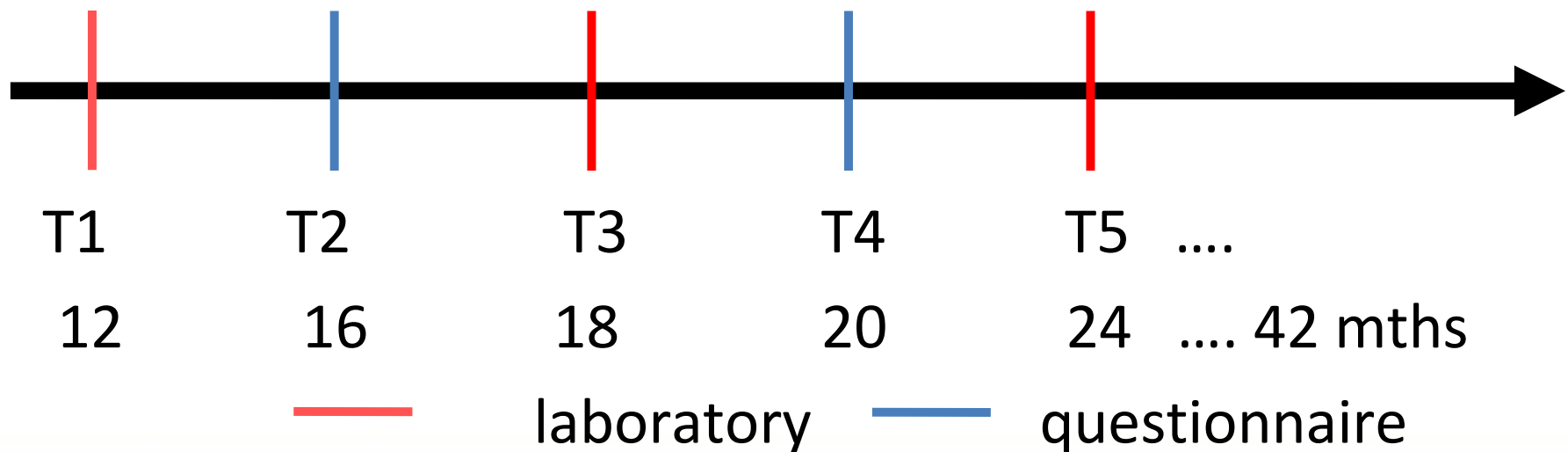
# I. The birth and development of mentalizing ability – 3-year project

- aims > describing the **developmental sequence** of the manifestation of the mentalizing ability and the identification of the **individual and social determinants** of its development
- **mentalizing ability** – ability to recognize and to take the mental states of others into account in one's own behaviour
- some aspects of the mentalizing ability emerge earlier in the development and become fundamental for subsequent ones

# I. The birth and development of mentalizing ability – 3-year project

six series of data collection in the laboratory (each 6 months) and from parents' reports are planned to **describe the developmental trajectory of communication and social cognitive abilities**

N=362



# I. The birth and development of mentalizing ability – 3-year project

In the laboratory we measured:

T1 (12 mths) – Early Social Communication Scale, protodeclarative and protoinformative pointing, social referencing, intention reading, self-regulation, caregiver's sensitiveness – intrusiveness,...

T3 (18 mths) – joint action, protoinformative pointing, temperament, executive functions ...

## II. Joint attention as prerequisite of verbal abilities

- an ability to engage in a **triadic interaction** and to coordinate attention to an object of mutual interest, developing at the end of the first year (Bakeman & Adamson, 1984)
- gaze-following, giving, showing, pointing, ...
- important developmental change in communicative abilities of infants (Werner & Kaplan, 1963)
- 9-month revolution (Tomasello, 1999)
- precursor (Charman et al., 2000), foundation (Bruner, 1995; Tomasello, 1995) of Theory of Mind; or implicit ToM?

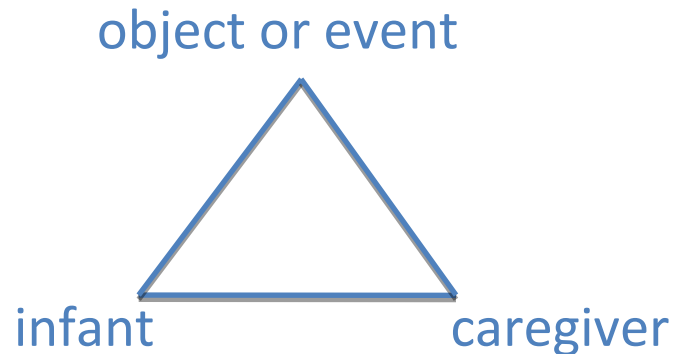
## II. Joint attention as prerequisite of verbal abilities

Two forms of joint attention (JA) (Mundy et al., 2007):

- **initiating** joint attention (IJA) – the ability to use direction of gaze or deictic gestures to direct the attention of others
- **responding** to joint attention (RJA) – the ability to follow the direction of gaze, head turn, and pointing gesture of another person
- What is the relation between JA and language?

## II. Joint attention as prerequisite of verbal abilities

- framework for language acquisition (Bruner, 1975)
- referential triangle (Tomasello, 2003)



- joint attention (JA) > development of joint reference
  - fundamental quality of language



## II. Joint attention as prerequisite of verbal abilities

Relation between JA and language – theory (Werner & Kaplan, 1963)

- principle of symbolic development > understanding of „distancing” e.g. symbolic vehicle from referent
- distancing = reference > **sth refers to sth else**
- JA (e.g. pointing gestures) contains reference
  - pointing gesture refers to its referent
  - JA „introduces” **non-representational form of reference** into communication
- symbols of language not only refer, but also represent
  - representation > **sth represents sth else**

## Gestures in early communication (Iverson et al., 1994):

- **deictic gestures**
  - pointing, showing
- **representational gestures** (represent specific referents; semantic content does not change with context)
  - waving the hand for BYE-BYE, holding the empty fist to the ear for TELEPHONE
  - [but Tomasello, 2008 > some conventionalized, some iconic]

## Relation between JA and language – research (Carpenter et al., 1998)

- positive relations and predictions:
  - – time mother-infant dyads in JA > gestures and language comprehension and production
  - – maternal language following infants' focus of attention > language comprehension and production
  - earlier infants display attention following and communicative gesture the more words they produced from 12 to 24 mths

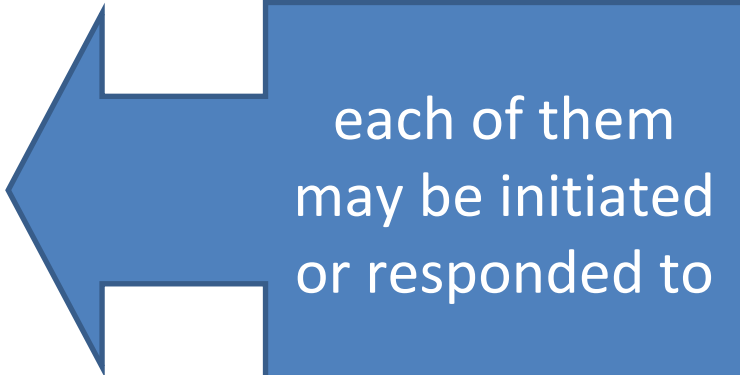
## Our research

- relations between joint attention (measured by ESCS) and earliest skills of gestural and linguistic communication
  - which aspects of joint attention (initiating JA or responding to JA) are more important for gestural and linguistic communication?
- relations between these skills and later manifestations of mentalizing ability

### III. Methods

#### Early Social Communication Scale (Mundy, et al., 2003)

- videotaped structured observation measure
- children's behaviors are classified into one of three mutually exclusive categories of early social-communication behaviors
  - joint attention
  - behavioral request
  - social interaction



each of them  
may be initiated  
or responded to

### III. Methods

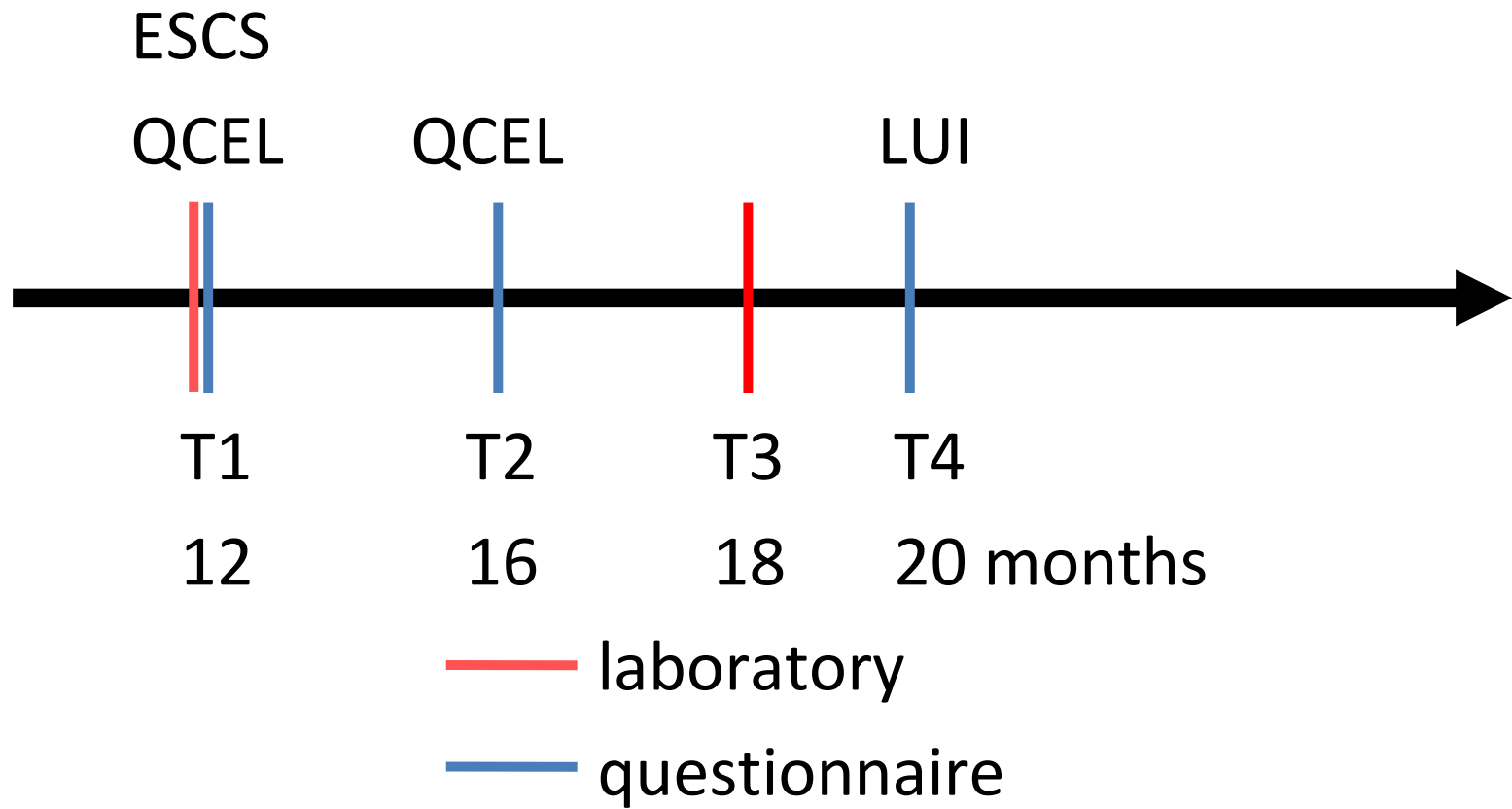
- Questionnaire for Communication and Early Language (QCEL) (Camaioni, et al., 2008)
- structured parent-report instrument
  - contains i.a. two repertory lists of 15 **words** (e.g. mom, ball, grandmother, water, etc.) and 15 **referential gestures** (e.g. holding an empty fist to the ear for TELEPHONE, waving hands for BYE-BYE, etc.)

### III. Methods

#### Language Use Inventory (LUI) (O'Neill, 2006)

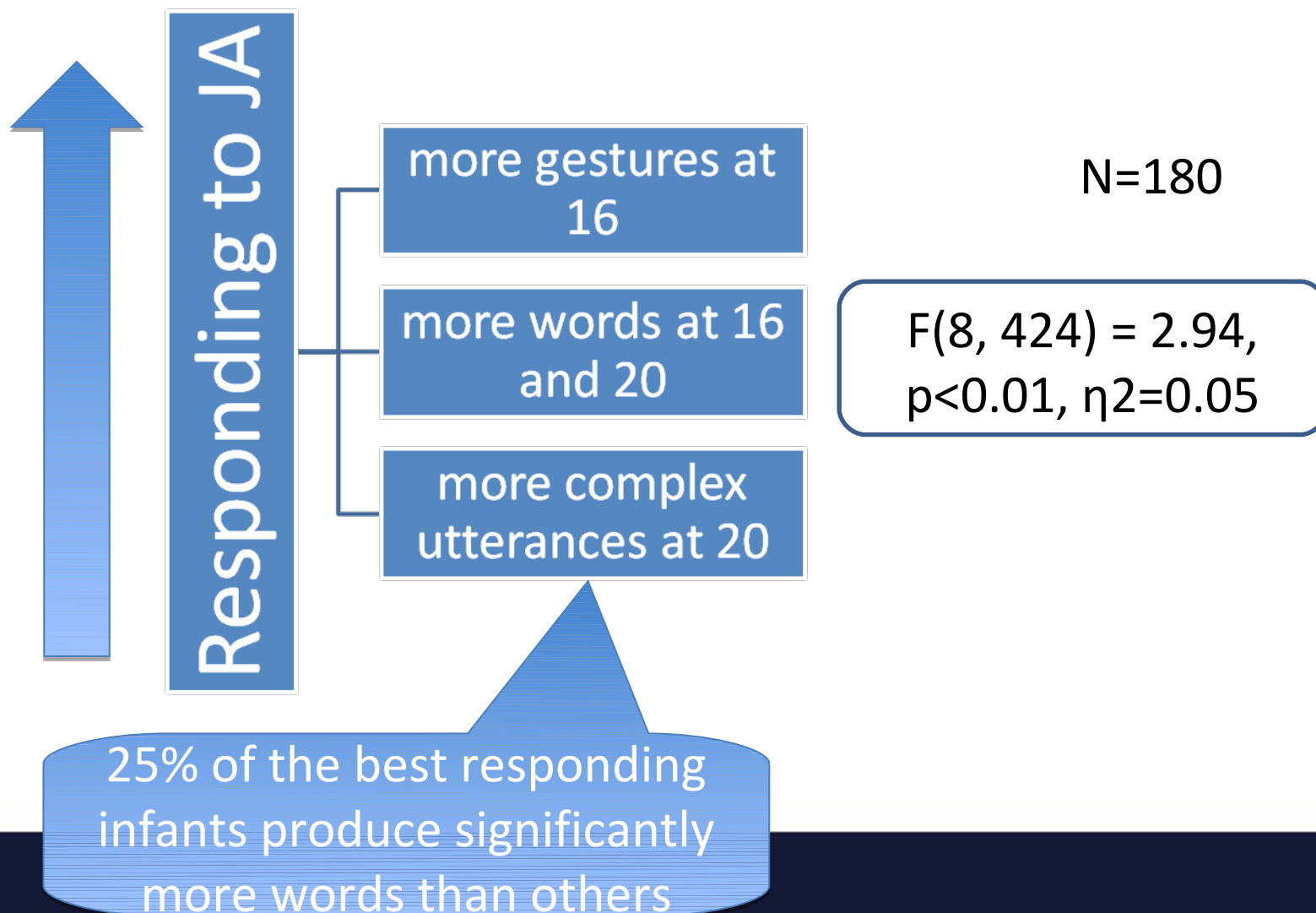
- parent-report questionnaire assessing pragmatic language development
- consists of 3 parts/14 scales/180 questions (mostly in yes/no format), but we present:
- the results of part 2, for example: The topic and typicality of the child's first words e.g., use of animal terms; use of "gone"
- the results of part 3, for example: The child's ability to use language to comment and/or gain information about people – e.g. asks where someone is; says how he/she feels

### III. Methods – timeline

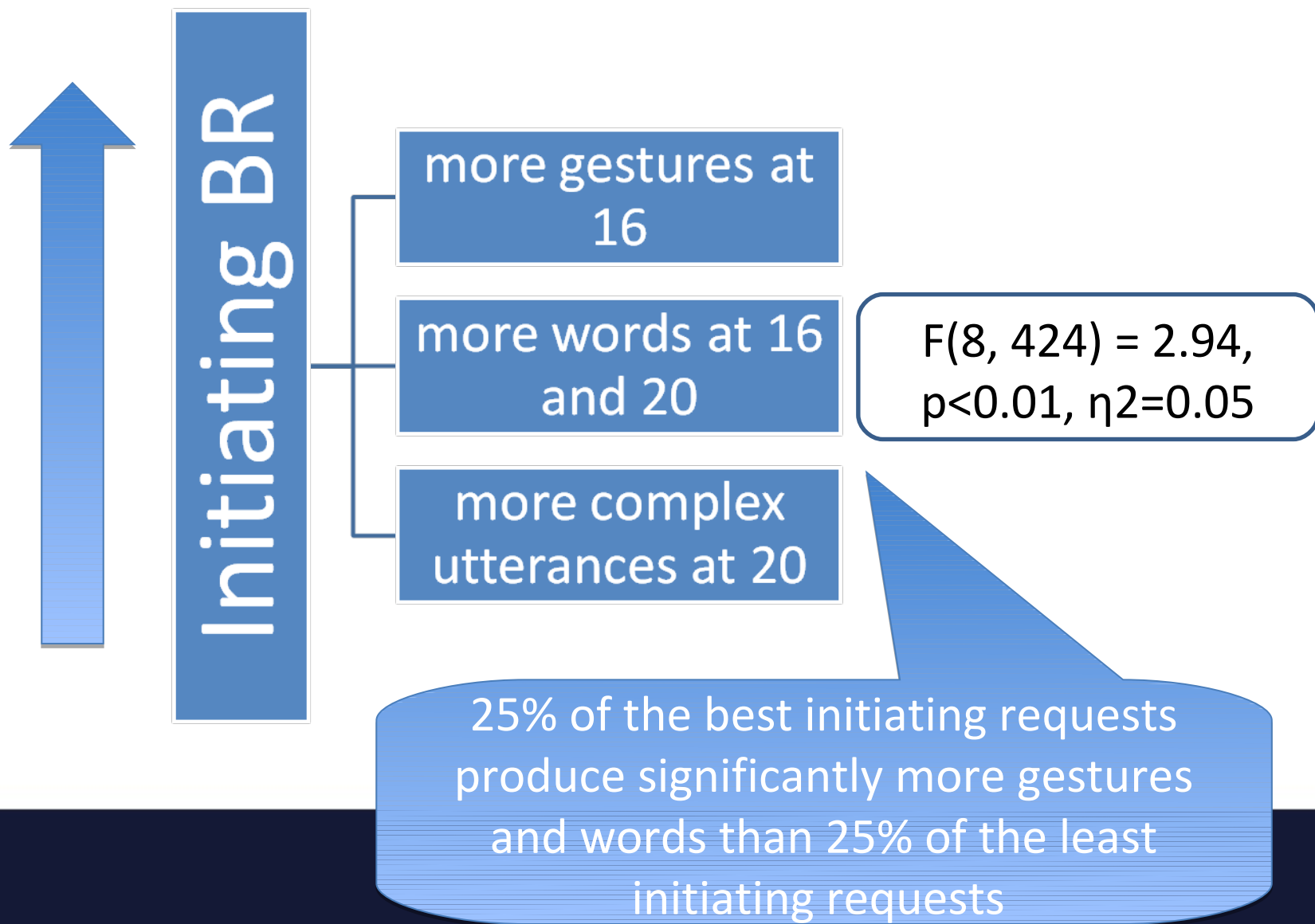




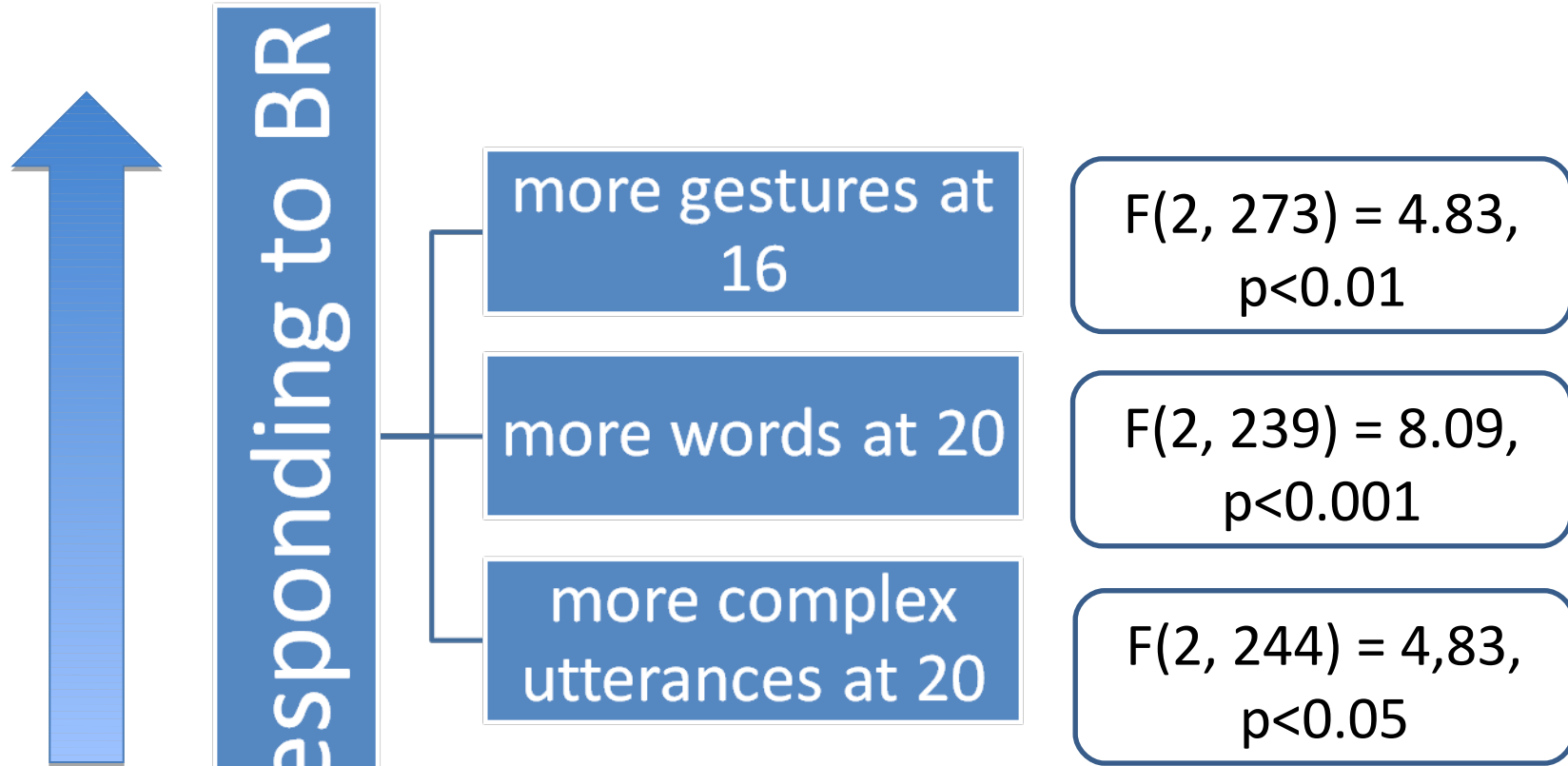
## IV. Results – responding to joint attention



## IV. Results – initiating behavioral requests

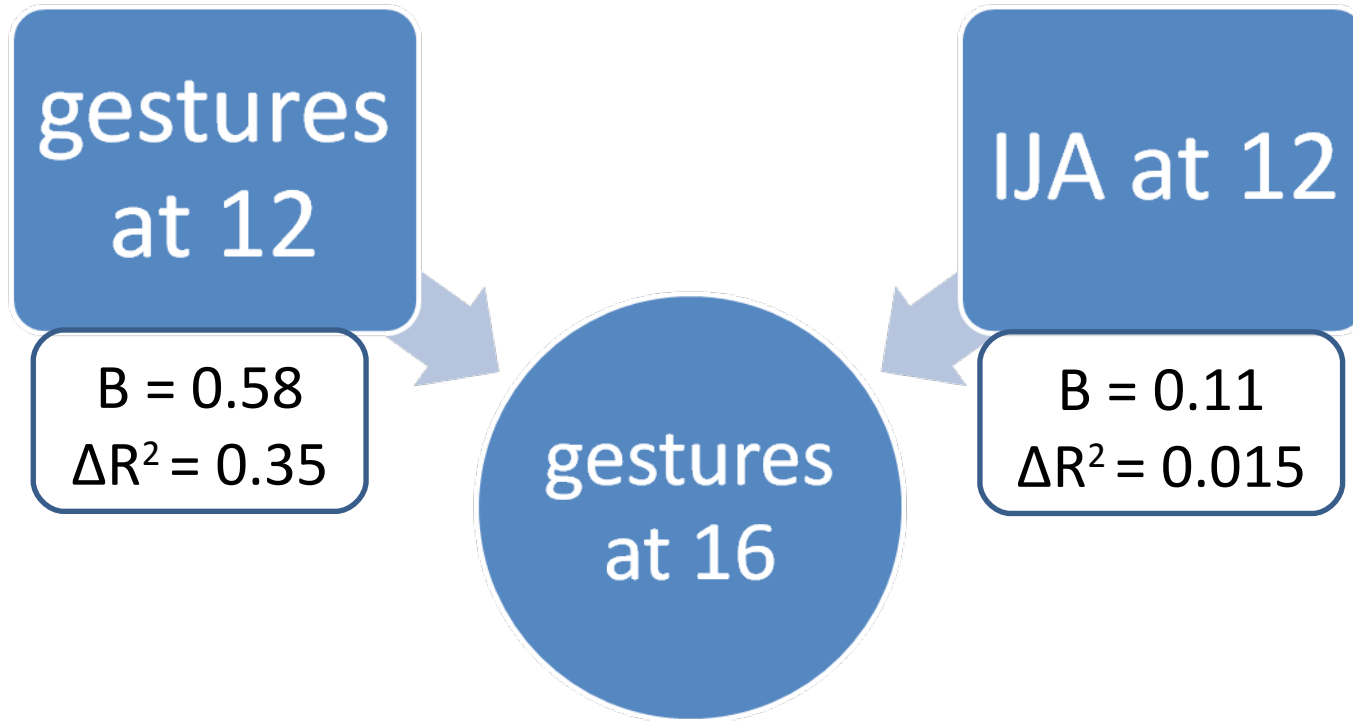


# IV. Results – responding to behavioral requests

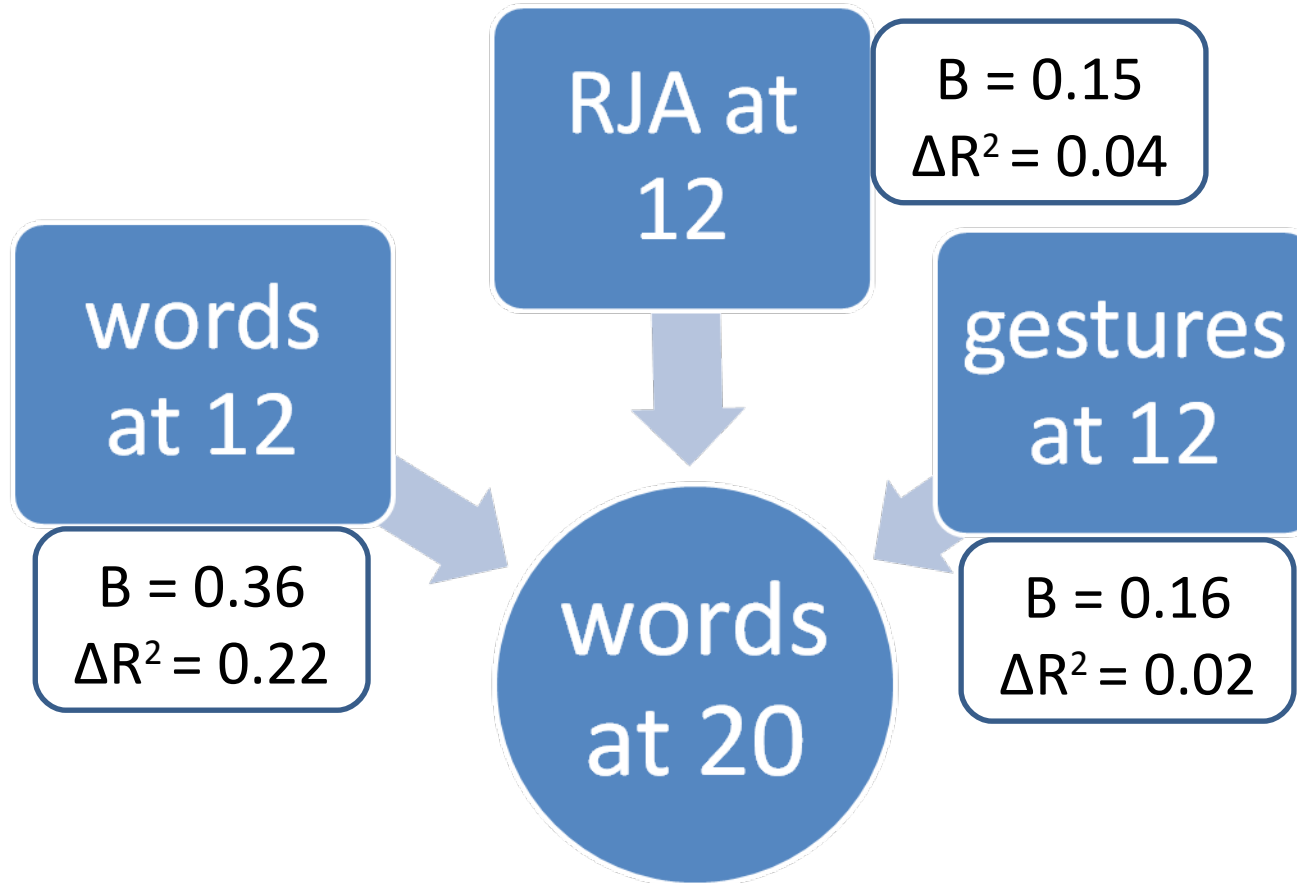


25% of those responding to requests least produce significantly fewer gestures and words than others

## IV. Results: regression analysis



## IV. Results – initiating behavioral requests



## V. Conclusions and further directions

- stability of the development of communicative abilities during the second year
- responding to behavioral requests of others is an important precursor of using gestures, words and complex utterances
- initiating JA (12 mths) predicts gesture production (16 mths)
- responding to JA (the level of ability to follow the direction of gaze, head turn, and pointing gesture of another person) at 12 mths predicts a child's production of words at 20 mths

## V. Conclusions and further directions

next stage of our project (T3, 24 mths):

- language comprehension > Picture Vocabulary Test: Comprehension (Haman, Fronczyk, 2012)
- language production > children's spontaneous production of words during the different tasks in the lab
- perspective-taking (Lempers et al., 1977)
- recognition of ignorance (O'Neill, 1996; Lurz, 2011) ...
- T4-T6 (30-42mths) – what should we include?