10 - Sentence Production Models

Nick Riches

Newcastle University

December 11, 2019

10 - Sentence Production Models

Nick Riches

min ex.

Mods of sent. prod

Garrett's m

Levelt's m

1. Message level

1a. info at ML 1b. ML to FL

.

2a. Info at FL

2b. FL to PosL The linking problem

3. Positional level

3a. Info at PosL

PosL to PhonL

4. Phonetic level

4a. Info at PhL 4b. PhI to ArtI

Motivation for syllables a units of representation

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Mods of sent. prod

Garrett's m

1. Message leve

1a. info at ML

1b. ML to FL

2. Functional leve

2a. Info at FL 2b. FL to PosL The linking problem

3. Positional leve

3a. Info at PosL Posl to Phonl

4. Phonetic level

4a. Info at PhL 4b. PhL to ArtL

units of representation

Five-minute exercise

Models of sentence production

- 1. Message level
- 2. Functional level
- 3. Positional level
- 4. Phonetic level

5 min ex.

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5 min ex.

Garrett's model
Levelt's model

1a. info at ML 1b. ML to FL

1b. ML to FL

2. Functional level

2a. Info at FL
2b. FL to PosL
The linking problem

3. Positional level

3a. Info at PosL

4. Phonetic level

4a. Info at PhL 4b. Phl. to Artl

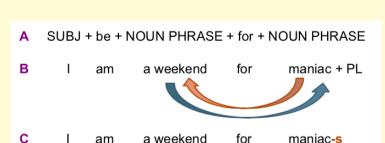
Motivation for syllable inits of representation

ibliography

Look at the following speech errors. What does this say about the integration between (a) planning the structure of the sentence, and (b) inserting words in sentences, and (c) producing phonemes.

1. I'm a weekend for maniacs.

5 min ex.



am

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5 min ex.

1a info at MI 1b. ML to FL

2h Fl to Posl

The linking problem

3a Info at Post

PosL to PhonL

4. Phonetic level

4a Info at PhI

4h Phl to Artl

units of representation

10 - Sentence Production Models

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Models of sentence production

Mods of sent. prod

- 1a info at MI 1b. ML to FL
- 2h Fl to Posl
- 3a Info at Post

4 Phonetic level

4a Info at PhI 4h Phl to Artl

units of representation

The model

UALISATION

CONCEPT-

Levelt's Major Stages

FORMULATION

ARTICULATION

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The model

1a info at MI

1b. ML to FL

2h FI to Posl

3a Info at Post

4a Info at PhI

4h Phl to Artl



Choosing participants, events, focus / perspective, givenness, tense + aspect

REPRESENTATION Retrieval of lemmas & associated argument structure. Process of



WOMAN, AGENT, NEW, FOCUSED

BOY, RECIPIENT, NEW FLOWER, PATIENT, NEW GIVE, PROGRESSIVE, PRES

[DET] woman cur

[AUX-be] grv [+ PROG] VR [DET] flauwa [+ PL] ORLIN [PREP] [DET] box ORLDUR

ðəWUmənızgIvın ðflauwəztəðəbəi

ðə wg mə nız gı vin ðə flav wəz tə ðə bər

instructions

Retrieval of lexemes and syntactic frame. Linking Process.

thematic role

assignment.

Retrieval of regular morphemes / metrical structure. Regular phonological processes

Retrieval of syllables / articulation plans Motor coding process

PHONETIC-LEVEL REPRESENTATION

MFSSAGE-LEVEL

FUNCTIONAL-

LEVEL

REPRESENTATION

POSITIONAL-

LEVEL

REPRESENTATION

ARTICULATORY -I FVFI REPRESENTATION

ERRORS Get out of the clark!

I love to do iigsaws (crosswords) I don't want to iump ahead of the gun

I'm a weekend for maniacs I'd hear one if I knew it

I'm a weekend for maniacs People read the hackses of hoves Terry charts Leading list Reading rist

Stammering?

Garrett's model

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- 1. **Message level** Very abstract representation of what we are going to say
- 2. **Functional level** Activations of relevant lemmas. Still no syntactic frame
- Positional level Syntactic frame chosen, insertion of invariant lexemes/morphemes
- Phonetic level Insertion of variant lexemes/morphemes and syllabification
- Articulatory level Speech motor programme assembled.

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Mods of sent. prod

The model Garrett's model

Levelt's n

- Message level
 Ia info at MI
- 1b. ML to FL
- 2 Eupstional love
- 2. Functional level
 - Info at FL
- 2b. FL to PosL
- Errors in children
 - . Positional level
 - Info at PosL
- 4. Phonetic level
- 4a. Info at PhL
- 4b. PhL to ArtL

Motivation for syllables as units of representation

Levelt's model

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- min ex.
- Mods of sent. pro

Levelt's model

- 1. Message le
- 1a. info at ML 1b. ML to FL
- 2. Functional leve
 - a. Info at FL
- 2b. FL to PosL The linking problem
- Errors in children
 - Positional lev
- 3a. Info at PosL
- 4 Phonetic level
- 4a. Info at PhL
- 4h PhI to ArtI
- Motivation for syllables as units of representation

- Conceptual level (corresponding to Garrett's message level)
- 2. **Formulation level** (corresponding to Garrett's Function, Positional, and Phonetic levels)
- Articulation level (corresponding to Garrett's Articulatory level)

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Five-minute exercise

Models of sentence production

- 1. Message level
- 2 Functional level
- 3. Positional level
- 4. Phonetic level

Bibliography

Mods of sent. prod

The model

Garrett's m

1. Message level

1a. info at ML 1b. ML to FI

2. Functional leve

2a. Info at FL
2b. FL to PosL
The linking problem

The linking problem Errors in children

3. Positional lev

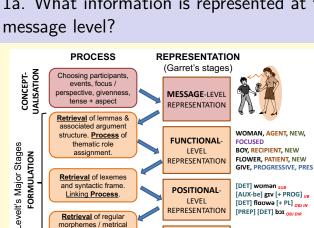
a. Info at PosL

4. Phonetic level

4a. Info at PhL

4b. PhL to ArtL Motivation for syllables a units of representation

1a. What information is represented at the



Retrieval of regular morphemes / metrical

structure

Regular phonological

processes

Retrieval of syllables /

articulation plans

Motor coding process

ARTICULATION

REPRESENTATION [PREP] [DET] box OBLDIR

PHONETIC-

LEVEL

REPRESENTATION

ARTICULATORY

-LEVEL REPRESENTATION ðəWUmənızgIvıŋ ðflauwəztəðəbəi

ðə wo mə nız gı vın ða flors waz ta ða har

instructions

ERRORS

Get out of the clark!



I love to do jigsaws (crosswords) I don't want to jump ahead of the gun

I'm a weekend for maniacs I'd hear one if I knew it

I'm a weekend for maniacs People read the backses of boxes Terry charts Leading list Reading rist

Stammering?

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1a info at MI

1b. ML to FL

2h FI to Posl

4a Info at PhI 4h Phl to Artl

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The model Garrett's model

1. Message leve

1. Iviessage leve

1b. ML to FL

2. Functional level

nfo at FL

2b. FL to PosL The linking problem

. Positional level

a. Info at PosL

4 Phonetic level

4a. Info at PhL

4b. PhL to ArtL

Motivation for syllables nits of representation

Bibliography

Entities we wish to talk about, and what kind of **situation** or **event** they are participating in.

Relational information, e.g. what is the relationship between an entity and an action? Is that entity the AGENT of the action, or the PATIENT of the action?

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A . . l . . C

The model

1. Message leve

1a. info at ML 1b. ML to FL

a Info at FI

2b. FL to PosL

Errors in childre

. Positional level

Info at PosL

4 Phonetic level

4a. Info at PhL

4b. PhL to ArtL

Notivation for syllables a nits of representation

Bibliography

We take a particular **perspective** on the action.

We decide which entity to focus on.

Focused element expressed using full Noun Phrase (not pronoun), and placed sentence finally.

1. I saw a strange man in the street. [He $_{TOPIC}$] was wearing [the weirdest clothes I've ever seen $_{FOCUS}$].

Focus on the verb

Tense

Are we inside or outside of the event? (grammatical aspect)

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min ex.

The model

Levelt's mo

. Message leve

1a. info at ML 1b. ML to FL

2. Functional level

a. Info at FL

2b. FL to PosL The linking problem

. Positional lev

3a. Info at PosL PosL to PhonL

4. Phonetic level

4a. Info at PhL 4b. PhI to ArtI

4b. PhL to ArtL Motivation for syllables as units of representation

- 1. John has chopped the carrot PERFECTIVE aspect for completed event
- 2. John is chopping the carrot PROGRESSIVE aspect for ongoing event

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min ex.

he model

Levelt's mo

1. Message lev

1a. info at ML

1b. ML to FL

2. Functional level

Info at FL

2b. FL to PosL
The linking problem

Positional lev

. Info at PosL

4. Phonetic level

4a. Info at PhL

4b. PhL to ArtL

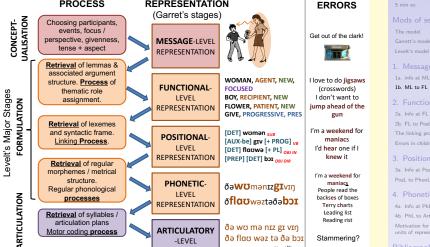
1b. How do we get from the Message level to the Functional level?

REPRESENTATION

PROCESS

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REPRESENTATION

instructions

1b. ML to FL

2h FI to Posl

4a Info at PhI 4h Phl to Artl

1b. How do we get from the Message level to the Functional level?

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The model Garrett's mo

Levelt's mo

1. Messag

1a. info at ML 1b. ML to FL

Functional level

Info at FL

2a. Into at FL 2b. Fl. to Posl

The linking problem

Errors in children

Positional

3a. Info at PosL PosL to PhonL

4. Phonetic level

4a. Info at PhL

4b. PhL to ArtL

of representation

bliography

We **retrieve** (a) the lemmas (b) the argument structure

We assign thematic thematic relations

1b. How do we get from the Message level to the Functional level?

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5 min ex. 5 min ex.

Mods of sent. prod

The model Garrett's model

1 Message level

1a. info at ML 1b. ML to FL

2. Functional level

a. Info at FL

2b. FL to PosL The linking probl

B. Positional le

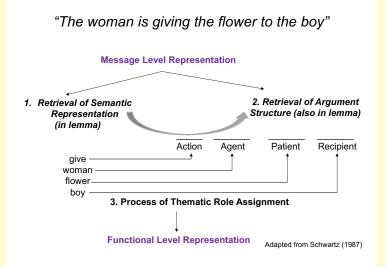
a. Info at PosL

1 Phonetic level

4a. Info at PhL

4b. PhL to ArtL

Motivation for syllables a units of representation



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Five-minute exercise

Models of sentence production

- 1. Message leve
- 2. Functional level
- 3. Positional level
- 4. Phonetic level

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The model

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Message lev
 info at MI

- 1b. ML to FL

 2 Functional level
- 2a. Info at FL
 2b. FL to PosL
 The linking problem
- 3. Positional leve

3a. Info at PosL

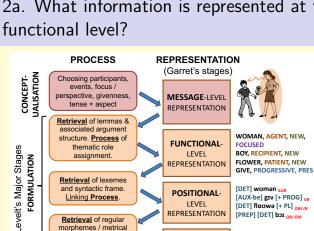
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4. Phonetic level

4a. Info at PhL 4b. PhL to ArtL

units of representation

2a. What information is represented at the



Retrieval of regular morphemes / metrical

structure

Regular phonological

processes

Retrieval of syllables /

articulation plans

Motor coding process

ARTICULATION

LEVEL

REPRESENTATION

PHONETIC-

LEVEL

REPRESENTATION

ARTICULATORY

-LEVEL REPRESENTATION [AUX-be] grv [+ PROG] VR [DET] flauwa [+ PL] [PREP] [DET] box ORLDIR

ðəWUmənızgIvıŋ ðflauwəztəðəbəi

ðə wo mə nız gı vın ða flors waz ta ða har

instructions

ERRORS

Get out of the clark!



I love to do jigsaws (crosswords) I don't want to jump ahead of the gun

I'm a weekend for maniacs I'd hear one if I knew it

I'm a weekend for maniacs People read the backses of boxes Terry charts Leading list Reading rist

Stammering?

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1a info at MI

1b. ML to FL

2a Info at FI 2h FI to Posl

4a Info at PhI 4h Phl to Artl

2a. What information is represented at the functional level?

Semantic information: arguments with correct roles

- **Focusing information**
- No syntactic information

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1a info at MI

1b. ML to FL

2a Info at FI

2h El to Posl The linking problem

3a Info at Post PosL to PhonL

4 Phonetic level

4a Info at PhI 4h Phl to Artl

units of representation

2b. How do we get from the Functional level to the Positional level?

ARTICULATORY

-LEVEL REPRESENTATION



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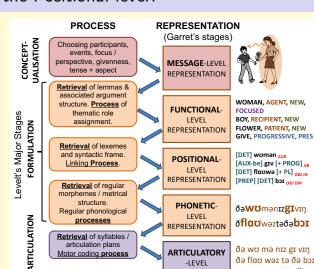


- 1a info at MI 1b. ML to FL

2h FI to Post

4a Info at PhI

4h Phl to Artl



Motor coding process

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Stammering?

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2b. How do we get from the Functional level to the Positional level?

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1a info at MI

1b. ML to FL

2h FI to Post

3a Info at Post

4 Phonetic level

4a Info at PhI 4h Phl to Artl

We **retrieve** (a) the lexemes (b) the syntactic frame

We **link** or **map** the arguments to their correct position in the frame.

2b. How do we get from the Functional level to

the Positional level?

"The woman is giving the flower to the boy" **Functional Level Representation** 2. Retrieval of the Syntactic Planning Frame 1 Retrieval of Closed-class items + "placeholders" lexemes [DET] woman [AUX-be] grv[+prog] [DET] flaowa[+pl] [PREP] [DET] box /azv/ - verb /wuman/ - agent / flauwa/ - patient /box/ - recipient 3. Process of inserting lexemes into frame **Positional Level Representation** Adapted from Schwartz (1987)

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1a info at MI 1b. ML to FL

2h FI to Post

4a Info at PhI 4h Phl to Artl

2b. How do we get from the Functional level to the Positional level?

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min ex.

Mode of sen

The model

1. Message leve

1a. info at ML 1b. ML to FL

2. Functional level

Info at FL

2b. FL to PosL
The linking problem

. Positional leve

a. Info at PosL

4. Phonetic level

4a. Info at PhL

4b. PhL to ArtL

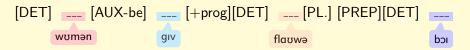
Motivation for syllables units of representation

Bibliography

The syntactic planning frame consists of (a) closed class morphemes (not yet phonetically substantiated), and (b) slots/placeholders for open class morphemes, e.g.

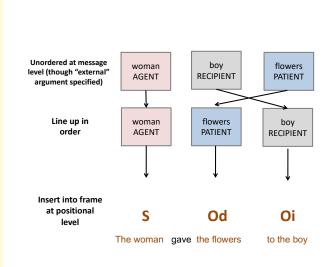
- 1. [DET] ___ [AUX-be] ___ [+prog][DET] ___ [PREP][DET] ___ (dative, e.g. the woman is giving the flowers to the boy)
- 2. [DET] ___ [AUX-be] ___ [+perf][PREP][DET] ___ (passive, e.g. the cat was chased by the dog)
- [DET] ___[+past][DET]___. [PREP][DET]__.
 (locative, e.g. the dog chased the cat up the tree)

2b. How do we get from the Functional level to the Positional level?



The linking problem

Jackendoff, 1990



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5 min ex.

Mods of sent. prod

Levelt's model

- Message leve
 info at MI
- 1b. ML to FL
- 2 Functional level
- . Functional le
- 2b. FL to PosL

The linking problem

- 3. Positional lev
- 3a. Info at PosL
- 4 Phonetic level
- 4a. Info at PhL
- 4b. PhL to ArtL

Motivation for syllables a units of representation

The linking problem

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1a info at MI 1b. ML to FL

2a. Info at FL 2h Fl to Posl

The linking problem

3a Info at Post

4. Phonetic level

4a. Info at PhL

4h Phl to Artl

units of representation

But note this won't always give the right results, e.g.

1. *The man_{AG}. gave the present_{PAT}. the woman_{REC}.

Errors in children

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Have a look at these errors in children. How have they arisen?

- 1. Can I fill some salt into the bear?
- 2. I'm going to cover a screen over me. (Bowerman, 1982)
- 3. The lady is filling the sweets into the jar.
- 4. The lady is covering the scarf on her head. (Ebbels, 2007)

min ex.

Mods of sent. pro-

he model arrett's model

1 Massaga laya

1a. info at ML 1b. ML to FL

2. Functional level

2a. Info at FL 2b. FL to PosL

The linking problem

. Positional leve

a. Info at PosL

4. Phonetic level

4a. Info at PhL 4b. PhI to ArtI

Notivation for syllables a nits of representation

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5 min ex. 5 min ex.

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The model

Message leve

1a. info at ML

1b. ML to FL

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The linking probl

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3. Positional lev

. Info at PosL

4. Phonetic level

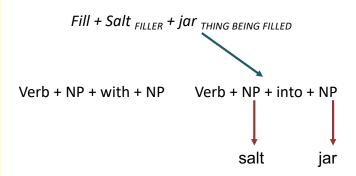
4a. Info at PhL

4h PhI to ArtI

Motivation for syllables inits of representation

Bibliography

Why are these errors happening?



Mis-selection of frame at positional level, but correct linking of arguments for that frame

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- 3. Positional level

1a info at MI

1b. ML to FL

2h Fl to Posl

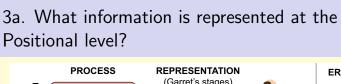
3 Positional level

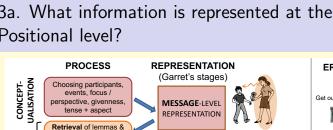
3a Info at Post

4 Phonetic level

4a Info at PhI 4h Phl to Artl

units of representation





associated argument

structure. Process of

thematic role

assignment.

Retrieval of lexemes

and syntactic frame.

Linking Process.

Retrieval of regular morphemes / metrical

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ARTICULATION

FUNCTIONAL-LEVEL REPRESENTATION

POSITIONAL-

LEVEL

REPRESENTATION

PHONETIC-

LEVEL

REPRESENTATION

ARTICULATORY

-LEVEL REPRESENTATION WOMAN, AGENT, NEW, **FOCUSED BOY, RECIPIENT, NEW** FLOWER, PATIENT, NEW GIVE, PROGRESSIVE, PRES

[DET] woman cue [AUX-be] grv [+ PROG] VR [DET] flauwa [+ PL] [PREP] [DET] box ORLDIR

ðəWUmənızgIvıŋ ðflauwəztəðəbəi

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instructions

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1a info at MI

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2h FI to Posl

3a Info at Post

4a Info at PhI 4h Phl to Artl

3a. What information is represented at the Positional level?

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he model

Levelt's model

la info at MI

1b. ML to FL

2. Functional level

Info at FL

2b. FL to PosL
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3a. Info at PosL

4 Phonetic level

4a. Info at PhL

4b. PhL to ArtL

lotivation for syllable nits of representation

Bibliography

Now we have syntactic information!

We represent the **sentence frame**, and **lexemes which are phonetically invariant** (i.e. their pronunciation is similar whatever phonological context they occur in)

3a. What information is represented at the Positional level?

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- 1a info at MI 1b. ML to FL
- 2h El to Posl The linking problem

3a Info at Post

4 Phonetic level 4a Info at PhI

4h Phl to Artl

NB

- (1)I'd know one if I heard it \Rightarrow
- (2)I'd hear one if I knew it

Verb form is conditioned by syntactic context

3b. How do we get from the Positional level to the Phonetic level?

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Aods of sent.

The model
Garrett's model

Message level
 info at MI

1b. ML to FL

Functional leve

2a. Info at FL
2b. FL to PosL
The linking problem

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Positional lo

3a. Info at PosL Posl to Phonl

4 Phonetic level

4a. Info at PhL

4b. PhL to ArtL Motivation for syllab

Ribliography

Bibliography

We retreive (a) segments, and (b) metrical structure

We assemble a phonological sequence (consisting of segments, combined with metrical structure).

3b. How do we get from the Positional level to the Phonetic level?

Positional to Phonetic level "Phonological assembly"

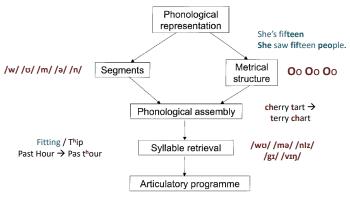


Figure 3. Levelt et al.'s (1999) model of speech production.

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5 min ex. 5 min ex.

Mods of sent in

he model

Levelt's model

.. Message leve

1a. info at ML 1b. ML to FL

2. Functional leve

a. Info at FL

2b. FL to PosL The linking problem

Positional leve

3a. Info at PosL Posl to PhonI

4. Phonetic level

4a. Info at PhL

4b. PhL to ArtL

Motivation for syllab units of representati

3b. How do we get from the Positional level to the Phonetic level?

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Evidence that segments and metrical structure are stored separately:

- 1. Stress shift
 - 1.1 She's fif-teen / I saw fif-teen men.
 - 1.2 Five o'clock in the after-noon / We had after-noon tea
 - 1.3 It was ca-ta-stroph-ic / It was a ca-ta-strophic failure
- 2. Evidence from aphasia (Nickels & Howard, 1999)
 - 2.1 Aphasic individuals often produce phonemes in correct order, but not correct stress pattern
 - 2.2 Are much better at naming items with more frequent stress patterns, e.g. **co**-tton *versus* bam-**boo**

min ex.

Mods of sent. prod The model

Levelt's model

1. Message level

1a info at MI

2 Functional level

1b. ML to FL

- 2a. Info at FL 2b. FL to PosL The linking problem
- . Positional level

3a. Info at PosL Posl to PhonI

4 Phonetic level

4a. Info at PhL

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Five-minute exercise

Models of sentence production

- 1. Message leve
- 2. Functional level
- 3 Positional level
- 4. Phonetic level

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The model

Garrett's mo

1. Message level

1a. info at ML

1b. ML to FL

2. Functional level

2a. Info at FL
2b. FL to PosL
The linking problem

3. Positional level

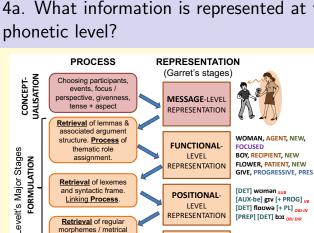
. Info at PosL osL to PhonL

4. Phonetic level

4a. Info at PhL

4b. PhL to ArtL Motivation for syllables as units of representation

4a. What information is represented at the



LEVEL

REPRESENTATION

PHONETIC-

LEVEL

REPRESENTATION

ARTICULATORY

-LEVEL REPRESENTATION

Linking Process.

Retrieval of regular morphemes / metrical

structure

Regular phonological

processes

Retrieval of syllables /

articulation plans

Motor coding process

ARTICULATION

[DET] woman cue [AUX-be] grv [+ PROG] VR [DET] flauwa [+ PL] [PREP] [DET] box OBLDIR

ðəWUmənızgIvin ðflauwəztəðəbəi

ðə wo mə nız gı vın ða flors waz ta ða har

instructions

ERRORS

Get out of the clark!



I love to do jigsaws (crosswords) I don't want to jump ahead of the gun

I'm a weekend for maniacs I'd hear one if I knew it

I'm a weekend for maniacs People read the backses of boxes Terry charts Leading list Reading rist

Stammering?

10 - Sentence Production Models

Nick Riches

1a info at MI

1b. ML to FL

2h FI to Posl

4a Info at PhI

4h Phl to Artl

4a. What information is represented at the phonetic level?

10 - Sentence Production Models Nick Riches

A phonological sequence consisting of segments, and information related to metrical structure (e.g. word stress).

Phonetically-variant lexemes/phonemes are realised at this level, e.g.

- 1. DETERMINER: A book / An elephant
- DETERMINER: The (ŏ→) man / The (ŏi:) essay (tongue is retracted for second)
- 3. PARTICLE: I want to (tu:) eat / I want to (tə) drink (second is longer and involves more lip rounding)

min ex.

Mods of sent. pro

he model

1 Message level

- 1a. info at ML
- 1b. ML to FL
- 2. Functional level

2a. Info at FL 2b. FL to PosL The linking problem

3. Positional level

. Info at PosL

- 4. Phonetic level
- 4a. Info at PhL

4b. PhL to ArtL

Motivation for syllab nits of representation

4a. What information is represented at the phonetic level?

A number of errors may occur at this level including

- 1. Swapping errors, e.g. cherry tart ⇒ terry chart
- 2. Anticipation errors, e.g. cherry tart \Rightarrow terry tart
- 3. Perseveration errors, e.g. cherry tart \Rightarrow cherry chart

NB these errors respect syllabic position, so perhaps they occur later at the syllable retrieval stage?

10 - Sentence Production Models

Nick Riches

min ex.

Mods of sent. 1

The model Garrett's model Levelt's model

. Message leve

1a. info at ML 1b. ML to FL

2. Functional leve

2a. Info at FL 2b. FL to PosL

The linking problem Errors in children

3. Positional leve

osL to PhonL

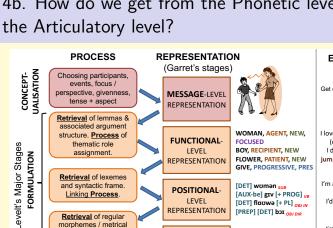
4. Phonetic leve

4a. Info at PhL

4b. PhL to ArtL

lotivation for syllables nits of representation

4b. How do we get from the Phonetic level to



Retrieval of regular morphemes / metrical

structure

Regular phonological

processes

Retrieval of syllables /

articulation plans

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ARTICULATION

LEVEL REPRESENTATION [PREP] [DET] box OBLDIR

PHONETIC-LEVEL REPRESENTATION

ARTICULATORY

-LEVEL REPRESENTATION ðə wo mə nız gı vın ða flors waz ta ða har

ðəWUmənizgIvin

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1a info at MI

1b. ML to FL

2h FI to Posl

4a Info at PhI 4h Phl to Artl

4b. How do we get from the Phonetic level to the Articulatory level?

Production Models

Nick Riches

10 - Sentence

min ex.

..... .f

The model

Garrett's model

Levelt's mo

1. Message level

2. Functional level

Functional

2a. Info at FL 2b. Fl. to Posl

1b. ML to FL

The linking probl

Positional

3a. Info at PosL

4. Phonetic level

4a. Info at PhL

4b. PhL to ArtL

Motivation for syllables a units of representation

Bibliography

We **retrieve** syllables, along with their articulation plans.

We assemble motor instructions.

10 - Sentence Production Models

Nick Riches

min ex.

Mods of sent. prod

Garrett's mo

1. Message level

1a. info at ML

1b. ML to FL

2. Functional leve

2a. Info at FL 2b. FL to PosL The linking problem

The linking probl Errors in children

3. Positional lev

a. Info at PosL PosL to PhonL

4. Phonetic level

4a. Info at PhL 4b. PhI to ArtI

Motivation for syllables as units of representation

Bibliography

(a) Liaison (epenthesis)

Beer and chips \rightarrow bip for the s...

CVV CVC CVC C....

Why are you sad? \rightarrow war \mathbf{j} a: ju: sæd CVV \mathbf{C} V CVV CVC

10 - Sentence Production Models

Nick Riches

i min ex.

Mods of sent. pro

Garrett's mo

1. Message level

1a. info at ML 1b. ML to FL

2. Functional leve

a. Info at FL

2b. FL to PosL The linking proble

3. Position

3a. Info at PosL

4. Phonetic level

4a. Info at PhL 4b. PhI to ArtI

Motivation for syllables as units of representation

Bibliography

(b) Resyllabification

A book → ...ə bʊk ...V CVC

An elephant \rightarrow ...ə \mathbf{n} e lə fənt

...V CV CV CVCC

10 - Sentence Production Models

Nick Riches

min ex. 5 min ex.

Mods of sent. pro

Garrett's mo

(syllable final)

(syllable initial)

Message level

1a. info at ML 1b. ML to FL

1b. ML to FL

2. Functional level

2a. Info at FL 2b. FL to PosL

The linking problem

3. Positional level

. Info at PosL

4. Phonetic level

4a. Info at PhL 4b. PhI to ArtI

Motivation for syllables as units of representation

Bibliography

(b) Resyllabification

- 1. Football → fot bol
- 2. tipping \rightarrow t^h I pIII
- 3. Glass tower \rightarrow gla:s $t^h av$ wə (syllable initial)
- 4. Last hour $\rightarrow la:s$ t^hav we (syllable initial)

10 - Sentence **Production Models**

Nick Riches

		ex.
mi	n (2x.

1a info at MI 1b. ML to FL

2a. Info at FL

2h Fl to Posl

The linking problem

3a Info at Post PosL to PhonL

4. Phonetic level

4a. Info at PhL

4b. PhL to ArtL

Motivation for syllables as units of representation

ワ	ラ	ヤ	マ	/\	ナ	タ	サ	カ	ア
wa	ra	ya	ma	ha	na	ta	sa	ka	a
	IJ		m	٢	=	チ	シ	+	1
	ri		mi	hi	ni	chi	shi	ki	i
	ル	ュ	ム	フ	ヌ	ッ	ス	ク	ゥ
	ru	yu	mu	fu	nu	tsu	su	ku	u
	レ		У	^	ネ	テ	セ	ケ	エ
	re		me	he	ne	te	se	ke	e
ヲ		3	Ŧ	ホ	1	7	ソ	П	オ
wo	ro	yo	mo	ho	no	to	so	ko	o

ARTICULATORY

-I FVFI

REPRESENTATION



Nick Riches

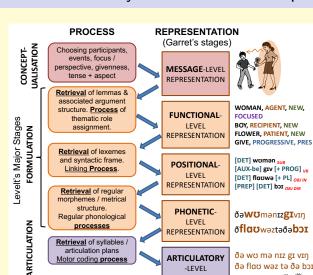
1a info at MI 1b. ML to FL

2h FI to Posl

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4h Phl to Artl Motivation for syllables as

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ðə flav wəz tə ðə bər

10 - Sentence Production Models

Nick Riches

Bibliography

1a info at MI 1b. ML to FL

2h Fl to Posl

3a Info at Post

4 Phonetic level

4a Info at PhI 4h Phl to Artl

units of representation

Nick Riches

min ex.

Mods of sent. prod

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. Message lev

1a. info at ML 1b. ML to FL

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z. Functional level

2a. Into at FL 2b. Fl. to Posl

The linking problem

Errors in childrer

3. Positional lev

a. Info at PosL PosL to PhonL

4. Phonetic level

4a. Info at PhL

4b. PhL to ArtL

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