

## 05. Linguistic analysis of impairment data.

### 05.03. Textual analysis of impaired speech samples:

#### 05.03.01. Analysis of *phonetic and phonological* impairment.



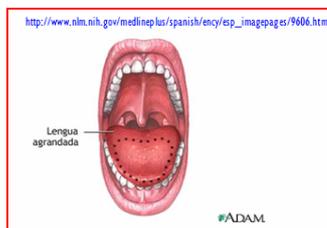
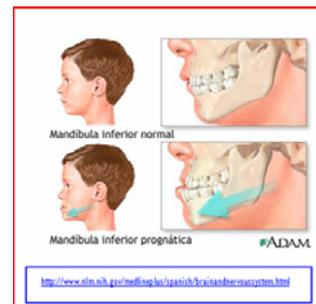
Phonological impairment involves some sort of disturbance to the speaker's phonological system, and should not be confused with phonetic impairment affecting motor or functional aspects. This type of condition is known as **dyslalia**, of which the literature distinguishes three basic etiologies:

- Auditory dyslalia: caused by auditory problems.
- Functional dyslalia: caused by motor disorders that may be nervous in origin.
- Organic dyslalia or dysglossia: caused by malformations in the phonetic apparatus.

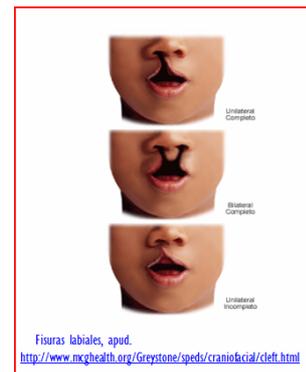
There can be various causes of dysglossia and the speech therapist should be involved in treatment. They should be aware, however, that they are not dealing with a linguistic system disorder but with a different kind of situation; this kind of intervention is carried out in collaboration with other professionals.

There can be dysglossias caused by disorders of several articulatory organs:

- Malformations of the **jaw**: for example, the prognate jaw in the picture; these jaw structures affect the pronunciation of certain sounds.
- **Labial** dysglossia, in which articulatory problems are due to disorders in which the shape, strength, movement or consistency of the lips are affected.
- **Palatal** dysglossia (cleft palate, in which the two halves of the palate are separated down the middle).



- **Lingual** dysglossia, caused by macroglossia (see image), short lingual frenum, glossectomies, malformations, etc.
- **Dental** dysglossia (anomalies in the shape or position of the teeth, affecting phonetic articulation).



When the disorder affects the rhythm and speed of the verbal chain, the result of stuttering or **dysphemia**, defined by Perelló (1977)<sup>1</sup> as

*"an elocution defect characterised by the repetition of syllables, words or spasmodic stops that interrupt the normal flow of speech".*

The customary classification of dysphemias deals with the part of the word in which the problem is most obvious, as can be seen below:

- Clonic dysphemia: the first phoneme or syllable of the word is repeated
- Tonic dysphemia: problems with articulating certain sounds, arising after a glottic articulation that displays the resistance.
- Mixed or clonic-tonic dysphemia: combining the two.
- Inhibitive dysphemia: the speaker experiences blocking at the moment of initiating their turn, which peppers their speech with pauses.

The causes of dysphemia usually fall into two categories, organic (genetic factors, neurological injuries, auditory disorders or lack of coordination between the phonatory, articulatory and respiratory systems) and psychogenic factors (such as personality, anxiety or impairment problems, in which Pichon and Borel-Maisony<sup>2</sup> termed "lingual-speculative thought").



*[Suggested additional reading: “Errores de habla espontáneos: de lo normal a lo patológico”(Spontaneous speech errors: from the normal to the pathological), Amalia HOYOS AVIZU and Victoria MARRERO AGUIAR, 2006]*

Phonological impairment, on the contrary, is due to disturbances in the abstract structure of the phonological system, in its inventory of units. The phonetic (sound) manifestation of phonological impairment, however, coincides with organic and functional disorders, and is usually classified according to the following table:

#### 4.1. Substitutions:

4.1.1. in the place of articulation: frontalisations (a posterior consonant is substituted by an anterior one: [bwántes] for [gwántes], posteriorisations (the inverse case: [gufánda] for [bufánda]).

4.1.2. in the manner of articulation: occlusions ([káta] for [kása]), nasalizations ([fúmbol] for [fúðbol]), semi-consonantization of glides (/l/ y / / are substituted by /w/ y /j/: [pjáya] for [pláya]), absence of trills, for example in children with rhotacism ([káða] instead of [ká a] or [góðo] for [góro] “gorro”), or the absence of lateralisation (when /l/ is substituted by /r/ o /d/: [dápi ] for [lápi ]).

4.1.3. in the series, which in our case only affects the voiceless/voiced distinction: [bufánta] for [bufánda] or [pakéðe ] for [pakéte]

4.2. Assimilations: certain sounds are influenced by the articulatory or acoustic features of a nearby sound

4.2.1. progressive: one sound influences the next ([pápo] for [páto])

<sup>1</sup> Fisiología de la comunicación oral (Physiology of oral communication), Barcelona: Científico-Técnica.

<sup>2</sup> Pichon, Édouard and Borel-Maisony, Suzanne (1936) : *Le bégaiement, sa nature et son traitement*, Paris, Masson.

4.2.2. regressive: one sound influences the previous one ([táto] for [páto])

#### 4.3. Changes to the syllabic structure

##### 4.3.1. omissions:

4.3.1.1. of the final consonant ([kamjó] for “camión”)

4.3.1.2. of the initial consonant ([ása] for “casa”)

4.3.1.3 of initial or final atonic syllables ([bá o] for “caballo”)

4.3.1.4. of intervocalic consonants ([peóta] for “pelota”)

4.3.1.5 reduction of diphthongs ([atoʎús] for “autobús”)

4.3.1.6. simplification of consonant groups ([páto] for “plato”)

4.3.2. additions that extend the word structure by the intrusion of other sounds ([kwelpol] for “cuerpo”, [parádo] for “prado”)

4.3.3. metathesis: affects the sequence of elements, so they are not in the expected order ([kamalélo] for “caramelo”)

4.3.4. tendency towards reduplication ([paparipósa] for “mariposa”)

4.3.5. several at once ([kukuáño] for “cumpleaños”, [tutúga] for “tortuga”).

By following the link <http://elies.rediris.es/elies4/index.htm>, in Volume 4 of the electronic magazine *Estudios de Lingüística Española (Studies in Spanish Linguistics)*, you can find a text by Antonio Ríos (1999) on automatic phonetic transcription; specifically in chapter 4, entitled “[Fonemas y alófonos del español](#)”, there is in-depth material on the phonological description of Spanish.

In the case of impairment, we discuss **phonological impairment** at an overall level, but the term “**phonological disorder**” is normally used in the field of childhood acquisition. A basic concept of the description of these acquisition processes is that of phonological conscience.

*[Suggested additional reading:*

*-“[PECO: Prueba de Evaluación del Conocimiento Fonológico](#)” (PECO: Test for assessing phonological knowledge), José Luis Ramos 2005]*

Bleible<sup>3</sup> (1995), for example, uses the term phonological disorder for those cases in which phonetic difficulties cannot be explained by anatomical, neurological or socio-linguistic causes (defects in the sociolect acquired by the child in question), but rather by specific disturbances in the process of acquisition and internal organisation of the phonological inventory.

*[Suggested additional reading: “[Lingüística clínica y lenguaje infantil](#)” (Clinical linguistics and children's language), Milagros Fernández Pérez 2005]*

<sup>3</sup> Bleible K. (1995): *Manual of articulation and phonological disorders*. San Diego,CA: Singular Publish Group.



In their chapter on “La adquisición de las habilidades fonológicas y fonéticas” (The acquisition of phonological and phonetic skills), Serra, Serrat, Solé, Bel and Aparici (2000), discuss the customary view of phonological component acquisition, which distinguishes the following stages:

### 1. Prelinguistic period: babbling

Various substages are included here, referring to non-phonological processes, which do not yet show acquired distinctivity: they are simple sounds.

*[Suggested additional reading: “Adquisición y desarrollo del lenguaje en Preescolar y Ciclo Inicial” (language acquisition and development at pre-school and primary level), Juan Cervera 2004]*

- the two first months are when reflex, uncontrolled vocalisations appear;
- between 2 and 4 months, typically velarised utterances appear that explain terms such as “gagueo”, “vagido”, “gorgeo”, or “lalación”.
- Between 4 and 6 months: the concept of "vocal play" is frequently used to refer to this stage in which the baby seems to be playing and trying out their ability to make sounds.

*[Suggested additional reading: “Antecedentes en las investigaciones del juego vocal” (antecedents in research into vocal play), Víctor Feld 1999]*

- Between 6 and 10 months: Serra *et al.* (2000: 189) refer to "canonic babble", with which they aim to draw attention to the phonic nature of these utterances, which come progressively closer to the phonological structure of languages and, therefore, to the combination of vowels and consonants. "Reduplicative" or imitative babble occurs a short while before the "melodic babble" that in some way reflects basic intonation.
- From 10 months: Babbling is richer and acquires some interactive, conversational features, found in what other authors term "proto-linguistic" or "proto-conversational" utterances.

### 2. Initial linguistic period: acquisition of phonological oppositions, between 10 or 12 months and 18 or 24 months.

This is the stage termed "holophrastic period" in syntax and, sometimes, in phonology, the "minimum consonantism" period. Although the phonological system and its corresponding inventory of units are not fully acquired, this phase is sufficient for the development of the initial lexicon and the communicative usages typical of this stage.

### 3. Linguistic period of phonological integration: from 18 or 24 months up to 4 years.

In this last stage, phonological skills continue to grow until they become close to those of an adult speaker. Speech simplification phonological processes (Serra *et al.* 2000: 198-204) affect three levels of production:

- Simplification of words and of the phonic continuum: there are **elisions** or omissions of atonic syllables; **assimilations** defined as harmonisations of consonants; and **metathesis**, that is, changes in order and transpositions.
  - Syllabic simplification: the possible situations are those consisting in 1) omitting the initial and final consonant; 2) omitting the initial consonant; 3) omitting the final consonant; 4) reducing the consonant groups; 5) substituting complex consonant groups for another sound, in a coalescence; 6) including new atonic vocalic sounds in consonant groups, or epenthesis.
  - Phonological simplification (phonemes and distinctive features): the most common phenomena are the following: 1) substitution of fricatives for occlusives; 2) substitution of occlusives for fricatives; 3) substitution of liquids; 4) substitution of palatals; 5) semivocalization or semiconsonantization; 6) silencing of voiced; 7) forwarding the point of articulation; 8) posteriorizing the point of articulation; 9) nasalizations; and 10) lack or displacement of the /r/ trill.
4. **Period of phonological culmination: from 4 to 6/7 years.** Some authors prolong phonological acquisition with a fourth stage, that can extend up to 6/7 years, and that consists in the complete acquisition of the phonological inventory. The phonological conscience closes at this point.

These acquisition processes should be taken into account when describing phonological production in our subjects, to avoid committing the error of attributing some processes to situations of impairment that can be perfectly explained by the speaker's current acquisitive state.

*[Suggested additional reading: "[Procesos de metátesis en el desarrollo fonológico de los niños de 3 a 6 años](#)" (Metathesis processes in the phonological development of children aged 3 to 6 years), by Eliseo Díez-Itza and Verónica Martínez 2003]*

Linguistic impairment is phonological impairment when it is systematically manifested in the phonological component, which involves including both segments and supra-segmental features. As is the case with the other components, this "systematic nature" of impairment is almost always relative, and rarely absolute.