



PRIMARY VERSUS SECONDARY IMPAIRMENTS IN APHASIC SYNDROMES

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The distinction between primary and secondary impairments in aphasic syndromes is a complex one. It is not always clear where the line should be drawn between the two. In this paper, we will discuss the various factors that can lead to a primary or secondary impairment in aphasia. We will also discuss the implications of these findings for the treatment of aphasia.

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- The first group of subjects was composed of 10 individuals who had a primary impairment in aphasia. They were all right-handed and had no other neurological or psychiatric disorders. They were all between 20 and 30 years of age.

- The second group of subjects was composed of 10 individuals who had a secondary impairment in aphasia. They were all right-handed and had no other neurological or psychiatric disorders. They were all between 20 and 30 years of age.

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INTRODUCTION :

The main challenge for neuropsychological research has always been to separate out primary from secondary impairments of language function. More specifically, the main problem within such an enterprise lies (a) in the search for regularities in the "apparent" diversity of surface manifestations (or symptoms) resulting from brain damage in a single patient and (b) in the assessment of potential variability in performance as one goes from one patient to another. In other words, such a reflexion contributes to the current theoretical and methodological discussion on "single case" versus "group" studies in aphasiology.

The proposed presentation aims at one and the same time (a) to better characterize aphasic impairments and (b) to put forward a well-motivated and thus plausible typology of aphasic syndromes.

The interest of our presentation is twofold:

- theoretical: if, within a same body of clinical data — at the single case level — one can observe regularities — or primary impairments — in a patient's symptomatology, it is pretty obvious that such regularities do vary from one patient to the next.

- clinical: it derives from the above that the therapeutic program devised by the clinician when starting his rehabilitation will have to be different and thus adjusted to the peculiarities of each case.

Within such a context, it appears crucial to have a syndromic typology based upon the "primary impairments" that have been identified because rehabilitation has to start from them. Indeed, if such an identification (and rehabilitation) of primary deficits has been successful, the "secondary impairments" will disappear consequently without being addressed specifically.

EXPERIMENTAL PROCEDURES :

1) Six case studies have been selected from a pre-investigation including 32 arabophone aphasic patients observed in Algiers Central Hospital. Such a selection was based upon the following three criteria:

- a) patients belong to six different clinical entities;
- b) patients suffer from different cerebral lesions;
- c) patients belong to different age groups.

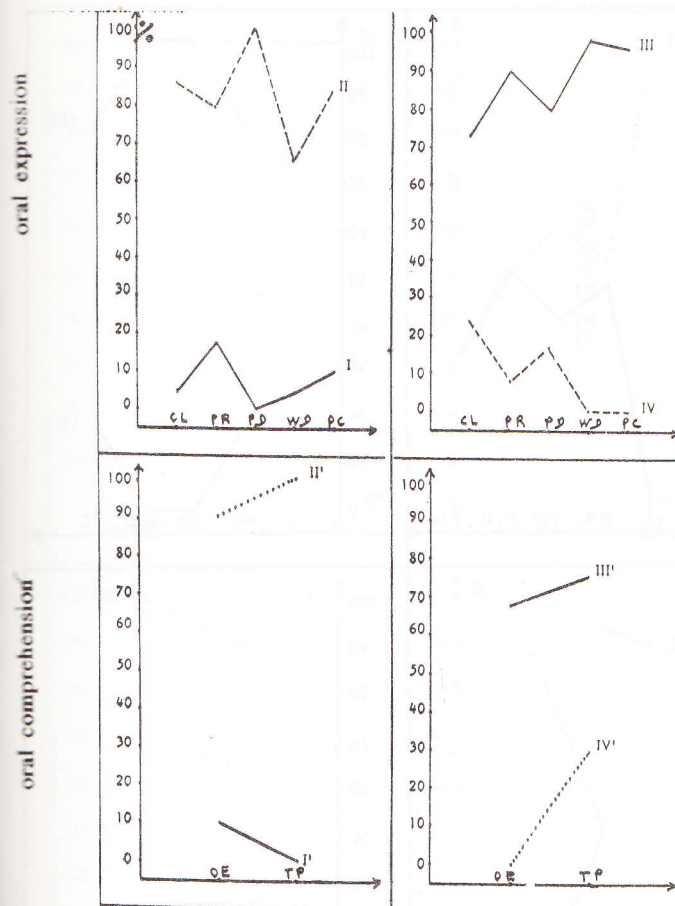
2) All patients have been submitted to the Bl. Ducarne's Full Aphasia Battery (1979). Language profiles thus obtained include morpho-syntactic, lexical and phonological-phonetic assessment of language function for each case.

3) A specific analysis of omission and substitution patterns at the three previous levels yields 24 diagrams (4 per subject).

I- MORPHOSYNTAX

CASE I: A.D.

CASE II: B.A.



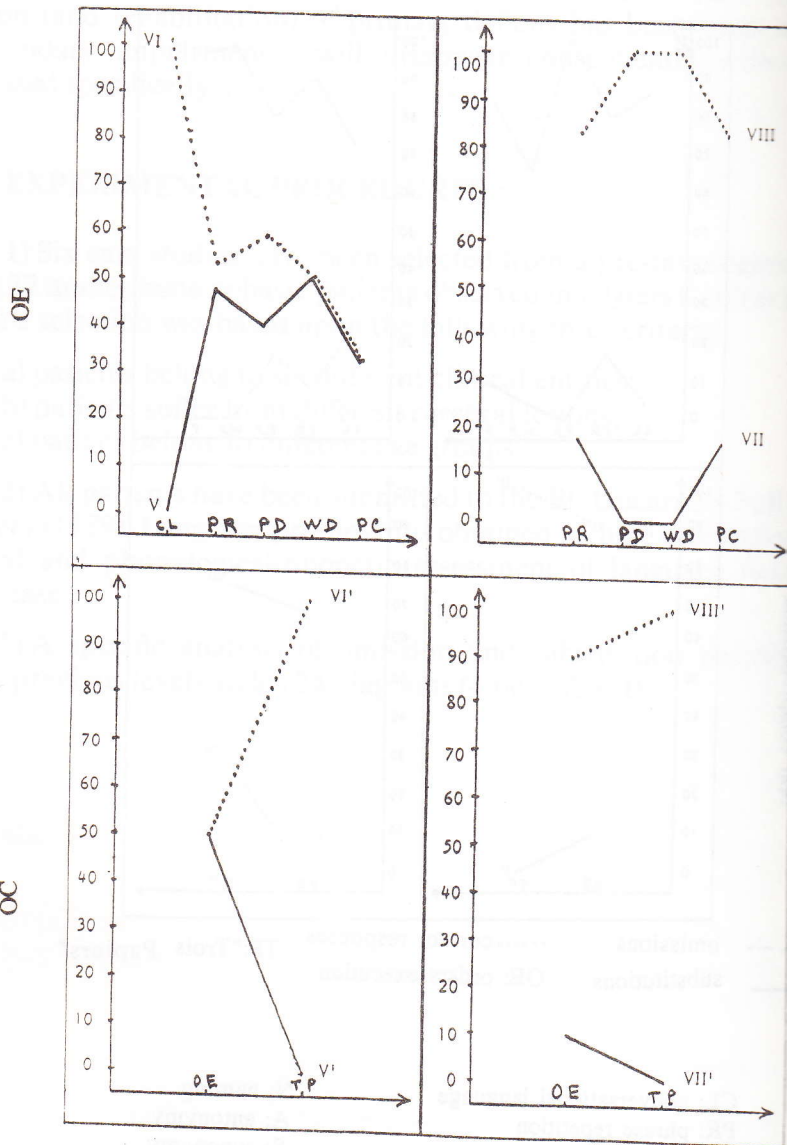
----- omissions correct responses TP: "Trois Papiers"
 _____ substitutions OE: orders execution

CL: conversational language
 PR: phrase repetition
 PD: picture description
 WD: word definition
 PC: phrase construction

N: naming
 A: antonymy
 S: synonymy
 D1: multiple choice, use
 yes - no
 D2: pointing

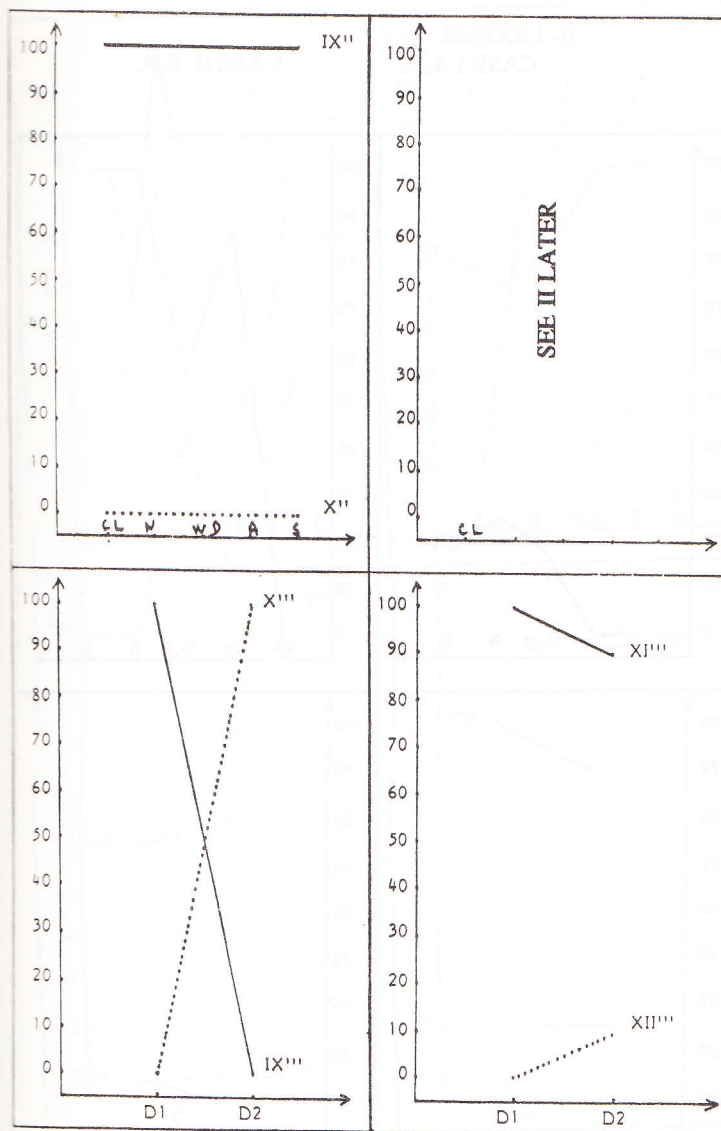
CASE III L.M.

CASE IV O.M.M.



CASE V F.R.

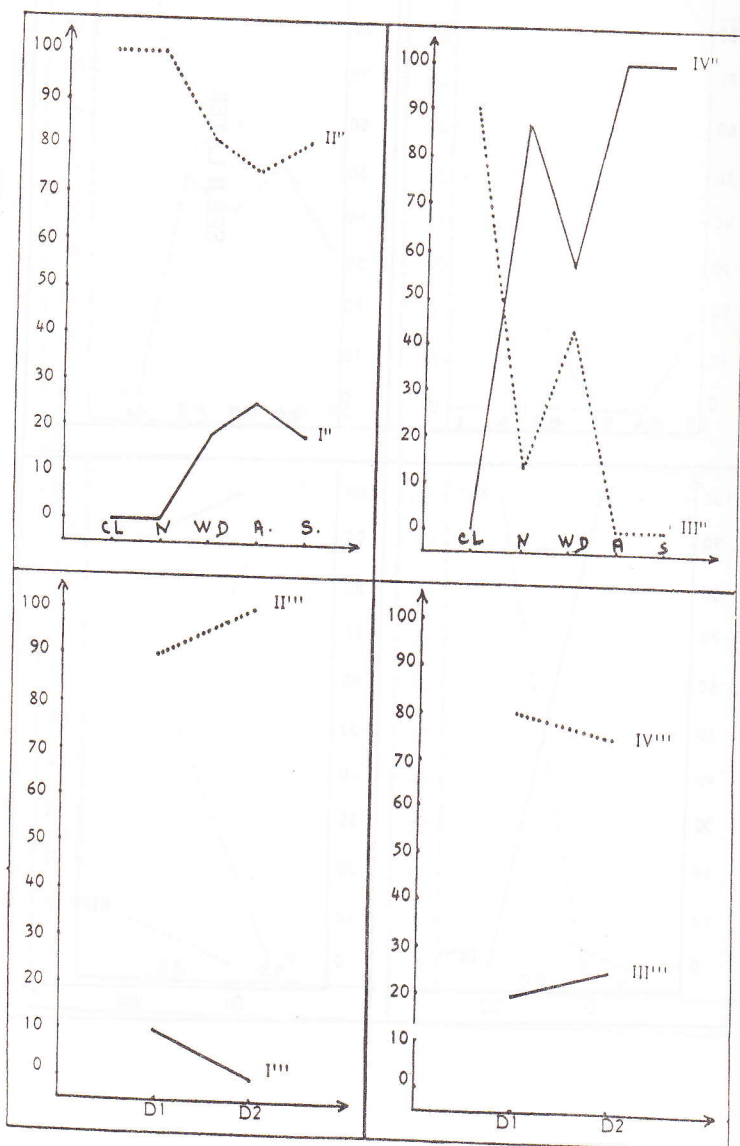
CASE VI A.B.A.



II- LEXEMS
CASE I A.D.

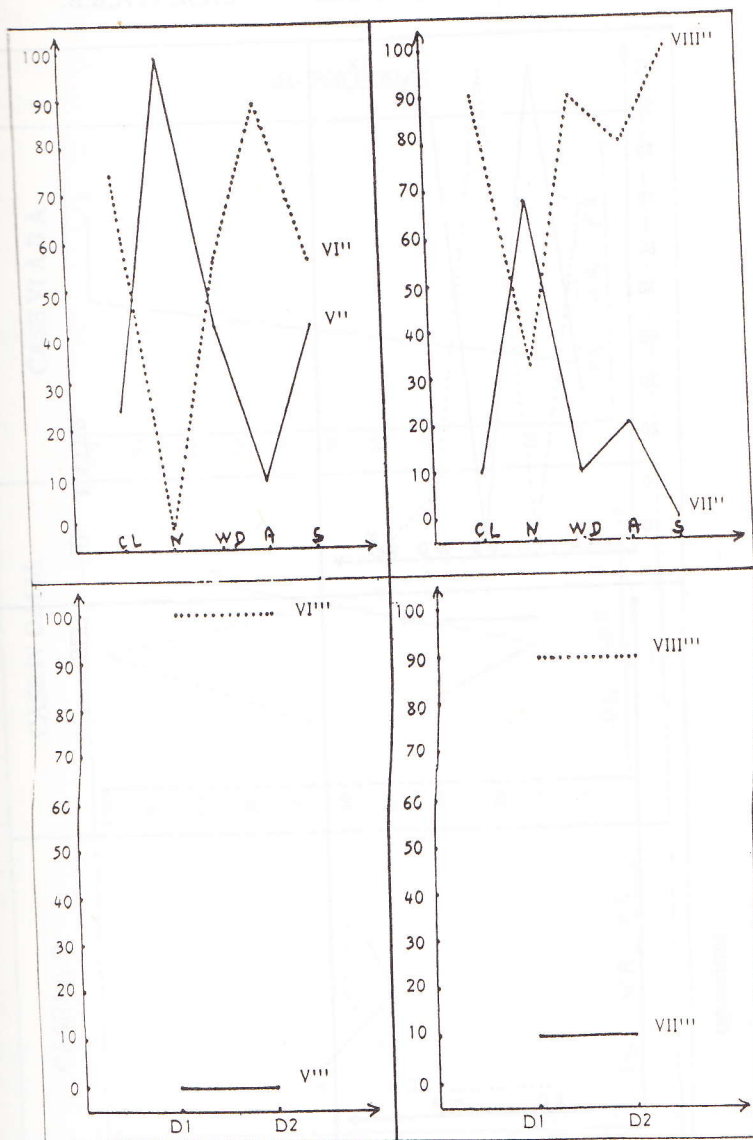
CASE II B.A.

OE



CASE III L.M.

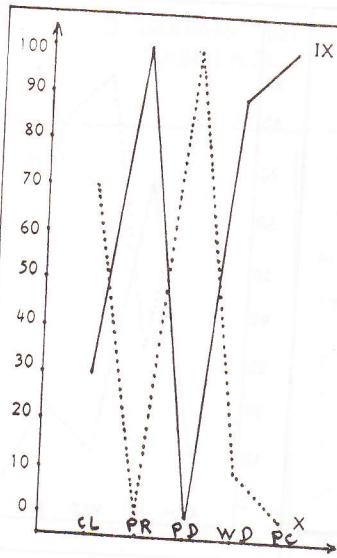
CASE IV O.M.M;



CASE V F.R.

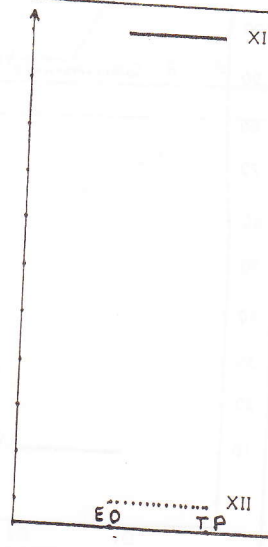
CASE VI A.B.B.

OE



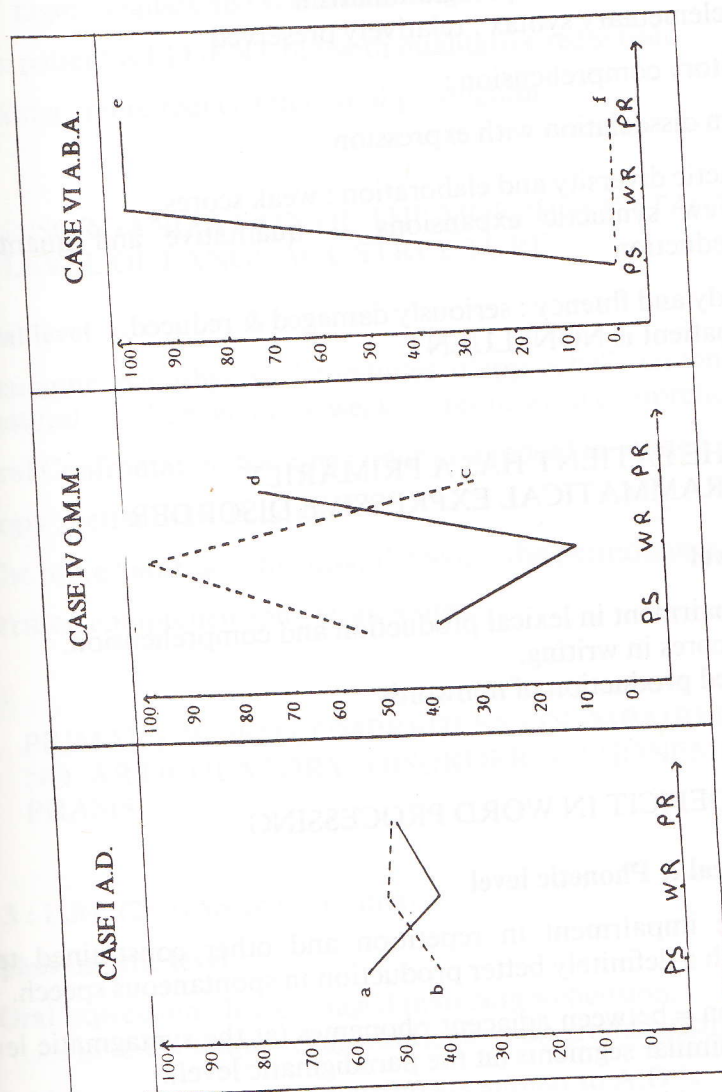
III LATER

OC



SEE

III- PHONEMS



..... omissions
 ————— substitutions

CASE 1 : A.D. (26 years old, CVA)
I. Morpho-syntactic level

- Oral expression :
 - agrammatism + paragrammatism
 - elementary syntax : relatively preserved
- Auditory comprehension :
 - in dissociation with expression
- Syntactic diversity and elaboration : weak scores.
 - = Few syntactic expansions → qualitative and quantitative reduction
- Prosody and fluency : seriously damaged & reduced.
The patient is NONFLUENT

THUS :

- THE PATIENT HAS A PRIMARILY
GRAMMATICAL EXPRESSIVE DISORDER

II. Lexical level

- No impairment in lexical production and comprehension.
- Same scores in writing.
- Impaired production of nonwords

THUS :

NO DEFICIT IN WORD PROCESSING

III. Phonological & Phonetic level

- Phonetic impairment in repetition and other constrained tests, contrasting with a definitely better production in spontaneous speech.
- Confusion = between adjacent phonemes (at the syntagmatic level) and featurally similar segments (at the paradigmatic level).
- Parallelism between phonetic and graphemic disorders.

THUS :

PRESENCE OF A PRIMARY PHONETIC IMPAIRMENT

CASE 2 : B.A. (40 years old, Trauma)

Morpho-syntactic level

- Oral expression and comprehension :
 - omissions and substitutions. Erroneous production of syntagms, clauses and sentences.
- The patient is FLUENT but with qualitative reduction
- Writing : more reduced than oral production

THUS :

**DISORGANIZATION OF THE MORPHOSYNTACTIC
LEVEL OF LANGUAGE STRUCTURE**

Lexical level

- Semantic paraphasias, "conduites d'approche", circonlocutions, gestural behaviors; → weak scores in word comprehension
- Oral Confrontation Naming : poor as opposed to written naming
- Copy : better than dictation
- The more "abstract" the task, the worse the performance.
- Written comprehension : weak scores.

THUS :

**PRIMARY WORD COMPREHENSION IMPAIRMENT
NO ARTICULATORY DISORDER - PHONEMIC PARAPHASIS**

CASE 3 : L.M. (26 years old, Trauma)

Morphosyntactic level

- Oral expression : less damaged than comprehension.
As in A.D.: frequent substitutions = paragrammatism.
- L.M.'s omissions (agrammatism) are similar to A.D.'s.
Verb is often omitted.
- L.M.'s substitutions are different from B.A.'s :
(B.A.: syntagms = semantic paraphasias, repetition, replaced by gestures).

- Selective impairment of grammatical morphemes
- The more complex the phrases and sentences, the worse the performance.
- As in A.D.: reduction + NON FLUENT
- Temporo-spatial difficulties: more important than in A.D.

THUS :

PRESENCE OF A PRIMARY DEFICIT IN PRODUCTION
AND COMPREHENSION OF GRAMMATICAL MORPHEMES

II. Lexical level

- No word comprehension disorder but difficulties in all oral production tasks.

THUS :

MASSIVE LEXICAL PRODUCTION DEFICIT

III. Phonological and phonetic level

- Syllable and word repetition : relatively easy.

THUS :

NEITHER PHONEMIC NOR PHONETIC IMPAIRMENT

CASE 4 : O.M.M. (43 years old, CVA)

- expressive and impressive morphosyntactic impairment = marked than in A.D. and L.M.
- reduction + rhythm and prosody impairment → NONFLUENT.
- generalized articulatory, phonetic disorders, associated with a paralytic apraxic impairment of buccophonatory organs.
- Parallelism with alexia-agraphia.
- No written nor oral lexical comprehension disorder.
- No phonemic disorder

THUS:

PRESENCE OF A PRIMARY PHONETIC, APRACTIC DISORDER

CASE 5 : F.R. (53 years old, CVAs)

- Oral expression: omissions and substitutions of a specific nature = whenever the patient has to compute a new informational unit.
- → frequent pauses + paraphasias → reduction: NONFLUENT.
- Comprehension of morphemes is better.
- Conversational language is definitely better despite truncated phrases, stops and absence of self correction.
- No lexical items recognition disorder. The difficulty is different from that of B.A., who can analyse words, F.R. does select the good item when presented with several candidates. Contrary to B.A. who is definitely better in written tests, F.R. has the same poor performance in both tasks.
- Contrary to A.D. and O.M.M., there is no link whatsoever between substituting items in tasks investigating the phonological abilities of the patient, i.e.:

In A.D.: inertia phenomenon

In O.M.M.: paralytic factor

and in F.R.: neither one nor the other,

no auditory integration disorders of commands.

KNOWING THAT :

Dissociation of oral and imitation commands

Association of oral and written disturbances

Association of disorders of expression and comprehension

The relationship between the degree of impairment and the informational nature of the linguistic units to be processed

The increase of impairment severity in relation to the constrained nature of the task

THUS:

PRESENCE OF AN IMPRESSIVE AND EXPRESSIVE PRIMARY DEFICIT OF SYNTACTIC PROCESSING.

CASE 6 : A.B.A. (60 years old, CVA)

- As in O.M.M., morphosyntactic impairment, BUT due to phonemic disorder (and not "phonetic", this time).
- Auditory phonemic discrimination disorder.
- FLUENT and florrid phonemic jargonaphasia, with qualitative reduction and few semantic paraphasias.
- massive comprehension disorders.
- no links between the nature of the oral commands and the patient's answers.

THUS :

PRESENCE OF A PRIMARY DISORDER OF AUDITORY PRESENTED LEXICAL ITEMS.

RESULTS & DISCUSSION :

1) From the observation of the interplay between (a) these two functional disruptions — either concomitant (= "association") or separate (= "dissociation") — (b) at the three main levels of language structure, one can identify, hopefully, those primary impairments that, owing to their frequency and specificity, are at the origin of one patient's clinical picture.

2) A bundle of differential features — either present or absent in each patient out of the six presented — derived from the above-mentioned interplay allows to build up a well-motivated — both theoretically and clinically — general typology of aphasic syndromes that goes farther than the classical and rather vague "anatomoclinical typologies".

IV - FINAL TYPOLOGY

	CASE I	CASE II	CASE III	CASE IV	CASE V	CASE VI
Morpho-Syntax	<ul style="list-style-type: none"> - Primary word expressive agrammatism. 	<ul style="list-style-type: none"> - Primary word comprehension impairment. - Secondary grammatical impairment. 	<ul style="list-style-type: none"> - Primary impressive and expressive agrammatism in a massive reduction picture 	<ul style="list-style-type: none"> - Apratic paralytic phonetic impairment + reduction - few secondary morpho-syntactical impairment. 	<ul style="list-style-type: none"> - Primary morpho syntactical processing impairment. 	<ul style="list-style-type: none"> - Primary phonemic discrimination impairment hiding morpho-syntactical impairment.
Lexems	<ul style="list-style-type: none"> - No word evocation or comprehension impairment. - Reduction. 	<ul style="list-style-type: none"> - Evocation impairment = secondary to comprehension impairment. 	<ul style="list-style-type: none"> - Evocation impairment = secondary to reduction. 	<ul style="list-style-type: none"> - Few word evocation impairment = secondary to phonetic impairment. 	<ul style="list-style-type: none"> - No word recognition impairment. - Reduction. 	<ul style="list-style-type: none"> - Word recognition impairment in clauses = secondary to phonemic impairment. - Qualitative reduction.
Phonology-Phonetics	<ul style="list-style-type: none"> - Primary selective impairment. 	<ul style="list-style-type: none"> - No impairment. 	<ul style="list-style-type: none"> - No impairment. 	<ul style="list-style-type: none"> - Primary generalized phonetic impairment. 	<ul style="list-style-type: none"> - Phonemic impairment = secondary to language precessing impairment. 	<ul style="list-style-type: none"> - Primary phonemic impairment.
Classical Typology	Agrammatism	Semantic APH.	Severe Reduction	Anarthria	Conduction APH.	Phonemic Jargon