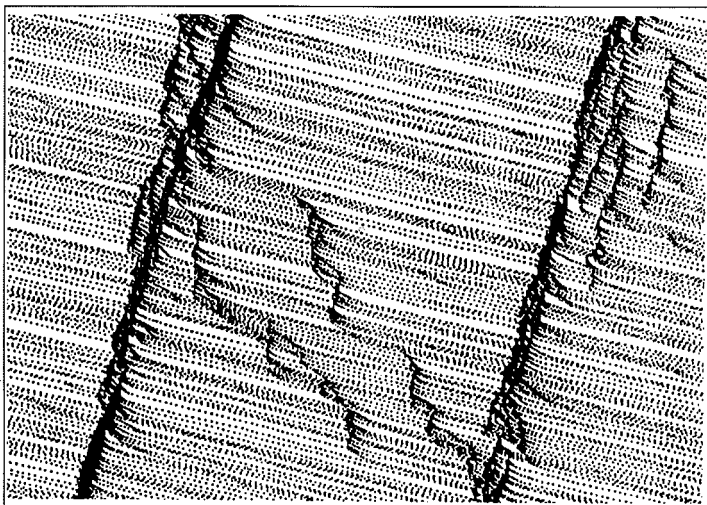


Daniele Gambarara, Lia Formigari (Eds.)

New Italian Studies in Linguistic Historiography



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zur Geschichte der Sprachwissenschaft
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Etait ainsi apportée une contribution aux recherches issues de la matérialité du langage, du rôle de l'affectif et, plus tard, de la névrose. Ces auteurs ici ressuscités, de Destutt à Marie François Pierre Gonthier Maine de Biran (1766-1824), esquisaient les propositions actuelles de la neuro-cognition. Comme aujourd'hui, ils articulaient ces déficiences et nécessités de l'analyse du langage avec les analyses de la langue des calculs. Appareil qui avait permis de fonder ces Ecoles centrales de la Révolution qui aujourd'hui encore pourraient servir de modèle à toute rénovation pédagogique.

Voilà. Pour rappeler que les débats les plus contemporains ne sont souvent que des reprises des débats anciens; tout exposé historique est ici mis systématiquement en rapport avec l'état actuel des recherches. Non sans sarcasmes. Un des derniers collaborateurs, fort enthousiaste, parle du cognitivisme moderne comme d'un "ramasse-miettes", estime que ce mouvement de linguistes se contente de limiter la construction psychologique à de pures représentations. Du moins, le problème est posé, dans les termes qui étaient ceux de N. Chomsky dans la *Cartesian Linguistics*: l'utilité de l'histoire n'est-elle pas de dégager la spécificité de la recherche contemporaine d'autant mieux qu'elle a à se confronter avec des identités, des homologues formulées plus anciennement dans des ensembles problématiques différents. De cette démarche féconde, l'école italienne donne des exemples particulièrement excitants.

Quelques références en français

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1993 *Les nouvelles syntaxes. Grammaires d'unification et analyse du français*. Paris: A. Colin.
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1991 "Subdivision cognitive". *Communications*. 53.
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Patrizia Laspia

Linguistic Pathologies in Ancient Greece Aristotle on Aphasia

1. Aphasia and the Phonetic Structure of Language

The child provides the only opportunity that we have to observe language in its nascent state [...]. Pathological speech disturbances of a central nature provide the only opportunity that we have to observe language in dissolution. For the linguist, who is concerned with the fully developed structure of language, its acquisition and dissolution cannot fail to provide much that is instructive.

(Jakobson [1944] 1968: 13)

With this statement, already expressed in 1944, Roman Jakobson (1896-1982) for the first time related child language to aphasia, using both as evidence to access the phonetic structure of human language. Thus, the concept of aphasia emerged from the borders of medical and phrenological treatises, obtaining status and legitimacy within linguistics.

The main points of Jakobson's view of aphasia may be resumed as follows:

1. Except for the borderline case of anarthria due to organic or physiological causes, linguistic pathologies are never purely peripheral disorders: the entire structural organization of language is affected.
2. It is therefore possible to establish a comparison between language acquisition phases in the child and various stages of dissolution of linguistic competence in the aphasic.¹

As has been recently observed (Pennisi 1994), the interest for aphasia as a linguistic problem begins with Ferdinand de Saussure (1857-1913), who may be taken as the starting point of Jakobson's discussion of linguistic disorders. More specifically, Jakobson's dependence on Saussure consists in an implicit assumption: aphasic disorders affect the whole linguistic form (i.e. the ability

¹ "Aphasias' regressions have proved to be a mirror of the child's acquisition of speech sounds; it shows the child's development in reverse" (Jakobson 1971: 231).

to distinguish functionally significant sounds), not only the phonic utterance of phonemes, syllables and sentences, that according to Saussure is not central in linguistic competence.² As for the phonic perspective, linguistic form is represented firstly by the pattern of distinctive features embodied in each phoneme. The material phonic substance does not therefore participate in the definition of the linguistic system.

Now, it is precisely on this points that modern linguistic research has embarked on a different route. There is increasing evidence that the phonetic manifestation of human language is not planned atomistically, starting up from phonemes, but holistically, starting down from sentences. At the basis of this production lie prosodic features, such as intonation, tone, stress and rhythm, which directly involve respiration, and are therefore inscribed, or "codified", in the laryngeal voice.³

Another discovery of the last decades is that linguistic units are not perceived in the same way as other acoustic signals. Every effort to reproduce the linguistic voice artificially is bound to fail if phonematic qualities are simply arranged one after another as "beads on a string" (Lieberman 1975: 7). The result is unintelligible because the production-reception rhythms of sound within speech are much faster. The basic unit in the production-reception of language is not, therefore, the individual phoneme, but the syllable. The acoustic signals that correspond to non-vocalic phonemes are usually produced, and perceived, as modulations on the vowel.⁴ Consequently, laryngeal voice as well as prosodic structuration emerge as intrinsic and fundamental aspects of human language, and essential conditions for its intelligibility.

These hypotheses are nowadays supported by a large body of experimental results. Research has been done on the extraordinary precocity of the auditory organ in the embryo (Tomatis 1981), and on the sophisticated auditory discriminations of the babies, who recognize prosodic features much sooner than phonemic ones;⁵ the peculiar conformation of the supralaryngeal vocal tract in humans compared to other primates has also received attention.⁶

Thus, phonicity as a characteristic and indispensable trait of linguistic organization, and as an essential prerequisite of human cognitivity, has become one of the central issues in the modern debate, making the study of the past linguistic views on this subject of particular interest.⁷

2) "The reduction in the ability to pronounce or to perceive sounds [...] is not essential to the unlearning of the aphasic: only the ability to distinguish functionally significant sounds is important" (Jakobson 1968: 32). "Les organes vocaux sont aussi extérieurs à la langue que les appareils électriques qui servent à transcrire l'alphabet Morse sont étrangers à cet alphabet; et la phonation [...] n'affecte en rien le système lui-même" (Saussure 1922: 36).

3) See Lieberman (1967; 1975).

4) See Lieberman (1975: 8-9).

5) See Mehler *et al.* (1978); Bertoncini *et al.* (1988); Mehler/Dupoux (1990).

6) Lieberman (1991: 53-77); see also Lieberman (1975).

2. Voice and Aphasia before Aristotle

In Greece, the study of language was born along with the concept of "voice" (Laspia 1996a). In Homeric poems, the earliest extant Greek work, there is already outlined the difference between "voice" (*phoné*) and "language" or "articulated voice" (*audé*, later *diálektos*). Voice comes from the heart, that is origin of all biological functions and of thought. Language as articulated voice, instead, "flows from the tongue" (*Il.* I, 249), but its true seat is in the breast, where is also, according to Homer, the origin of life and of cognition (*Il.* XVII, 419-420). As naturally significant sound, because produced in combination with thought, voice is at the core of all following Greek theories of language (Laspia 1995).

In the *Iliad* and the *Odyssey*, many cases of aphasia are described. Among them, it will suffice to examine one, which inaugurates the use of the term "aphasia", which has survived to the present day:

So he spoke, and her knees were loosened where she sat, and her heart melted. Long time she was speechless [*dé min amphasie epéon lábe*], and both her eyes were filled with tears, and the flow of her voice was checked.

(*Od.* IV, 703-705; transl. Murray 1919, I: 159)

The inability to utter word (*amphasie epéon*) is here represented as a direct consequence of the lack of voice (*phoné*). We observe the same thing in *Od.* V, 456-457, where Odysseus, exhausted after a shipwreck, lies "without breath or word" (*ápneustos kái ánaudos*), because "his heart was won by the sea". As the absolute center of biological life, the heart presides over respiration, and, therefore, over phonation. If respiration stops, language, which is a kind of voice, must cease, too. Aphasia, however, is not confused with aphonia: for the word for "dumb" is *ánaudos*, that is "lacking articulated voice" (see *Od.* X, 378).

The description of other linguistic pathologies besides the complete loss of speech is found exclusively in the following passage:

[...] and Dolon, stood still, seized with terror, stammering (*bambáinon*) and pale with fear, and the teeth clattered in his mouth.

(*Il.* X, 374-375; transl. Murray 1924, I: 463)

This is the first description of a form of aphasia that does not entail the total loss of phonation. Now, if, as it seems, the disorder is to be identified with stammering, it concerns the global rhythmic pattern of sentences, i.e. a prosodic competence, rather than a purely phonemic one. Prosodic disorders are therefore observed and identified, in Greece, before disorders affecting the articulatory production of phonemes.

7) See Lo Piparo (1991), Pennisi (1994): reservations on this thesis are voiced by Tullio De Mauro in his introduction to Pennisi (1994).

After Homer, the privileged status assigned to voice within the most ancient reflection on language leads to an apparent juxtaposition of the two concepts. In Herodotus (circa 485-425 BC) the recovery of a dumb man is described as following:

I will now tell what befell Croesus himself. He had a son [...], a likely youth enough save he was dumb (*áphonos*) [...]. But this dumb son [...] in his fear and his grief broke into speech (*phoné*) and said [...].

(Herodotus I, 85; transl. Godley 1920, I: 107-108)

In this passage, *phoné* stands for the entire set of linguistic aspects,⁸ and the word used for "dumb" is *áphonos*. Let us now consider other forms of aphasia besides dumbness. In Herodotus IV, 155 there is mention of Battus, son of Polydamantis, who "weak and stammering in speech" (*ischnóphonos kái traulós*) "went to Delphi to enquire concerning his voice" (*phoné* transl. Godley 1920, II: 359). In fact, Herodotus does not say exactly what ails Battus of the various disorders, which shall later on be extensively discussed by Aristotle; it seems, however, that it must be stammering.⁹ Once again, the disorders dealt with in this very early age are those affecting rhythm. It is also true, however, that Battus, suffering from elocution disorders, goes to the Pythian priestess to enquire after his voice. Thus we are left with two alternatives: either Herodotus does not distinguish between "voice" and "language" — yet, this is unlikely, insofar as the two concepts are already clearly distinct in Homer — or voice is considered an essential feature of language.

The same situation is found in the treatises belonging to the *Corpus hippocraticum*, where *áphonos* is used, like *ánaudos*, to describe a complete halt of the "voice-word" circuit.¹⁰ Only in the treatise on *Epidemics* (III § 17) the two adjectives are found in the same passage, and in reference to the same person, as if they represented two separate symptoms, namely aphonia and aphasia. Also in the books of the *Epidemics*, and in a few other cases, there is passing mention of the language disorders that Aristotle will later define precisely: *traulótes*, *psellótes* and *ischnophonía*. The words are almost always used in the adjective form.¹¹ Now, who is *traulós* can also be *tachyglossos*, i.e. "quick of tongue" (see *Epid.* II, 6, 1): in any case, the disorder appears to affect the activity of the supraglottal respiratory system.¹² In turn, *psellós* (*psellé*) is used at

⁸ In the same direction goes the use of *phoné* for "language, idiom", that occurs in Homer only in the derived forms *agrióphonos*, *barbaróphonos*, and seems to be stabilized in Herodotus; see Gambarara (1984).

⁹ The name *Battus* is connected to the verb *battarízein* "to stammer"; see Plato *Theaetetus* 175 d.

¹⁰ See Gourevič (1983).

¹¹ See *Epid.* II, 5, 1 (*ischnophonía*); *Epid.* I, 3, 19; II, 5, 1; *Pror.* II, 10 (*ischnóphonos*); *Epid.* I, 3, 19; II, 5, 1; II, 6, 1; *Aphor.* 6, 32 (*traulós*); *Epid.* II, 6, 14; VII, 8; VII, 105 (*psellós*). We refrain from examining the letters traditionally attributed to Hippocrates, but actually spurious.

¹² In other cases, who is *traulós* is also said to be *ischnóphonos*; see *Epid.* I, 3, 19; II, 5, 1.

times in reference to the voice (*phoné*) of a woman suffering from paralysis (see *Epid.* VII, 8), at times for a person suffering from excessively dry tongue (see *Epid.* VII, 105). In this case, too, then, we are dealing with a disorder that affects the activity of the articulatory organs. The case of *ischnóphonos* (literally "thin-voiced"), which may coincide with *trachyphonos* ("raucous-voiced"; see *Epid.* I, 3, 19) is different; the symptom is produced by cough (*Pror.* II, 10). Unlike the two precedent pathologies, *ischnophonía* seems thus to affect exclusively larynx and voice.

Such was then what was known about aphasia in Greece up to the fourth century BC. This is Aristotle's starting point.

3. Voice and Language in Aristotle

Aristotle (384-322 BC), the greatest scientist of antiquity, repeatedly discusses the theme of human and animal expressive abilities.¹³ "Voice" and "language" (i.e., "articulated voice") are defined in the IV book of the *Historia animalium* (535 a 27 ff.). Voice (*phoné*) is produced exclusively through the breathing apparatus, that is, first of all, lungs and larynx. The movement of these organs, however, is controlled by the heart, which is, according to Aristotle, the origin of both biological life and cognition.¹⁴ As already in Homer, the voice comes, in Aristotle's opinion, from the physical seat of thought, i.e., from heart. This creates a natural connection between phonation and cognition, which, as we shall see, is at the root of linguistic organization.

The articulated voice (*diálektos*) is the ability to modify voice using the tongue and the whole supralaryngeal vocal tract. The vocal filtering activity of the supralaryngeal vocal tract may in no way be separated from phonation: "speech is impossible once the windpipe has been severed and no motion is forthcoming from the lung" (*Part. an.* III, 673 a 23-24; transl. Peck 1937: 283). Occlusive articulatory positions do not become audible without voice.¹⁵ Basically, Aristotle's conclusion is that "the letters" — that is, acoustic-perceptive differences relatable to an alphabetic writing system — "are affections of the voice".¹⁶

These statements do not appear compatible with a view of voice as external to the linguistic system, nor with a model of phonetic structure where the basic units are produced and perceived "as pearls on a string". Let us examine now, how all this intersects with Aristotle's description of aphasia.

4. Language and Aphasia in Aristotle

Language disorders are dealt with for the most in book XI of the *Problemata*,

¹³ See Ax (1978), Zirin (1980), Lo Piparo (1988).

¹⁴ See *Gen. an.* IV, 776 b 13-17: a detailed discussion is found in Laspia (1995; 1996a).

¹⁵ See *Poet.* 1456 b 26-31.

¹⁶ *íá dè grámmata páthe estí tés phonés*, *Probl.* X, 39, 895 a 13-14; transl. Hett 1936, I: 229.

which is entirely dedicated to voice, of which Aristotle's authorship is nowadays unquestioned.¹⁷ The book opens with a discussion of the acquisition and loss of language, and of hearing as a connected sensorial modality:

Why those who suffer from birth from any defective sense mostly have bad hearing? It is because both hearing and the voice may be held to arise from the same source? Now language (*diálekton*), which is a kind of voice (*phoné*), seems the easiest thing to destroy and the most difficult to bring to perfection. There is evidence for this in the fact that after birth we are unable to speak (*eneóti*) for a long time, for at first we cannot talk at all, and then later for a time we falter in speech (*psellizomen*). But because language is easily destroyed, and the source is the same both of language (for it is a kind of voice) and of hearing, hearing is therefore the most easily destroyed of all the senses, not of itself but incidentally (*ek symbebekótos*). We can find proof of this also from the other animals, that the origin of the language is quite easily destroyed, for none of the other animals except man speaks, and man only does so after a time, as we have said.

(Aristotle, *Probl.* XI, 1; transl. Hett 1936, I: 253)

This passage is an important document for the history of linguistics. For the first time, the acquisition of language is seen as a gradual process, which goes through various development stages.¹⁸ Furthermore, each stage in development of language is related to a specific articulatory disorder and corresponds, from a philogenetic point of view, to the expressive capability of one or more animal species. The first phase, the neo-natal one, corresponds, according to Aristotle, to the level of linguistic expressivity proper to people who are deaf and dumb (*eneóti*), or of animals endowed only with voice (*phoné*).¹⁹ The following stages correspond, as we shall see, to various articulatory disorders, and have their philogenetic equivalent in expressive capabilities of birds, who are endowed with a rudimental form of articulated voice (*diálekton*).²⁰

The adjective *eneós*, not attested before Plato (427-347 BC, *Theaetetus* 175 d), replace in Aristotle the traditional *áphonos* and *ánaudos*; it indicates dumbness as a consequence of auditory deprivation. Let us examine the passage in *Historia animalium*:

All persons who are deaf (*kophói*) from birth are dumb (*eneóti*) as well: though they can utter a sort of voice (*phoné*), but they cannot talk (*diálekton oudemian apóiāsi*).
(*Hist. an.* IV, 536 b 3-5; transl. Peck 1970, II: 81)

Dumbness does not compromise phonation; as newborns, dumb people are capable of uttering voice, but are not capable of integrating phonation with the articulatory activity of the supraglottal respiratory system. Voice (*phoné*),

therefore, is not transformed in articulated voice (*diálekton*). Aphonia and aphasia are here accurately distinguished, and for this reason Aristotle avoids using the adjective *áphonos* (literally "lacking voice"). As underlined by the choice of *eneós*, dumbness follows upon a loss of hearing. Articulated voice (*diálekton*) cannot be produced without a continuous auditory feedback. Thus human language is presented as a specific product of the hearing-voice synergy, so that it is possible to evaluate the cognitive status of hearing, in itself and in relation to other senses:

Of these faculties, for the mere necessity of life and in itself, sight is the most important, but for the mind and indirectly (*katá symbebekós*) hearing is the most important. [...] Indirectly, hearing makes the largest contribution to wisdom. For discourse, which is the cause of learning, is so because it is audible; but it is audible not in itself but indirectly, because speech is composed of words [...]. Consequently, of those who have been deprived of one sense or the other from birth, the blind are more intelligent than the deaf (*eneóti*) and dumb (*kophói*).

(*Sens.* 437 a 4 ff.; transl. Hett 1937: 219)

Hearing is cognitively superior to sight, but only "indirectly", or according to a more literal translation of *katá symbebekós*, "because it accompanies (something else)", i.e., it is the perceptive modality associated with language.²¹ If isolated in a community of hearing people, a deaf person is denied all access to language, and suffers a cognitive handicap. However, Aristotle may also be referring to something else. In *Probl.* XI, hearing is presented as the sense most liable to pathologies "not of itself but accidentally" (*ek symbebekótos*), insofar as it is associated with the complex organization of language. This suggests that the auditory decodifying mechanism of the linguistic sound works according to modalities different from the ones presiding over the ordinary perception of sound. The question becomes, then, if and how do these different modalities interact with the structural and/or cognitive dimension of language.

The process of linguistic acquisition and its phases are discussed also in the *Historia animalium*:

Children, just as they have not proper control over their limbs in general, so cannot at first control their tongue, which is imperfect and attains complete freedom of motion later on; until they mumble (*psellizousi*) and lisp (*traulízousi*) the most part.
(*Hist. an.* IV, 536 b 5 ff.; transl. Peck 1970, II: 81-83)

Now, the verbs used in the above passage to describe imprecise phonetic acquisitions denote in fact specific disorders in the articulatory production of language. This is attested by *Probl.* XI, 30, which contains the most ancient classification of the various types of aphasia:

Lisping (*traulótes*) is an inability to control a certain letter, not any letter, but defective speech (*psellótes*) consists of omitting some letter or syllable, while stam-

¹⁷ See Marengi (1981).

¹⁸ See *Probl.* XI, 57.

¹⁹ "Children and beasts show their meanings in the same way, for children cannot yet pronounce the letters" (*Probl.* X, 39, 895 a 15).

²⁰ See *Hist. an.* IV, 536 a 20 ff.; *Part. an.* II, 660 a 29 ff., etc., see also Lo Piparo (1988), Laspia (1996b).

²¹ "The organ of hearing is intellectually superior not in itself or for itself [...] but only if the capacity of hearing is exercised upon language" (Lo Piparo 1988: 101).

mering (*ischnophonía*) is an inability to add (*synáptein*) quickly one syllable to another. But all these disabilities are due to a failure of power; for the tongue does not serve the intention (*diánoia*). (Probl. XI, 30; transl. Hett 1936, I: 75)

The translation of *diánoia* with "intention" does not seem adequate, in this instance; "mind" or "discursive intelligence" would be closer to the original. In any case, what is at issue here is not only the movements of articulatory organs, but the conversion of thought into words. Yet, the pathologies named are not all of the same nature, nor of the same gravity.

The less harmful disorder is undoubtedly the one described by the word *traulótes*, which consists in the inability to articulate a specific phoneme. The damage caused to the intelligibility of discourse by this pathology is very little, and so is the portion of linguistic competence that is compromised. This disorder is tied to the last phases of linguistic acquisition, since, in all languages, certain continuous consonant phonemes, for example the so-called "liquids", are only acquired at the end of the development process.

Psellótes, instead, consists in a systematic omission of syllables or sounds during the phonic utterance of a sentence. This disorder affects the entire phonetic organization, and can be considered a true form of aphasia, similar perhaps to the "phonetic disintegration syndrome" described by Alajouanine/ Ombredane/Durand in 1939.²² A similar phenomenon is found in the first phases of linguistic acquisition, when the articulatory strategies that the child is able to consistently enact are still very limited.

The third and last pathology discussed by Aristotle is the only one that does not have an equivalent in a specific phase in the development of infantile language. *Ischnophonía* is truly a crucial issue in the eleventh book of the *Problemata*: out of sixty-two questions debated in this book, no less than seven are dedicated to it.²³ We are also forced to admit that, for Aristotle, this is the main and the most severe pathology of language. Unlike *traulótes* and *psellótes*, *ischnophonía* is not a disorder of the phonic production: both individual phonemes as well as their grouping are correctly uttered. What is undetermined is rather the global prosodic pattern of the sentence: thus *ischnophonía* "is an inability of adding quickly one syllable to the other".

Let us now examine what Aristotle observes in the *Categories* concerning the structural characteristics of spoken language (*ho metá phonês lógos gignómenos*):

The same may be said about speech, if by speech the spoken word is intended. Being measured in long and short syllables, speech is an evident quantity, whose parts possess no common boundary. No common limit exists, where those parts,

²²) See the description in Pizzamiglio (1983: 53-71), who points out how "a speech riddled with phonologic errors, with frequent halting in the beginnings of words" necessarily leads to a "disprosodic intonation"; the same conclusion is reached by Lenneberg (1967).

²³) See Probl. XI, 30, 35, 36, 38, 54, 55, 60.

that is, syllables, join (*sunáptei*). Each, indeed, is distinct from the rest. (Cat. 4 b 32-37; transl. Cooke 1938: 37)

This passage proves that, according to Aristotle, the basic phonetic units of discourse are syllables rather than individual phonemes (see Lo Piparo 1989). As self-contained phonetic unit, the syllable is the unit of measure of the *lógos*, the phonetic structure of which is scanned by the alternation between long and short syllable. This alternation constitutes the rhythm, that is, according to Aristotle, the internal "melody of the speech" (*lektikè harmonía*, *Rhetorica* III, 1408 b 33 ff.). Thanks to its internal principle of temporal scanning, each syllable is clearly distinguished from the other: "no common limit exists, where syllables join. Each, indeed, is distinct from the rest."

Yet, in Probl. XI, 30, the most serious disorder of linguistic production, *ischnophonía*, is presented as the inability of rapidly connecting one syllable to the other, which is precisely what Cat. 4 b 32-37 would seem to exclude. This apparent contradiction, in our opinion, leads to an extremely alluring hypothesis on the internal organization of language. Even as a self-contained phonetic unit, which as such should be distinct from the context, the syllable is completely recast when produced within a sentence, thus becoming part of a new prosodic configuration. Not only, then, are individual phonemes produced and perceived inside the syllabic unit: syllables, too, are recast in a new, unitarian rhythmic and intonative configuration, within sentences. It is on this hierarchy of prosodic operations that the structural organization of human language is based. It is also on this that its intelligibility is founded.

A similar conclusion is advanced in *Problemata*:

Why is man the only living creature which stammers? Is it because he alone has a share of speech, but the other animals of voice? But stammerers produce voice but cannot connect their words (*lógos dê ou dynantai sunéirein*).

(Probl. XI, 55; transl. Hett 1936, I: 289)

Ischnophonía is here described as a specifically human pathology, insofar as humans are the only animals endowed with language (*lógos*). This disorder affects, as we have noted, prosodic organization, i.e. the temporal hierarchy of speech rhythm. Prosodic organization is therefore a fundamental intrinsic trait of human language. This disorder lacks a specific equivalent in the phases of linguistic acquisition, because rhythmic competence precedes the ability of producing and perceiving phonemes. In fact, newborns perceive and reproduce only prosodic differences: it is on this first imprinting that the following linguistic development is based.

5. The Centrality of Prosodic Features

One last observation must be made, and it concerns the status and the localization of the disorder named *ischnophonía*. The term is usually translated as *stammer*, *stammering*, which is not incorrect if one refers exclusively to the

symptom. Yet, one should note that *ischnophonía* means, literally, “weakness of voice”, and this is the meaning in which the term appears to be used in Hippocrates’ *Epidemies* (above, § 2.). *Ischnophonía* is thus, first of all, a disorder of phonation.²⁴ This suggests that, for Aristotle, prosodic features and everything that concerns the temporal organization of linguistic sequences is inscribed in the laryngeal voice.

The structural organization of human language, wherein lies the principle of its intelligibility, is therefore, for Aristotle, necessarily connected with voice. The linguistic voice is constructed through a combination of prosodic strategies that alternatively transform the one into the many and the many into the one, i.e., the prosodic unit, through its components, into syllables, and viceversa. Now, the transition from the many to the one, and from the one to the many, is for Aristotle,²⁵ and for his mentor Plato before him,²⁶ the main feature of cognitive processes. For Aristotle, the cognitive dimension of speech is, therefore, strictly dependent on its phonetic organization.

The natural inherence of phonation and cognition, which, from Homer onward, is at the basis of all Greek representations of voice and language, becomes, with Aristotle, an hypothesis on the centrality of prosodic features in the structural organization of human language: and the terrain where this hypothesis is worked out is, to a great extent, that of linguistic pathologies.

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²⁴ The same conclusion has been reached by the current research on stammering; see Massa/Luchin (1968).

²⁵ See *De an.* III, § 6, *Met.* IV, 1004 b 33-34; XI, 1054 a 20 ff., etc.

²⁶ See *Phaedrus* 265 d-266 c.

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Mauro Serra

Language and Passions

From Gorgias to Plato

1. A New Interest in Passions

In the last thirty years, the philosophical debate on passions has been reopened, mainly thanks to two elements: the success of the cognitivist paradigm, with the ensuing development of what has been called the "new science of the mind" (Gardner 1985), and the progress in neurological sciences which has provided the basis for a new approach to the study of the relation between physiology and the psychology of emotions (Edelman 1992; Damasio 1994). The convergence of these two trends in research has highlighted not only the complexity of the factors at play in what we call emotions or passions but also the necessity of re-examining the relationship between passions and rationality (Elster 1985).

The separation of reason and passions, commonly accepted in the history of ideas, seems questionable from a contemporary perspective. Studies such as those carried out by the team of Anthony Damasio suggest that the interaction between reason and passions has solid neuro-physiological bases and that, therefore, it is no longer possible to assume the existence of two different neural systems underlying them.

On the basis of a famous clinical case — that of Phineas Gage, whose brain suffered neurological damage caused by a lesion at the basis of the brain-box — Damasio has argued that both simple and complex passions correspond to bodily changes controlled by an apposite system of the brain reacting to thoughts related to a given event or object. Thus, an emotion would depend, according to Damasio's hypothesis, on the juxtaposition of an internal image (of one's own body) with an image of something else, such as a face, a melody, etc. The interest of such a theory lies in the fact that it manages to convey both the corporeal nature of passions, already stressed at the time of