

Preservation of French-speaking automatons and their pronunciations in 18th century France, focusing on l'Abbé Mical's *Têtes Parlantes* (Speaking Heads) and A. Rivarol's *Lettre* of 1783

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Introduction

Three automatons—"Flute Player," "Digesting Duck," and "Tambourine Player"—built in 1738 by the famous inventor Jacques de Vaucanson (1709–1782), had various effects throughout France during the 18th century on automatic musical instruments, criticism of musicians, etc.

For example, Denis Diderot (1713–1784) thought up a new barrel organ that was influenced by the "Flute Player." Automatic musical instruments manufactured in France in the 18th century were programmed by arrangements of pins driven into the surfaces of cylinders, a process known as barrel pinning.

Diderot thought that the barrel organ could be used to record and reproduce musical performances of great musicians, thus avoiding the distortions that were associated with performances by unskilled players. On the other hand, according to the shift of Diderot's thought from mechanism to physiology, Vaucanson's automatons embodied modern rationalism.

Père M. D. J. Engramelle (1727–1805), an Augustinian friar, pointed out the limitations of conventional musical notation and tackled the problem of the misinterpretation of scores by less accomplished players. He devised an innovative method to record, preserve, and reproduce the interpretations of great musicians by using a dial to determine the exact durations of notes and, further, to mark the notes on the cylinder. Engramelle's expectation was that interpretations reproduced by a machine would be preserved for future generations.

A new automaton built at the end of the 18th century raised new questions about machine images. *Têtes Parlantes* (Speaking Heads), built by l'abbé Mical (1730–1789) in 1783, featured two French-speaking automatons.

Antoine Rivarol (1753–1801) is best known as the author of *Discours sur l'universalité de la langue française* [hereafter, *Discours*] of 1783. In the same year he wrote his *Lettre à M. le président de***, Sur le globe aérostatique, sur les Têtes parlantes, et sur l'état présent de l'opinion publique à Paris* [hereafter, *Lettre*]. In *Lettre*, Rivarol was generous in his praise of l'abbé Mical's Speaking Heads. We were interested to determine why Rivarol had such a strong interest in automatons.

Discours has been studied according to its historical background, Rivarol's linguistic view, Rivarol's French and Italian origins, the influence on the linguistic view of revolutionaries, etc. On the other hand, some scholars have pointed out that Rivarol's strong concerns about articulation (Cointat 2001: 164-166) and the germ of his *Discours* (Le Breton 1895: 96) have been

seen in *Lettre*.

In this paper, we analyze the relationship between the problem of pronunciation and the automaton in Rivarol's *Lettre* and *Discours*. We examine some other reactions to the automaton as well. Ultimately, we will provide evidence that the machine image of the 18th century had entered a new phase.

1. Antoine Rivarol, *Lettre* (September 20, 1783) – about l'Abbé Mical's Speaking Heads

Rivarol was from Bagnols-sur-Cèze dans le Gard [1]. He studied at collège and engaged seminarian studies in southern France. In 1777, he went to Paris and became acquainted with famous thinkers (e.g., d'Alembert, Voltaire, Buffon, Diderot); additionally, he became an editor for the journal *Mercur de France*. In 1783, he wrote his thesis *Discours*, famous for the phrase *Ce qui n'est pas clair n'est pas français* (What is not clear is not French). This thesis was entered into a competition sponsored by Berlin Academy on June 2, 1782; he was awarded the prize on June 3, 1784 (cf. Sumitani 1986; Kasuya 2003).

In the same year, Rivarol wrote *Lettre*, a work about current events. The first half of the work covered the launch of the hot-air balloon that year by the Montgolfier Brothers. People were wildly excited about the event; Rivarol, in his *Lettre*, also referred to an automaton for regaining their reason:

In Temple Street at Marais, there is a mechanical work which is crowed with experts, and it will be presented to the public curiosity. It is two bronze heads which speak and pronounce clearly the whole phrases. They are colossal, and their voice is supernatural. They will be transported to a grand hall, to be enjoyed better from the double perspectives of ears and eyes. (*Pensées diverses*, 1998: 173)

We can see the automatons in the figure—two human heads. Rivarol focused not only on the visual effect but also on their voices. Although the work of l'abbé Mical is famous, only the years of his birth and death are known.

1. 1. The articles of *Journal de Paris* on Speaking Heads

On May 1, 1778, an article in *Journal de Paris* reported that one head had been built that was capable of speaking a long phrase [2]. l'Abbé Mical got angry with the article because he had thought the automaton unfinished, he presumably destroyed it.

Five years later, l'abbé Mical succeeded in manufacturing Speaking Heads. According to an article in *Journal de Paris* dated July 6, 1783, the two heads had conversations with each other, as noted below:

First head says:

The king has brought the peace to Europe.

(*le Roi vient de donner la Paix à l'Europe*) [3]

Second head replies:

Peace crowns the king of glory.
(*la Paix couronne le Roi de gloire*)

First head returns:

And Peace brings happiness to the people.
(*& la Paix fait le bonheur des Peuples*)

First head replies to the King:

Oh King, admirable! Father of the people! Your happiness shows the glory of your throne
to Europe.

(*O Roi adorable! Père de vos Peuples! leur bonheur fait voir à l'Europe la gloire de votre
Trône*)

(*Journal de Paris, N187: July 6, 1783, p. 778*)

LES MACHINES ET TÊTES PARLANTES

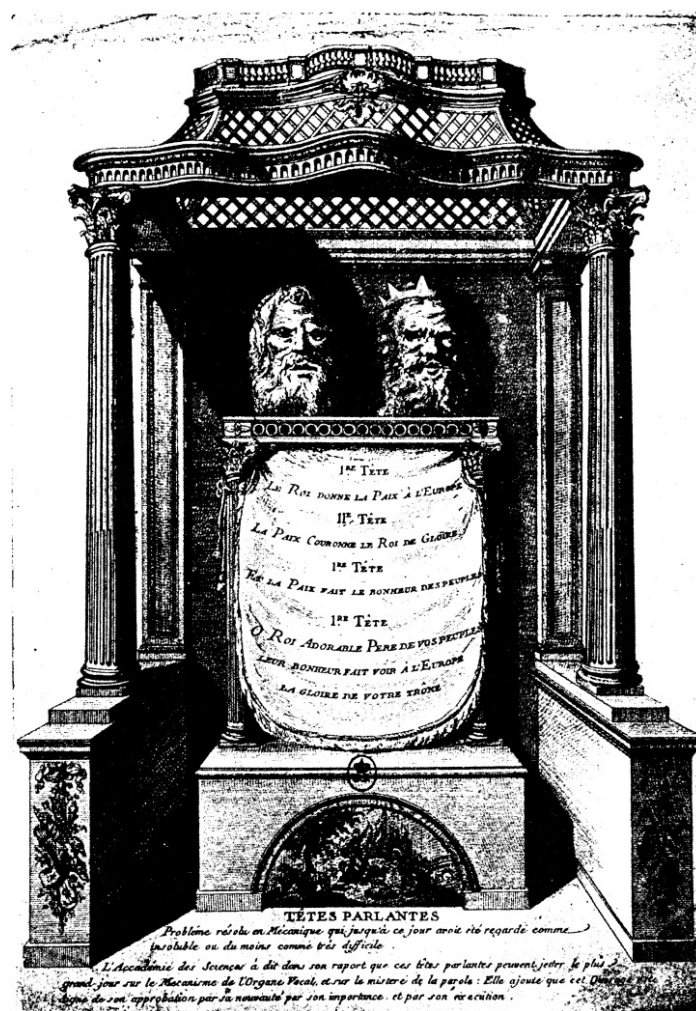


FIG. 458
TÊTES PARLANTES
de l'abbé Mical
(Prospectus d'exhibition)

Figure l'Abbé Mical's Speaking Heads (Chapuis & Gelis 1984, p. 205)

The article stated that l'abbé Mical had invited members of Académie Royale des Science and Royal Society of London to observe his automatons at his home in Paris on June 18; indications were that they seemed to be surprised and satisfied with the demonstration. Further, l'abbé Mical wrote to Académie des Sciences on July 2 to request privileges for researching their mechanism [4]. Previously, imitating humans' vocal cords had been considered a difficult task. After the exhibition of Vaucanson's "Flute Player," several automatons were exhibited in Paris, but no one had succeeded in building an automaton that spoke until l'abbé Mical.

For some time, no articles about Speaking Heads appeared in *Journal de Paris*, although numerous articles about the hot-air balloon were published. Finally on April 1, an article in the form of an announcement appeared, as follows:

It is the faithful imitation of the vocal organs, just like it is possible for Art to imitate the nature. They are two heads which speak actually and pronounce several phrases of praise for [the] King. The author's cabinet is in Marivaux Street, near the Comédie Italienne. (*Journal de Paris*, N92: April 1, 1784, p. 409)

An article on April 11 stated that Speaking Heads would be on exhibition for the public twice a day, at "noon" and at "17 o'clock." The entrance fee was posted as "3 livres." Further, the article reported:

Last year we gave account of the judgment that Académie Royale des Sciences had made about this mechanical piece; it is said in the report of the Commissioners that Speaking Heads can elucidate the mechanism of vocal organs and the mystery of speech. And this work is worthy of praise because of the novelty, the importance and the execution. (...) But we have to warn that we should not expect the perfect imitation of voice. The voice of Speaking Heads is superhuman, (...) We add that it is necessary to pay attention to and get used to the organs, to catch and distinguish the words. (*Journal de Paris*, N102: April 11, 1784, pp. 449-450)

An article dated May 1 reported that the time schedule for the exhibition had changed [5].

Generally, these articles did not promote Speaking Heads abroad as a show; rather, journalists praised the high quality of imitation that had received admiration from the Académie des Sciences. However, the praises were not without reserve. The article dated April 11 pointed out that the voices were supernatural and that the vocal imitation was not perfect. A further criticism was that audiences had to pay close attention to understand the words.

1. 2. Vocal mechanism of Speaking Heads – *physiognomy* of the voices of automatons

Now, we return to Rivarol's *Lettre*. How did the automatons work? The details are not known. Bernard Faÿ, French historian, explained that the two heads spoke to each other, and one of them could speak several phrases with moving lips if a button was pushed. The other was operated by a keyboard, which could make the machine speak freely and compose selected phrases [6].

Rivarol explained the mechanism of human vocalism like this:

Air comes out of the lungs, changes into the sound (son) at the vocal cords, and the sound is divided into syllables by the functions of the lips and tongue. One lasting sound (un son continu) expresses only one affection of soul (une seule affection de l'âme), and is sounded by only one vowel sound. But, if one lasting sound is divided into different intervals with lips and tongue, a consonant occurs at each division and changes into innumerable tones (tons), and it comes to express the variety of our ideas.

According to Rivarol, l'abbé Mical likened vocal organs to the presence of a wind instrument at the glottis; further, he likened the mouth to a keyboard [7]. Two keyboards were associated with Speaking Heads; one was connected to a cylinder so that the automatons could speak only limited numbers of phrases but express the intervals and prosody of the words correctly. Those phrases of praise for the King were probably programmed on the cylinder.

The other keyboard contained, in the range of ravalement (range of keyboard instruments extended to 5 octaves), all French sounds and tones, reduced to small numbers by the author's ingenious method. According to Latzarus, the operator could make the automatons speak words freely by operating the keyboard [8]. Thus, Rivarol believed that humans can speak with fingers, as with a tongue. This may mean that we can speak as if playing the organ. Rivarol explained that to make the automaton speak the word *bon* (good), the operator had to strike the "B" key and the "ON" key successively. Consequently, Speaking Heads spoke not "beon" but *bon*. They pronounced the word according to its correct spelling, harmonizing the consonant and the vowel as people do with their mouths. Rivarol stated, "We will be able to give the language of the automatons the speed (*la rapidité*), the pauses (*les repos*) and all of the physiognomy (*toute la physionomie*) which a language that is not inspired by passions can have" (*Pensées diverses*, 1998: 174-175).

1. 3. Rivarol's interest in Speaking Heads

Rivarol identified two important purposes of Speaking Heads, as follows:

1.3.1. Preservation of the pronunciation destined to be lost in history

Rivarol stated that the history of the ancient languages is not complete because we have the written language only, and the spoken language is always lost for us; here is why we call them dead languages (*langues mortes*). Greek and Latin only offer us some dead signs, to which one can revive life again only by tying to them the pronunciation that animated them once; he thought it is impossible, since it would be necessary to guess the different values that these peoples gave to their letters and their syllables (*Pensées diverses*, 1998: 175).

Even if a distant language is retained in a lithograph or in a book with inscribed letters, the language is dead without the pronunciations. Furthermore, we cannot regain the original pronunciations in such a case.

Therefore, Rivarol imagined that if Speaking Heads were built so that their sounds could be stored for posterity, there would be no uncertainty regarding pronunciations. Moreover, we

would continue to be delighted with the periode of Cicero and the beautiful poetry of Vergilius.

Below is an excerpt from an article in *Journal de Paris* dated July 17, 1783, regarding the problem associated with pronunciations of ancient languages and the utility of Speaking Heads:

If Speaking Heads have the ability to imitate the sounds of the human voice perfectly and to articulate well particularly, we cannot applaud too much to this invention, which must be regarded as a very interesting discovery. With these machines, one will be able to protect the languages from the insensible changes that they suffer in their pronunciation. We are actually uncertain about the manner to pronounce the *um* of the Latin; we generally say in France *ome*, and the Germans, on the contrary, *oume*. If the Romans built the speaking heads, they would be in this moment our oracles, or rather prevent the change and the variation in the manner of articulate. (...) The heads of bronze built in Athènes would regain most of the charms that the voiced language lost forever. (*Journal de Paris*, N198: July 17, 1783, p. 823)

The author of the above article is anonymous, but the content is similar to Rivarol's *Lettre* (published two months later); therefore, we can consider that it was written by Rivarol. It is possible that he gave here a concrete example (not in *Lettre*) regarding the problem in pronouncing *um* in Latin. He might have written this article after reading the article published July 6, 1783, which indicated that he had not seen Speaking Heads yet. *Lettre* seems to have been written after observing the automatons; it is presumed that Rivarol probably proceeded to observe them directly after writing the article, which had not been released for general publication.

In a postscript to *Lettre*, Rivarol reported that the advantage of the "vocal harpsichord" (i.e., Speaking Heads) was applied; thus, two deaf people could exchange words and speak in a meeting using these two heads. Clearly, use of the automatons was of interest to people from a variety of fields and disciplines.

1.3.2. Problem of French pronunciations: "prosodic accent" and "soul accent"

Another problem associated with French pronunciations has been noted, as presented below:

There are, I dare to say it, only Speaking Heads that can keep this honorable universality of the French language and reassure it against the instability of the human things. These heads, if one multiplies them in Europe, will become the fright of the multitude of language masters, Swiss and Gascon [9]. All those countries are decadent, and those masters distort our language at peoples who like it. (*Pensées diverses*, 1998: 176)

For Rivarol, the pronunciations and the languages spoken in the districts distorted the language; to evade this problem, Speaking Heads were expected to carry correct pronunciations to the distant place. In an annotation (*Pensées diverses*, 1998, pp. 183-184), Rivarol explained that while pronunciations change, accents do not change. He identified two types of accents. The

prosodic accent (*l'accent prosodique*) provides a distinction between “E” and “É” in the orthography, thus constituting the prosody and the musical aspect of the language that does not change [10]. The accent of those who live in the country reflects great emotion or feeling; it is the soul accent (*l'accent de l'âme*), and it is characterized by unlimited variety. Rivarol pointed out that the accent of people who lived in the country contradicted the prosodic accent, and Speaking Heads could not mimic the soul accent.

Rivarol explained how an accent influenced the quality of an actor's delivery of scripted lines. Perhaps he did not think that prosodic accent should be preserved stringently or that soul accent should be denied. Speaking Heads clearly could not reproduce soul accent. He explained that “an accent is a kind of song, and passions mark the language with it.” An automaton has no passion and can pronounce only pre-fixed words according to the prosodic accent.

Rivarol undoubtedly regarded the above point as advantageous because an automaton could not be influenced by passions. The French language was designated for use in the Imperial courts of European countries, and it was regarded as universal because of clarity. Thus, it should have spread throughout France, but the dialects of those living in the rural or country areas were spoken in France by at least one-half of the population [11]. We can understand Rivarol's disillusionment with this reality since he had stated clearly the universality of the French language.

1. 4. Comparison with Vaucanson's automatons

Rivarol compared Speaking Heads with Vaucanson's automatons as follows:

Vaucanson stopped at the imitation of animals, of which he imitated the movements and the digestions; but M. Mical, wanting to challenge with nature a struggle impossible to this day, rose the object of imitation to the human and chose the organ the most brilliant and most complicated; I'd like to say the organ of speech. (*Pensées diverses*, 1998: 174)

It is curious that Rivarol compared Vaucanson's “Duck” with Speaking Heads. It would appear more logical to compare Vaucanson's “Flute Player” as a physical imitation of a human.

Rivarol thought that the organ for speaking and the act of speaking were characteristic of humans. He regarded the organ of speech as “the organ the most brilliant and most complicated.”

If he regarded the act of speaking as a mental activity characteristic of humans and not animals, “Flute Player” might be better suited for comparison with Speaking Heads because the act of playing a musical instrument could also be included in human mental activity.

1. 5. Act of speaking—the difference between humans and automatons

In the article “*HOMME (MAN)*” in *Encyclopédie*, Diderot explained that “the human being conveys a thought by speaking words. It is common to all of humanity to have such signs. The reason why an animal does not speak is not that it has no organ to speak, but that it has no ability to connect ideas.” Thus, Diderot considered the act of speaking words as the characteristic that distinguishes humans from animals. La Mettrie dared to predict that an automaton that could speak by itself would be built someday. Rivarol, however, did not believe that Speaking Heads

would ever reason so as to speak their own words. Yet, by acknowledging the act of speaking as distinctly human and Speaking Heads as imitative of humans, he might have regarded the challenges and success of l'abbé Mical as very important. Rivarol's comparison of Speaking Heads with "Duck," which imitates animals, and not with "Flute Player," which imitates humans, was a curious choice that has inspired further examination. Imitation of the organs used to play music correlates with the human mental activity that is suitable for comparison with the imitation of the organs used for speaking. However, "Flute Player" only imitates the act of playing the flute.

On the other hand, "Duck" could peck the feed, digest, discharge, and sail; thus, it may be more a better representation of "a creature" that was built to imitate a variety of physical functions, even though the automaton imitated an animal. Rivarol praised l'abbé Mical's Speaking Heads for the highest imitation—"rising the object of imitation to the human." Descartes [12] thought that an animal-machine without soul (*l'âme*) could not have passion; thus, the outside signs (*les signes extérieurs*) could not be exhibited. The human machine of the 18th century, however, was perfected gradually to imitate humans so that the language of automatons eventually came to show physiognomy.

Based on the above analysis, we understand that Rivarol's awareness of pronunciations was related to his admiration for the machine. Because his linguistic view of the language was considered centrally in his *Discours* of the same year, we would like to refer to this text while reexamining the discourse of the language and automatons in *Lettre*.

2. Rivarol's view of language in *Discours sur l'universalité de la langue française*, and its relationship to *Lettre*

2. 1. "Speech (*parole*) is a thought that appears (*pensée qui se manifeste*)" – the relationship between language properties and national characteristics

In *Discours*, Rivarol identified the sequence associated with language; he believed that there were no thoughts without speech or other signs. He argued that a simple idea (*idée*) needs signs, which enrich the idea; consequently, each word (*mot*) fixes the idea. If speech (*parole*) represents a thought that appears (*pensée qui se manifeste*) [13], a man who speaks (*parle*) thinks out loud (*pense tout haut*). If a man can be judged by his speech, then we can say that a nation can be judged by its language (Larousse: 28).

Next, Rivarol compared the characteristics of the French language with other languages [14] as follows: In French, the nominative case of the sentence is established initially; next, a verb or an action is selected. Finally, the purpose of the action is designated. This logical development, natural for any person, is convenient for inference. Other nations generally invert this order. The French alone continued protecting the fair order of sentences when passions created confusion and urged obedience to the order of sensations.

Then French doesn't better for music and poetry (*vers*) than other languages, because an air (*chant*) needs a disorder and a no restraint (Larousse: 50). The order and clarity of the French language are appropriate for prose; the constitution of the sentence in French is also appropriate for expressing abstract matter. Thus, we can understand why philosophers selected French. The

language is certain, sociable, and theoretical, and it has become “the human language” (Larousse: 36).

At the points of agreement for thought and language, a geometric linguistic view, and French clarity, we know that Rivarol’s *Discours* was influenced greatly by the prevailing linguistic view [15]. Especially, the influence of Condillac was strong [16]; therefore, the clarity of Condillac’s theory and the ambiguity of Rivarol’s were compared [17].

Here, we would like to focus on Rivarol’s points that “speech is a thought that appears” and the properties of language are connected to the characteristics of a nation. He explained that the properties of the French language were the order of grammatical constitution and the clarity, and he tied them to the universality of French. He was contemplating a written language and prose, and he did not emphasize the universality of pronunciation. If his premise was correct that a thought could be judged by speech, the image of a universal language with order and clarity may be threatened by inconsistent pronunciations and dialects. For Rivarol, who imagined a stable state where “the more refined ear demands more pleasant pronunciation,” the variety of dialects and pronunciations characteristic of the prevailing situation might have been disagreeable [18].

Interestingly, the gaps in pronunciations between various areas in France were not discussed in *Discours*. Rivarol’s main subject was an argument for universality of the French language; thus, he might not have believed that he needed to inform foreign countries that domestic pronunciations of the French language were not cohesive. Consequently, he might have argued about the problem of domestic pronunciation in his *Lettre*.

2. 2. Maintenance of universality by preservation in books and with Speaking Heads

In *Discours*, Rivarol stated that “the bronze has just spoken between the hands of a Frenchman, and the immortality that the books give to our language, some automatons are going to give it to the pronunciation”. (Larousse: 62)

In the above quote, “the bronze” and “some automatons” refer to Speaking Heads. Rivarol thought that the glory of great thinkers like Voltaire could be protected. “The books” are the achievements of the great thinkers, and the French language was immortalized owing to them. Rivarol expected that the immortality of French pronunciation would be protected with Speaking Heads.

It is also noteworthy that Speaking Heads were not programmed to sing. According to Rivarol’s linguistic view, speaking prose related to thoughts was better suited to the French language, which is clear and theoretical, than singing, which is related to feelings.

3. Critical reaction to *Discours sur l’universalité de la langue française* – Élie Fréron, *L’année littéraire*, *Lettre VII*, 1786

Above, we examined the relationship between *Discours* and *Lettre* according to Rivarol’s linguistic view. Two years later, after winning the prize for *Discours*, *Lettre VII* [19] in Fréron’s *L’année littéraire* contained sharp criticism of *Discours*. We refer to the criticism in the following section to describe the characteristics of Rivarol’s linguistic view.

3. 1. Age of Enlightenment – the decline of literature and language

Lettre VII stated that the works of great writers were immortal, but the French language could not avoid the fate of becoming a dead or esoteric language like Greek and Latin. The Age of Enlightenment was connected, unfortunately, with the decline of literature. The fate of language was linked to the fate of literature, and the lack of talent and superior writings were too significant; therefore, the impact of language was weakened with the decline of literature. The clarity that Rivarol praised was not present in the works of that historical period.

Rivarol's aim in *Discours* was to demonstrate the universality of French, but he was not optimistic. He expected that books and Speaking Heads would immortalize the French language. However, he did not believe that the superior books written by the great writers of the future would preserve the universality of the French language. He thought that the universality of French would be saved by preservation.

Lettre VII did not refer to declining pronunciation of the French language. It attributed the fate of becoming a dead language to declining literature, although Rivarol considered the loss of pronunciation as evidence of a dead language. Thus, it is clear that Rivarol's linguistic view included a regard for language according to both letters and sounds. He was drawn to the problem of sounds by Speaking Heads, which he viewed as tools for preserving and reproducing sounds associated with correct pronunciations.

4. Critical reactions to Speaking Heads – the problem of speech communications and the limitations of imitative arts

What other reactions to Speaking Heads influenced Rivarol's view of pronunciation? Next, we refer to an article contributed by a count *** in *Journal de Paris*, May 22, 1784.

The referenced article reported on comments that several pronunciations by the Heads were unclear because of the buzz of the machines, but they could be understood perfectly after people listened to them two or three times. The fact that people could understand the articulated sounds after listening to them several times was evidence that the correct articulations existed in the pronunciations by the Heads. Another reason for hearing difficulties was cited:

What gives so much physiognomy to the speech, what makes it heard well, is the intention that one puts there, and it is the accent and the gesture. The pantomime gives more of emotion than the speech without accent and pantomime. The most limited man puts the intention into what he says because, for him, the thought never separates from the language. But one has difficulty hearing a parrot because it speaks without intention: that is the reason why the Automaton, only speaking to the ears, first astonish the listeners who need to familiarize themselves with them. (*Journal de Paris*, N143: May 22, 1784, p. 624)

Here, the importance of intentions, accents, and gestures as characteristics of human communication are compared to the one-sided aspect of communications by machines or animals without them.

Furthermore, this article elaborated on the theme of art creation. Art is advantageous when

it imitates nature, but all the faults will be exposed at the same time:

When the first Sculptor announced that he sculpted a man out of marble block, did one dare to object to him that it was not a man, since it didn't have any movement and softness of the fleshs? Probably not: it was necessary, on the contrary, to be surprised that the man could have given to marble a man's effigy, and no one demanded other miracles from him. The Arts have their limits that they will never overcome: the Painting shows the colors; the Sculpture gives the shapes; the Mechanics provide the movement; all together they cannot create the life and the thought. (*Journal de Paris*, N143: May 22, 1784, pp. 624-625)

This article reminds the reader that one should not forget the grand truth that even though an artist can imitate nature, the imitation has never been more than a simulation of nature. The article acknowledges that the speech of Speaking Heads controlled by a cylinder was lifeless, although use of the keyboard by an operator to make them speak produced lifelike accents to their speech. In the referenced article, the claim that "if one applies a dead material to a dead material, he obtains only monotonous accuracy" (p. 625) implies that automatically controlled utterances are not valued highly. Speaking Heads, therefore, demonstrated the limitations of the imitative arts.

Actually, Rivarol also mentioned gestures in *Lettre*. As stated above, he explained that a singular and uninterrupted vowel sound expressed an affection of the soul, but if it was separated into intervals with manipulations of the lips and tongue, a consonant could be heard at each division. Furthermore, the latter reflected variations of ideas. Rivarol's annotation described use of the same mechanism in gesturing as a form of language; he said that stretching out one's arms, glancing, or posing candidly expressed the affection of the soul. Expression of thoughts, however, is reflected in various movements of the fingers, hands, eyes, and most body parts.

In the text of *Lettre*, Rivarol pointed out only advantages of Speaking Heads, but in this annotation, he was more critical. According to him, the Heads' speech (with no corresponding body movements) would be inferior to humans' transmissions of thoughts enhanced by gestures. Condillac addressed this problem in *Essai sur l'origine des connaissances humaines* (1746). As stated previously, Rivarol was influenced strongly by Condillac.

4. 1. Importance of gestures and the loss of voice and gestures during Cicero's era

In his *Essai sur l'origine des connaissances humaines* [20], Condillac vividly described chanting in the ancient Roman age, which led to gesturing and expressing oneself through dramatic intonations and the pronunciations of long and short syllables. In this work, Condillac explained the importance of both voice and gestures. He described the scene whereby the orator Cicero composed and read his periode while the actor Roscius expressed it with a silence enriched by the use of gestures. Though the record of the speeches of the ancients has been preserved, only a few aspects of the corresponding expressions have been conserved. Therefore, we are unable to understand the tones and gestures that must have touched the hearts of the audience members. Condillac grieved the loss of both ancient voices and gestures.

4. 2. The possibility of a machine's physiognomy

Because the Heads could record only the vocal sounds and no gestures, only one aspect of the language for that time period could be preserved and reproduced. Rivarol recognized the importance of gestures to communication, and he appeared determined to evaluate the full potential of the machines rather than focus on their limitations. In other words, he viewed the speech of the machine positively because of its physiognomy.

Conclusion

Clearly, Rivarol adored automatons for their accurate and unchanging characteristics. Thus, he demonstrated a respect for universality.

While he insisted on the universality of the French language in *Discours* because of the clarity of its grammatical structure, he addressed the problem of French pronunciations in *Lettre*. His linguistic view featured a high regard for both grammatical structure and pronunciation, and his two referenced works (written in the same year) complemented each other. Speaking Heads caused Rivarol to recognize problems with pronunciations and communication; consequently, he began to envision a mechanism for preserving pronunciations.

Rivarol appreciated the accuracy of the machines, and he believed that their speeches were capable of possessing physiognomies. Yet, the last article referenced in this paper pointed out the limitations of imitative art (e.g., automatons).

Automatons built during the 18th century imitated humans. Speaking Heads, however, cannot be categorized simply as developing forms of Vaucanson's automatons.

A musical performance is composed of mental and physical activity, yet there is a tendency to regard the mental aspect as more important. During the 18th century, Diderot and Engramelle, among others, attempted to release mental activities from the restrictions of physical activities.

Speaking Heads, as automatons, imitated humans' heads and voices; according to Faÿ, the lips of one of the heads moved. Thus, we could say that the Heads represented the successful development of Vaucanson's ideals for automatons as mechanical conceptions designed to imitate the human body. However, Vaucanson's innovations imitated the movements of lips and fingers, and Speaking Heads imitated human speech but without gestures or body movements.

On the other hand, Rivarol felt apprehension about the intervention of the unstable human body, which created differences among individuals and regions. Therefore, he was interested in using an automaton for the primary purpose of recording the correct pronunciations of French words. Rivarol had no interest in an automaton's ability to imitate the movements of lips or human gestures. Speaking Heads reflected a new form of automatons that were designed to imitate humans. Thus, the philosophical background on which Vaucanson's automatons were based was renovated.

* Many of the findings cited in this study resulted from my overseas investigation conducted when I was sent to France in 2009 as part of the University of Tokyo's Program for Evolving Humanities and Sociology.

Notes

- [1] Rivarol's grandfather was Italian and moved to Bagnols-sur-Cèze; in a sense, Rivarol was a third-generation Italian with French origins as well (Kasuya 2003). On the other hand, the local language used in Bagnols-sur-Cèze was Occitan. Thus, Rivarol's interesting personality emerged. He emphasized the universality of French based on the linguistic view at that time, and further, he spoke excellent French, although he was exposed to regional French dialects, as well as Italian (spoken by his grandfather).
- [2] "ARTS. Nous nous empressons d'annoncer au Public, qu'il jouira bientôt du spectacle le plus étonnant: c'est une Tête d'airain qui prononce très distinctement ces paroles: *Le Roi fait le bonheur de ses Peuples, & le bonheur de ses Peuples fait celui du Roi. L'Auteur de ce grand Ouvrage, dont la modestie cache le nom, se flatte de porter ses heureuses découvertes au point de former une conversation suivie entre plusieurs Statues.*" (*Journal de Paris*, N121: May 1, 1778, p. 483) The speaking head of 1778 spoke shorter phrases than the Heads in 1783.
- [3] In the figure, this phrase appears as "*Le Roi donne la paix à l'Europe.*"
- [4] For the detailed story of what became of l'abbé Mical and Speaking Heads since then, see Chapuis and Gelis (1984). On September 3, 1783, Lavoisier and Vicq d'Azyr explained in a conference of Académie des Sciences the mechanism of Speaking Heads, as follows:
- Speaking Heads concealed a hollow box whose various parts were connected with hinges. In the box, the author placed the various artificial glottises on the tensioned films. Air passing through these glottises hit the films, and the middle, low, and high tones were sounded. And by the combination, a human's voice was imitated very imperfectly.
- The committee concluded that the machine pronounced several words ambiguously and incorrectly; however, the Heads still earned praise from the Academy. After that, Speaking Heads were exhibited to the public, as shown in the figure (cf. Chapuis & Gelis 1984: 202-206).
- The content of note 35 in his *Discours*, introduced by Rivarol in the 1797 edition and reintroduced in the 1808 edition, was about the same as in *Lettre*. He added the following to inform what became of l'abbé Mical: "Observe that the government of 1782 and 1783, in France, based on the report of police's lieutenant, Le Noir, having refused to buy Speaking Heads, this unhappy artist, overwhelmed with debts, broke his masterpiece in despair. I was not in Paris then. When I returned to Paris, I found him in a state of lethargy. He died in poverty in 1789" (cf. *Pensées diverses*, 1998: 157).
- [5] "L'Abbé Mical will open his cabinet to the public everyday except Wednesday and Saturday, from 17:00 to 20:00." (*Journal de Paris*, N122: May 1, 1784, p. 533)
- [6] cf. (Faÿ 1978: 32-33). Faÿ says that the author was l'abbé Millot, but such authenticity cannot be verified.
- [7] See note [4] regarding the Academy's explanation of the mechanism. Cointat explained that Speaking Heads pronounced via the oval "acoustic box" in which a film was stretched and the vibrating reed was adjusted by changing keyboard sounds (cf. Cointat 2001: 166).
- [8] Latzarus explained that Speaking Heads pronounced not only the pre-fixed phrases but also words directed by the operator who played the keyboards. Further, he evaluated l'abbé Mical as the forerunner of the father of Experimental Phonetics, Jean-Pierre Rousselot [1846-1924], who devised a kymograph to record vocal sounds generated by articulatory movements of the larynx, oral cavity, and nasal cavity. Rousselot also wrote *Principes de phonétique expérimentale* (cf. Latzarus 1926: 96-97).
- [9] Rivarol did not touch on his native place Languedoc here; rather, he blamed the Swiss and the Gascon.
- [10] What is the meaning of "the prosodic accent is the musical part in language" that does not change?

Based on his explanation that “the accent is a kind of song, whose mark passions put on the language,” Rivarol might have thought the soul accent was like a song, changing with each expression based on passions. Further, he may have viewed the prosodic accent as something like a melody, an important element associated with the identity of a musical work or score.

- [11] According to the nationwide linguistic survey in 1790 by l'abbé Grégoire [1750–1831], less than half of the population was able to speak French properly (cf. Miura 2000).
- [12] *méthode*, focused on the act of talking (i.e., use of words) as the distinctively human characteristic. In other words, he thought that the ability to put words together freely to express thoughts was the distinguishing characteristic between humans and machines or animals. He recognized that an automated device required programming for each movement; thus, he viewed human reason as the superior universal tool because of its usefulness in any circumstance.
- [13] “*Le langage est la peinture de nos idées* (The language is a description of our ideas)” (cf. Larousse: 57).
- [14] Rivarol regarded verses as nothing but luxuries and prose as the daily language style. Thus, the verbal characteristics that he spoke of were based on prose.
- [15] We referred to Nakagawa (1972) about the linguistic view prevalent at that time.
- [16] J.-F. de La Harpe (1739–1803) mentioned, in *Correspondance littéraire*, that Rivarol’s article developed an argument based on his superior talent, but he often borrowed from others, particularly Father Condillac (cf. Berville 1824: iv).
- [17] “Condillac is precise, clear and profound; Rivarol is verbose, obscure and superficial.” This judgment was rendered by M.-J. de Chénier (1764–1811) in *Tableau de la Littérature française* (cf. Berville 1824: xi).
- [18] The article “Physics” is considered to have been written by Rivarol for *Journal de Paris* (July 17, 1783). It stated, “If the scholars met to create a language common to all of Europe, for the easiness of the communications, it seems to me that these machines would be very useful to determine uniformly the manner to pronounce in all times [and] in all places” (*Journal de Paris*, N198: July 17, 1783, p. 823). Rivarol imagined the creation of a universal language, but he did not provide concrete suggestions for developing it. To point out that the importance of the stabilization of the pronunciation to communicate smoothly throughout Europe was characteristic of Rivarol’s attention to problems with pronunciations.
- [19] ÉlieFréron, *L’année littéraire*, T1: *Lettre VII*, pp. 145-171, 1786.
- [20] cf. Étienne Bonnot de Condillac, *Essai sur l’origine des connaissances humaines, Pierre Mortier, 1746, Tome II, Section première, Chap IV. Des progrès que l’art du geste a fait chez les anciens.*

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