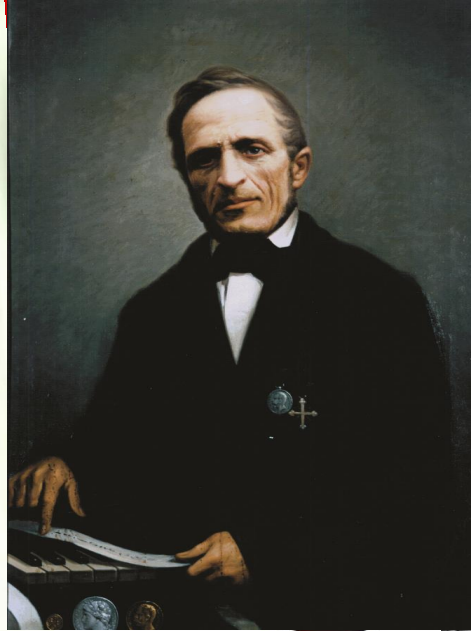


Carlo Porta Tonografica.

aercouævc

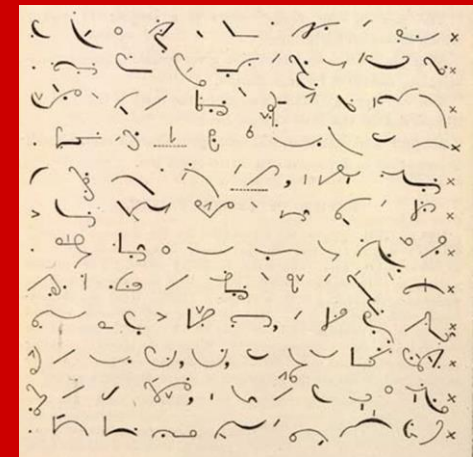
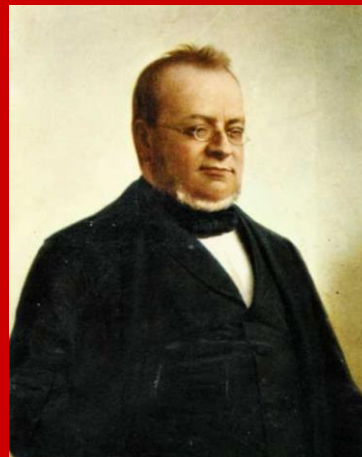
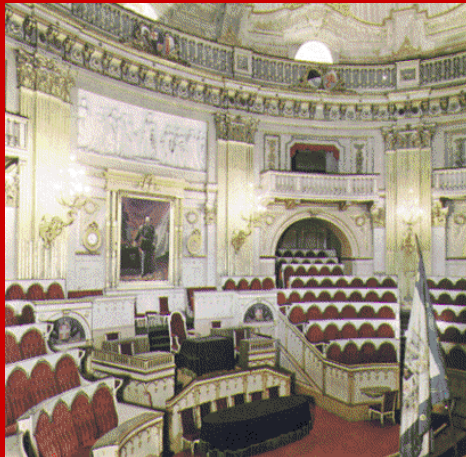
1	2	3	4	1. nota sola
1	2	3	4	2. nota sola
1	2	3	4	3. nota sola
1	2	3	4	4. nota sola
1	2	3	4	5. nota sola
1	2	3	4	6. nota sola
1	2	3	4	7. nota sola
1	2	3	4	8. nota sola
1	2	3	4	9. nota sola
1	2	3	4	10. nota sola
1	2	3	4	11. nota sola
1	2	3	4	12. nota sola
1	2	3	4	13. nota sola
1	2	3	4	14. nota sola
1	2	3	4	15. nota sola
1	2	3	4	16. nota sola
1	2	3	4	17. nota sola
1	2	3	4	18. nota sola
1	2	3	4	19. nota sola
1	2	3	4	20. nota sola
1	2	3	4	21. nota sola
1	2	3	4	22. nota sola
1	2	3	4	23. nota sola
1	2	3	4	24. nota sola
1	2	3	4	25. nota sola
1	2	3	4	26. nota sola
1	2	3	4	27. nota sola
1	2	3	4	28. nota sola
1	2	3	4	29. nota sola
1	2	3	4	30. nota sola
1	2	3	4	31. nota sola
1	2	3	4	32. nota sola
1	2	3	4	33. nota sola
1	2	3	4	34. nota sola
1	2	3	4	35. nota sola
1	2	3	4	36. nota sola
1	2	3	4	37. nota sola
1	2	3	4	38. nota sola
1	2	3	4	39. nota sola
1	2	3	4	40. nota sola
1	2	3	4	41. nota sola
1	2	3	4	42. nota sola
1	2	3	4	43. nota sola
1	2	3	4	44. nota sola
1	2	3	4	45. nota sola
1	2	3	4	46. nota sola
1	2	3	4	47. nota sola
1	2	3	4	48. nota sola
1	2	3	4	49. nota sola
1	2	3	4	50. nota sola
1	2	3	4	51. nota sola
1	2	3	4	52. nota sola
1	2	3	4	53. nota sola
1	2	3	4	54. nota sola
1	2	3	4	55. nota sola
1	2	3	4	56. nota sola
1	2	3	4	57. nota sola
1	2	3	4	58. nota sola
1	2	3	4	59. nota sola
1	2	3	4	60. nota sola
1	2	3	4	61. nota sola
1	2	3	4	62. nota sola
1	2	3	4	63. nota sola
1	2	3	4	64. nota sola
1	2	3	4	65. nota sola
1	2	3	4	66. nota sola
1	2	3	4	67. nota sola
1	2	3	4	68. nota sola
1	2	3	4	69. nota sola
1	2	3	4	70. nota sola
1	2	3	4	71. nota sola
1	2	3	4	72. nota sola
1	2	3	4	73. nota sola
1	2	3	4	74. nota sola
1	2	3	4	75. nota sola
1	2	3	4	76. nota sola
1	2	3	4	77. nota sola
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1	2	3	4	80. nota sola
1	2	3	4	81. nota sola
1	2	3	4	82. nota sola
1	2	3	4	83. nota sola
1	2	3	4	84. nota sola
1	2	3	4	85. nota sola
1	2	3	4	86. nota sola
1	2	3	4	87. nota sola
1	2	3	4	88. nota sola
1	2	3	4	89. nota sola
1	2	3	4	90. nota sola
1	2	3	4	91. nota sola
1	2	3	4	92. nota sola
1	2	3	4	93. nota sola
1	2	3	4	94. nota sola
1	2	3	4	95. nota sola
1	2	3	4	96. nota sola
1	2	3	4	97. nota sola
1	2	3	4	98. nota sola
1	2	3	4	99. nota sola
1	2	3	4	100. nota sola



Sounds, signs, words:  
the Michela system and the production of the  
parliamentary reports at the Senate

# The birth of parliamentary reporting in Italy

- In the Subalpine Parliament the reporting office was organized by Cavour (Turin 1848-1861)
- Pen shorthand writing was used
- Then also at the Senate of the Italian Kingdom  
([Turin](#) 1861-1865; [Florence](#) 1865-1871; [Rome](#) 1871-1946)
- From 1880 the Michela stenotyping system has been introduced at the Senate for verbatim reports
- From 1882 summary report has been introduced, too



# Garibaldi's letter

Capri - 16 Dicembre 1847

Caro chiarissimo

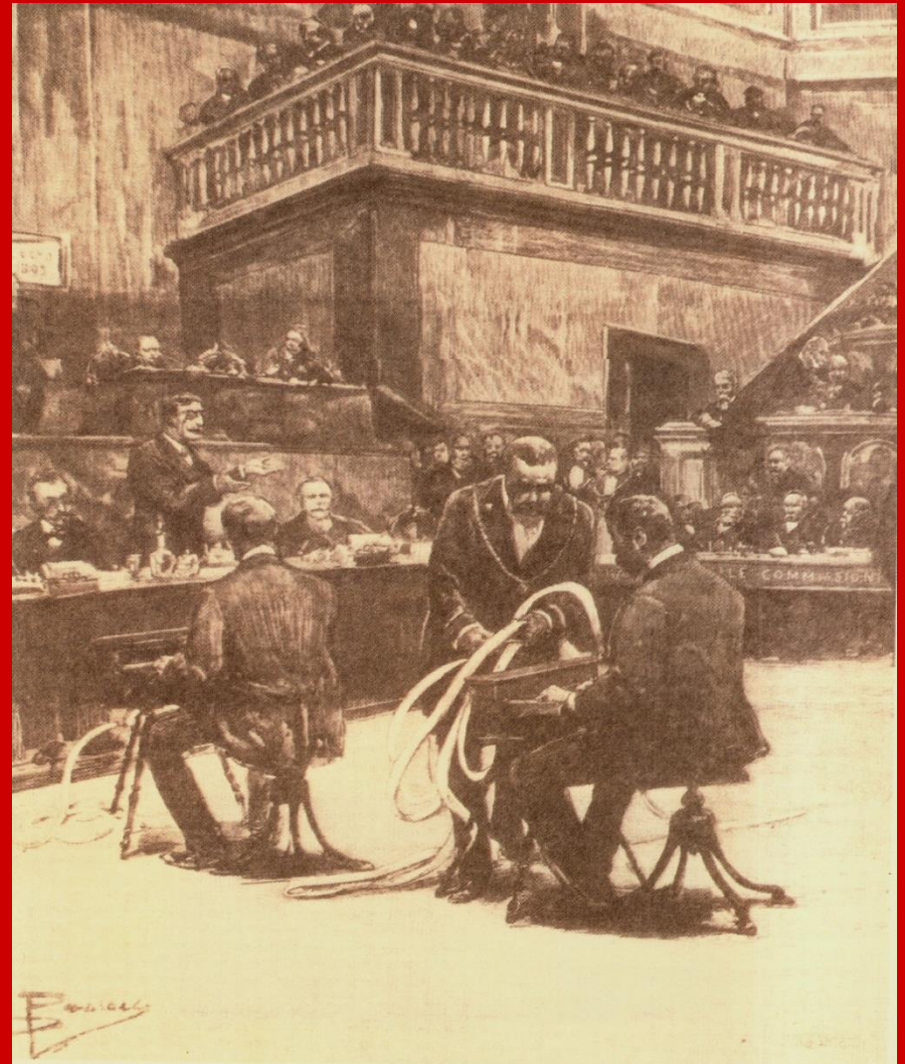
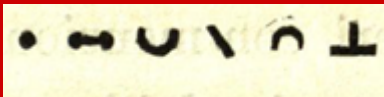
Grazie per la gentile vostra del 5.  
Desidero che l'utilissima lettera  
dell'illustre prof.<sup>te</sup> Michella sia  
metta in opera

Vostra  
G. Garibaldi

# The reporting instrument at the Senate from 1880: The Michela keyboard

The ancient model,  
set on a wood tripod,  
was used for over a century.

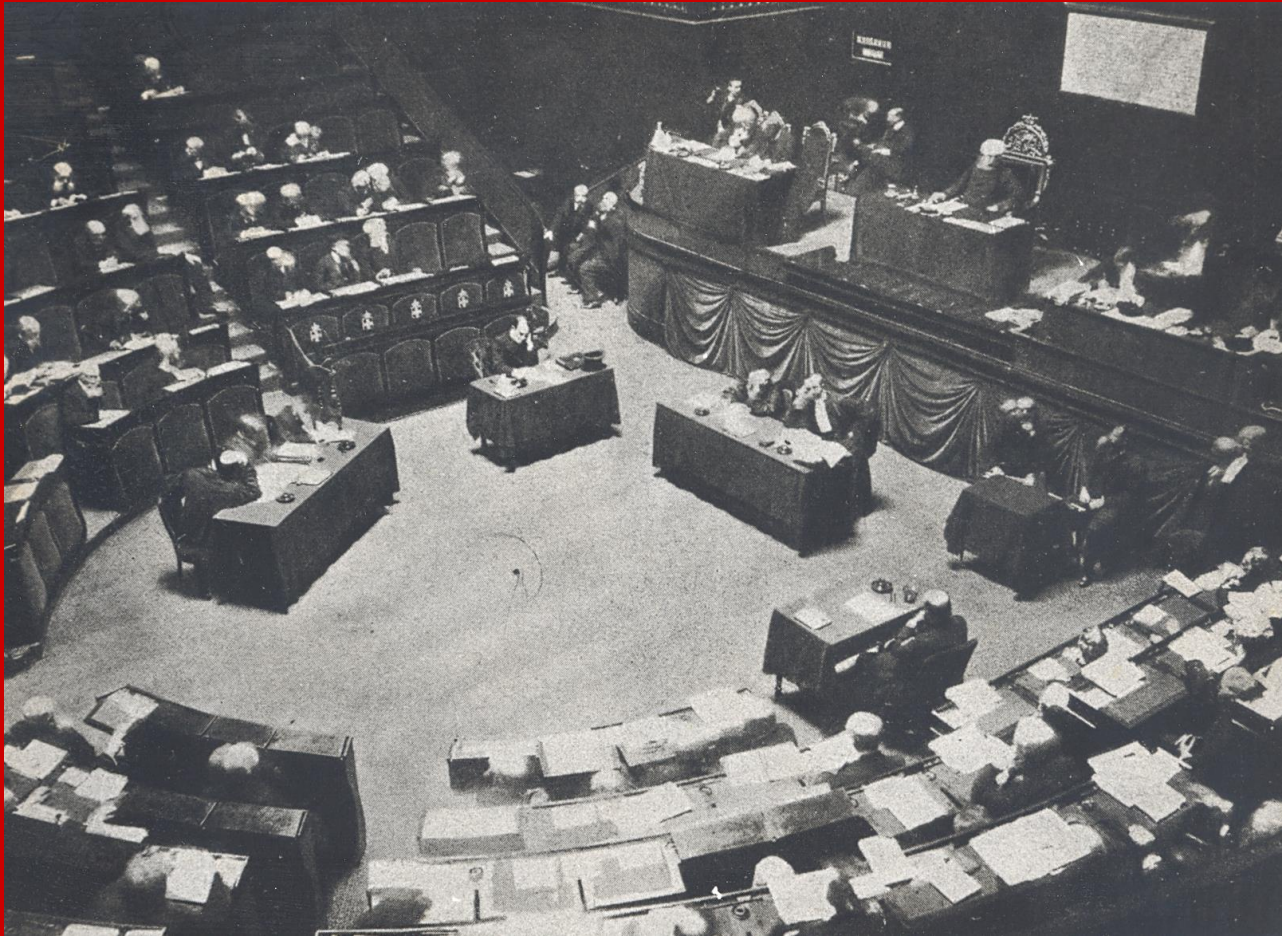
It could be easily moved and  
produced a stripe of paper  
with symbols.



The Michela keyboard as a witness of history:  
The Floor of the House  
during the Italian Kingdom (1871-1946)



# The Senate as a High court of Justice in 1908



The position of the reporters

# During Mussolini dictatorship in 1929: the Lateran Pact



The shift turns

# The proclamation of the empire in 1936





# Inauguration speech of the President of the Senate Bonomi may 8th, 1948



# Tambroni Government in 1960



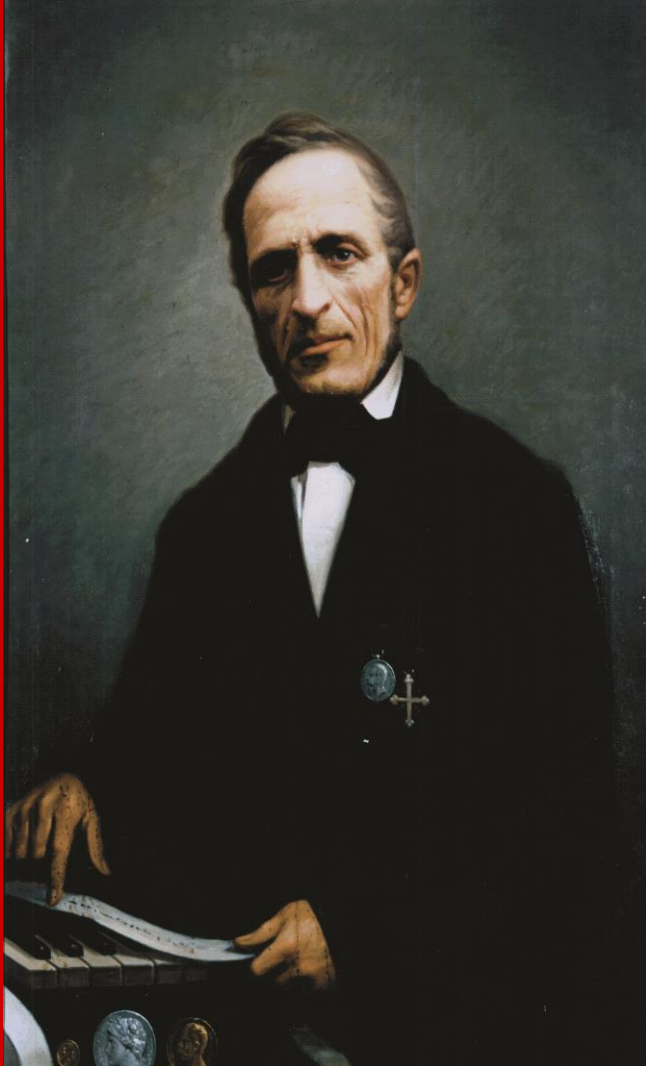
# The Nineties: the Vergoni mechanical keyboard



# In the 4th Committee



The inventor of the Michela keyboard:  
Antonio Michela Zucco (1815 – 1886)



A school TEACHER keen on drawing, music and anatomy

he studied the human vocal apparatus and classified all the sounds that it could produce

Searching a UNIVERSAL ALPHABET to make all men brothers and sisters (like IPA)

He invented:

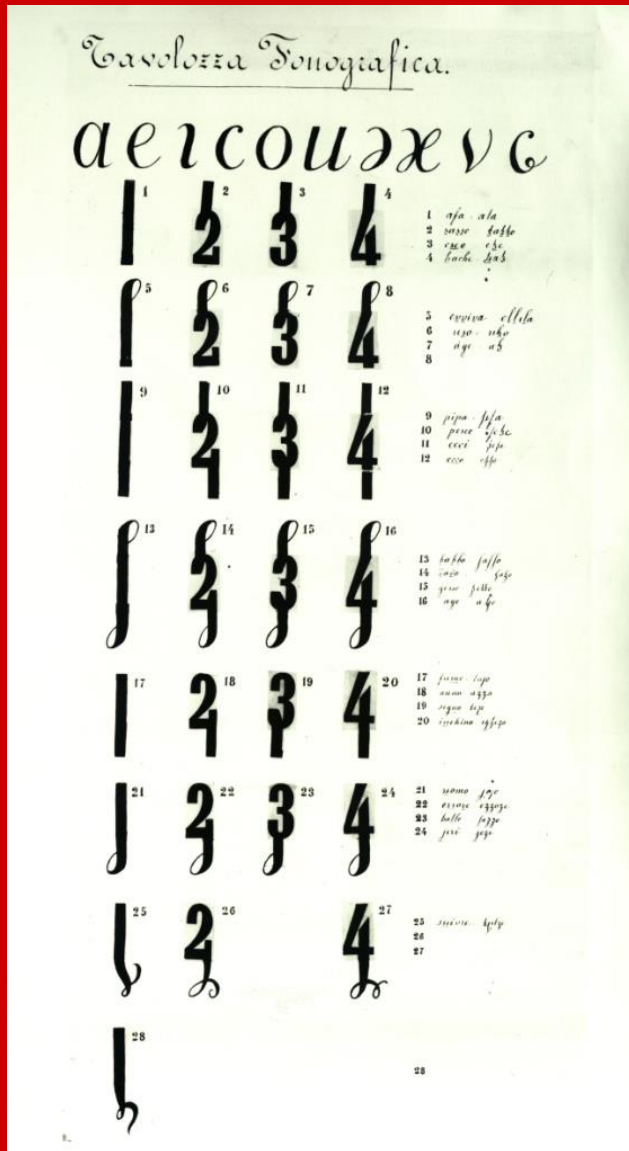
- A PEN PHONETIC WRITING SYSTEM
- A MACHINE PHONETIC WRITING SYSTEM

That were both universal (to write and reread, even after a long time and without knowing them, all the languages of the world)

# The recent adaptation for arabic language

	f	ف		k emphatic written "q"	ق
	s	س		gh	غ
	sh	ش		m	م
	h	ه		n	ن
	h emphatic	ه		th	ث
	s emphatic	س		d emphatic	ذ
	j	ج		kh	خ
	z	ز		r	ر
	'	ا		l	ل
	t	ت		i, y	ي
	th voiced	ث		t emphatic	ط
	k	ك		th voiced emphatic	ظ
	b	ب		u, w	و
	d	د			

# SOUNDS, SIGNS, WORDS: The phonographic palette



Elements of the articulations		Organs that generate the articulations			
		LIPS	TONGUE		
		(Bilabial/labiodental)	FRONT (Alveolar)	CENTRAL (Postalveolar)	BACK (Velar)
BLOW (Fricative)	PURE (Voiceless)	1 - F [f] Voiceless labiodental fricative	2 - S [s] Voiceless alveolar fricative	3 - Sc [ʃ] Voiceless postalveolar fricative	4 - H [x] Voiceless velar fricative
	MIXED (Voiced)	5 - V [v] Voiced labiodental fricative	6 - s [z] Voiced alveolar fricative	7 - Ge [ʒ] Voiced postalveolar fricative	8 - H [ɣ] Voiced velar fricative
MODIFICATION (Plosive / affricate)	HARD (Voiceless)	9 - P [p] Voiceless bilabial plosive	10 - T [t] Voiceless dental plosive	11 - C [tʃ] Voiceless postalveolar affricate	12 - CK [k] Voiceless velar plosive
	SOFT (Voiced)	13 - B [b] Voiced bilabial plosive	14 - D [d] Voiced dental plosive	15 - G [dʒ] Voiced postalveolar affricate	16 - G [g] Voiced velar plosive
VOICE	NASAL	17 - M [m] Bilabial nasal	18 - N [n] Labiodental nasal	19 - Gn [ɲ] Palatal nasal	20 - n [ŋ] Velar nasal
	ORAL (Semiconsonant, approximant, liquid)	21 - U [u] / [w] Back close vowel / Velar semiconsonant	22 - R [r] Liquid labiodental trill	23 - L [l] Liquid lateral alveolar approximant	24 j [j] Central close vowel / Palatal semiconsonant
		25 (tedesco) ch [χ] Voiceless uvular fricative	26 (inglese) th [θ] / [θ̥] Voiceless / Voiced dental fricative		

# The correspondence between phonemes, numbers, symbols and keys on the keyboard

Planche I.<sup>ci</sup>

Procédé Syllabique-instantané-sténosonographique. *Michela*  
 Explication et usage du Procédé Base principale de l'invention et but du Brevet demandé

		N						M				A				B				E'				M'				R'													
		1	2	3	6	9	18	1	2	3	6	A	B	C	D	1	2	3	4	6	3	2	7	18	9	6	3	2	1	18	9	6	3	2	1						
	F	1						1				1	7							2	1																				
	S	2							2			2	8							3	2																				
les-scène	ch. su	3								3		3	L							4	3																				
héros	h.	4						1		3		4	L							5	3																				
usage	v	5							2	3		5	v							6	3	2																			
usage	s	6									6	6	m							7	6																				
usage	j	7						1			6	7	m							8	6																				
usage	h	8							2		6	8	n							9	6	3																			
usage	p	9								3	6	9	p							10	6	3																			
usage	l	10						1		3	6	10	l							11	6	3	2																		
usage	c	11							2	3	6	11	cg																												
usage	k	12									9																														
usage	b	13						1		3	9																														
usage	d	14							2	3	9																														
usage	g	15									6	9																													
usage	gh	16						1			6	9																													
usage	m	17							2		6	9																													
usage	n	18									18																														
usage	gn	19						1			18																														
usage	n	20							2		18																														
usage	ou	21									3	18																													
usage	r	22						1			3	18																													
usage	l	23							2	3	18																														
usage	j	24									6	18																													

		N				M				A				B				E'				M'										
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
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	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

		N				M				A				B				E'				M'										
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

		N				M				A				B				E'				M'										
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

		N				M				A				B				E'				M'										
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
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	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

		N				M				A				B				E'				M'										
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
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	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

		N				M				A				B				E'				M'										
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
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	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

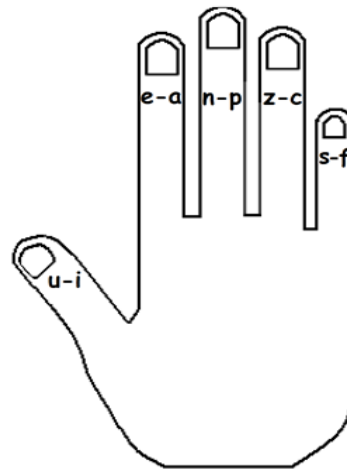
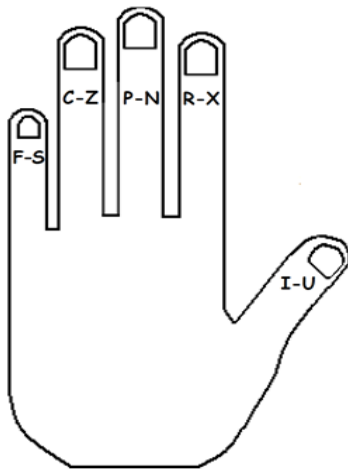
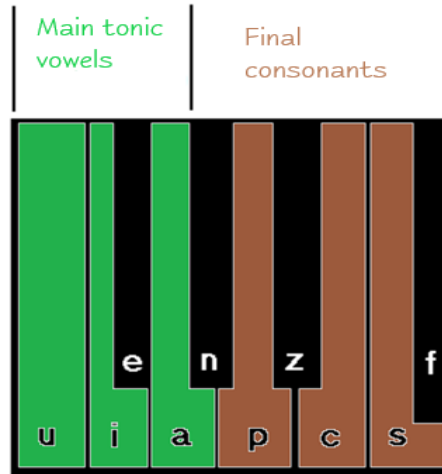
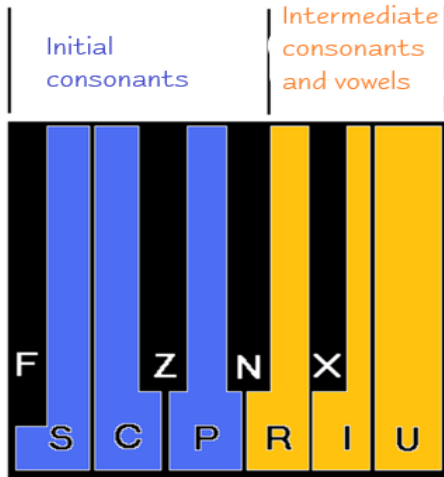
		N				M				A				B				E'				M'										
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
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	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

		N				M				A				B				E'				M'										
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	1	2	3	6	1	2	3	6	1	2	3	6	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				



# The distribution of the sounds on the keyboard: The Michela writing system is phonetic and syllabic



The parts of the syllables  
and the position of the  
hands



1 2 3 6 9 18

The original symbols  
and the numbers

# The internal mechanics of the Michela keyboard

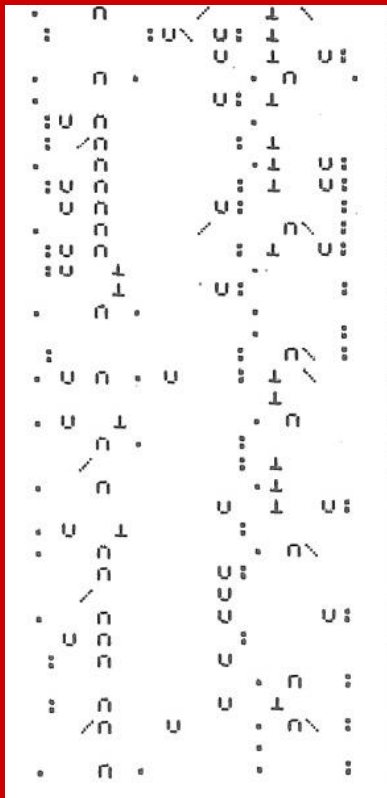


The silver medal at the  
1878 Paris Universal EXPO

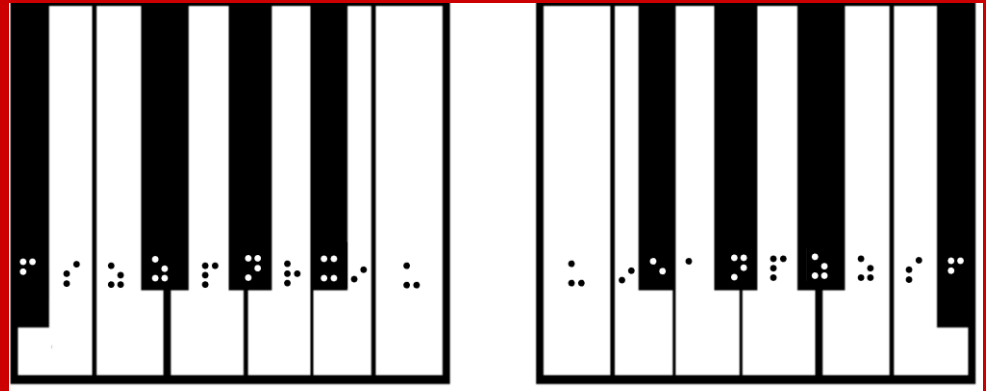
The stenotelegraph  
by Cassagnes



- The Michela system has been originally conceived as a help for visually impaired
- The paper stripe was punched in relief
- Today we adapted it to Braille alphabet



•	:	U	/	u	⊥
1	2	3	6	9	18
● ○ ○ ○ ○ ○	○ ○ ● ○ ○ ○	○ ○ ○ ○ ● ○	○ ● ○ ○ ○ ○	○ ○ ○ ● ○ ○	○ ○ ○ ○ ○ ●
1	2	3	4	5	6




# The evolution of the keyboard, from the mechanical, to the electric, electronic and digital version



Nowadays: digital stenotyping and the real time text,  
the perfect interaction bewtween man and machine



The on line publication timing of the real time drafts, during the session itself in 30 minutes (from 2001)



The screenshot displays the official website of the Italian Senate (Senato della Repubblica). The header features the Senate logo and navigation tabs for 'L'Istituzione', 'Senatori', 'Lavori', 'Leggi e Documenti', 'Attualità', and 'Relazioni con i cittadini'. The main content area is titled 'Assemblea - XVIII Legislatura' and 'ORDINE DEL GIORNO' for 'Giovedì 6 dicembre 2018' at 'alle ore 9,30' for the '68ª Seduta Pubblica'. The agenda includes the discussion of a law draft and immediate responses to questions. A sidebar on the left provides navigation options like 'Ordine del giorno' and 'Resoconti in corso di seduta'. A 'Vedi anche' section on the right suggests related documents.

The need to be fast in catching up whatever they say and whatever they do

# The forced alignment



Senato della Repubblica  
**Senato TV**

Senato.it



Home

Assemblea

Commissioni

Altri video

Cerca nell'indice



Seduta n. 129

PRESIDENTE

Comunicazioni della Presidenza

Comunicazione, ai sensi dell'articolo 77, secondo comma, della Costituzione, della presentazione di disegno di legge di [...]

Interventi su argomenti non iscritti all'ordine del giorno

AUGUSSORI (L-SP-PSd'Az)

MALPEZZI (PD)

MALAN (FI-BP)

BRIZIARELLI (L-SP-PSd'Az)

Atti e documenti, annuncio

Ordine del giorno per la seduta di martedì 9 luglio 2019



00:03:16

**Interventi su argomenti non iscritti all'ordine del giorno**

Condividi video dibattito

00:02:59

00:19:34



AUGUSSORI (L-SP-PSd'Az)

Condividi video intervento

00:03:02

00:06:53

Resoconto

OdG

Comunicato di seduta

Sincronizza con video

**Legislatura 18ª - Aula - Resoconto stenografico della seduta n. 129 del 03/07/2019**

AUGUSSORI (L-SP-PSd'Az). Domando di parlare.

PRESIDENTE. Ne ha facoltà.

AUGUSSORI (L-SP-PSd'Az). Signor Presidente, colleghe senatrici e colleghi senatori, nella giornata di ieri abbiamo appreso sgomenti dell'inchiesta Fake ONLUS portata a termine dalla Guardia di finanza di Lodi, cui va il mio plauso, su mandato della procura della Repubblica di Milano, che si è conclusa con l'arresto di 11 persone.

È stato scopercchiato il vaso di Pandora del *business* della gestione dei migranti richiedenti asilo e sono emersi particolari che mai avremmo potuto immaginare. Quattro associazioni ONLUS, che voglio citare affinché i loro nomi restino scolpiti a futura memoria negli atti di quest'Assemblea: Volontari senza frontiere, Milano solidale, Amici di Madre Teresa e Area Solidale, due delle quali operanti nella mia città, Lodi, sarebbero, in realtà, un'unica grande associazione a delinquere finalizzata alla truffa ai danni dello Stato e all'autoriciclaggio di denaro. Venivano prodotte false documentazioni per poter accedere ai bandi delle prefetture. Venivano dichiarati falsi servizi di integrazione, consulenze di psicologi e avvocati, in realtà mai avvenuti e - cosa ancor più grave - sarebbero emersi legami diretti con la 'ndrangheta al fine di fornire copertura e ospitalità ad affiliati e pregiudicati.

# The organization of the workflow

- The TRANSCRIPT in the plenary (5 minutes)
- The EDITING phase (30 minutes):  
Passage from words to text, queries of names and legislative provisions, describing physical events (physiology, in italics and round brackets), inputting formulaic phrases of procedural steps and of tags (hypertext marks)
- The first CORRECTION level (by revisors, who spend 40 minutes in the plenary) and then final revision (harmonization with annexes + indexing)
- Final ON LINE PUBLICATION before the following day and ARCHIVING in the databases



# The staff

- 28 people: 15 stenotypists and 13 reporters  
(for both Plenary and Committees)
- Transcript + editing in the plenary (9-12)
- Plenary revisors (4) – Committee revisors (2)
- Final harmonization in Plenary (1)
- On line Publication of Plenary (2)
- Annex to the Plenary session (2)
- Plenary Session Communiqué (1)

# Accessibility of the Michela writing system:

- Youtube tutorials to adapt a music keyboard as a Michela keyboard



THE MICHELA  
STENOTYPE SYSTEM  
CHANNEL

Michela stenotyping system theory and dictionaries available on line for free: [https://github.com/benoit-pierre/plover\\_michela](https://github.com/benoit-pierre/plover_michela)

Open source free software Plover



Test and occasional Michela workshops for students and schools at the Senate Library:

# Disability

- Digital stenotyping and real time close captioning for hearing-impaired
- Michela system with Braille alphabet and vocalizer for visually impaired (International Braille day)



# To play a Michela keyboard like a piano:

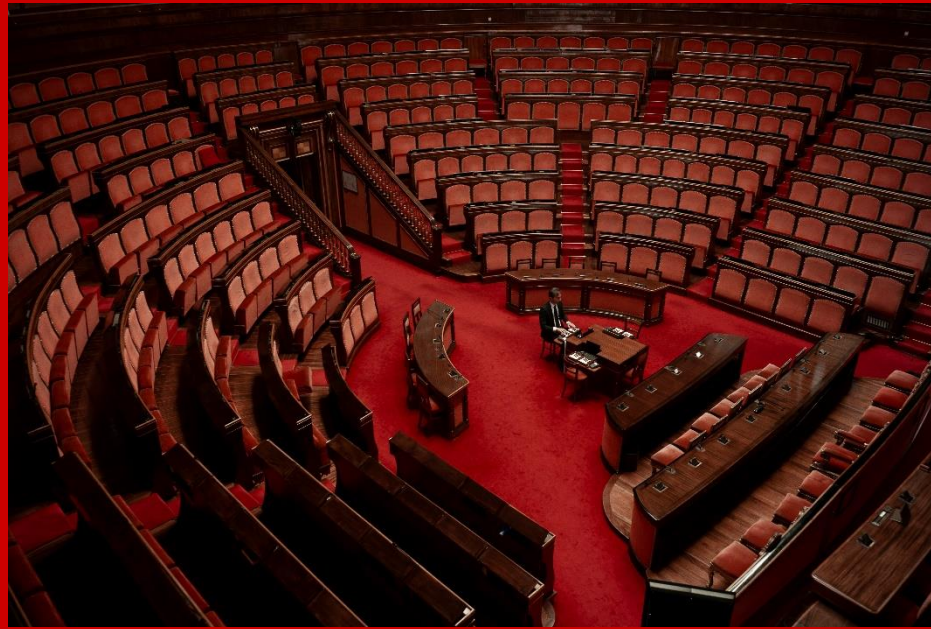
- The italian-australian artist Angelica Mesiti
- presented her project «Assembly» during the 2019 Venezia Biennale
- Where we wrote the poem «To be written in another tongue» of the Australian David Malouf with a Michela keyboard linked to a music software (like a pianola)
- So we played the text and listened to its music



# ANGELICA MESITI ASSEMBLY

Angelica Mesiti, *ASSEMBLY*, 2019 (production still) three-channel video installation in architectural amphitheater. HD video projections, colour, six-channel mono sound, 25 mins, dimensions variable. © Photography: Bonnie Elliott. Commissioned by the Australia Council for the Arts on the occasion of the 58th International Art Exhibition–La Biennale di Venezia, courtesy of the artist and Anna Schwarz Gallery, Australia and Galerie Allen, Paris.

“Through both the metaphor of translation and the act itself, I am exploring the very human and increasingly urgent need we have to assemble in a physical way, in a physical space, in these complex times.”  
ANGELICA MESITI

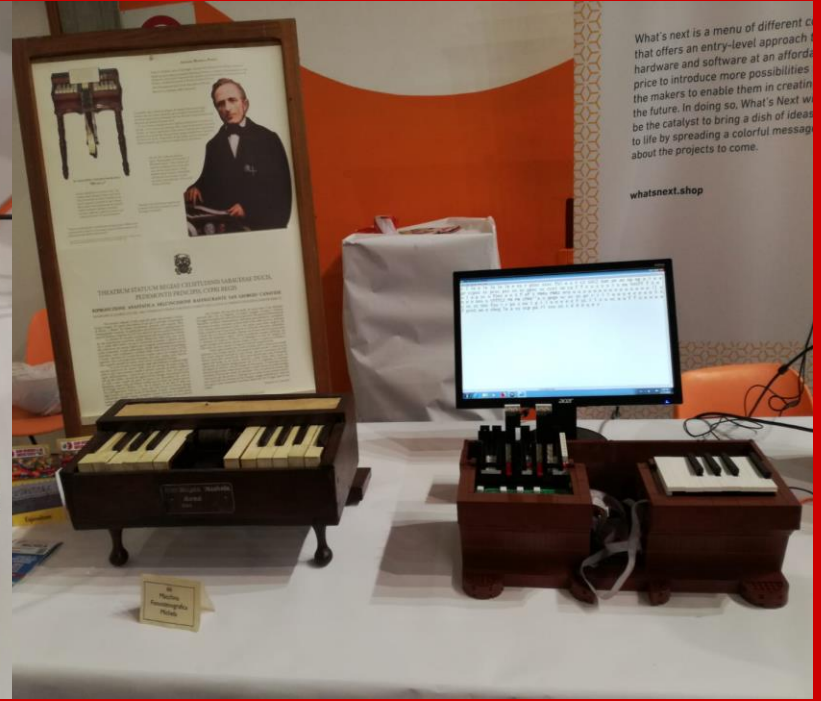




# The Venice 2019 Biennale

The old Parliament House  
in Canberra  
Museum of Australian  
Democracy





Latest experimentations:  
The DIY LEGO  
Michela machine as a game  
for passionates and children