

On Scylla and Charybdis...

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Johan van der Lei

- Medical background
- Don't like computers
- Need the machines

medical informatics

dates from the second half of the 1970s

based on French: *informatique médicale*

Other terms:

- health informatics

- medical computer science

- medical information sciences

- computers in medicine

- biomedical informatics

medical informatics

.... comprises the theoretical and practical aspects of information processing and communication, based on knowledge and experience derived from processes in medicine and health care.

Van Bommel

medical informatics

.... is the science of using system-analytic tools ...
to develop procedures (algorithms) for
management, process control, decision-
making and scientific analysis of medical
knowledge.

Shortliffe

~~Longstreet 19~~
5-3-'36

17/12 May 1941. Hosts were sweet. 45 Hosts taken.

31/1/62. V₂ L.M. 29 Oct. 61. Vrij wel keurig. Na 2 eten = armaz. bevond. eerste partus slot, wel hyperaemie.
G: 150/65. G: 61 Kg. (zonder velamen). HB 75. 76. Knechtelen in armaz. en volendoos. AT 9 Aug.

18/1. Marjaleen: dorf. o. t. v. h. r. = L. gaff. → v. h. r. 24/6/14 Ammerlaan damw. R. o. c. h. w. r. e. l. e. s. t. a. n. d. v. e. l. e. n.
20/7. Auk. 7. Loozon: bruisdruppels 5/8/14 L. r. v. j. m. i. n. i. s. T. u. l. m. i. n. i. s. t. A. b. c. y. c. l. i. s. t. z. e. d. s.

5/11/65. V_2 Lm 15 min. AT. 27/3/66. Jan Kleenheit

4/16/66 Mass: Sandwood on it half. Hight meadow covered place. Seeds white pine fragrance. O: etc. common. T: 1/2.
Vermi R = L = 1/2. The leaves neurotoxic. yes. &

¹²/₄ T₂: Allein synthetisch gewonnen. Leicht erpösa in reichlich! Wird lyophil. 9: 65 ¹⁶/₄ Kg T: 16 ¹⁶/₄ H₂O 86 ¹⁶/₄ 1 kann lyophil.

$2/5$ $\frac{1}{2}$ vloeit nog steeds na posten. De digestie 2d I. $2/5$ Ester: complexities. 13 adrenergine.

$\frac{1}{16} \text{ B. T. } 140^\circ \text{ G. } 65\frac{1}{4} \text{ 2 km. } \frac{2}{8} \text{ K. T. } 130^\circ \text{ G. } 64 \text{ K. 3 km. } \frac{2}{6} \text{ ammetit sel. guret. o. pa. V. T. } 180^\circ \text{ G. } 65\frac{1}{4} \text{ 3 km.}$

3/11/66 15 mid. yd. Sijpjan. bed: include my's monadials. B. loc. comp.

1967 10/1 V₂ D: 15/10. S: 62 1/4. 3 km. 1/3 Ester: große Fossilien → A + T?

¹⁶/₈ V5 immature male next door. Th. glob + narrow + striae. ¹²/₄ V₂. T. ¹⁴/₀/SS. g. by 3 km. ²⁸/₅ V₂ very young
on roadside. ST ¹³/₀/AS. Th. bulbous + irregular. ⁷/₆ V₂ ub. geof. V.T. ga.

30/8 II. von wasser 16. mageren & primärel wasser. 3.00 & 4.00 primärel 3.00 & 4.00. 9.5874

$1/2$ vs viel besser. In $1/4$ morgens, 2 promid, 3 Hofmit. $1/2$ vs allergi. phenylen hilft nicht. In Prednisolon

add. 20/8 1/2 Literen vingerlagen, deurtoren wil geloven 1x. 12 over op deuren 5.

25/9. Marshall: plant. Fl. glaucous ^{except} ~~orange~~ & glabrous. Fr. T. $1\frac{1}{2}$ G. $5\frac{1}{2}$. 1 Kmm by 5. $1\frac{1}{4}$ L. na wu by 2.5
2.5 feldmt. gent. good. T. $1\frac{1}{2}$ G. 61 kg. 3 Kmm by 2.5. $2\frac{1}{4}$ na py huan roca. Fl. lvs. subovate. *Desmantha*
Thunbergii

		A	Ba	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Se	T	U	V	W	X	Y	Z	IV														
		1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0												
name																						via	Theo	date		12-10-'23	no.																
adres																																											
datum		date		address		plan		datum		subject		object		evaluate		plan																											
1/3/82	Ropressor-retard							1/3/82		Glucose dagcurve		7,7/4,0/5,5/																															
2/3/82	Glucose dagcurve							2/3/82		R/Lopressor Retard 200mg ncl 2																																	
5/3/82	Glucose dagcurve							5/3/82		Glucose dagcurve		7,7/6,1/6,0																															
11/4/82	R/Lopressor Retard 200mg ncl 2							11/4/82		Glucose dagcurve		7,7/6,1/6,0																															
26/9/82	R/Lopressor Retard 200mg ncl 2							26/9/82		Glucose dagcurve		7,7/6,1/6,0																															





The Odyssey, book 12

.... Next came *Charybdis*, who swallows the sea in a whirlpool, then spits it up again. Avoiding this we skirted the cliff where *Scylla* exacts her toll. Each of her six slavering maws grabbed a sailor and wolfed him down.



Scylla and Charybdis

- Minor Greek gods
- Represent natural processes
- Cannot be controlled
- Failure to recognise either: you get killed
- Does not require choice but
- Requires navigation







M e d i t e r r a n e a n S e a

T y r r h e n i a n
S e a

Sicily

Messina-Milazzo

Torre
di Faro

Mortelle

Casa Bianca

SICILIA

M e s s i n a

SS113DIR

SP43

SP46

Ganzirri

Sant'Agata

Napoli-Catania

Messina-Milazzo

SP43

Messina-Isola Lipari
Messina-Isola Stromboli

Scilla

SS18

A3

E45

Porticello-San Trada

Zangarella

Cannitello

A3

E45

SS670

Villa San
Giovanni

SS18

Acciarello

Campo
Calabro

CALABRIA

Adorno

Fiumara

Colelli

Messina-Milazzo
Messina-Isola Lipari

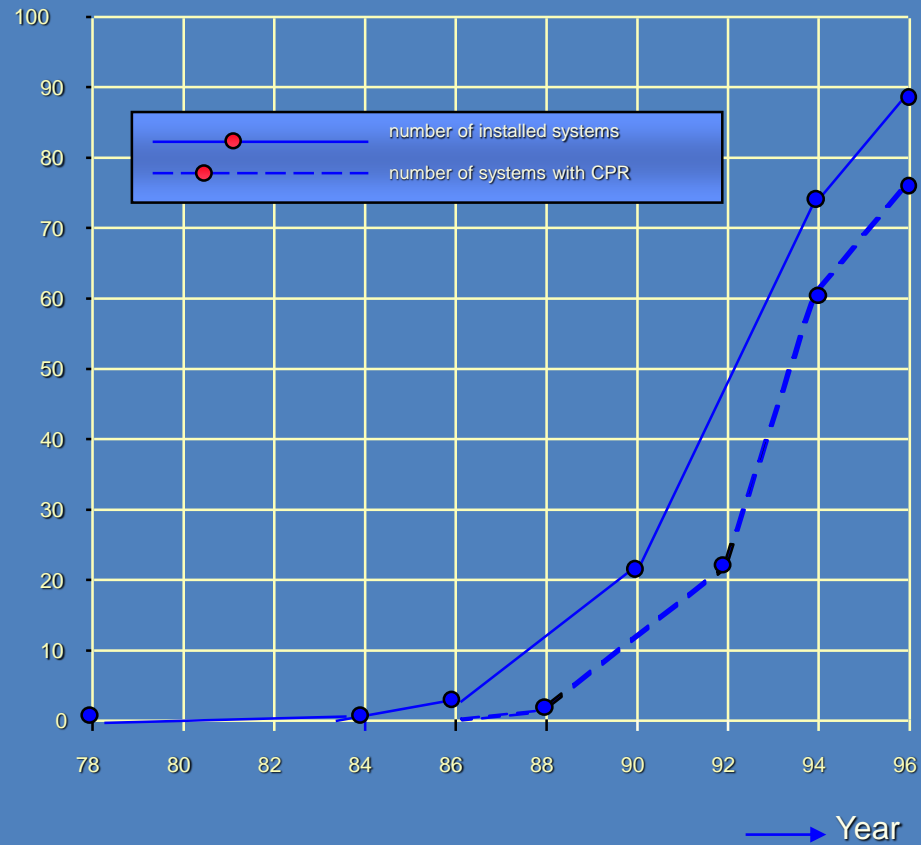
Messina-Isola Stromboli
Messina-Villa San Giovanni

Messina-Villa
San Giovanni

Meet Scylla

- Paper records:
 - not accessible
 - not enough structure
- Electronic records:
 - data available for many purposes
 - billing
 - patient care
 - quality
 - control costs
 - research
 - etc etc etc etc

Percentage of primary care practices



Growth of CPR systems in primary care

Meet Charybdis

- J.F. Burnum

- The misinformation era: The fall of the medical record. *Annals of Internal Medicine*, 1989;110:482-4
- “With the advent of the information era in medicine, we are pouring out a torrent of medical record misinformation.”
- “All medical record information should be regarded as suspect; much of it is fiction.”

EPR: Medical Data

- Human Artefacts
- Do not exist “an sich”
- “Real-world entities” observed and described by humans

Use of Data!

- Registration has a purpose
- Purpose determines
 - what
 - how

Ignore Purpose:

- Physicians hide information (Burnum 89)
- Everybody optimises income (Hsia 88)
- Control is exerted (Comm ACM 90)
- Analysis difficult (Zwetsloot 90)

Computers and patient data

- Remove the protection provided by paper
- Change fundamentally the nature of data

..... but

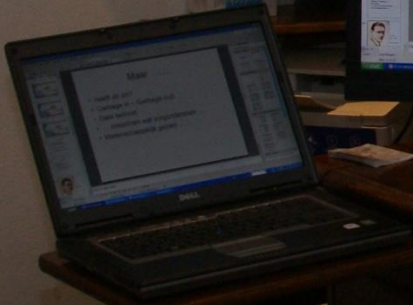
- The more things change, the more they stay the same
- 1515



Erasmus

“Erasmus, who never realized how insulting he was, always gave cause to misunderstanding and conflict. Norms and values were not yet adapted to the art of printing that increased the publicity of the written word thousand fold. Only slowly the distinction between the public, meant for many, and the private, meant for just a few, emerged.”

Johan Huizinga, *Erasmus*, 1924



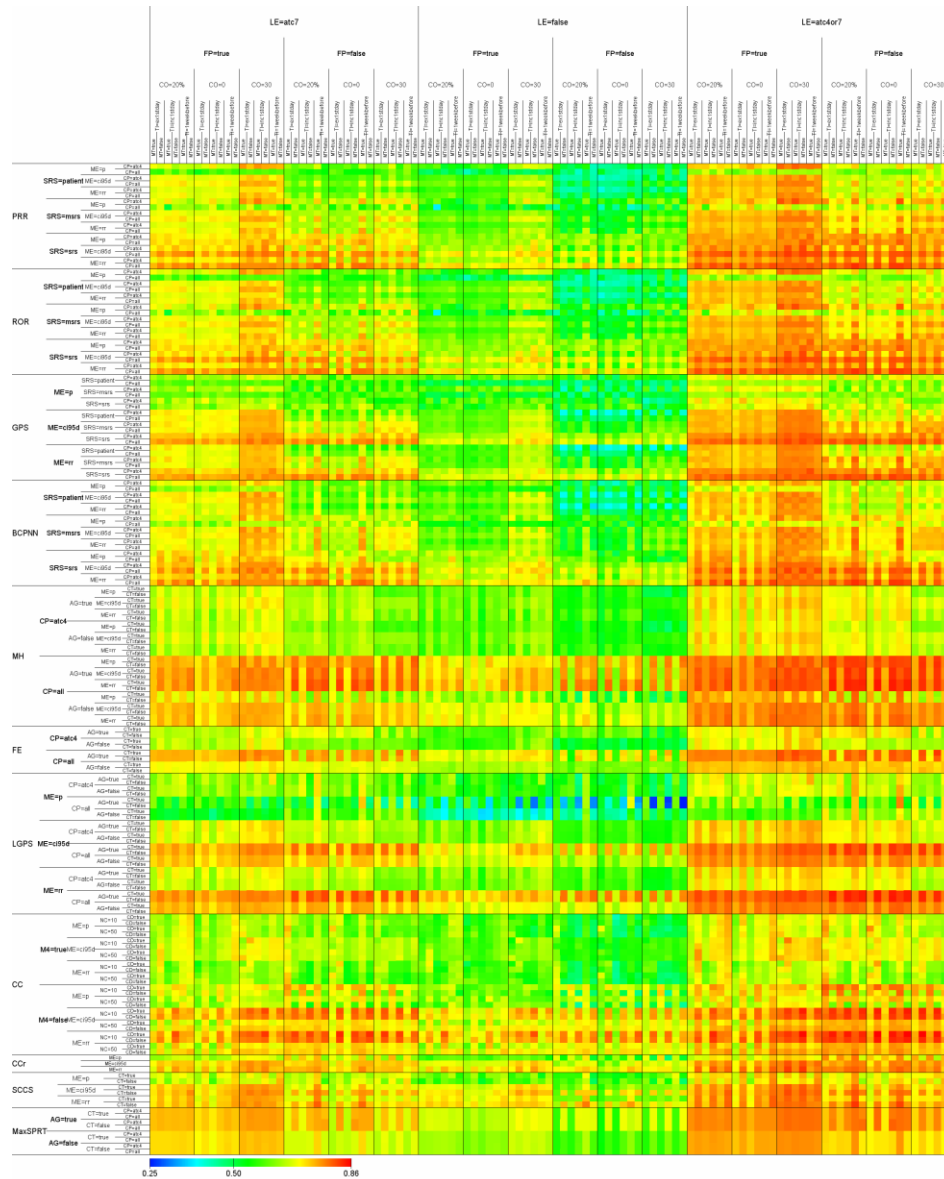


When working ..

- From data starvation to
- Data diarrhea
- Navigate between Scylla and Charybdis
- Acknowledge the fundamental change
- You cannot predict the wind
- Set short-term goals
- Start worrying

Each dot represents a set of parameters + a method

18,252 dots







T.S. Eliot

1888 – 1965

1934: The Rock

T.S. Eliot

Where is the life we have lost in living?

Where is the wisdom we have lost in knowledge?

Where is the knowledge we have lost in information?

and,

Where is the information we have lost in data?