A Simple Approach to NTCIR-10 MedNLP Task

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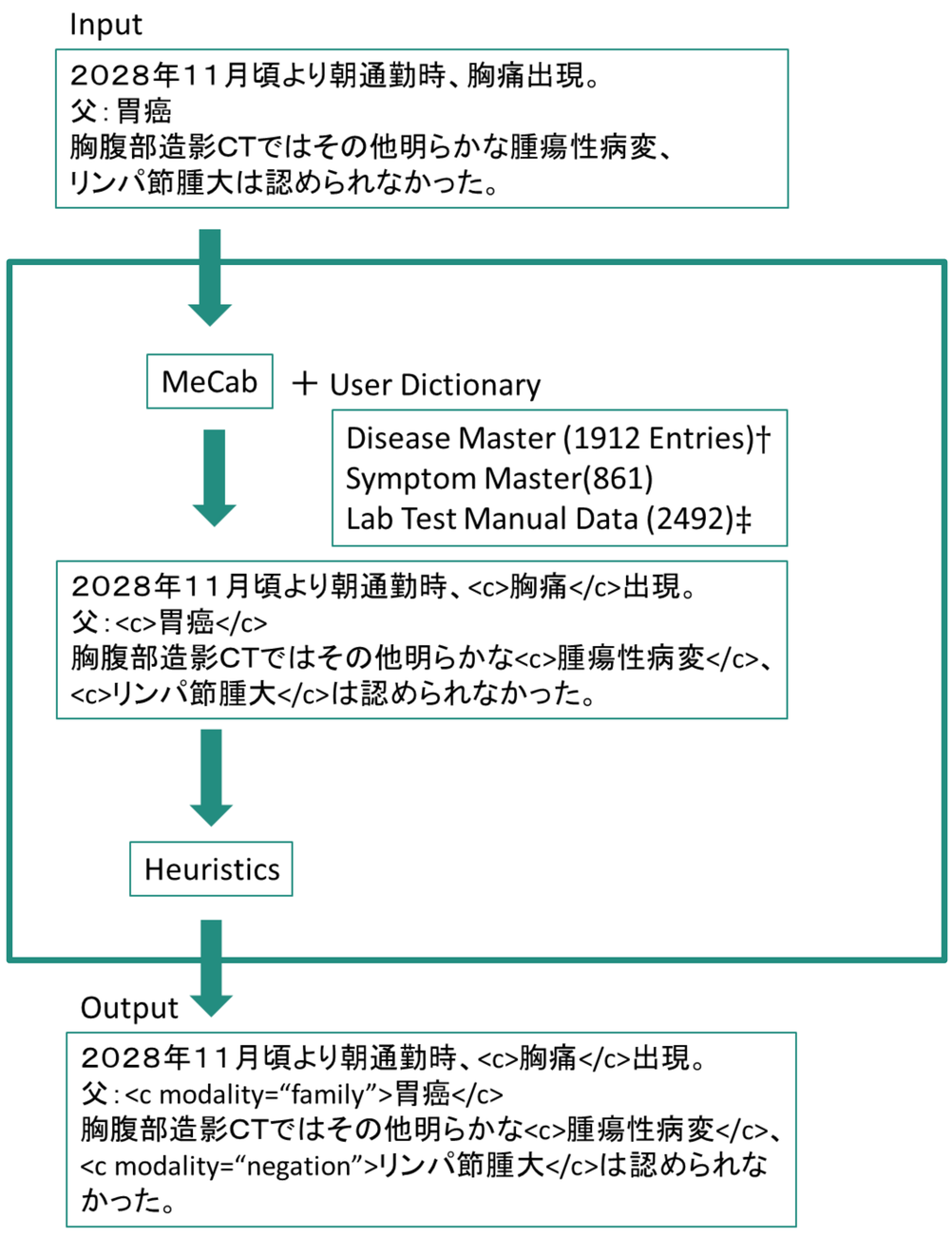
- Background
  - Few NLP resources are available to *everyone*
  - Doctors may have local, customized dictionaries or terminologies
- Purpose
  - Evaluate one of such terminologies against a publicly-available test data
  - Establish a method for NLP non-specialists to test their resources
- Method



Results on the Training Set

Type	Count		%	
Complete Match	697	1049	36.3	54.6
Partial Match	352		18.3	
No Match	873		45.4	

Failure Cases in the Training Set

- Nonspecific terms

  e. g. <c>異常所見</c> (anomalies), <c>病変</c> (lesion)

- Findings with the modifier that specify the location of bodies (partial match)

  e.g. <c>両下腿浮腫</c> (edema in both legs)

  ＊ 浮腫(edema) in the dictionary

- Test Results
  - Entities (<c> elements) in the training set were further added to the user dictionary

Elements in the Test Data Recognized by the Method

Source	Count		%	
Disease Master	127	550	12.7	54.8
Symptom Master	276		27.5	
Lab Test Manual	147		14.7	
Training Set	454		45.2	
Total <c> elements found	1004		100	

Test Scores

	2-way				total			
	P	R	F	A	P	R	F	A
A1	90.73	81.6	85.93	96.59	81.23	73.05	76.92	95.39
A2	88.34	82.03	85.07	96.46	79.02	73.38	76.09	95.26
B1	89.68	79.98	84.55	96.43	75.97	67.75	71.62	94.74
A3	88.26	79.76	83.8	96.33	79.76	72.08	75.72	95.22
B2	89.01	78.9	83.65	96.24	75.7	67.1	71.14	94.55
B3	89.76	77.81	83.36	96.37	81.15	70.35	75.36	95.26
C1	88.55	75.32	81.4	96.06	81.42	69.26	74.85	95.15
C2	88.98	74.24	80.94	96.08	82.1	68.51	74.69	95.22
D1	87.37	71.86	78.86	95.91	82.29	65.37	72.86	94.87
E1	78.91	78.14	78.52	94.57	71.15	70.45	70.8	93.46
E2	79.44	77.38	78.4	94.56	71.56	69.7	70.61	93.45
E3	80	76.19	78.05	94.43	71.93	68.51	70.18	93.32
F1	86.52	70.13	77.47	95.74				
G1	82.37	72.29	77	95.48	74.72	65.58	69.86	94.5
H1	66.32	62.88	64.56	93.72	54.34	51.52	52.89	91.82
C3	72.47	58.12	64.5	93.4	67.61	54.22	60.18	92.83
H2	64.86	60.93	62.83	93.41	53	49.78	51.34	91.56
H3	63.32	60.71	61.99	93.29	51.58	49.46	50.5	91.43
I1	58.67	63.74	61.1	93.5	53.49	58.12	55.71	92.49
J1	54.75	53.03	53.88	91.46	50.39	48.81	49.59	90.8
J2	51.84	44.16	47.69	91.09	47.4	40.37	43.6	90.47
K1	58.6	29.87	39.57	90.21	54.35	27.71	36.7	89.76

- Observations
  - Even a relatively small dictionary can help
  - Rule-based word-formation analysis would improve the result

† Compiled by Dr. K. Torigoe, available from I'ROM Holdings Co. Ltd,(http://www.irom-hd.co.jp/) under BSD license.
‡ F. Takaku, editor,. Laboratory Examinations Databook 2009-2010. Igaku-shoin, 2009, in Japanese.