A table on work on summarization at the AAAI98 Spring Symposium workshop

A working paper by JF Delannoy
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Title	Author	Task, Technique	Comment (jfd)	Ca.
"To build text summaries of high quality, nuclearity is not sufficient", p 1	Daniel Marcu, University of Toronto (now at ISI)	discourse trees (RST) built, with new heuristics Result: mixed appreciation of quality to build summary.	Unclear which conclusions to draw from the results: is nuclearity is ot sufficient, what else to use, and how to combine it?	
"Beyond string matching and cue phrases: improving efficiency and coverage in discourse analysis", p 9	Simon Corston-Oliver, Microsoft Research	analyzer RASTA builds RST. Choice between hypotheses. Uses a subset of 13 relations. Heuristics on syntax, order	Mentions Marcu, but does not give contrast with him.	D
"Sentence extraction and rhetorical classification for flexible abstracts", p 16	Simone Teufel, University of Edinburgh Marc Moens, University of Edinburgh	recognition of functional structures (argumentative entities: goal, problem statement, conclusion, results) with an extension of Kupiec's method . Can produce structured abstract.	structured abstracts: see Harley and Snydes -> Cohen 87 on arg trees (claim - evidence) in Computational linguistics. #13	
"SummarizerTool: A robust practical text summarization", p 26	Tomek Strzalkowski, GE CRD Jin Wang, GE CRD Bowden Wise, GE CRD	Selection of passages with mixed criteria (freq, title, NP in opening sent of par, words in only some par, beginning of report, cues) Then, decision to include background + delimitation of this background Takes into account the text genre, via a DMS (Discourse Macro Structure) template. But domain-independent Java prototype Heuristics to retrieve main-news: frequency, title, NP in first sentence of a par, concentration in one par, position (early), some cue phrases. Heuristics on background: force having NP early in sentence, resolve anaphor (not done), past tense and dates, distinctness in distribution (not done), proper names (??).	Relevant to the Ottawa project (text genre; query-based summary + summary-based query expansion) Heuristics rather classical	GQ
"Generating patient-specific summaries of online literature" , p 34	Kathleen McKeown, Columbia University Desmond Jordan, Columbia University Vasileios Hatzivassiloglou, Columbia University	Queries medical literature for patient-relevant info: matches relevant info with patient record. Combine all relevant sentences. Conflict resolution is simplified Reference resolution (pronominal; later for definite anaphora)	Future: rephrasing (group is strong on generation)	R

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“Advantages of Query Biased Summaries in Information retrieval", p 44	Anastasios Tombros, University of Glasgow Mark Sanderson, University of Glasgow Phil Gray, University of Glasgow	Summarization criteria: title, location, term frequency, and query term frequency. Query itself is done by tf-idf Fixed 15% size ratio. Evaluation shows good effect of query bias.	Makes a case for query bias (see also Strzalkowski; Lin)	E? Q
"Assembly of topic extraction modules in SUMMARIST", p 53	Chin-Yew Lin, ISI/USC	Summarist: topic identification, topic interpretation, summary generation (keywords, extracts, template-filling, full generation w PENMAN) Modularized: tokenizer, tagger, morpher (w WordNet), phraser (collocations), td-ief, clustering by similarity Topic identification with “topic signatures “ (linear combination of keywords.) REM: not text genre Future: Proper names, anaphora, discourse structure, multilingual	Also see Madrid procs - Prob: “topic signatures” are not in fact about co-occurrences as such. Site: www.isi.edu/cyl/summarist - WordNet only used for morphology. In the future, plans to integrate Lin’s PhD on thesaurus to the topic identification approach.	
"Summarization evaluation methods: experiments and analysis", p 60	Hongyan Jing, Columbia University Regina Barzilay, Ben-Gurion University Kathleen McKeown, Columbia University Michael Elhadad, Ben-Gurion University	Study of : Agreement of human subjects, Task-based eval (e.g. in Tipster’s task of helping users categorize text after reading summary). Unclear trends Argue for letting benchmarked systems set their own length (vs Tipster’s imposed cutoff length)	unconclusive Maybe should include explicit semantic evaluation criteria	S
"Using cohesion and coherence models for text summarization", p 69	Inderjeet Mani, MITRE Eric Bloedorn, MITRE Barbara Gates, MITRE	Study of cohesion (deliberate organization) and coherence (connectedness) Cohesion (cf Halliday & Hassan): anaphora, ellipsis, conj, lexical rel (reiteration, synonymy, hypernymy) Tools: MITRE’s Alembic tager, PN with SRA”s NameTag, WordNet Spreading activation (vs tf-idf and local weighting) over cohesion is found best indicator of relevance	Future: combining coherence and cohesion	D,Y
"Text summarization based on thematic representation of texts", p 77	Natalia Loukachevitch, Institute of USA and Canada Studies	generalization of words w thesaurus, then selection of passages	good assortments of concepts. Drab presentation	T
"Rewriting saves extracted summaries", p 85	Satoshi Sato, JAIST Madoka Sato, Kanazawa Gakuin University	Edits technical newsgroup postings paraphrasing rules for consistency, standard form, explicit headline. Uses thesaurus	Demo at www.sato-jaist.ac.jp:8000/faq Future: word-level and tree-level rewriting	
"Flexible summarization", p 93	JF Delannoy, RES International K. Barker, University of Ottawa T. Copeck, University of Ottawa M. Laplante, RES International S. Matwin, University of Ottawa S. Szpakowicz, University of Ottawa	Composite criteria: statistic, positional, later shallow linguist. Text genre Summary types adaptation, via linear formulae for selection heuristics Summary is a collage of sentences Dynamic sentence selection for better coverage over keywords.	Only partly implemented. Future: - take genre into account - refine formulae -automatic detection of text genre	G

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"Summarization of Documents that Include Graphics", p 101	Robert Futrelle, Northeastern University	Summarizes graphics by lumping, removing parts. Discusses salience of parts of narrative (but does not say how to select semantically) “distillation” of graphics, esp flowcharts (omit intermediate steps, etc.) 10-step method uses a formal grammar for graphics	unclear how a graphic is parsed and how reliably unclear how far implemented must graphics be specially encoded ?	Se?
"Producing Intelligent Telegraphic Text Reduction to provide an Audio Scanning Service for the Blind", p 111	Gregory Grefenstette, Xerox Research Centre Europe	Contraction of text into “telegraphic” form, to pass it to a speech synthesis system for blind people. Testing various levels of contraction (8 grids, e.g “only sobject and object nouns, including subclauses)	Not tested yet on blind people Demo soon available at www.xrce.xerox.com/research/mltt/toolhom.html Also Demo of tagger at .../pos.html	
"Dynamic Presentation of Document Content for Rapid On-Line Skimming", p 118	Branimir Boguraev, Apple Computer Yin Yin Wong, Wong Design Christopher Kennedy, Northwestern University Rachel Bellamy, Apple Computer Sascha Brawer, University of Zurich Jason Swartz, Apple Computer	phrasal analysis dynamic (interactive) interfaces RSVP: “document lens” overlay of focus and context TopicsTicker: doc title, and cycling topics ViewTool: 3 vertical panels (text with highlighted passage for situating; capsule 1 with mouse-over sensitivity; capsule 2)	Seems to have good usability REM: Apple dissolved group	V, Se ?
"MINDS - Multi-lingual INteractive Document Summarization", p 131	Jim Cowie, New Mexico State University Kavi Mahesh, New Mexico State University (now with Oracle) Sergei Nirenburg, New Mexico State University Remi Zajac, New Mexico State University	multi-lingual, multi-document Generate one summary in English or in source language (except, I suppose, when multi-lingual input texts) Core summariser criteria: syntax, doc structure, frequencies; language identification, simple doc structure (SGML, HTML)	Kavi Mahesh is now with Oracle Site at crl.nmsu.edu/Research/Projects/minds/demonstrati ons.html Future: better word segmentation, morphology, proper names, corpus statistics for normalize weighting; language-dependent doc-structure heuristics.	mu, M
"Evaluation of automatic text summarization across multiple documents", p 133	Mary McKenna Liz Liddy, TextWise	Combinatorics of 4 parameters: query-dependent, multidoc, generated, informative/indicative. based on DR-LINK: NPs, PNouns w topic category, subject/topic, text structure, most relevant segment relative to a query. Programmatic only: intentions.	Seems more an evaluation of DR-LINK than of the proposed summarizer.	R,E, M, Q
"Design and evaluation of a psychological experiment on the effectiveness of document summarization for the retrieval of multilingual WWW documents", p 136	Joanne Capstick, DFKI, Saarbruecken Gregor Erbach, DFKI, Saarbruecken Hans Uszkoreit, DFKI, Saarbruecken Dagmar Unz, MEFIS, Saarbruecken	An evaluation task for european project MULINEX (multilingual retrieval). Users evaluate various types of summaries (parms: by relevance/by theme; first n chars vs query independent vs query dependent	experiment did not give clear conclusions qualitative only	Q
"The generation of abstracts by selective analysis", p 139	Horacio Saggion, University of Montreal Guy Lapalme, University of Montreal	indicative selection and assembly, plus informative selection and assembly	Forte of the team is generation. Little advancement; programmatic	Ge
"A Grounded Theory Approach to Expert Summarizing", p 142	Brigitte Endres-Niggemeyer, Polytechnic of Hannover	Acquisition of expertise professional abstrators. Blackboard architecture KADS methodology Demo has animations to materialize the transfer of information by bees, etc.	The most exhaustive and in-depth analysis of human abstraction (520+ strategies) Book due soon (Springer), including prototype (LISP/CLOS, Macromedia) Abstractor do discourse analysis, and BEN does discourse analysis on their reports.	H, Y
"Text Summarization Based	Udo Hahn, Freiburg University	terminological logic	formal	Se,

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on a Terminological Logic", p 145	Ulrich Reimer, Swiss Life	Count concepts, concept properties, relations to concepts Uses abstraction (one level up) to generalize Yields a set of topic descriptions, corresponding to a text graph	how generalizable/scalable ? Unclear how biased towards descriptions or first occurrences	H, Y
"Connectionist Modeling of Human Event Memorization Processes with Application to Automatic Text Summarization", p 148	Maria Aretoulaki, University of Erlangen-Nurnberg Gabriele Scheler, TU Munich Wilfried Brauer, TU Munich	Connectionist approach to relate surface, syntax, semantic and context (?) Article only gives conceptual background -- no details on system; for this, referring to Aretoulaki 96 (PdD)	Strong cognitivist claim - from surface to mental schemata Unclear how this works	C

Categories

Categories used in the bibliography at end of Proceedings (bib done by I Mani, D Radev, G Dias, H Jing, B Boguraev, M Kantrowitz, T Ostler, and others):
REM: categories are not designed to give an additive-exclusive coverage; they overlap (technique; input; system vs eval; output).

D	discourse model
E	evaluation
H	models of human abstractors
I	information extraction
K	knowledge-based
L	machine learning
M	multi-document
N	narrative summarization
O	overview
P	knowledge-poor
S	statistical
Y	syntactic analysis

Suggested additions:

C	connectionist
F	input formatting used
G	text genres
Ge	generation
H	hypertext-builder
Hi	Highlighting
Mu	multi-lingual
Q	query-based
R	also text retrieval
Se	semantic representation
V	visualization