

Spanless Event Annotation for Corpus-Wide Complex Event Understanding

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Overview

- This poster describes a new spanless event annotation approach to promote whole-corpus understanding of complex events as part of the DARPA Knowledge-directed Artificial Intelligence Reasoning Over Schemas (KAiROS) Program
- Program aims to build technology capable of reasoning about complex real-world events in order to provide actionable insights to end users
- Technology must be capable of aggregating information into a coherent semantic representation, and instantiating observed events or predicting unseen but expected events using a relevant event schema selected from a generalized schema library
- Complex event annotation comprises a series of temporally ordered event frames populated with information aggregated from the whole corpus and labeled with an unconstrained tag set based on Wikidata Qnodes
- Multilingual (English, Spanish, Russian), multimedia (text, video, audio, image) data
- Corpus expected to appear in LDC catalog starting in 2024

Complex Event Development

Corpus Complex Event Incidents		
Scenario	CE_ID	CE Name
Hazardous Spills	CE2201	2014 Chemical spill at Grupo Mexico's Buenavista del Cobre mine in the Mexican state of Sonora
	CE2202	2020 Mauritius Oil Spill
	CE2203	2022 Aqaba gas leak
Riots	CE2204	2013 Little India riot (December 8, 2013 - Singapore)
	CE2205	2021 Dutch curfew riots (23–26 January 2021)
	CE2206	2021 Spain riots about imprisonment of Pablo Hasél (16 February 2021 – 27 February 2021)
Disease Outbreaks	CE2207	2017 Dengue, Peshawar, Pakistan
	CE2208	2017 Marburg, Uganda, October
	CE2209	2018 Nipah Virus, India
Terrorist Attacks	CE2210	Brussels bombing (March 22, 2016)
	CE2211	Nice Truck Attack (July 14, 2016)
	CE2212	Strasbourg Christmas Market Attack (11 December 2018)
Coups	CE2213	2010 Niger coup d'état (18 February 2010)
	CE2214	2021 Guinean coup d'état (5 September 2021)
	CE2215	2021 Myanmar coup d'état (1 February 2021)

Document Count by Language				
CE_ID	Eng	Rus	Spa	Total
CE2201	12	0	8	20
CE2202	12	8	11	31
CE2203	9	6	8	23
CE2204	15	3	4	22
CE2205	6	9	11	26
CE2206	7	12	7	26
CE2207	16	0	3	19
CE2208	7	5	7	19
CE2209	13	8	5	26
CE2210	4	7	11	22
CE2211	5	10	4	19
CE2212	7	6	9	22
CE2213	9	2	9	20
CE2214	10	4	9	23
CE2215	7	3	6	16
Total	139	83	112	334

Document Count by Data Type					
CE_ID	Other	Blog	Text	Video	Total
CE2201	5	2	7	6	20
CE2202	21	0	5	5	31
CE2203	6	0	14	3	23
CE2204	4	0	11	7	22
CE2205	15	0	7	4	26
CE2206	12	0	8	6	26
CE2207	6	0	10	3	19
CE2208	10	0	6	3	19
CE2209	9	1	14	2	26
CE2210	15	0	6	1	22
CE2211	11	0	6	2	19
CE2212	10	0	11	1	22
CE2213	3	0	14	3	20
CE2214	8	0	13	2	23
CE2215	6	1	4	5	16
Total	141	4	136	53	334

Annotated Reference Events, Relations, and Arguments for Each CE		
CE_ID	Events	Arguments
CE2201	23	68
CE2202	20	58
CE2203	23	58
CE2204	24	48
CE2205	17	73
CE2206	17	87
CE2207	16	55
CE2208	23	50
CE2209	13	52
CE2210	15	43
CE2211	24	55
CE2212	28	55
CE2213	21	38
CE2214	17	35
CE2215	15	49

Sample Documents CE2202

Spanish article

Detienen a dos personas por el derrame de petróleo en la isla de Mauricio

La policía arrestó al capitán y al segundo al mando del buque japonés MV Wakashio que encalló en las costas de la isla de Mauricio a finales de julio, y detendrá unas 1.000 toneladas métricas de petróleo. De acuerdo con la empresa propietaria del barco, Mitsui O.S.K. Lines, ambos enfrentan cargos por poner en peligro una navegación segura.

Por María Alejandra Requena, CNK Publicado a las 17:33 ET (21:33 GMT) 19 agosto, 2020

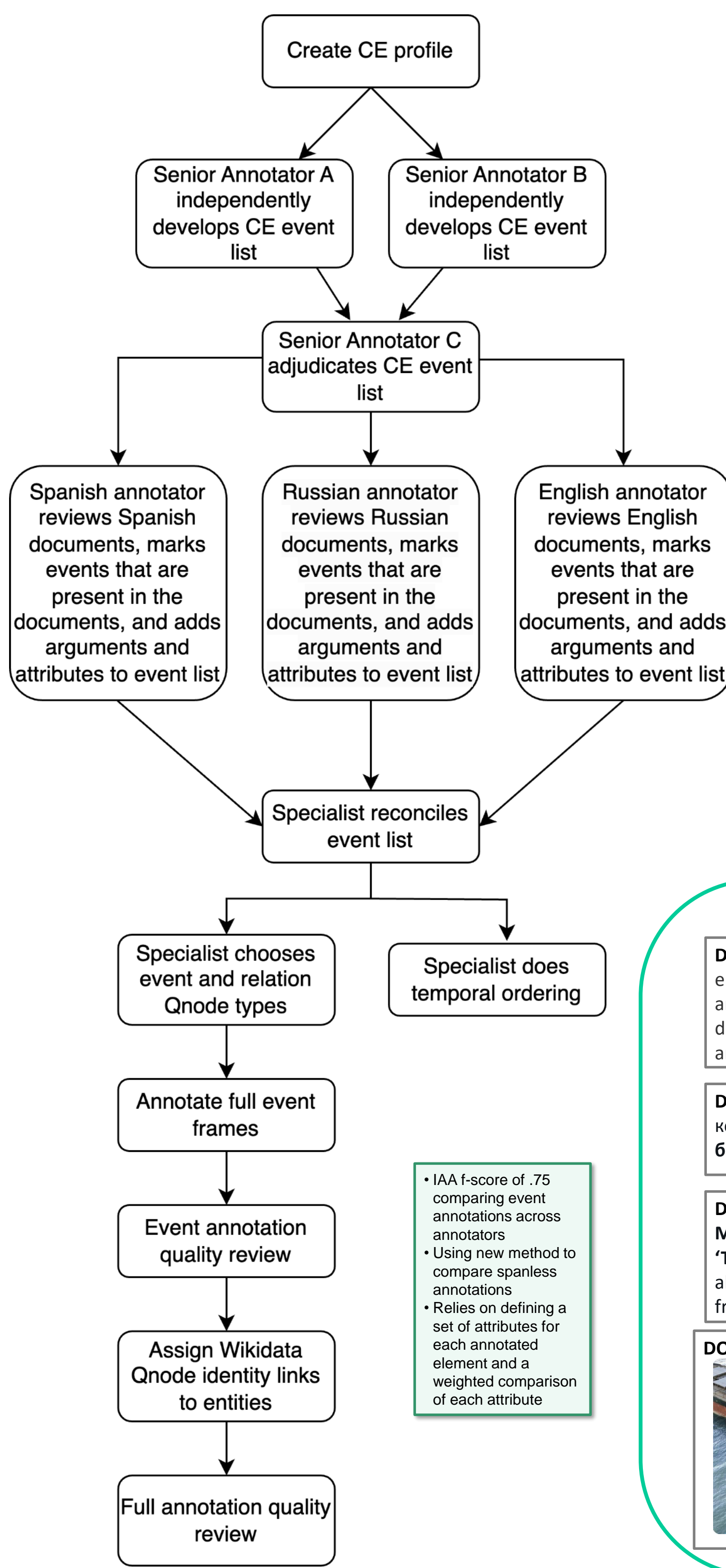
English video



Russian tweet

В конце июля японский танкер Wakashio сел на мель у Маурикия. Судно разломилось пополам. По информации компании Mitsui O.S.K. Lines, в океан попало примерно 1000 из 3000 тонн топлива. Остальное горючее успели откачать на другие танкеры. Из-за аварии на Маурикии объявили режим ЧС

Spanless Event Annotation



CE Profile for CE2202: 2020 Mauritius Oil Spill

Summary of the CE: On July 25, 2020, the Japanese cargo vessel MV Wakashio ran aground on a coral reef offshore of Pointe d'Esny, Mauritius. The accident caused the ship to spill about 1000 metric tons of oil into the waters around Mauritius. The ship ultimately split in half, and Indian Oil Mauritius Ltd undertook efforts to salvage the remaining oil from the vessel. Marine life along the coast was heavily impacted by the spill. Several countries and international NGOs assisted with the containment and cleanup of the oil. The captain and first mate of the ship, who were intoxicated at the time of the accident, were both arrested and charged with endangering safe navigation. They were convicted and sentenced to 20 months in prison.

Scope of the event: This event begins with the celebration at which the captain of the MV Wakashio became intoxicated. It ends with him and his first mate being sentenced to 20 months in prison for causing this disaster.

Annotated Event Frame			
Event CE	CE2202: 2020 Mauritius Oil Spill		
Description	Indian Oil Mauritius Limited (IOML) and workers removed more than 3000 tons of oil from the wreck of the MV Wakashio onto the IOML barge Tresta Star near Mauritius after August 6 2020		
Type	DWD_Q909534 mass_transfer		
Attribute	none		
Timestamp	Start after 2020-08-06Txx:xxxx End unknown		
Argument	Type Qnode	Role	Attribute
workers	Q327055 (worker)	A0_pag_sender	none
Indian Oil Mauritius Limited (IOML)	Q1289348 (Indian Oil Corporation)	A0_pag_sender	none
more than 3000 tons of fuel oil	Q214199 (fuel oil)	A1_ppt_sent	none
MV Wakashio	Q98114907 (Wakashio)	A3_dir_sent-from	none
Tresta Star	Q104380849 (Tresta Star)	A2_got_sent-to	none
Mauritius	Q1027 (Mauritius)	AM_loc	none

Arguments from across languages & media

DOC 1: Los trabajadores lograron eliminar combustible del granelero antes de que se dividiera en dos el domingo, evitando una catástrofe ambiental mucho mayor.

workers

DOC 2: возле Маурикия после кораблекрушения уже выкачено более 3 тысячи тонн нефти

Near Mauritius

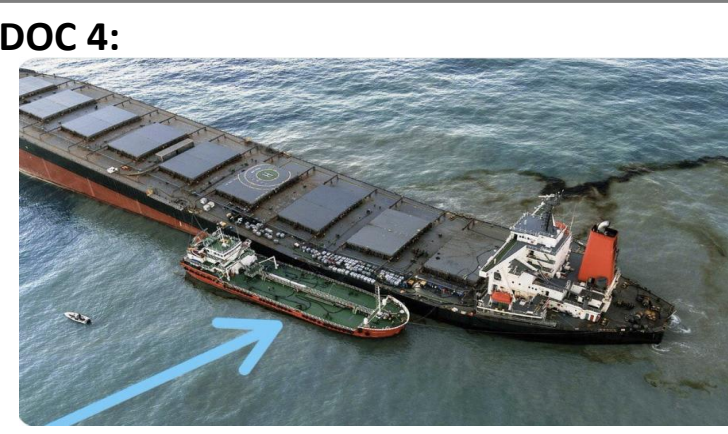
more than 3000 tons of oil

DOC 3: Mauritius Oil Spill: Indian Oil Mauritius Limited (IOML) sent a barge "Tresta Star" towards the site and was able to evacuate 3000 tonnes of fuel oil from intact tanks after August 6th.

Indian Oil Mauritius Limited (IOML)

Tresta Star

after August 6



MV Wakashio

CE 2202 Annotated Event List Descriptions and Temporal Ordering

Event List for CE2202 - Mauritius Oil Spill		
Event Descriptions	1st Layer	2nd Layer
The crew of the MV Wakashio was celebrating a sailor's birthday on the MV Wakashio on July 25 2020	Exactly 1	n/a
The crew of the MV Wakashio was seeking a wi-fi signal on July 25 2020	Exactly 1	n/a
Captain Sunil Kumar Nandeshwar was under the influence of alcohol on the MV Wakashio on July 25 2020	Exactly 2	n/a
The MV Wakashio sailed off course to the Mauritius shore on July 25 2020	Exactly 3	n/a
MV Wakashio ran aground on a coral reef offshore of Pointe d'Esny on July 25 2020	Exactly 4	n/a
Protected areas of the coast, including Blue Bay Marine Park, were isolated between July 25 2020 and July 29 2020	Exactly 5	n/a
The MV Wakashio leaked approximately 1000 metric tons of fuel oil, diesel, and lubricant oil to Mauritian waters and beaches, starting on August 6 2020	Exactly 6	n/a
Mauritian authorities requested help from France and the UN after August 6 2020	Exactly 7	Exactly 1
India, France, Japan, IMO, OCHA, UNOSAT, UMDP, ITOPE, Nagashiki Shipping, South Africa, Singapore, and UN sent experts, including a 10-member Technical Response Team from Indian Coast Guard, an expert in spill response, and over 30 tons of equipment including two tugs, to Mauritius after August 6 2020	Exactly 7	Exactly 2
Indian Oil Mauritius Limited (IOML) and workers removed more than 3000 tons of oil from the wreck of the MV Wakashio onto the IOML barge Tresta Star near Mauritius after August 6 2020	Exactly 7	n/a
Volunteers and around 100 soldiers of the Special Mobile Force cleaned up the oil around Mauritius after August 6 2020	Exactly 7	n/a
Sea creatures, including 40 dolphins, died near Mauritian beaches after August 6 2020	Exactly 7	n/a
Mauritius's tourism industry, divers, and tour guides were adversely impacted after August 6 2020	Exactly 7	n/a
The MV Wakashio broke up in the Indian Ocean on August 15 2020 at around 4:30 PM	Exactly 8	n/a
Sunil Kumar Nandeshwar and a first mate were arrested on August 19 2020	Exactly 9	n/a
A court in Port Louis found Sunil Kumar Nandeshwar and the first mate guilty of endangering safe navigation between August 19 2020 and December 27 2021	Exactly 10	n/a
The forward section of the MV Wakashio was towed into the Indian Ocean on August 24 2020	After 8, Before 11	Exactly 1
The forward section of the MV Wakashio was scuttled in the Indian Ocean on August 24 2020	After 8, Before 11	Exactly 2
Sunil Kumar Nandeshwar and the first mate were sentenced to 20 months in jail for endangering safe navigation on December 27 2021	Exactly 11	n/a