Gold standard for novelty detection with evaluation.

Query (entity or relation which needs to be in novel triple)	Document (Dbpedia Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation. (Sent. with one entity and one literal are removed; also sentences where subject/object is only coreference.) One line for each triple.	Occurrence of "query entities" (for gold std. creation)	Occurrence of "query relations" (for gold std. creation)	Entities are in binary relation to each other. (S-V-O, no literal or quadrupel)	Entities in binary relation, but relation expressed as particible	Relation detected, but statement only representable as quadruple or literal (also, if object is too general), i.e. no triple relation, no KB import, but at least 2 entities	Would it be a novel triple? (ground truth) What is the novelty class?	Corresponding novel triple is:	Novel triple, but parts of the semantics of the statement in the text gets lost. Hence, no KB import useful.	Triple not novel, already in KB (novelty class A)	Triple not novel, since too irrelevant (at least 2 parts of triple not in KB)	Sentence contains (i) noun phrase and participle construction (cf. The iPhone 5 is a touchscreen smartphone developed by Apple Inc.) or (ii) parentesis (e.g., App Store, an online application … for …) or similar.	Novel triple in output, i.e. detected? Which novelty class in output?	If yes, with modale verb?	Triple in output correct? (i.e. correct novelty class, correct entities and relations as in gold standard)	s_t	p_t	p_t	s	p	o	A coreference was matched (e.g., "the game" to :Game)	Surface form detected correctly, but not in xLiD/Dbpedia (xLiD problem). If yes, S or O affected?	Wrong disambiguation? detected, but p in KB is wrong or unsuitable (different semantics)	p_t correctly detected, but p in KB S or O affected?	Transformation into active voice is necessary, but has not happened.	Transformation into active voice makes no sense, but happened.	Detected as novel triple in ReVerb-baseline. Novelty class?	Novelty class of ReVerb baseline. Novelty baseline correct (if triple is in ground truth)?	Textual Triple of ReVerb baseline
Amazon.com	Tom_Clancy's_Splinter_Cell:_Conviction	134	Amazon.co.uk released its own Limited Edition which contained the standard version of the game, a separate DVD case called "Exclusive Pre-order Pack" and the SPAS-12 code, a 32-page comic book and a DVD detailing the making of the game.	Amazon.com	release																											
Apple Inc.	iPhone	7	Other functions video games, reference works, social networking, etc. can be enabled by downloading application programs ; as of October 2013, the App Store offered more than one million apps by Apple and third parties.	Apple Inc.					1																								
Apple Inc.	iPhone	18	Development of what was to become the iPhone began in 2004, when Apple started to gather a team of 1000 employees to work on the highly confidential "Project Purple", including Jonathan Ive, the designer behind the iPhone.	Apple Inc.					1																								
Apple Inc.	iPhone	22	Instead, Cingular gave Apple the liberty to develop the iPhone's hardware and software in-house and even paid Apple a fraction of its monthly service revenue , in exchange for four years of exclusive US sales, until 2011.	Apple Inc	develop				1																								
Apple Inc.	iPhone	27	On July 11, 2008, Apple released the iPhone 3G in twenty-two countries, including the original six.	Apple Inc., iPhone	release	1			B2	Apple Inc.-released-iPhone 3G	1				E2				1	1	1	1	1			O						
Apple Inc.	iPhone	28	Apple released the iPhone 3G in upwards of eighty countries and territories.	Apple Inc., iPhone	release	1			B2	Apple Inc.-released-iPhone 3G	1																					
Apple Inc.	iPhone	41	On January 11, 2011, Verizon announced during a media event that it had reached an agreement with Apple and would begin selling a CDMA2000 iPhone 4.	Apple Inc., iPhone	announce				1																								
Apple Inc.	iPhone	55	On September 12, 2012, Apple announced the iPhone 5.	Apple Inc, iPhone	announce	1			B2	Apple Inc.-announced-iPhone5																						
Apple Inc.	iPhone	63	On September 10, 2013, Apple unveiled two new iPhone models during a highly anticipated press event in Cupertino, California, U.S.	Apple Inc, iPhone	unveil				1																								
Apple Inc.	iPhone	259	On January 15, 2008, Apple released software update 1.1.3, allowing users to create "Web Clips," home screen icons that resemble apps that open a user-defined page in Safari.	Apple Inc.	release				1						E2															B2	0	apple	release	software
Apple Inc.	iPhone	291	On September 12, 2012, Apple unveiled the iPhone 5, the sixth iteration of the iPhone.	Apple Inc, iPhone	unveil	1			C	Apple Inc.-unveil-iPhone 5					C			1	1	1	1	1		1								
Apple Inc.	iPhone	340	Apple also developed a separate application to view YouTube videos on the iPhone, which streams videos after encoding them using the H.264 codec.	Apple Inc, iPhone	develop				1						C				1		1	1				O						
Apple Inc.	iPhone	364	Apple has also licensed Microsoft ActiveSync and now supports the platform with the release of iPhone 2.0 firmware.	Apple Inc, Microsoft ActiveSync		1			E2	Apple Inc.-licensed-ActiveSync					E2			1	1	1	1	1			O						
Apple Inc.	iPhone	397	In July 2011, Apple released iOS 4.3.5 to fix a security vulnerability	Apple Inc, iOS	release	1			E2	Apple Inc.-released-iOS 4.3.5																						
Apple Inc.	Nokia	117	Symbian was a smartphone operating system that Nokia expected to allow it compete with Apple and Samsung.	Apple Inc., Nokia					1																								
Apple Inc.	Nokia	188	RIM increased its share during the period from 16.6% to 19.9%, but Apple increased share from 8.2% to 14.4%.	Apple Inc.					1																								
Apple Inc.	Nokia	205	Nokia was overtaken by Apple as the world's biggest smartphone maker by volume in June 2011.	Nokia, Apple Inc., smartphone		1			C	Nokia-overtook-Apple Inc.			1		C			1	1	1	1	1	1								
Apple Inc.	Nokia	324	In October 2009, Nokia filed a lawsuit against Apple Inc. in the U.S.	Apple Inc., Nokia					1																								
Apple Inc.	Nokia	326	Apple was quick to respond with a countersuit filed in December 2009 accusing Nokia of 11 patent infringements.	Apple Inc., Nokia					1																								
Apple Inc.	Nokia	332	In June 2011, Apple settled with Nokia and agreed to an estimated one time payment of $600 million and royalties to Nokia.	Apple Inc., Nokia		1			C	Apple Inc.-settled-Nokia			1		C			1	1	1	1	1	1								
iOS	iPhone	333	Google Chrome was introduced to the iOS on June 26, 2012.	iOS		1			C	Google Chrome-introduced to-iOS					C			1	1		1	1		1								
iOS	Need_for_Speed:_Hot_Pursuit_(2010_video_game)	1	Need for Speed: Hot Pursuit is a 2010 racing video game developed by British games developer Criterion Games and published by Electronic Arts for PlayStation 3, Xbox 360, Microsoft Windows, Wii, iOS, Android, webOS and Windows Phone.	iOS					1																								
iOS	Prince_of_Persia:_Warrior Within	13	On the 3rd of June 2010, a port of Warrior Within was released for the iOS.	iOS					1																								
iOS 2.0	iPhone	182	It has no optical zoom, flash or autofocus, and does not natively support video recording. iPhone OS 2.0 introduced geotagging for photos.	iOS 2.0	introduce				1						E2			1	1	1	1	1			O						
iOS 4.3.5	iPhone	397	In July 2011, Apple released iOS 4.3.5 to fix a security vulnerability	Apple Inc, iOS	release	1			E2	Apple Inc.-released-iOS 4.3.5																						
	iPhone	1	The iPhone is a line of smartphones designed and marketed by Apple Inc.	iPhone						iPhone-designer-Apple Inc.																						
	iPhone	1	The iPhone is a line of smartphones designed and marketed by Apple Inc.	iPhone			1		B2	Apple Inc.				1	B2			1	1	1	1	1	1								
	iPhone	1	The iPhone is a line of smartphones designed and marketed by Apple Inc.	iPhone			1		C	Apple Inc.-markets-iPhone				1	C			1	1		1	1		1								
iPhone	iPhone	3	The first generation iPhone was released on June 29, 2007; the most recent iPhones, the seventh-generation iPhone 5C and iPhone 5S, were introduced on September 10, 2013.	first gerneration iPhone, iPhone, iPhone 5C, iPhone 5S	introduce, release				1																					C	0	the iphone	be a line of	smartphone
	iPhone	6	An iPhone can shoot video , take photos, play music, and receive email, browse the web, send texts, GPS navigation, tell jokes, record notes, do mathematical calculations, and receive visual voicemail.	iPhone						iPhone-send-Email					C	1	1	1	1	1	1	1	1								
	iPhone	6	An iPhone can shoot video , take photos, play music, and receive email, browse the web, send texts, GPS navigation, tell jokes, record notes, do mathematical calculations, and receive visual voicemail.	iPhone					C	iPhone-receive-Email					C	1	1	1	1	1	1	1	1								
iPhone	iPhone	6	An iPhone can shoot video , take photos, play music, and receive email, browse the web, send texts, GPS navigation, tell jokes, record notes, do mathematical calculations, and receive visual voicemail.	iPhone					C	iPhone-receive-Email					C	1	1	1	1	1	1	1	1								
iPhone	iPhone	23	Jobs unveiled the iPhone to the public on January 9, 2007, at the Macworld 2007 convention at the Moscone Center in San Francisco.	iPhone	unveil				1					Steve Jobs-unveiled-iPhone																	
iPhone	iPhone	63	On September 10, 2013, Apple unveiled two new iPhone models during a highly anticipated press event in Cupertino, California, U.S.	Apple Inc, iPhone	unveil				1																								
iPhone	iPhone	198	The iPhone was initially released with two options for internal storage size: 4 GB or 8 GB.	iPhone	release				1																								
iPhone	iPhone	259	Apple released home screen icons that resemble apps that open a user-defined page in Safari.	Apple Inc.	release				E2	Apple Inc.-release-Home creen icons					E2			1	1		1	1										
iPhone	iPhone	279	The iPhone does not support video calling or videoconferencing on versions prior to the fourth generation, as there is only one camera on the opposite side of the screen.	iPhone					C	Iphone-not support-Videoconferencing					C			1	1	1	1	1	1								
iPhone	iPhone	303	play digital video, allowing users to watch TV shows and movies in widescreen.	iPhone					E2	iPhone-play-digital video					E2	1		1	1	1	1	1	1								

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Grouped column headers: **Characteristics of relation** · **Where was the textual triple extraction correct?** · **Correct KB mapping, given textual triple?** · **If novel triple detected as wrong: Why?** · **Evaluation of baseline (ReVerb)**

Query (entity or relation which needs to be in novel triple)	Document (Dbpedia-Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation	Occurrence of "query entities" (gold std)	Occurrence of "query relations" (gold std)	Entities in binary relation (S-V-O)	Entities in binary relation, but expressed as participle	Relation detected, but only quadrupel/literal (≥2 entities)	Would it be a novel triple? Novelty class?	Corresponding novel triple is:	Novel triple, but semantics lost; no KB import	Triple not novel, already in KB (class A)	Triple not novel, too irrelevant	Sentence contains NP+participle / parenthesis	Novel triple in output detected? Which class?	If yes, modal verb?	Triple in output correct?	s_t	p_t	p_t	s	p	o	Coreference matched	Surface form not in xLiD/Dbpedia	Wrong disambiguation? S/O	p_t correct but p in KB wrong	Transf. to active voice needed but not happened	Transf. to active voice makes no sense but happened	Detected as novel in ReVerb. Class?	ReVerb novelty class correct?	Textual Triple of ReVerb baseline
iPhone	iPhone	307	The iPhone includes software that allows the user to upload, view, and email photos taken with the camera.	iPhone		1			C	iPhone-include-Software																				C		the 1 iphone|include|software
iPhone	iPhone	329	The iPhone does not support Flash.	iPhone		1			C	iPhone-not support-Adobe Flash					C		1	1	1	1	1	1	1									
iPhone	iPhone	332	The iPhone supports SVG, CSS, HTML Canvas, and Bonjour.	iPhone		1			C	iPhone-support-Cascading Style Sheets					B2		1	1	1	1	1	1	1									
iPhone	iPhone	340	Apple also developed a separate application to view YouTube videos on the iPhone, which streams videos after encoding them using the H.264 codec.	Apple Inc, iPhone	develop			1							C			1		1						O						
iPhone	Nokia	176	Originally launched in 2007, Apple's iPhone continued to be outsold and unfavoured by Nokia smartphones, most notably the Nokia N95 for some time.	iPhone				1																								
iPhone	Nokia	213	European carriers stated that Nokia Windows phones could not compete with Apple iPhone or Samsung Galaxy phones.	Nokia, Windows Phone, iPhone		1							Nokia Windows Phone-compete-iPhone																			
iPhone	XIII_(video_game)	169	A reimagining of XIII, called XIII: Lost Identity, was released by Anuman Interactive for Windows, Mac, iPhone and iPad on November 15, 2011.	iPhone	release			1																								
iPhone (first generation)	iPhone	3	The first generation iPhone was released on June 29, 2007; the most recent iPhones, the seventh-generation iPhone 5C and iPhone 5S, were introduced on September 10, 2013.	iPhone (first gerneration), iPhone, iPhone 5C, iPhone 5S	introduce, release			1																								
iPhone 3G	iPhone	10	The iPhone 3G added 3G cellular network capabilities and A-GPS location.	iPhone 3G		1			C	iPhone 3G-add-3G		1																			
iPhone 3G	iPhone	10	The iPhone 3G added 3G cellular network capabilities and A-GPS location.	iPhone 3G		1			C	iPhone 3G-add-Assisted GPS																					
iPhone 3G	iPhone	27	On July 11, 2008, Apple released the iPhone 3G in twenty-two countries, including the original six.	Apple Inc, iPhone 3G	release	1			B2	Apple Inc.-released-iPhone 3G		1			E2			1	1	1	1	1				O					
iPhone 3G	iPhone	28	Apple released the iPhone 3G in upwards of eighty countries and territories.	Apple Inc, iPhone 3G	release	1			B2	Apple Inc.-released-iPhone 3G		1																			
iPhone 3G	iPhone	312	The iPhone 3G introduced support for third-generation UMTS and HSDPA 3.6, only the iPhone 4S supports HSUPA networks , and only the iPhone 3GS and iPhone 4 support HSDPA 7.2.	iPhone 3G	introduce			1							E2			1	1	1	1	1				O					
iPhone 3G	Nokia	180	The Nokia N96, released in late 2008, proved to be much less successful, although the Nokia 5800 XpressMusic was mainly considered to be the iPhone 3G's main rival.	iPhone 3G, Nokia 5800 XpressMusic				1																								
iPhone 3GS	Nokia	185	The N97's closest competitor was the iPhone 3GS.	iPhone 3GS				1																								
iPhone 4	iPhone	41	On January 11, 2011, Verizon announced during a media event that it had reached an agreement with Apple and would begin selling a CDMA2000 iPhone 4.	Apple Inc, iPhone 4	announce			1																								
	iPhone	280	The iPhone 4 supports video calling using either the front or back camera over Wi-Fi, a feature Apple calls FaceTime.	iPhone 4		1			B2	iPhone 4-support-Videotelephony					E2	1		1	1		1	1	1								
iPhone 4S	iPhone	48	American carrier C Spire Wireless announced that it would be carrying the iPhone 4S on October 19, 2011.	iPhone 4S	announce			1							E2			1	1												
iPhone 5	iPhone	55	On September 12, 2012, Apple announced the iPhone 5.	Apple Inc, iPhone 5	announce	1			B2	Apple Inc.-announced-iPhone5																					
iPhone 5	iPhone	291	On September 12, 2012, Apple unveiled the iPhone 5, the sixth iteration of the iPhone.	Apple Inc, iPhone 5	unveil	1			C	Apple Inc.-unveil-iPhone 5					C		1	1	1	1	1	1									
iPhone 5C	iPhone	3	The first generation iPhone was released on June 29, 2007; the most recent iPhones, the seventh-generation iPhone 5C and iPhone 5S, were introduced on September 10, 2013.	iPhone (first gerneration), iPhone, iPhone 5C, iPhone 5S	introduce, release			1																								
iPhone 5S	iPhone	3	The first generation iPhone was released on June 29, 2007; the most recent iPhones, the seventh-generation iPhone 5C and iPhone 5S, were introduced on September 10, 2013.	iPhone (first gerneration), iPhone, iPhone 5C, iPhone 5S	introduce, release			1																								
iTunes	Tom_Clancy's_Splinter_Cell:_Conviction	103	On April 13, 2010, Ubisoft Music in conjunction with composers Michael Nielsen and Kaveh Cohen released a 16-track Official Soundtrack to Splinter Cell: Conviction exclusively via iTunes.	iTunes	release			1																								
LG Optimus Net	LG_Optimus_One	20	After clearing out and discontinuing the LG Optimus Chic due to poor sales, Bell Mobility released the LG Optimus Net on October 27, 2011.	LG Optimus Net	release	1			E2	Bell Mobility-released-LG Optimus Net					E2			1		1		1									
LG Optimus One	LG_Optimus_One	1	The Optimus One with Google is manufactured by LG Electronics Inc..	LG Optimus One		1				LG Optimus One-manufacturer-LG Electronics					D1			1	1		1	1	1									
LG Optimus One	LG_Optimus_One	15	In Canada, the LG Optimus One is sold by Telus Mobility since December 2010 and its brand Koodo Mobile since February 2011, with UMTS frequency at 850, 1900, and 2100 MHz.	LG Optimus One				1																					C		the lg optimus one|be sell by|telus mobility
LG Optimus One	LG_Optimus_One	17	Walmart Family Mobile released the LG Optimus One in charcoal in September 2011.	LG Optimus One	release	1			D2	Walmart-released-LG Optimus One		1			D2			1	1	1		1	1				S					
Microsoft	Nokia	6	In 2013, Nokia sold what was once the world's largest vendor of mobile phones to Microsoft as part of an overall deal totaling 5.44 billion .	Microsoft, Nokia				1																								
Microsoft	Nokia	7	Stephen Elop, Nokia's former CEO, and several other executives will join Microsoft as part of the deal.	Microsoft, Nokia		1							Stephen Elop-join-Microsoft																		
Microsoft	Nokia	196	On 11 February 2011, Nokia's CEO Stephen Elop, a former head of Microsoft business division, unveiled a new strategic alliance with Microsoft, and announced it would shift its efforts to Windows Phone. except for non-smartphones.	Microsoft	unveil			1																								
Microsoft	Nokia	200	Microsoft provided developer tools to Nokia to replace the Qt framework, which was not supported by Windows Phone 7 devices.	Nokia, Microsoft, Qt (software)				1																								
Microsoft	Nokia	240	As part of the deal, a number of Nokia executives will join Microsoft.	Microsoft				1																								
Microsoft	Nokia	242	While Microsoft licensed the Nokia brand under a 10-year agreement, Nokia agreed not to use its name on smartphones and will be subject to a non-compete clause preventing it from producing any mobile devices under the Nokia name through 31 December 2015.	Microsoft, Nokia		1			E2	Microsoft-licence-Nokia brand																					
Microsoft	Nokia	243	Microsoft acquired the rights to the Asha and Lumia brands as part of the deal.	Microsoft	acquire	1																									
Microsoft	Nokia	243	Microsoft acquired the rights to the Asha and Lumia brands as part of the deal.	Microsoft	acquire	1																									
Microsoft ActiveSync	iPhone	364	Apple has also licensed Microsoft ActiveSync and now supports the platform with the release of iPhone 2.0 firmware.	Apple Inc, Microsoft ActiveSync		1			E2	Apple Inc.-licensed-ActiveSync					E2		1	1	1	1	1					O					
Microsoft Windows	Need_for_Speed:_Hot_Pursuit_(2010_video_game)	1	Need for Speed: Hot Pursuit is a 2010 racing video game developed by British games developer Criterion Games and published by Electronic Arts for PlayStation 3 , Xbox 360, Microsoft Windows, Wii, iOS, Android, webOS and Windows Phone.	Microsoft Windows				1																								

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						Characteristics of relation										**(Novel triple in output)**							**Where was the textual triple extraction correct?**		**Correct KB mapping, given textual triple?**		**If novel triple detected as wrong: Why?**						**Evaluation of baseline (ReVerb)**		
Query (entity or relation which needs to be in novel triple)	Document (Dbpedia-Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation. (Sent. with one entity and one literal are removed; also sentences where subject/object is only coreference.) One line for each triple.	Occurrence of "query entities" (for gold std. creation)	Occurrence of "query relations" (for gold std. creation)	Entities are in binary relation to each other. (S-V-O, no literal or quadrupel)	Entities in binary relation, but relation expressed as participle	Relation detected, but statement only representable as quadruple or literal (also, if object is too general), i.e. no triple relation, no KB import, but at least 2 entities	Would it be a novel triple? (ground truth) What is the novelty class?	Corresponding novel triple is:	Novel triple, but parts of the semantics of the statement in the text gets lost. Hence, no KB import useful.	Triple not novel, but already in KB (novelty class A)	Triple not novel, since too irrelevant (at least 2 parts of triple not in KB)	Sentence contains (i) noun phrase and participle construction (cf. The iPhone 5 is a touchscreen smartphone developed by Apple Inc.) or (ii) parentesis (e.g., App Store, an online application … for …) or similar.	Novel triple in output, i.e. detected? Which novelty class in output?	If yes, with modale verb?	Triple in output correct? (i.e. correct novelty class, correct entities and relations as in gold standard)	s_t	p_t	p_t	s	p	o	A coreference was matched (e.g., "the game" to :Game)	Surface form detected correctly, but not in xUID/Dbpedia (xLID problem). If yes, S or O affected?	Wrong disambiguation? S or O affected?	p_t correctly detected, but p in KB is wrong or unsuitable (different semantics)	Transformation into active voice is necessary, but has not happened.	Transformation into active voice makes no sense, but happened.	Detected as novel triple in ReVerb-baseline. Novelty class?	Novelty class of ReVerb baseline. ReVerb baseline correct (if triple is in ground truth)?	Textual Triple of ReVerb baseline
Microsoft Windows	Prince_of_Persia:_Warrior_Within	2	Warrior Within was developed and published by Ubisoft, and released on December 2, 2004 for the Xbox, PlayStation 2, GameCube, and Microsoft Windows.	Microsoft Windows			1		C	Prince of Persia: Warrior Within-released for-Microsoft Windows																							
Microsoft Windows	Qt_(framework)	36	The Windows platform was only available under a proprietary license, which meant free open source applications written in Qt for X11 could not be ported to Windows without purchasing the proprietary edition.	Microsoft Windows				1																										
Microsoft Windows	Qt_(framework)	54	In 2002, members of the KDE on Cygwin project began porting the GPL licensed Qt X11 code base to Windows.	Microsoft Windows				1																										
Microsoft Windows	Resident_Evil_4	10	Resident Evil 4 was subsequently released for Microsoft Windows, Wii, PlayStation 3, Xbox 360, and in heavily condensed versions for the iOS, mobile phones and Zeebo.	Microsoft Windows			1		C	Resident Evil 4-released for-Microsoft Windows																							
Microsoft Windows	Resident_Evil_4	151	On February 27, 2014, Capcom released Resident Evil 4 Ultimate HD Edition for Microsoft Windows.	Microsoft Windows	release		1		E2	Capcom-released-Resident Evil 4 Ultimate HD Edition for Microsoft Windows					E2		1	1	1	1	1	1	1									
Microsoft Windows	Sonic_the_Hedgehog_(1991_video_game)	86	In October 2010, Sonic the Hedgehog was downloadably released for Microsoft Windows, which also got released to Steam.	Microsoft Windows			1		C	Sonic the Hedgehog (1991 video_game)-released for-Microsoft Windows																							
Microsoft Windows	Street_Fighter_II	119	Capcom released Street Fighter IV for the arcades in July 2008, followed by the release for the Xbox 360 and PlayStation 3 consoles in February 2009 and for Microsoft Windows in July 2009.	Microsoft Windows				1																										
Microsoft Windows	Tom_Clancy's_Splinter_Cell:_Conviction	136	In March 2010, Microsoft announced a special limited edition black Xbox 360 console with Tom Clancy's Splinter Cell: Conviction.	Microsoft Windows	announce		1		E2	Microsoft-announced- special limited edition black Xbox 360 console	1																						
Microsoft Windows	XIII_(video_game)	169	A reimagining of XIII, called XIII: Lost Identity, was released by Anuman Interactive for Windows, Mac, iPhone and iPad on November 15, 2011.	Microsoft Windows	release			1																										
Microsoft Windows	X-Men_Legends_II:_Rise_of_Apocalypse	87	Beenox ported X-Men Legends II to Microsoft Windows.	Microsoft Windows				1																										
Nokia	Nokia	1	Nokia Oyj is a Finnish communications and information technology multinational corporation that is headquartered in Espoo, Finland.	Nokia		1		E2		Nokia-headquarter-Espoo																							
Nokia	Nokia	4	Nokia is a public limited-liability company listed on the Helsinki Stock Exchange and New York Stock Exchange.	Nokia		1				Nokia-listed-Helsinki Stock Exchange				1																			
Nokia	Nokia	6	In 2013, Nokia sold what was once was the world's largest vendor of mobile phones to Microsoft as part of an overall deal totaling 5.44 billion .	Microsoft, Nokia				1																										
Nokia	Nokia	7	Stephen Elop, Nokia's former CEO, and several other executives will join Microsoft as part of the deal.	Microsoft, Nokia		1				Stephen Elop-join-Microsoft																							
Nokia	Nokia	9	Nokia unveiled its third range on 24 February 2014, the Nokia X family, which run a modified version of the Android operating system.	Nokia, Nokia X	unveil	1				Nokia-unveil-Nokia X family			1																				
Nokia	Nokia	12	Eduard Poln , Nokia's founder, was a Finnish business leader.	Nokia																														
Nokia	Nokia	25	In 1902, Nokia added electricity generation to its business activities.	Nokia			1								C			1	1	1	1	1	1	1									
Nokia	Nokia	26	In 1898, Poln founded Finnish Rubber Works, manufacturer of galoshes and other rubber products, which later became Nokia's rubber business.	Nokia																														
Nokia	Nokia	35	The three companies, jointly owned since 1922, were merged to form a new industrial conglomerate, Nokia Corporation, in 1967.	Nokia				1																										
Nokia	Nokia	40	Nokian Tyres, manufacturer of tires, split from Nokia Corporation in 1988 and two years later Nokian Footwear, manufacturer of rubber boots, was founded.	Nokia				1																										
Nokia	Nokia	41	In 1989, Nokia also sold the original paper business; currently this company is owned by SCA.	Nokia				1																										
Nokia	Nokia	42	During the rest of the 1990s, Nokia divested itself of all other businesses.	Nokia				1																										
Nokia	Nokia	46	In the 1970s, Nokia became more involved in the telecommunications industry by developing the Nokia DX 200, a digital switch for telephone exchanges.	Nokia	develop		1	D1		Nokia DX 200-developer-Nokia																							
Nokia	Nokia	52	In the 1970s and 1980s, Nokia developed the Sanomalaitejrjestelm , a digital, portable and encrypted text-based communications device for the Finnish Defence Forces.	Nokia	develop	1		D1		Sanomalaitejrjestelm-developer-Nokia			1		D1		1	1	1	1	1	1	1									
Nokia	Nokia	54	In 1998, Check Point established a partnership with Nokia, bundling Check Point's Software with Nokia's computer Network Security Appliances.	Nokia		1				Check Point-cooperates with-Nokia																							
Nokia	Nokia	56	Nokia had been producing commercial and some military mobile radio communications technology since the 1960s, although this part of the company was sold some time before the later company rationalization.	Nokia			1								D2			1	1	1	1	1	1	1									
Nokia	Nokia	56	Nokia had been producing commercial and some military mobile radio communications technology since the 1960s, although this part of the company was sold some time before the later company rationalization.	Nokia			1								D2			1	1	1	1	1	1	1									
Nokia	Nokia	57	Since 1964, Nokia had developed VHF radio simultaneously with Salora Oy.	Nokia	develop	1		D1		VHF radio-developer-Nokia					D1		1	1	1	1	1	1	1									
Nokia	Nokia	58	In 1966, Nokia and Salora started developing the ARP standard , a car-based mobile radio telephony system and the first commercially operated public mobile phone network in Finland.	Nokia	develop		1																										
Nokia	Nokia	63	Nokia bought Salora Oy in 1984 and changed the company's telecommunications branch name to Nokia-Mobira Oy.	Nokia		1				Nokia-bought-Salora (Finnish company)																							
Nokia	Nokia	65	In 1987, Nokia introduced one of the world's first handheld phones, the Mobira Cityman 900 for NMT-900 networks .	Nokia	introduce		1								E2			1	1	1	1	1	1										
Nokia	Nokia	65	In 1987, Nokia introduced one of the world's first handheld phones, the Mobira Cityman 900 for NMT-900 networks .	Nokia	introduce	1		B2		Nokia-introduced-Mobira Cityman 900	1			1	E2		1	1		1	1	1										
Nokia	Nokia	73	Nokia was a key developer of GSM , the second-generation mobile technology that could carry data as well as voice traffic.	Nokia			1								E2	1		1		1	1	1										
Nokia	Nokia	74	NMT , the world's first mobile telephony standard to allow international roaming, provided expertise for Nokia in developing GSM, which was adopted in 1987 as the new European standard for digital mobile technology.	Nokia	develop		1																										
Nokia	Nokia	75	Nokia delivered its first GSM network to Finnish operator Radiolinja in 1989.	Nokia			1																										
Nokia	Nokia	90	Nokia produced high quality CRT and early TFT LCD displays for PC and larger systems applications.	Nokia			1	D2		Cathode ray tube-producer-Nokia	1			1	D2		1	1	1	1	1	1										

						Characteristics of relation												Where was the textual triple extraction correct?	Correct KB mapping, given textual triple?					If novel triple detected as wrong: Why?						Evaluation of baseline (ReVerb)		
Query (entity or relation which needs to be in novel triple)	Document (Dbpedia-Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation.	Occurrence of "query entities" (for gold std. creation)	Occurrence of "query relations" (for gold std. creation)	Entities are in binary relation to each other. (S-V-O, no literal or quadrupel)	Entities in binary relation, but relation expressed as participle	Relation detected, but statement only representative as quadruple or literal	Would it be a novel triple? (ground truth) What is the novelty class?	Corresponding novel triple is:	Novel triple, but parts of the semantics lost	Triple not novel, but already in KB (novelty class A)	Triple not novel, since too irrelevant	Sentence contains (i) noun phrase and participle construction	Novel triple in output, i.e. detected? Which novelty class in output?	If yes, with modale verb?	Triple in output correct?	s_t	p_t	p_t	s	p	o	A coreference was matched	Surface form detected correctly, but not in xUID/Dbpedia	Wrong disambiguation? S or O affected?	p_t correctly detected, but p in KB is wrong	Transformation into active voice necessary, but has not happened.	Transformation into active voice makes no sense, but happened.	Detected as novel triple in ReVerb-baseline. Novelty class?	Novelty class of ReVerb baseline. ReVerb baseline correct?	Textual Triple of ReVerb baseline
Nokia	Nokia	90	Nokia produced high quality CRT and early TFT LCD displays for PC and larger systems applications.	Nokia		1			D2	Thin film transistor liquid crystal display-producer-Nokia			1		D2				1	1	1	1	1									
Nokia	Nokia	92	In addition to personal computers and displays, Nokia used to manufacture DSL modems and digital set-top boxes.	Nokia		1			D1	DSL modem-manufacturer-Nokia			1																			
Nokia	Nokia	92	In addition to personal computers and displays, Nokia used to manufacture DSL modems and digital set-top boxes.	Nokia		1			D2	Set-top box-manufacturer-Nokia			1																			
Nokia	Nokia	93	Nokia re-entered the PC market in August 2009 with the introduction of the Nokia Booklet 3G mini laptop.	Nokia				1																								
Nokia	Nokia	97	After Kairamo's death, Simo Vuorilehto became Nokia's chairman and CEO.	Nokia				1																								
Nokia	Nokia	105	The worldwide popularity of mobile telephones, beyond even Nokia's most optimistic predictions, created a logistical crisis in the mid-1990s, prompting Nokia to overhaul its entire supply chain.	Nokia				1																								
Nokia	Nokia	109	Nokia launched its Nokia 1100 handset in 2003, shipping over 200 million units.	Nokia		1			B2	Nokia-launched-Nokia 1100					E2				1	1	1	1	1									
Nokia	Nokia	111	Nokia was one of the first to recognize the market opportunity in combining a game console and a mobile phone into the N-Gage.	Nokia				1																								
Nokia	Nokia	113	Nokia Productions was the first mobile filmmaking project directed by Spike Lee.	Nokia			1			Nokia Productions-director-Spike Lee		1																				
Nokia	Nokia	117	Symbian was a smartphone operating system that Nokia expected to allow it compete with Apple and Samsung.	Apple Inc., Nokia				1																								
Nokia	Nokia	144	Nokia acquired Smarterphone, a company making the Smarterphone OS for low end phones and merged it with Series 40 to form the Asha Platform, which also inherits some UI characteristics from Nokia's MeeGo platform.	Nokia	acquire	1			C	Nokia-acquired-Smarterphone					C	1	1	1	1	1	1	1	1									
Nokia	Nokia	146	Nokia opened its Komrom, Hungary mobile phone factory on 5 May 2000.	Nokia				1								B2				1	1	1	1	1									
Nokia	Nokia	147	In March 2007, Nokia signed a memorandum with Cluj County Council, Romania to open a plant near the city in Jucu commune.	Nokia				1								B2				1	1	1	1	1									
Nokia	Nokia	149	Nokia later moved its North American Headquarters to Sunnyvale.	Nokia				1																								
Nokia	Nokia	153	In 2008, Nokia exited mobile phone distribution in Japan.	Nokia				1																								
Nokia	Nokia	154	In 2009, Check Point acquired Nokia's network security business unit.	Nokia	acquire			1																								
Nokia	Nokia	161	On 22 September 2003, Nokia acquired Sega.com, a branch of Sega to develop the Nokia N-Gage device.	Nokia	acquire	1				Nokia-acquired-sega.com																						
Nokia	Nokia	162	On 16 November 2005, Nokia agreed to acquire Intellisync Corporation, a provider of data and PIM synchronization software, completing the acquisition on 10 February 2006.	Nokia	acquire			1																								
Nokia	Nokia	163	On 19 June 2006, Nokia and Siemens AG announced the companies would merge their mobile and fixed-line phone network equipment businesses, creating Nokia Siemens Networks.	Nokia	announce			1																								
Nokia	Nokia	166	On 8 August 2006, Nokia agreed to acquire online music distributor Loudeye Corporation for approximately US$60 million.	Nokia	acquire			1																								
Nokia	Nokia	167	In July 2007, Nokia acquired all assets of Twango, a comprehensive media sharing solution for organizing and sharing photos, videos and other personal media.	Nokia	acquire			1							C				1	1	1	1	1	1									
Nokia	Nokia	168	In September 2007, Nokia agreed to acquire Enpocket, a supplier of mobile advertising technology and services.	Nokia	acquire			1																								
Nokia	Nokia	169	In 2007, Nokia agreed to acquire Navteq, a U.S.-based supplier of digital mapping data, for $8.1 billion and finalized the acquisition on 10 July 2008.	Nokia	acquire			1																								
Nokia	Nokia	170	In September 2008, Nokia acquired OZ Communications, a privately held company with approximately 220 employees headquartered in Montreal, Canada.	Nokia	acquire	1				Nokia-acquired-OZ Communications					B2				1			1	1	1									
Nokia	Nokia	171	On 24 July 2009, Nokia agreed to acquire certain assets of Cellity, a privately owned mobile software company, completed on 5 August 2009.	Nokia	acquire			1																								
Nokia	Nokia	172	In September 2009, Nokia acquired certain assets of Plum Ventures, Inc to complement Nokia's Social Location services.	Nokia	acquire			1																								
Nokia	Nokia	173	In March 2010, Nokia acquired Novarra, a mobile web browser firm.	Nokia	acquire	1			C	Nokia-acquired-Novarra Inc.					C	1	1	1	1	1	1	1	1									
Nokia	Nokia	174	In April 2010, Nokia acquired MetaCarta, a local search technology firm.	Nokia	acquire					Nokia-acquired-MetaCarta																						
Nokia	Nokia	175	In 2012, Nokia acquired Smarterphone, a developer of an operating system for feature phones, and the imaging company Scalado.	Nokia	acquire	1			C	Nokia-acquired-Smarterphone																						
Nokia	Nokia	182	On 24 June 2008, Nokia bought the Symbian operating system and the next year made it open source.	Nokia, Symbian		1			C	Nokia-buy-Symbian																						
Nokia	Nokia	192	Nokia developed Symbian^3 to replace S60, but it never became popular.	Nokia	develop	1			D1	Symbian^3-developer-Nokia		1																				
Nokia	Nokia	197	Nokia invested in the Series 40 platform and released a single MeeGo product in 2011, the Nokia N9.	Nokia		1			C	Nokia-invest-Series 40																						
Nokia	Nokia	197	Nokia invested in the Series 40 platform and released a single MeeGo product in 2011, the Nokia N9.	Nokia		1			B2	Nokia-released-Nokia N9				1	B2			1	1	1	1	1	1									
Nokia	Nokia	198	As part of the restructuring plan, Nokia planned to reduce research and development, instead customising and enhancing the software line for Windows Phone 7.	Nokia, Windows Phone 7				1																								
Nokia	Nokia	200	Microsoft provided developer tools to Nokia to replace the Qt framework, which was not supported by Windows Phone 7 devices.	Nokia, Microsoft, Qt (software)				1																								
Nokia	Nokia	205	Nokia was overtaken by Apple as the world's biggest smartphone maker by volume in June 2011.	Nokia, Apple Inc., smartphone		1			C	Nokia-overtook-Apple Inc.			1		C		1	1	1	1	1	1	1									
Nokia	Nokia	213	European carriers stated that Nokia Windows phones could not compete with Apple iPhone or Samsung Galaxy phones.	Nokia, Windows Phone, iPhone		1				Nokia Windows Phone-compete-iPhone																						
Nokia	Nokia	213	European carriers stated that Nokia Windows phones could not compete with Apple iPhone or Samsung Galaxy phones.	Nokia, Windows Phone, Samsung Galaxy		1				Nokia Windows Phone-compete-Samsung Galaxy																						
Nokia	Nokia	226	In May 2013 Nokia released the Asha platform for its low-end borderline smartphone devices.	Nokia		1			E2	Nokia-released-Nokia Asha platform					E2		1	1	1	1	1	1	1									
Nokia	Nokia	238	Following the sale, Nokia will focus on three core business units; its Here mapping service, its infrastructure division Nokia Solutions and Networks, and on developing and licensing its "advanced technologies".	Nokia		1			C	Nokia-focus-Here (Nokia)					E2	1			1	1	1	1	1									
Nokia	Nokia	238	Following the sale, Nokia will focus on three core business units; its Here mapping service, its infrastructure division Nokia Solutions and Networks, and on developing and licensing its "advanced technologies".	Nokia		1				Nokia-focus-Nokia Solutions and Networks					E2				1	1	1	1	1									

						Characteristics of relation													Where was the textual triple extraction correct?		Correct KB mapping, given textual triple?			If novel triple detected as wrong: Why?						Evaluation of baseline (ReVerb)		
Query (entity or relation which needs to be in novel triple)	Document (Dbpedia Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation. (Sent. with one entity and one literal are removed; also sentences where subject/object is only coreference.) One line for each triple.	Occurrence of "query entities" (for gold std. creation)	Occurrence of "query relations" (for gold std. creation)	Entities are in binary relation to each other. (S-V-O, no literal or quadrupel)	Entities in binary relation, but relation expressed as participle	Relation detected, but statement only representative as quadruple or literal (also, if object is too general), i.e. no triple relation, no KB import, but at least 2 entities	Would it be a novel triple? (ground truth) What is the novelty class?	Corresponding novel triple is:	Novel triple, but parts of the semantics of the statement in the text gets lost. Hence, no KB import useful.	Triple not novel, but already in KB	Triple not novel, since too irrelevant (at least 2 parts of triple not in KB)	Sentence contains (i) noun phrase and participle construction (cf. The iPhone 5 is a touchscreen smartphone developed by Apple Inc.) or (ii) parentesis (e.g., App Store, an online application ... for ...) or similar.	Novel triple in output, i.e. detected? Which novelty class in output?	If yes, with modale verb?	Triple in output correct? (i.e. correct novelty class, correct entities and relations as in gold standard)	s_t	p_t	p_t	s	p	o	A coreference was matched (e.g., "the game" to :Game)	Surface form detected correctly, but not in xLID/Dbpedia (xLID problem). If yes, S or O affected?	Wrong disambiguation? S or O affected?	p_t correctly detected, but p in KB is wrong or unsuitable (different semantics)	Transformation into active voice necessary, but has not happened.	Transformation into active voice makes no sense, but no sense, but happened.	Detected as novel triple in ReVerb-baseline. Novelty class?	Novelty class of ReVerb baseline.	Textual Triple of ReVerb baseline
Nokia	Nokia	238	Following the sale, Nokia will focus on three core business units; its Here mapping service , its infrastructure division Nokia Solutions and Networks , and on developing and licensing its "advanced technologies".	Nokia																											
Nokia	Nokia	238	Following the sale, Nokia will focus on three core business units; its Here mapping service , its infrastructure division Nokia Solutions and Networks , and on developing and licensing its "advanced technologies".	Nokia	develop			1							E2		1		1	1	1	1	1	1									
Nokia	Nokia	238	Following the sale, Nokia will focus on three core business units; its Here mapping service , its infrastructure division Nokia Solutions and Networks , and on developing and licensing its "advanced technologies".	Nokia	develop			1							E2		1		1		1	1	1	1									
Nokia	Nokia	242	While Microsoft licensed the Nokia brand under a 10-year agreement, Nokia agreed not to use its name on smartphones and will be subject to a non-compete clause preventing it from producing any mobile devices under the Nokia name through 31 December 2015.	Microsoft, Nokia			1		E2	Microsoft-licence-Nokia brand																						
Nokia	Nokia	245	In October 2013, Nokia predicted a more profitable future for its NSN networks equipment business, which became the company's main business.	Nokia				1																									
Nokia	Nokia	247	A media report revealed in mid-September 2013 that Nokia tested the Android operating system on both its Lumia and Asha hardware.	Nokia				1																									
Nokia	Nokia	251	Besides its research centers, in 2001 Nokia founded INdT Nokia Institute of Technology, a R&D institute located in Brazil.	Nokia	found		1		D1	Instituto Nokia de Tecnologia-founder-Nokia					D1	1	1	1	1	1	1	1	1									
Nokia	Nokia	254	Nokia is a public limited-liability company listed on the Helsinki, Frankfurt, and New York stock exchanges.	Nokia			1						Nokia-listed-Helsinki Stock Exchange	1	C		1		1	1	1	1									
Nokia	Nokia	254	Nokia is a public limited-liability company listed on the Helsinki, Frankfurt, and New York stock exchanges.	Nokia			1						Nokia-listed-Frankfurt Stock Exchange	1	C		1		1	1	1	1									
Nokia	Nokia	254	Nokia is a public limited-liability company listed on the Helsinki, Frankfurt, and New York stock exchanges.	Nokia			1						Nokia-listed-New York Stock Exchange	1	C		1		1	1	1	1									
Nokia	Nokia	255	Nokia plays a very large role in the economy of Finland.	Nokia				1							E2		1	1	1	1	1	1	1									
Nokia	Nokia	258	Since the Microsoft acquisition, Nokia comprises two business groups: Mobile Solutions and Markets.	Nokia				1																									
Nokia	Nokia	267	Navteq was acquired by Nokia on 1 October 2007.	Nokia	acquire	1		C	Nokia-acquired-Navteq																						
Nokia	Nokia	270	NSN was a joint venture between Nokia and Siemens , but is now a wholly owned subsidiary of Nokia.	Nokia				1																									
Nokia	Nokia	276	In July 2013, Nokia bought back all shares in Nokia Siemens Networks for a sum of US$2.21 billion.	Nokia				1																									
Nokia	Nokia	292	Since then, Nokia has launched the largest mobile portal, Nokia.mobi, which received over 100 million visits a month in 2008.	Nokia			1		E2	Nokia-launched-Nokia.omobi				1	E2			1	1	1		1	1	1									
Nokia	Nokia	295	It has some significance in that Nokia is moving deeper into the world of Internet services, where head-on competition with Microsoft, Google and Apple is inevitable.	Nokia				1																									
Nokia	Nokia	299	Nokia discontinued the Ovi brand in 2011, continuing to offer its services under the main brand.	Nokia			1		B2	Nokia-discontinued-Ovi (Nokia)					E2			1	1		1	1	1	1									
Nokia	Nokia	300	Nokia once offered a free personalised service to Nokia owners called My Nokia.	Nokia				1																									
Nokia	Nokia	305	On 13 August 2008 Nokia launched a beta release of "Nokia Email service", a push e-mail service, later incorporated into Nokia Messaging.	Nokia				1																									
Nokia	Nokia	308	Nokia introduced its "Connecting People" advertising slogan in 1992, coined by Ove Strandberg.This earlier version of the slogan used Times Roman SC font.	Nokia	introduce			1							E2			1	1	1	1	1	1									
Nokia	Nokia	315	In July 2009, Nokia began to experience a boycott of their products and services in Iran.	Nokia				1																									
Nokia	Nokia	318	In 2009, Nokia heavily supported a law in Finland that allows companies to monitor their employees' electronic communications in cases of suspected information leaking.	Nokia				1							E2			1	1	1	1	1	1									
Nokia	Nokia	319	Contrary to rumors, Nokia denied that the company would have considered moving its head office out of Finland if laws on electronic surveillance were not changed.	Nokia				1																									
Nokia	Nokia	324	In October 2009, Nokia filed a lawsuit against Apple Inc. in the U.S.	Apple Inc., Nokia				1																									
Nokia	Nokia	326	Apple was quick to respond with a countersuit filed in December 2009 accusing Nokia of 11 patent infringements.	Apple Inc., Nokia				1																									
Nokia	Nokia	332	In June 2011, Apple settled with Nokia and agreed to an estimated one time payment of $600 million and royalties to Nokia.	Apple Inc., Nokia		1		C	Apple Inc.-settled-Nokia					1	C	1	1	1	1	1	1	1	1									
Nokia	Nokia	336	Nokia is actively exploring and engaging in open innovation through selective research collaborations with major universities and institutions by sharing resources and leveraging ideas.	Nokia			1		Nokia-explore-Open innovation																						
Nokia	Nokia	336	Nokia is actively exploring and engaging in open innovation through selective research collaborations with major universities and institutions by sharing resources and leveraging ideas.	Nokia			1		Nokia-engage-Open innovation																						
Nokia	Qt_(framework)	11	In February 2011, Nokia announced its decision to drop Symbian technologies and base their future smartphones on Microsoft platform instead.	Nokia	announce			1																								
Nokia	Qt_(framework)	12	One month later, Nokia announced the sale of Qt's commercial licensing and professional services to Digia, with the immediate goal of taking Qt support to Android, iOS and Windows 8 platforms, and to continue focusing on desktop and embedded development, although Nokia was to remain the main development force behind the framework at that time.	Nokia	announce			1																								
Nokia	Qt_(framework)	13	Qt works on the following platforms: Since Nokia opened the Qt source code to the community on Gitorious various ports have been appearing.	Nokia		1		E2	Nokia-opened-Qt source code	1				E2	1	1	1		1	1	1	1									
Nokia	Qt_(framework)	40	Nokia acquired Trolltech ASA on 17 June 2008 and changed the name first to Qt Software, then to Qt Development Frameworks.	Nokia	acquire	1		C	Nokia-acquired-Qt Development Frameworks	1																					
Nokia	Qt_(framework)	62	In March 2011, Nokia sold the commercial licensing part of Qt to Digia creating Qt Commercial.	Nokia				1																									
Nokia	Qt_(framework)	62	In March 2011, Nokia sold the commercial licensing part of Qt to Digia creating Qt Commercial.	Nokia			1		D2	Qt Commercial-creator-Nokia					D2		1	1	1	1	1	1	1									
Nokia 5800 XpressMusic	Nokia	180	The Nokia N96, released in late 2008, proved to be much less successful, although the Nokia 5800 XpressMusic was mainly considered to be the iPhone 3G's main rival.	iPhone 3G, Nokia 5800 XpressMusic				1																								
Nokia DX 200	Nokia	47	The DX 200 became the workhorse of the network equipment division.	Nokia DX 200				1																									
Nokia E71	Nokia	125	The 2008 Nokia E71 competed with BlackBerry-type devices, offering a full "qwerty" keyboard and cheaper prices.	Nokia E71				1																									
Nokia Lumia series	Nokia	124	Lumia devices used the Linux-based Maemo, except the N9 , which used MeeGo.	Nokia Lumia series		1				Nokia Lumia series-used-Maemo																						
Nokia Maps	Nokia	199	Nokia's "applications and content store" became integrated into the Windows Phone Store, and Nokia Maps became the heart of Microsoft's Bing and AdCenter.	Nokia Maps				1																									

Gold standard for novelty detection with evaluation.

						Characteristics of relation									Evaluation block			Where was textual triple extraction correct?			Correct KB mapping			If novel triple detected as wrong: Why?						Evaluation of baseline (ReVerb)		
Query	Document (Dbpedia-Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation	Occurrence of "query entities"	Occurrence of "query relations"	Entities in binary relation (S-V-O)	Entities in binary rel., expressed as participle	Relation detected, statement only as quadruple/literal	Would it be a novel triple? (ground truth)	Corresponding novel triple is:	Novel triple, but parts of semantics lost	Triple not novel, already in KB (novelty class)	Triple not novel, too irrelevant	Sentence contains (i) noun phrase and participle	Novel triple in output, which novelty class?	modale verb?	Triple in output correct?	s_t	p_t	p_t	s	p	o	coreference matched	Surface form not in xUID/Dbpedia	Wrong disambiguation?	p_t correct, p in KB wrong	Transf. to active necessary, not happened	Transf. to active no sense, happened	ReVerb novelty class	ReVerb novelty correct	ReVerb textual triple
Nokia N70	Nokia	121	The first Nseries device, the N90, ran Symbian OS 8.1 mobile operating system, as did the N70.	Nokia N90, Nokia N70		1				Nokia N90-ran-Symbiasn OS 8.1			1																			
Nokia N8	Nokia	126	The 2010 Nokia N8 ran Symbian^3, the last N-series device to ship with Symbian OS.	Nokia N8		1				Nokia N8-run-Symbian^3																						
Nokia N8	Nokia	136	The Nokia N8 released in September 2010 is the first Symbian^3 device, and the first to feature a 12-megapixel autofocus lens.	Nokia N8					1																							
Nokia N800	Nokia	123	The N800, N810, N900, N9 and N950 as of April 2012 were the only Nseries devices to not use Symbian OS.	Nokia N800, Nokia N810, Nokia N900, Nokia N9, Nokia N950					1																							
Nokia N810	Nokia	123	The N800, N810, N900, N9 and N950 as of April 2012 were the only Nseries devices to not use Symbian OS.	Nokia N800, Nokia N810, Nokia N900, Nokia N9, Nokia N950					1																							
Nokia N82	Nokia	120	The Nokia N82 was its first "Nseries" phone with Xenon flash and began their "Comes With Music" program that included one year of complimentary access to music downloads.	Nokia N82					1																							
Nokia N9	Nokia	123	The N800, N810, N900, N9 and N950 as of April 2012 were the only Nseries devices to not use Symbian OS.	Nokia N800, Nokia N810, Nokia N900, Nokia N9, Nokia N950					1																							
Nokia N9	Nokia	124	Lumia devices used the Linux-based Maemo, except the N9, which used MeeGo.	Nokia N9			1			Nokia N9-used-MeeGo																						
Nokia N90	Nokia	121	The first Nseries device, the N90, ran Symbian OS 8.1 mobile operating system, as did the N70.	Nokia N90, Nokia N70		1				Nokia N90-ran-Symbiasn OS 8.1			1																			
Nokia N900	Nokia	123	The N800, N810, N900, N9 and N950 as of April 2012 were the only Nseries devices to not use Symbian OS.	Nokia N800, Nokia N810, Nokia N900, Nokia N9, Nokia N950					1																							
Nokia N950	Nokia	123	The N800, N810, N900, N9 and N950 as of April 2012 were the only Nseries devices to not use Symbian OS.	Nokia N800, Nokia N810, Nokia N900, Nokia N9, Nokia N950					1																							
Nokia N97	Nokia	135	The Nokia N97 released in June 2009 contains a sliding QWERTY and has on-board 32 GB of storage.	Nokia N97					1						E2				1	1		1	1	1									
Nokia tune	Nokia	79	The Nokia 1011 did not yet employ Nokia's characteristic ringtone, the Nokia tune, which was introduced as a ringtone in 1994 with the Nokia 2100 series.	Nokia tune	introduce				1						C				1		1	1	1	1									
Nokia X	Nokia	9	Nokia unveiled its third range on 24 February 2014, the Nokia X family, which run a modified version of the Android operating system.	Nokia, Nokia X	unveil	1				Nokia-unveil-Nokia X family			1							1		1	1	1	1								
OS X	Qt_(framework)	37	At the end of 2001, Trolltech released Qt 3.0, which added support for Mac OS X.	OS X					1																							
Qt (software)	Nokia	200	Microsoft provided developer tools to Nokia to replace the Qt framework, which was not supported by Windows Phone 7 devices.	Nokia, Microsoft, Qt (software)					1																							
Qt (software)	Nokia	200	Microsoft provided developer tools to Nokia to replace the Qt framework, which was not supported by Windows Phone 7 devices.	Qt (software), Windows Phone 7				1		Qt (software)-not support-Windows Phone 7																						
Samsung Galaxy	Nokia	213	European carriers stated that Nokia Windows phones could not compete with Apple iPhone or Samsung Galaxy phones.	Nokia, Windows Phone, Samsung Galaxy		1				Nokia Windows Phone-compete-Samsung Galaxy																						
Sonic Unleashed	Sonic_Unleashed	1	Sonic Unleashed, later released as in Japan, is a 2008 video game in the Sonic the Hedgehog series developed by Sonic Team and published by Sega for multiple platforms in .	Sonic Unleashed	develop			1				Sonic Unleashed-developer-Sonic Team																				
Sonic Unleashed	Sonic_Unleashed	27	In addition to these two gameplay types, Sonic Unleashed also features hubworlds, in which the player may reveal, as well as advance, the story of the game.	Sonic Unleashed					1																							
Sonic Unleashed	Sonic_Unleashed	35	Sonic Unleashed begins with a cold open that sees Sonic confronting his nemesis, Doctor Eggman, bounding around a fleet of spaceships.	Sonic Unleashed					1																							
Sonic Unleashed	Sonic_Unleashed	57	The title was first brought to public attention when the Sonic Unleashed name was trademarked by Sega on March 12, 2008.	Sonic Unleashed					1																							
Sonic Unleashed	Sonic_Unleashed	79	On March 12, 2009 Sega released Sonic Unleasheds first downloadable content for the Xbox 360 and PlayStation 3, consisting of four Chun-nan daytime stages and two night stages in addition to two new missions.	Sonic Unleashed	release				1						E2				1	1		1	1	1									
Sonic Unleashed	Sonic_Unleashed	83	Game developer Gameloft announced in May 2009 that it had secured a licensing agreement with Sega Europe Ltd. to produce mobile phone versions of Sega properties, and that its first title would be a version of Sonic Unleashed for mobile phone platforms.	Sonic Unleashed					1																							
Sonic Unleashed	Sonic_Unleashed	89	Positive elements of Sonic Unleashed remarked upon by reviews include the environments, such as the "postcard-perfect architecture", and the graphics, with stages looking "absolutely gorgeous" and being "very pretty and lovingly animated", with one reviewer comparing them to a playable Pixar film.	Sonic Unleashed					1																							
Sonic Unleashed	Sonic_Unleashed	110	Archie Comics has made an adaptation of Sonic Unleashed featuring the opening cutscene and Sonic's transformation into the Werehog.	Sonic Unleashed					1																							
Sony Records	Dragon_Warrior_III	95	A compilation album of Dragon Warrior IIIs music was put on Dragon Quest III "And into the Legend" Remix Symphonic Suite and was published by Sony Records in 1996.	Sony Records					1																							
Symbian	Nokia	182	On 24 June 2008, Nokia bought the Symbian operating system and the next year made it open source.	Nokia, Symbian		1			C	Nokia-buy-Symbian																						
Symbian	Nokia	182	On 24 June 2008, Nokia bought the Symbian operating system and the next year made it open source.	Symbian		1			C	Symbian-made-Open source					C			1	1	1	1	1	1	1									
Windows Phone	Need_for_Speed:_Hot_Pursuit_(2010_video_game)	1	Need for Speed: Hot Pursuit is a 2010 racing video game developed by British games developer Criterion Games and published by Electronic Arts for PlayStation 3, Xbox 360, Microsoft Windows, Wii, iOS, Android, webOS and Windows Phone.	Windows Phone					1																							
Windows Phone	Nokia	213	European carriers stated that Nokia Windows phones could not compete with Apple iPhone or Samsung Galaxy phones.	Nokia, Windows Phone, iPhone		1				Nokia Windows Phone-compete-iPhone																						
Windows Phone	Nokia	213	European carriers stated that Nokia Windows phones could not compete with Apple iPhone or Samsung Galaxy phones.	Nokia, Windows Phone, Samsung Galaxy		1				Nokia Windows Phone-compete-Samsung Galaxy																						

Gold standard for novelty detection with evaluation.

Column groups: *Characteristics of relation* · *Where was the textual triple extraction correct?* · *Correct KB mapping, given textual triple?* · *If novel triple detected as wrong: Why?* · *Evaluation of baseline (ReVerb)*

Column legend (left to right):
1. Query (entity or relation which needs to be in novel triple)
2. Document (Dbpedia Label)
3. Line no. in doc.
4. Sentences where two entities occur which are connected by some relation. (Sent. with one entity and one literal are removed; also sentences where subject/object is only coreference.) One line for each triple.
5. Occurrence of "query entities" (for gold std. creation)
6. Occurrence of "query relations" (for gold std. creation)
7. Entities are in binary relation to each other. (S-V-O, no literal or quadrupel)
8. Entities in binary relation, but relation expressed as participle
9. Relation detected, but statement only representative as quadruple or literal (also, if object is too general), i.e. no triple relation, no KB import, but at least 2 entities
10. Would it be a novel triple? (ground truth) What is the novelty class?
11. Corresponding novel triple is:
12. Novel triple, but parts of the semantics of the statement in the text gets lost. Hence, no KB import useful.
13. Triple not novel, but already in KB (novelty class A)
14. Triple not novel, since too irrelevant (at least 2 parts of triple not in KB)
15. Sentence contains (i) noun phrase and participle construction (cf. The iPhone 5 is a touchscreen smartphone developed by Apple Inc.) or (ii) parentesis (e.g., App Store, an online application … for …) or similar.
16. Novel triple in output, i.e. detected? Which novelty class in output?
17. If yes, with modale verb?
18. Triple in output correct? (i.e. correct novelty class, correct entities and relations as in gold standard)
19–21. s_t / p_t / p_t
22–24. s / p / o
25. A coreference was matched (e.g., "the game" to :Game)
26. Surface form detected correctly, but not in xLID/Dbpedia (xLID problem). If yes, S or O affected?
27. Wrong disambiguation?
28. p_t correctly detected, but p in KB is wrong or unsuitable (different semantics)
29. Transformation into active voice is necessary, but has not happened.
30. Transformation into active voice makes no sense, but happened.
31. Detected as novel triple in ReVerb-baseline. Novelty class?
32. Novelty class of ReVerb baseline.
33. Textual Triple of ReVerb baseline

Query	Document	Line	Sentence	Occ. entities	Occ. relations	Binary	Partic.	Quad/literal	Novel? / class	Corresponding novel triple	Sentence contains	Not novel irrel.	Output class	s_t	p_t	p_t	s	p	o	Coref	ReVerb
Windows Phone 7	Nokia	198	As part of the restructuring plan, Nokia planned to reduce research and development, instead customising and enhancing the software line for Windows Phone 7.	Nokia, Windows Phone 7					1												
Windows Phone 7	Nokia	200	Microsoft provided developer tools to Nokia to replace the Qt framework, which was not supported by Windows Phone 7 devices.	Qt (software), Windows Phone 7				1			Qt (software)-not support-Windows Phone 7										
to acquire	Dragon_Warrior_III	45	With the ship, the Hero acquires the Final Key and the six mystical orbs which are used to revive the legendary bird Ramia.		acquire				1												
to acquire	Dragon_Warrior_III	48	The Dark World is in fact Alefgard, where the Hero must acquire several of the artifacts that were collected in the original Dragon Warrior, including the Sun Stone and the Rain Staff.		acquire				1												
to acquire	Nokia	144	Nokia acquired Smarterphone, a company making the Smarterphone OS for low end phones and merged it with Series 40 to form the Asha Platform, which alsoedinherits some UI characteristics from Nokia's MeeGo platform.	Nokia	acquire	1			C	Nokia-acquired-Smarterphone			C	1	1	1	1	1	1	C	
to acquire	Nokia	154	In 2009, Check Point acquired Nokia's network security business unit.	Nokia	acquire				1												
to acquire	Nokia	161	On 22 September 2003, Nokia acquired Sega.com, a branch of Sega to develop the Nokia N-Gage device.	Nokia	acquire	1					Nokia-acquired-sega.com										
to acquire	Nokia	162	On 16 November 2005, Nokia agreed to acquire Intellisync Corporation, a provider of data and PIM synchronization software, completing the acquisition on 10 February 2006.	Nokia	acquire				1												
to acquire	Nokia	166	On 8 August 2006, Nokia agreed to acquire online music distributor Loudeye Corporation for approximately US$60 million.	Nokia	acquire				1												
to acquire	Nokia	167	In July 2007, Nokia acquired all assets of Twango, a comprehensive media sharing solution for organizing and sharing photos, videos and other personal media.	Nokia	acquire				1					1	1	1	1	1	1	C	
to acquire	Nokia	168	In September 2007, Nokia agreed to acquire Enpocket, a supplier of mobile advertising technology and services.	Nokia	acquire				1												
to acquire	Nokia	169	In 2007, Nokia agreed to acquire Navteq, a U.S.-based supplier of digital mapping data, for $8.1 billion and finalized the acquisition on 10 July 2008.	Nokia	acquire				1												
to acquire	Nokia	170	In September 2008, Nokia acquired OZ Communications, a privately held company with approximately 220 employees headquartered in Montreal, Canada.	Nokia	acquire	1					Nokia-acquired-OZ Communications		B2		1		1	1	1		
to acquire	Nokia	171	On 24 July 2009, Nokia agreed to acquire certain assets of Cellity, a privately owned mobile software company, completed on 5 August 2009.	Nokia	acquire				1												
to acquire	Nokia	172	In September 2009, Nokia acquired certain assets of Plum Ventures, Inc to complement Nokia's Social Location services.	Nokia	acquire				1												
to acquire	Nokia	173	In March 2010, Nokia acquired Novarra, a mobile web browser firm.	Nokia	acquire	1			C	Nokia-acquired-Novarra Inc.				1	1	1	1	1	1	C	
to acquire	Nokia	174	In April 2010, Nokia acquired MetaCarta, a local search technology firm.	Nokia	acquire				1		Nokia-acquired-MetaCarta										
to acquire	Nokia	175	In 2012, Nokia acquired Smarterphone, a developer of an operating system for feature phones, and the imaging company Scalado.	Nokia	acquire	1			C	Nokia-acquired-Smarterphone										
to acquire	Nokia	243	Microsoft acquired the rights to the Asha and Lumia brands as part of the deal.	Microsoft	acquire				1												
to acquire	Nokia	243	Microsoft acquired the rights to the Asha and Lumia brands as part of the deal.	Microsoft	acquire				1												
to acquire	Nokia	267	Navteq was acquired by Nokia on 1 October 2007.	Nokia	acquire	1			C	Nokia-acquired-Navteq										
to acquire	Qt_(framework)	40	Nokia acquired Trolltech ASA on 17 June 2008 and changed the name first to Qt Software, then to Qt Development Frameworks.	Nokia	acquire	1			C	Nokia-acquired-Qt Development Frameworks										
to acquire	Tom_Clancy's_Rainbow_Six_3:_Raven_Shield	18	To this end, Gospi has acquired a large amount of chemical weapons, including VX nerve gas and blister gas.		acquire				1												
to announce	IPhone	41	On January 11, 2011, Verizon announced during a media event that it had reached an agreement with Apple and would begin selling a CDMA2000 iPhone 4.	Apple Inc, iPhone 4	announce				1												
to announce	IPhone	48	American carrier C Spire Wireless announced that it would be carrying the iPhone 4S on October 19, 2011.	iPhone 4S	announce				1												
to announce	IPhone	55	On September 12, 2012, Apple announced the iPhone 5.	Apple Inc, iPhone 5	announce	1			B2	Apple Inc.-announced-iPhone5										
to announce	Lode_Runner	108	Hudson Soft also announced a version of Lode Runner for the Nintendo DS and released in 2006.		announce				1												
to announce	Need_for_Speed:_Hot_Pursuit_(2010_video_game)	130	EA announced the Need for Speed Autolog iPhone app in late November 2010.		announce				1												C
to announce	Nokia	163	On 19 June 2006, Nokia and Siemens AG announced the companies would merge their mobile and fixed-line phone network equipment businesses, creating Nokia Siemens Networks.	Nokia	announce				1												
to announce	Qt_(framework)	11	In February 2011, Nokia announced its decision to drop Symbian technologies and base their future smartphones on Microsoft platform instead.	Nokia	announce				1												
to announce	Qt_(framework)	12	One month later, Nokia announced the sale of Qt's commercial licensing and professional services to Digia, with the immediate goal of taking Qt support to Android, iOS and Windows 8 platforms, and to continue focusing on desktop and embedded development, although Nokia was to remain the main	Nokia	announce				1												
to announce	The_Godfather:_The_Game	22	These families are: Electronic Arts announced in 2005 that players could create mobsters of their own, customizing their character's physical features, build and clothing in a very in-depth program known as "MobFace."		announce				1				E2		1	1		1	1		
to announce	Tom_Clancy's_Splinter_Cell:_Conviction	136	In March 2010, Microsoft announced a special limited edition black Xbox 360 console with Tom Clancy's Splinter Cell: Conviction.	Microsoft Windows	announce	1			E2		Microsoft-announced- special limited edition black Xbox 360 console	1								
to announce	Tomb_Raider:_Legend	51	In 2010, several pieces of Folmann's music for Legend were recycled in the downloadable spin-off title Lara Croft and the Guardian of Light Following the success of another third-party game,, on the Nintendo GameCube, Eidos announced their decision to port Tomb Raider: Legend to that platform, marking Lara Croft's first appearance on a home Nintendo console.		announce				1												
to announce	Tomb_Raider:_Underworld	69	SCi, which owned Eidos at the time, officially announced Tomb Raider: Underworld on 10 January 2008, and confirmed that all platform versions of the game would be released simultaneously in November 2008.		announce	1			B2	Square Enix Europe-announced-Tomb Raider: Underworld										
to announce	Tomb_Raider:_Underworld	106	On 15 December 2008, Eidos announced the release of two classic outfits from past Tomb Raider games, which would be released for free exclusively on the Xbox Live Marketplace.		announce				1												

Gold standard for novelty detection with evaluation.

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						Entities are in binary relation to each other (S-V-O, no literal or quadrupel)	Entities in binary relation, but relation expressed as particible	Relation detected, but statement only representable as quadrupel or literal										s_t	p_t	p_t	s	p	o	A coreference was matched (e.g., "the game" to :Game)	Surface form detected correctly, but not in xUID/Dbpedia (xLID problem). If yes, S or O affected?	Wrong disambiguation?	p_t correctly detected, but p in KB is wrong or unsuitable (different semantics)	Transformation into active voice is necessary, but has not happened	Transformation into active voice makes no sense, but happened	Detected as novel triple in ReVerb-baseline. Novelty class?	Novelty class of ReVerb baseline. Novelty correct (if triple is in ground truth)?	Textual Triple of ReVerb baseline
to announce	VimpelCom_Ltd.	22	In January, 2013 VimpelCom Ltd. and the Wikimedia Foundation announced a partnership to deliver free Wikipedia access to VimpelCom customers through "Wikipedia Zero".		announce																											
to develop	Castlevania_(video game)	1	video game developed and published by Konami for the Family Computer Disk System video game console in Japan in September 1986.		develop			1		(video game)-developer-Konami																						
to develop	Castlevania_(video game)	34	Castlevania was developed and published by Konami for the Famicom under its original title Akumajo Dracula.		develop	1				(video game)-developer-Konami			1																			
to develop	Chrono_Trigger	1	Chrono Trigger is a role-playing video game developed and published by Square for the Super Nintendo Entertainment System in 1995.		develop			1	B1	Chrono Trigger-developer-Square Enix				isa	B1		1	1	1	1	1	1	1								
to develop	Chrono_Trigger	177	Square released an enhanced port of Chrono Trigger developed by Tose in Japan for the Sony PlayStation in 1999.		develop	1																										
to develop	Claro_Americas	16	While Claro has developed a large market share in Colombia, data for prepaid customers indicates that Claro has lost market share to competing providers Tigo and Movistar; this may be due to Claro's position as the most-expensive per-minute provider in the country's prepaid market.		develop			1	D2						D2	1		1	1	1	1	1	1								
to develop	Doom_(video game)	61	The development of Doom started in 1992, when John D. Carmack developed a new 3D game engine, the Doom engine, while the rest of the id Software team finished the Wolfenstein 3D prequel, Spear of Destiny.		develop	1			D2	3D game engine-developer-John D. Carmack			1		D2		1	1	1		1	1	1								
to develop	Doom_(video game)	61	The development of Doom started in 1992, when John D. Carmack developed a new 3D game engine, the Doom engine, while the rest of the id Software team finished the Wolfenstein 3D prequel, Spear of Destiny.		develop	1			B2	Doom engine-developer-John D. Carmack					B2		1	1	1		1	1	1								
to develop	Doom_(video game)	101	The game's popularity prompted Bill Gates to briefly consider buying id Software, and led Microsoft to develop a Windows 95 port of Doom to promote the operating system as a gaming platform.		develop			1																								
	FIFA_06	1	FIFA 06 also known as FIFA Soccer 06 is developed by EA Canada and published by Electronic Arts based around the game of football.		develop	1				FIFA 06-developer-EA Canada					D1		1	1		1	1	1							B2		0
to develop	Final_Fantasy_Dimensions	1	Final Fantasy Dimensions, known in Japan as Final Fantasy Legends: Hikari to Yami no Senshi is a role-playing video game developed by Matrix Software and published by Square Enix for mobile devices.		develop		1			Final Fantasy Dimensions-developer-Matrix software			1		D1		1	1		1	1	1								
to develop	Ghouls'n_Ghosts	1	Ghouls 'n Ghosts is a platform game run and developed by Capcom and released as an arcade game in 1988, and subsequently ported to a number of other platforms.		develop		1			Ghouls'n Ghosts-developer-Capcom			1		D1			1	1	1	1	1	1								
to develop	IPhone	22	Instead, Cingular gave Apple the liberty to develop the iPhone's hardware and software in-house and even paid Apple a fraction of its monthly service revenue , in exchange for four years of exclusive US sales, until 2011.	Apple Inc	develop			1																							
to develop	IPhone	340	Apple also developed a separate application to view YouTube videos on the iPhone, which streams videos after encoding them using the H.264 codec.	Apple Inc, iPhone	develop			1							C			1		1	1					O					
to develop	Lode_Runner	93	In 1984, Irem developed an arcade conversion of Lode Runner.		develop			1							D2			1		1	1			O							
to develop	Need_for_Speed:_Hot_Pursuit_(2010_video_game)	1	developed by British games developer Criterion Games and published by Electronic Arts for PlayStation 3, Xbox 360,		develop		1			Need for Speed: Hot			1																	
to develop	Ninja_Gaiden_(Nintendo_Entertainment_System)	61	Ninja Gaiden was developed by Tecmo, who also developed the Tecmo Bowl and Rygar series.		develop	1			B2	Ninja Gaiden-developer-Tecmo					B1			1	1	1	1	1	1							B2	ninja gaiden be develop 0 by|tecmo
to develop	Ninja_Gaiden_(Nintendo_Entertainment_System)	61	Ninja Gaiden was developed by Tecmo, who also developed the Tecmo Bowl and Rygar series.		develop	1				Tecmo Bowl-developer-Tecmo					A	1	1	1	1	1	1	1	1								
to develop	Ninja_Gaiden_(Nintendo_Entertainment_System)	61	Ninja Gaiden was developed by Tecmo, who also developed the Tecmo Bowl and Rygar series.		develop	1				Rygar-developer-Tecmo					D1			1	1	1		1	1			1					
to develop	Nokia	46	In the 1970s, Nokia became more involved in the telecommunications industry by developing the Nokia DX 200, a digital switch for telephone exchanges.	Nokia	develop		1		D1	Nokia DX 200-developer-Nokia																				
to develop	Nokia	52	In the 1970s and 1980s, Nokia developed the Sanomalaitejrjestelm , a digital, portable and encrypted text-based communications device for the Finnish Defence Forces.	Nokia	develop	1			D1	Sanomalaitejrjestelm-developer-Nokia	1				D1	1	1	1	1	1	1	1								
to develop	Nokia	57	Since 1964, Nokia had developed VHF radio simultaneously with Salora Oy.	Nokia	develop	1			D1	VHF radio-developer-Nokia					D1	1	1	1	1	1	1	1								
to develop	Nokia	58	In 1966, Nokia and Salora started developing the ARP standard , a car-based mobile radio telephony system and the first commercially operated public mobile phone network in Finland.	Nokia	develop			1																							
to develop	Nokia	61	Mobira began developing mobile phones for the NMT network standard, the first-generation, Finland's first fully automatic cellular phone system that went online in 1981.		develop			1																							
to develop	Nokia	74	NMT , the world's first mobile telephony standard to allow international roaming, provided expertise for Nokia in developing GSM, which was adopted in 1987 as the new European standard for digital mobile technology.	Nokia	develop			1																							
to develop	Nokia	192	Nokia developed Symbian^3 to replace S60, but it never became popular.	Nokia	develop	1			D1	Symbian^3-developer-Nokia	1																			
to develop	Nokia	238	Following the sale, Nokia will focus on three core business units; its Here mapping service , its infrastructure division Nokia Solutions and Networks , and on developing and licensing its "advanced technologies".	Nokia	develop			1							E2	1		1		1	1	1								
to develop	Prince_of_Persia:_The_Two_Thrones	1	Prince of Persia: The Two Thrones is an action-adventure video game developed and published by Ubisoft Montreal.		develop		1			Prince of Persia: The Two Thrones-developer-Ubisoft Montreal			1		D1		1	1		1	1	1			1					
to develop	Prince_of_Persia:_The_Two_Thrones	58	The Prince also develops a split personality, known as the Dark Prince, and this alter-ego constantly bickers with him in his mind about right and wrong.		develop			1																							
to develop	Prince_of_Persia:_Warrior_Within	2	Warrior Within was developed and published by Ubisoft, and released on December 2, 2004 for the Xbox, PlayStation 2, GameCube, and Microsoft Windows.		develop	1			B1	Prince of Persia: Warrior Within-developer-Ubisoft																				
to develop	Professor_Layton_and_the_Curious_Village	85	Tago also contributed 30 brand new puzzles to the game, developed specifically with the unique capabilities of the Nintendo DS in mind.		develop			1																							
to develop	Qt_(framework)	9	Qt is developed by Digia, who owns the Qt trademark, and the Qt Project under open governance, involving individual developers and firms working to advance Qt.		develop	1				Qt (framework)-developer-Digia					D1		1	1	1		1	1			1					

Gold standard for novelty detection with evaluation.

				Characteristics of relation															Where was the textual triple extraction correct?			Correct KB mapping, given textual triple?			If novel triple detected as wrong: Why?						Evaluation of baseline (ReVerb)		
Query (entity or relation which needs to be in novel triple)	Document (Dbpedia Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation. (Sent. with one entity and one literal are removed; also sentences where subject/object is only coreference.) One line for each triple.	Occurrence of "query entities" (for gold std. creation)	Occurrence of "query relations" (for gold std. creation)	Entities are in binary relation to each other. (S-V-O, no literal or quadrupel)	Entities in binary relation expressed as particible	Relation detected, but statement only representable as quadruple or literal (also, if object is too general), i.e. no triple relation, no KB import, but at least 2 entities	Would it be a novel triple? (ground truth) What is the novelty class?	Corresponding novel triple is:	Novel triple, but parts of the semantics of the statement in the text gets lost. Hence, no KB import useful.	Triple not novel, but already in KB (novelty class A)	Triple not novel, since too irrelevant (at least 2 parts of triple not in KB)	Sentence contains (i) noun phrase and participle construction (cf. The iPhone 5 is a touchscreen smartphone developed by Apple Inc.) or (ii) parentesis (e.g., App Store, an online application … for …) or similar.	Novel triple in output, i.e. detected? Which novelty class in output?	If yes, with modale verb?	Triple in output correct? (i.e. correct novelty class, correct entities and relations as in gold standard)	s_t	p_t	p_t	s	p	o	A coreference was matched (e.g., "the game" to :Game)	Surface form detected correctly, but not in xLiD/Dbpedia (xLiD problem). If yes, S or O affected?	Wrong disambiguation? S or O affected?	p_t correctly detected, but p in KB is wrong or unsuitable (different semantics)	Transformation into active voice is necessary, but has not happened.	Transformatio n into active voice makes no sense, but no happened.	Detected as novel triple in ReVerb baseline. Novelty class?	Novelty class of ReVerb baseline. Novelty correct (if triple is in ground truth)?	Textual Triple of ReVerb baseline
to develop	Resident_Evil_4	1	Resident Evil 4, known as in Japan, is a survival horror video game developed by Capcom Production Studio 4 and released by multiple publishers, including Capcom, Ubisoft, Nintendo Australia, Red Ant Enterprises and THQ Asia Pacific.		develop		1		E1	Resident Evil 4-developer-Capcom Production Studio 4																						
to develop	SimCity_(1989_video_game)	6			develop	1			E1	SimCity (1989 video game)-developer-Will Wright (game developer)				1	D1				1	1		1	1			O						
to develop	SimCity_(1989_video_game)	9	SimCity was originally developed by game designer Will Wright. While developing SimCity, Wright cultivated a real love of the intricacies and theories of urban planning and acknowledges the influence of System Dynamics which was developed by Jay Wright Forrester and whose book on the subject laid the foundations for the simulation.		develop			1																								
to develop	SimCity_(1989_video_game)	61	Micropolis is a release of the city-building sim game SimCity, that was developed by Don Hopkins.		develop	1						Micropolis-developer-Don Hopkins	1																			
to develop	SimCity_(1989_video_game)	66	The original version of SimCity was developed by Maxis on the Commodore 64, and ported to various platforms, including the Macintosh.		develop			1							D1				1	1	1	1	1	1									
to develop	Sonic_the_Hedgehog_(1991_video_game)	1	Sonic the Hedgehog is a platform video game developed by Sonic Team and published by Sega for the Sega Mega Drive Genesis.		develop	1				Sonic the Hedgehog (1991 video game)-developer-Sonic Team				1	D1				1	1	1	1	1	1									
to develop	Sonic_the_Hedgehog_(1991_video_game)	42	AM8 developed ideas for characters while also developing an engine and basic gameplay mechanics.		develop		1								D1				1	1	1	1	1	1									
to develop	Sonic_the_Hedgehog_(1991_video_game)	63	A version of Sonic the Hedgehog was developed by Ancient and released for Sega's 8-bit consoles, the Master System and Game Gear.		develop			1							D2																		
to develop	Sonic_the_Hedgehog_2_(16-bit)	1	Sonic the Hedgehog 2 is a platform video game developed by Sonic Team and Sega Technical Institute, and published by Sega.		develop	1				Sonic the Hedgehog 2 (16-bit)-developer-Sonic Team				1	D1				1	1		1	1	1									
to develop	Sonic_the_Hedgehog_2_(16-bit)	1	Sonic the Hedgehog 2 is a platform video game developed by Sonic Team and Sega Technical Institute, and published by Sega.		develop	1			E1	Sonic the Hedgehog 2 (16-bit)-developer-Sega Technical Institute				1	D1				1	1		1	1									
to develop	Sonic_Unleashed	1	Sonic Unleashed, later released as in Japan, is a 2008 video game in the Sonic the Hedgehog series developed by Sonic Team and published by Sega for multiple platforms in .	Sonic Unleashed	develop		1						Sonic Unleashed-developer-Sonic Team														1						
to develop	The_Amazing_Spider-Man_(2012_video_game)	59	Connors agrees to escape from the institution and help Spider-Man develop a cure for the outbreak, but only if he is returned to the asylum when the crisis is resolved.		develop			1																								
to develop	The_Godfather:_The_Game	1	The Godfather: The Game is an action-adventure video game developed and published by Electronic Arts.		develop	1			B1	The Godfather: The Game-developer-Electronic Arts				1	B1	1		1	1		1	1	1									
to develop	Tom_Clancy's_Rainbow_Six_3:_Raven_Shield	1	Tom Clancy's Rainbow Six 3: Raven Shield is a 2003 computer game developed and published by Ubisoft.		develop	1			B1	Tom Clancy's Rainbow Six 3: Raven Shield-developer-Ubisoft				1	D1				1	1		1	1									
to develop	Tom_Clancy's_Rainbow_Six_3:_Raven_Shield	31	Athena Sword was developed by Ubisoft-Milan and released on March 9, 2004.		develop	1			D1	Athena Sword-developer-Ubisoft Milan																						
to develop	Tom_Clancy's_Rainbow_Six_3:_Raven_Shield	77	Still titled Rainbow Six 3, Black Arrow was developed and published by Ubisoft and released for the Xbox on August 5, 2004.		develop	1			D1	Rainbow Six 3: Black Arrow-developer-Ubisoft					D1	1		1	1	1	1	1	1			1						
to develop	Tom_Clancy's_Splinter_Cell:_Chaos_Theory	1	Tom Clancy's Splinter Cell: Chaos Theory is a stealth game, developed and published by Ubisoft.		develop		1		B1	Tom Clancy's Splinter Cell: Chaos Theory-developer-Ubisoft				1	D1				1	1		1	1									
to develop	Tom_Clancy's_Splinter_Cell:_Chaos_Theory	96	Ubisoft eventually developed two additional levels for download for the PC and Xbox versions.		develop			1							D1				1	1	1	1	1	1									
to develop	Tom_Clancy's_Splinter_Cell:_Conviction	1	Tom Clancy's Splinter Cell: Conviction is a action-adventure stealth video game, developed by Ubisoft Montreal as part of the Tom Clancy's Splinter Cell series.		develop	1				Tom Clancy's Splinter Cell: Conviction-developer-Ubisoft Montreal	1																					
to develop	Tomb_Raider:_Underworld	73	Tomb Raider: Underworld was developed by Crystal Dynamics and published by Eidos Interactive as the final Tomb Raider title to be published under the Eidos Interactive label prior to its purchase by Square Enix.		develop	1				Tomb Raider: Underworld-developer-Crystal_Dynamics				1	D1				1	1		1	1	1									
to develop	XIII_(video_game)	1	XIII is a first-person shooter video game developed by Ubisoft Paris and published by Ubisoft for most platforms except for the OS X version, which was published by Feral Interactive.		develop	1				XIII (video game)-developer-Ubisoft Paris				1	D1				1	1		1	1	1			1						
to develop	X-Men_Legends_II:_Rise_of_Apocalypse	1	X-Men Legends II: Rise of Apocalypse is an action role-playing game developed primarily by Raven Software and published by Activision.		develop	1				X-Men Legends II: Rise of Apocalypse-developer-Raven Software				1	D1					1	1	1	1	1									
to found	Nokia	26	In 1898, Poln founded Finnish Rubber Works, manufacturer of galoshes and other rubber products, which later became Nokia's rubber business.		found	1				Finnish Rubber Works-founder-Eduard Poln																						
to found	Nokia	251	Besides its research centers, in 2001 Nokia founded INdT Nokia Institute of Technology, a R&D institute located in Brazil.	Nokia	found	1			D1	Instituto Nokia de Tecnologia-founder-Nokia				1	D1	1		1	1	1	1	1	1									
to introduce	Chrono_Trigger	42	Chrono Trigger also introduces a New Game+ option; after completing the game, the player may begin a new game with the same character levels, techniques, and equipment, excluding money, with which he or she ended the previous play through.		introduce		1			Chrono Trigger-introduce-New Game Plus																						
to introduce	Claro_Americas	13	With competitor Vivo, Claro was one of two operators to introduce the iPhone 3G in Brazil, with TIM participating later.		introduce			1																									
to introduce	FIFA_06	37	FIFA 06 also introduces staff which help the club.		introduce			1																								
to introduce	FIFA_06	62	FIFA 06 has introduced challenges for the player to achieve in order to win points and unlock prizes.		introduce	1			E2	FIFA 06-introduced-Challenge	1				E2	1		1	1	1	1	1	1									
to introduce	iPhone	182	It has no optical zoom, flash or autofocus, and does not natively support video recording. iPhone OS 2.0 introduced geotagging for photos.	iOS 2.0	introduce			1							E2				1	1	1	1	1			O						

Gold standard for novelty detection with evaluation.

Query (entity or relation which needs to be in novel triple)	Document (Dbpedia-Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation.	Occurrence of "query entities" (for gold std. creation)	Occurrence of "query relations" (for gold std. creation)	Would it be a novel triple? (ground truth) novelty class	Corresponding novel triple is:	Novel triple in output, i.e. detected? Which novelty class in output?	Detected as novel triple in ReVerb-baseline. Novelty class? / Textual Triple of ReVerb baseline
to introduce	iPhone	312	The iPhone 3G introduced support for third-generation UMTS and HSDPA 3.6, only the iPhone 4S supports HSUPA networks , and only the iPhone 3GS and iPhone 4 support HSDPA 7.2.	iPhone 3G	introduce				
to introduce	Nokia	62	In 1982, Mobira introduced its first car phone, the Mobira Senator for NMT-450 networks.		introduce	1	Nokia-introduced-Mobira Senator	E2	
to introduce	Nokia	65	In 1987, Nokia introduced one of the world's first handheld phones, the Mobira Cityman 900 for NMT-900 networks .	Nokia	introduce	1		E2	
to introduce	Nokia	65	In 1987, Nokia introduced one of the world's first handheld phones, the Mobira Cityman 900 for NMT-900 networks .	Nokia	introduce	1	Nokia-introduced-Mobira Cityman 900	E2	
to introduce	Nokia	79	The Nokia 1011 did not yet employ Nokia's characteristic ringtone, the Nokia tune, which was introduced as a ringtone in 1994 with the Nokia 2100 series.	Nokia tune	introduce	B2		C	
to introduce	Nokia	308	Nokia introduced its "Connecting People" advertising slogan in 1992, coined by Ove Strandberg.This earlier version of the slogan used Times Roman SC font.	Nokia	introduce	1		E2	
to introduce	Prince_of_Persia:_Warrior_Within	68	Two-hand fighting introduces numerous additional acrobatic combos to dispatch enemies with greater efficiency and brutality.		introduce	1			
to introduce	Qt_(framework)	14	Here are some of them: There are two editions of Qt available, namely: Qt is available under the following copyright licenses: Trolltech released Qt 4.0 on 28 June 2005 and introduced five new technologies in the framework: Qt 5 was officially released on 19 December 2012.		introduce	1		E2	
to introduce	Qt_(framework)	23	Additionally, Qt 5.2 introduces new functionalities for KDE Frameworks 5 and many other improvements.		introduce	1			
to introduce	Salamander_(video_game)	2	Released in 1986 as a spin-off to Gradius, Salamander introduced a simplified power-up system, two-player cooperative gameplay and both horizontally and vertically scrolling stages.		introduce	1			
to introduce	Sonic_the_Hedgehog_(1991_video_game)	112	Sonic the Hedgehog added the element of momentum-based physics to the standard platform formula and introduced other unique elements as well, such as the loops, springboards, high-speed devices, and the rings, which are permanently associated with the series.		introduce	1			
to introduce	Sonic_Unleashed	61	However, the development team began to introduce enough new innovations to separate it from the Sonic Adventure titles, and so a new title, Sonic Unleashed, was decided upon.		introduce	1			
to introduce	Street_Fighter_II	59	Super Street Fighter II Turbo was released in and was the last of the Street Fighter II releases for the arcades, which introduced powered-up special moves called Super Combos and added a new hidden character.		introduce	1		E2	
to introduce	Street_Fighter_II	110	Street Fighter II was also responsible for introducing the combo mechanic, which came about when skilled players learned that they could combine several attacks that left no time for the opponent to recover if they timed them correctly.		introduce	1			
to introduce	Tom_Clancy's_Splinter_Cell:_Conviction	6	Splinter Cell: Conviction introduces a number of new gameplay features to the Splinter Cell series, one of which is the "Mark & Execute" feature, which allows the player to mark specific targets, such as enemies or objects, and shoot them in rapid succession without manually targeting each one.		introduce	1			
to introduce	Umineko:_When_They_Cry	58	The family conference occurs as usual, only this time Beatrice exists on the island as its 19th resident, introducing multiple magical elements to the story.		introduce	1			
to release	Brain_Challenge	5	A version for WiiWare was released in Japan on October 14, 2008, in Europe on November 7, 2008 and in North America on November 10, 2008.		release	1			C / wiiware|be release in|japan
to release	Brain_Challenge	41	A sequel, Brain Challenge Vol. 2: Stress Management, was released by Gameloft for mobile phones in 2008.		release	E2	Gameloft-release-sequel	E2	
to release	Brain_Challenge	41	A sequel, Brain Challenge Vol. 2: Stress Management, was released by Gameloft for mobile phones in 2008.		release	E2	Gameloft-release-Brain Challenge Vol.2: Stress Management	E2	
to release	Brain_Challenge	42	Another sequel, "Brain Challenge 3: Think Again!", was released by Gameloft for mobile, iPod Touch, iPhone in September 2009.		release	E2	Gameloft-release-Brain Challenge 3		
to release	Brain_Challenge	43	In 2012, "Brain Challenge 4: Breaking Limits" was released for mobile phones.		release		Brain Challenge 4-released for-mobile phone		
to release	Castlevania_(video_game)	46	In 2002, Konami released the first three NES Castlevania games for Windows as the Castlevania and Contra: Konami Collector's Series.		release	1		E2	
to release	Chrono_Trigger	177	Square released an enhanced port of Chrono Trigger developed by Tose in Japan for the Sony PlayStation in 1999.		release	1		E2	
to release	Chrono_Trigger	219	Square also released a one-disc acid jazz arrangement called "The Brink of Time" by Guido that year.		release	E2	Square (company)-released-The Brink of Time	E2	
to release	Chrono_Trigger	267	GameSpot included Chrono Trigger in "The Greatest Games of All Time" list released in April 2006, and it also appeared as 28th on an "All Time Top 100" list in a poll conducted by Japanese magazine Famitsu the same year.		release	1			C / gamespot|include|chrono trigger
to release	Chrono_Trigger	287	Square planned to release Radical Dreamers as an easter egg in the PlayStation edition of Chrono Trigger, but Kato was unhappy with his work and halted its inclusion.		release	1			
to release	Chrono_Trigger	288	Square released Chrono Cross for the Sony PlayStation in 1999.		release	E2	Square (company)-released-Chrono Cross	E2	
to release	Doom_(video_game)	122	In 1995, WizardWorks Software released the D! Zone pack featuring hundreds of levels for Doom and Doom II.		release		WizardWorks Software-release-D! Zone		
to release	Doom_(video_game)	168	When, three years later, 3D Realms released Duke Nukem 3D, a tongue-in-cheek science fiction shooter based on Ken Silverman's technologically similar Build engine, id Software had nearly finished Quake, its next-generation game, which mirrored Dooms success for much of the remainder of the 1990s and significantly reduced interest in its predecessor.		release		3D Realms-release-Duke Nukem 3D		
to release	Dragon_Warrior_III	90	It was announced in May 2011 that Square-Enix will be releasing Dragon Quest III in Japan, as both the Famicom and Super Famicom ports as part of the September released of Dragon Quest 25th Anniversary Commemoration Famicom & Super Famicom Dragon Quest I & II & III for the Wii.		release	B2	Square_Enix-release-Dragon Warrior III	E2	

Gold standard for novelty detection with evaluation.

				Characteristics of relation										Novelty in output			Where was the textual triple extraction correct?			Correct KB mapping, given textual triple?			If novel triple detected as wrong? Why?						Evaluation of baseline (ReVerb)		
Query (entity or relation which needs to be in novel triple)	Document (Dbpedia-Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation. (Sent. with one entity and one literal are removed; also sentences where subject/object is only coreference.) One line for each triple.	Occurrence of "query relations" (for gold std. creation)	Entities are in binary relation to each other. (S-V-O, no literal or quadrupel)	Entities in binary relation, but relation expressed as participle	Relation detected, but statement only representable as quadruple or literal (also, if object is too generali), i.e. no triple relation, no KB import, but at least 2 entities	Would it be a novel triple? (ground truth) What is the novelty class?	Corresponding novel triple is:	Novel triple, but parts of the semantics of the statement in the text gets lost. Hence, no KB import useful.	Triple not novel, but already in KB (novelty class A)	Triple not novel, since too irrelevant (at least 2 parts of triple not in KB)	Sentence contains (i) noun phrase and participle construction (cf. The iPhone 5 is a touchscreen smartphone developed by Apple Inc.) or (ii) parentheses (e.g., App Store, an online application ... for ...) or similar.	Novel triple in output, i.e. detected? Which novelty class in output?	If yes, with modale verb?	Triple in output correct? (i.e. correct novelty class, correct entities and relations as in gold standard)	s_t	p_t	p_t	s	p	o	A coreference was matched (e.g., "the game" to :Game)	Surface form detected correctly, but not in xUID/Dbpedia (xUID problem). If yes, S or O affected?	Wrong disambiguation? S or O affected?	p_t correctly detected, but p in KB is wrong or unsuitable (different semantics)	Transformation into active voice necessary, but has not happened.	Transformation into active voice makes no sense, but happened.	Detected as novel triple in ReVerb-baseline. Novelty class?	Novelty class of ReVerb baseline. ReVerb baseline correct (if triple is in ground truth)?	Textual Triple of ReVerb baseline
to release	Fantastic_Journey_(video_game)	21	The Gokuj Parodius "Original Game Sound Track" was produced by Konami Kukeiha Club and released by King Records on July 2, 1994 in Japan by Konami Music Entertainment, Inc.	release									King Records-released-The Gokuj Parodius "Original Game Sound Track"																		
to release	Ghouls'n_Ghosts	20	A Sega Mega Drive Genesis port of Ghouls 'n Ghosts was also released by Sega in 1989 in Japan and North America; and in 1990 in Europe.	release	1																										
to release	Ghouls'n_Ghosts	22	Sega also released a Master System port in.	release	1			E2	Sega-released-Master System port in					E2				1	1	1	1	1									
to release	Ghouls'n_Ghosts	26	A pixel perfect version of Daimakaimura was released by Capcom in 1994 for the Sharp X68000.	release	1																										
to release	Ghouls'n_Ghosts	27	In , Capcom released Capcom Generation 2 for the PlayStation and Saturn in Japan, a compilation which included Ghouls 'n Ghosts along with Ghosts 'n Goblins and Super Ghouls 'n Ghosts.	release	1			E2	Capcom-released-Capcom Generation 2	1				E2			1	1	1	1	1	1									
to release	Ghouls'n_Ghosts	29	Capcom later released in North America Capcom Classics Collection Vol. 1 for the PlayStation 2 and Xbox in 2005 and Capcom Classics Collection: Reloaded for the PlayStation Portable in 2006, which includes all the Capcom Generations titles.	release	1			E2	Capcom-released-Capcom Classics Collection Vol. 1	1				E2				1	1		1	1									
to release	Ghouls'n_Ghosts	29	Capcom later released in North America Capcom Classics Collection Vol. 1 for the PlayStation 2 and Xbox in and Capcom Classics Collection: Reloaded for the PlayStation Portable in , which includes all the Capcom Generations titles.	release	1			E2	Capcom-released-Capcom Classics Collection: Reloaded	2				E2			1	1		1	1	1									
to release	IPhone	27	On July 11, 2008, Apple released the iPhone 3G in twenty-two countries, including the original six.	Apple Inc, iPhone 3G – release	1			B2	Apple Inc.-released-iPhone 3G	1				E2			1	1	1	1	1				O						
to release	IPhone	28	Apple released the iPhone 3G in upwards of eighty countries and territories.	Apple Inc, iPhone 3G – release	1			B2	Apple Inc.-released-iPhone 3G	1																					
to release	IPhone	198	The iPhone was initially released with two options for internal storage size: 4 GB or 8 GB.	iPhone – release				1						E2				1	1		1	1									
to release	IPhone	259	On January 15, 2008, Apple released software update 1.1.3, allowing users to create "Web Clips", home screen icons that resemble apps that open a user-defined page in Safari.	Apple Inc. – release				1						E2				1	1		1	1									
to release	IPhone	397	In July 2011, Apple released iOS 4.3.5 to fix a security vulnerability v 4.3.5	Apple Inc, iOS – release	1			E2	Apple Inc.-released-iOS 4.3.5					E2		1	1	1	1	1	1	1								B2	0 apple|release|software
to release	LG_Optimus_One	17	Walmart Family Mobile released the LG Optimus One in charcoal in September 2011.	LG Optimus One – release	1			D2	Walmart-released-LG Optimus One	1				D2			1	1	1		1	1					S				
to release	LG_Optimus_One	20	After clearing out and discontinuing the LG Optimus Chic due to poor sales, Bell Mobility released the LG Optimus Net on October 27, 2011.	LG Optimus Net – release	1			E2	Bell Mobility-released-LG Optimus Net					E2			1		1	1		1									
to release	LG_Optimus_One	30	LG has released two different Baseband driver versions, the one commonly referred to as "old baseband" was shipped with the official Android 2.2 ROM images, while the "new baseband" is shipped with the official Android 2.3 ROMs.	release				1																								
to release	List_of_video_games_based_on_RoboCop	4	RoboCop was released in 1988 by Nihon Bussan AV Japan.	release	1			E2	Nihon Bussan-released-RoboCop					D2			1	1	1		1	1					S				
to release	Lode_Runner	26	Broderbund released a special enhanced version, Championship Lode Runner, the following year.	release	1			E2	Brøderbund-released-Championship Lode Runner					E2			1		1	1		1									
to release	Lode_Runner	118	Broderbund also released Spelunker for arcade machines, Atari 8-bit, Commodore 64, MSX and Nintendo Entertainment System.	release	1			E2	Brøderbund-released-Spelunker (video game)			1		E2			1			1											
to release	Need_for_Speed:_Hot_Pursuit_(2010_video_game)	74	Criterion released another Xbox 360 title update the following day, however, some users reported that the new update had caused their career saves and racing stats to be reset.	release				1						E2			1	1	1	1	1	1									
to release	Need_for_Speed:_Hot_Pursuit_(2010_video_game)	76	Criterion released the official second update for the consoles on 15 February 2011, addressing some minor issues and glitches.	release				1						E2			1	1	1	1	1	1									
to release	Need_for_Speed:_Hot_Pursuit_(2010_video_game)	88	In addition to the free update, Criterion has released several optional, premium packs that add content like new cars and events.	release				1						E2			1	1	1	1	1	1									
to release	Ninja_Gaiden_(Nintendo_Entertainment_System)	153	In 2004, Tecmo began releasing low-priced episodic installments of Ninja Gaiden for AT&T and Verizon mobile phones on both BREW and Java platforms.	release				1																								
to release	Ninja_Gaiden_(Nintendo_Entertainment_System)	208	A soundtrack CD, Ninja Ryukenden: Tecmo GSM-1, was released by Pony Canyon in February 1989.	release	1				Pony Canyon-released-Ninja Ryukenden: Tecmo GSM-1			1																			
to release	Prince_of_Persia:_The_Sands_of_Time	76	Prince of Persia: The Sands of Time - Original Soundtrack was released in Japan on November 3, 2003 by Nippon Columbia.	release	1				Nippon Columbia-released-Prince of Persia: The Sands of Time Original Soundtrack					D2			1	1		1	1	1									
to release	Prince_of_Persia:_The_Sands_of_Time	77	Some of the tracks were re-released by Ubisoft Music in December 2005, along with Chatwood's music from Prince of Persia: Warrior Within and Prince of Persia: The Two Thrones, as part of Prince of Persia: The Official Trilogy Soundtrack.	release				1																								
to release	Prince_of_Persia:_The_Two_Thrones	4	A remastered, high-definition, version of The Two Thrones was released on the PlayStation Network for the PlayStation 3 on December 21, 2010.	release				1																								
to release	Prince_of_Persia:_The_Two_Thrones	75	The Empress of Time is killed to release the sand and help the Prince, but at that moment the Prince was not wearing the medallion and is infected by the sands of time, creating the dark prince, who had a different appearance; with white hair, bright eyes and fair skin.	release				1																								
to release	Prince_of_Persia:_Warrior_Within	11	A port of Warrior Within was done by Pipeworks, renamed as Prince of Persia: Revelations, and it was released on December 6, 2005 for Sony's PlayStation Portable.	release				1																								
to release	Prince_of_Persia:_Warrior_Within	14	A remastered, High-Definition, version of Warrior Within was released on the PlayStation Network for the PlayStation 3 on December 14, 2010.	release				1																								
to release	Professor_Layton_and_the_Curious_Village	109	An album titled Layton Kyouju to Fushigi na Machi Original Soundtrack was released in Japan only, containing all the music featured in the game.	release	1			D2	Layton Kyouju to Fushigi na Machi Original Soundtrack-released-Japan					D2			1	1	1	1	1	1									

Query (entity or relation which needs to be in novel triple)	Document (Dbpedia-Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation. (Sent. with one entity and one literal are removed; also sentences where subject/object is only coreference.) One line for each triple.	Occurrence of "query entities" (for gold std. creation)	Occurrence of "query relations" (for gold std. creation)	Characteristics of relation — Entities are in binary relation to each other. (S-V-O, no literal or quadrupel)	Entities in binary relation, but relation expressed as particible	Relation detected, but statement only representative as quadruple or literal (also, if object is too generall), i.e. no triple relation, no KB import, but at least 2 entities	Would it be a novel triple? (ground truth) What is the novelty class?	Corresponding novel triple is:	Novel triple, but parts of the semantics of the statement in the text gets lost. Hence, no KB import useful.	Triple not novel, but already in KB (novelty class A)	Triple not novel, since too irrelevant (at least 2 parts of triple not in KB)	Sentence contains (i) noun phrase and participle construction or (ii) parentesis	Novel triple in output, i.e. detected? Which novelty class in output?	If yes, with modale verb?	Triple in output correct?	s_t	p_t	p_t s	s	p	o
to release	Qt_(framework)	14	Here are some of them: There are two editions of Qt available, namely: Qt is available under the following copyright licenses: Trolltech released Qt 4.0 on 28 June 2005 and introduced five new technologies in the framework: Qt 5 was officially released on 19 December 2012.		release	1			E2	Qt Development Frameworks-released-Qt 4.0					E2	1	1		1	1	1		
to release	Qt_(framework)	37	At the end of 2001, Trolltech released Qt 3.0, which added support for Mac OS X.		release	1			E2	Qt Development Frameworks-released-Qt 3.0					E2	1	1	1	1	1	1		
to release	Qt_(framework)	38	The Mac OS X support was available only in the proprietary license until June 2003, when Trolltech released Qt 3.2 with Mac OS X support available under the GPL.		release	1			E2	Qt Development Frameworks-released-Qt 3.2					E2	1	1		1	1	1		
to release	Qt_(framework)	39	In June 2005, Trolltech released Qt 4.0.		release	1			E2	Qt Development Frameworks-released-Qt 4.0					E2	1	1		1	1	1		
to release	Qt_(framework)	46	Until version 1.45, source code for Qt was released under the FreeQt license.		release			1															
to release	Qt_(framework)	53	In 2000, Qt X11 2.2 was released under the GPL v2, ending all controversy regarding GPL compatibility.		release		1						Qt X11 2.2-released under-GPL v2										
to release	Qt_(framework)	57	This was resolved when Trolltech released Qt Windows 4 under the GPL in June 2005.		release	1			E2	Qt Development Frameworks-released-Qt Windows 4			1		E2	1	1	1	1	1	1		
to release	Resident_Evil_4	1	Resident Evil 4, known as in Japan, is a survival horror video game developed by Capcom Production Studio 4 and released by multiple publishers, including Capcom, Ubisoft, Nintendo Australia, Red Ant Enterprises and THQ Asia Pacific.		release			1						1								
to release	Resident_Evil_4	140	On July 13, 2009, without any formal announcement, Resident Evil 4: Mobile Edition was released by Capcom for the iOS platform via the App Store in Japan, but was quickly removed, though some players were able to purchase and download the game.		release	1			E2	Capcom-released-Resident Evil 4					E2	1	1		1	1	1		
to release	Resident_Evil_4	143	Recently, Capcom released a new separate version called Resident Evil 4 for Beginners, which offers the first two levels of both Story Mode and Mercenary Mode.		release	1									E2	1	1		1	1	1		
to release	Resident_Evil_4	148	On July 23, 2011 Capcom announced at Comic-Con 2011 that Resident Evil 4 would be released on September 20, 2011 for the PlayStation Network and Xbox Live Games on Demand.		release			1														
to release	Resident_Evil_4	151	On February 27, 2014, Capcom released Resident Evil 4 Ultimate HD Edition for Microsoft Windows.	Microsoft Windows	release	1			E2	Capcom-released-Resident Evil 4 Ultimate HD Edition for Microsoft Windows					E2	1	1	1	1	1	1		
to release	Salamander_(video_game)	56	Konami later released an enhanced version of Salamander in Japan bearing the American title of Life Force which further fleshes out the organic motif.		release	1									E2	1	1		1	1	1		
to release	Salamander_(video_game)	61	The Salamander Arcade Soundtrack was produced by Konami Kukeiha Club and released on April 9, 2003 in Japan by Konami Music Entertainment, Inc.		release		1		E2	Konami-released-Salamander Arcade Soundtrack													
to release	Salamander_(video_game)	62	Original Sound of Salamander was released by Apollon Music on December 16, 1986.		release	1																	
to release	Salamander_(video_game)	63	Salamander - Again : Konami Kukeiha Club was released by King Records on May 25, 1992.		release		1						King Records (Japan)-released-Salamander - Again : Konami Kukeiha Club									
to release	SimCity_(1989_video_game)	43	In 2007 the developer Don Hopkins released a free and open source version of the original SimCity, renamed Micropolis for trademark reasons, the One Laptop per Child XO-1.		release			1														
to release	Sonic_the_Hedgehog_(1991_video_game)	122	For the game's 20th anniversary, Sega released Sonic Generations, which contains a remake of the Green Hill level.		release	1			E2	Sega-released-Sonic Generations					E2	1	1	1	1	1	1		
to release	Sonic_the_Hedgehog_2_(16-bit)	113	For Sonic's 20th Anniversary, Sega released Sonic Generations, a game that remade aspects of various past games from the franchise.		release	1			E2	Sega-released-Sonic Generations					E2	1	1	1	1	1	1		
to release	Sonic_Unleashed	79	On March 12, 2009 Sega released Sonic Unleashed first downloadable content for the Xbox 360 and PlayStation 3, consisting of four Chun-nan daytime stages and two night stages in addition to two new missions.	Sonic Unleashed	release			1							E2	1	1		1	1	1		
to release	Street_Fighter_II	119	Capcom released Street Fighter IV for the arcades in July 2008, followed by the release for the Xbox 360 and PlayStation 3 consoles in February 2009 and for Microsoft Windows in July 2009.		release	1			E2	Capcom-released-Street Fighter IV													
to release	The_Godfather:_The_Game	28	EA released a sequel to The Godfather in 2009.		release			1							E2	1	1		1	1	1		
to release	Tom_Clancy's_Rainbow_Six_3:_Raven_Shield	2	Released on March 18, 2003, the Rainbow Six video game series is based on Tom Clancy's best-selling novel of the same name.		release			1														
to release	Tom_Clancy's_Splinter_Cell:_Conviction	103	On April 13, 2010, Ubisoft Music in conjunction with composers Michael Nielsen and Kaveh Cohen released a 16-track Official Soundtrack to Splinter Cell: Conviction exclusively via iTunes.	iTunes	release			1														
to release	Tom_Clancy's_Splinter_Cell:_Conviction	134	Amazon.co.uk released its own Limited Edition which contained the standard version of the game, a separate DVD case called "Exclusive Pre-order Pack" and the SPAS-12 code, a 32-page comic book and a DVD detailing the making of the game.	Amazon.com	release			1														
to release	Tom_Clancy's_Splinter_Cell:_Conviction	144	Splinter Cell: Conviction released weekly unlockable content every Thursday through the in-game "Extras" menu.		release			1														
to release	Tomb_Raider:_Legend	58	Due to time restrictions, Eidos chose to release the Xbox version without the intro movie.		release			1														
to release	Tomb_Raider:_Underworld	3	Underworld was released by Eidos Interactive for the Xbox 360, PlayStation 3 and PC, in North America on 18 November 2008, Europe on 21 November 2008 and Australia on 5 December 2008.		release	1			B2	Eidos Interactive-released-Tomb Raider: Underworld			1										
to release	Tomb_Raider:_Underworld	4	On 14 June 2012, Underworld was released on the Mac OS X by Feral Interactive.		release	1				Feral Interactive-released-Tomb Raider: Underworld			1										
to release	Tomb_Raider:_Underworld	95	On 14 June 2012, Underworld was released on the Macintosh by Feral Interactive.		release	1			B2	Feral Interactive-released-Tomb Raider: Underworld													
to release	Tomb_Raider:_Underworld	101	After an agreement with Microsoft, Eidos released two new chapters of Tomb Raider: Underworld as exclusive downloadable content on the Xbox Live Marketplace: Beneath the Ashes on 24 February 2009 and Lara's Shadow on 10 March 2009.		release			1							E2	1	1	1	1	1	1		
to release	Umineko_When_They_Cry	9	A fighting game based on the franchise named gon Muskyoku was released by 07th Expansion on December 31, 2010.		release	1			E2	07th Expansion-released-Ōgon Musōkyoku													
to release	Umineko_When_They_Cry	154	Taito released a version of Legend of the Golden Witch playable on certain mobile phones on March 31, 2009.		release	1								1	E2	1	1	1	1	1	1		

Query (entity or relation which needs to be in novel triple)	Document (Dbpedia-Label)	Line no. in doc.	Sentences where two entities occur which are connected by some relation. (Sent. with one entity and one literal are removed; also sentences where subject/object is only coreference.) One line for each triple.	Occurrence of "query entities" (for gold std. creation)	Occurrence of "query relations" (for gold std. creation)	Entities are in binary relation to each other. (S-V-O, no literal or quadrupel)	Entities in binary relation, but relation expressed as participle	Relation detected, but statement only representable as quadruple or literal (also, if object is too general), i.e. no triple relation, no KB import, but at least 2 entities	Would it be a novel triple? (ground truth)	Corresponding novel triple is:	Novel triple, but parts of the semantics of the statement in the text gets lost. Hence, no KB import useful. What is the novelty class?	Triple not novel, but already in KB (novelty class A)	Triple not novel, since too irrelevant (at least 2 parts of triple not in KB)	Sentence contains (i) noun phrase and participle construction (cf. The iPhone 5 is a touchscreen smartphone developed by Apple Inc.) or (ii) parentesis (e.g., App Store, an online application ... for ...) or similar.	Novel triple in output, i.e. detected? Which novelty class in output?	If yes, with modale verb?	Triple in output correct? (i.e. correct novelty class, correct entities and relations as in gold standard)	s_t	p_t	p_t	s	p	o	A coreference was matched (e.g., "the game" to :Game)	Surface form detected correctly, but not in xLiD/Dbpedia (xLiD problem). If yes, S or O affected?	Wrong disambiguation? S or O affected?	p_t correctly detected, but p in KB is wrong or unsuitable (different semantics)	Transformation into active voice is necessary, but has not happened.	Transformation into active voice makes no sense, but happened.	Detected as novel triple in ReVerb-baseline. Novelty class?	Novelty class of ReVerb baseline correct (if triple is in ground truth)?	Textual Triple of ReVerb baseline
to release	Umineko_When_They_C ry	158	Umineko no Naku Koro ni Chiru was similarly remade for the PlayStation 3, subtitled and released by Alchemist on December 15, 2011.		release			1	E2	Alchemist (company)-released-Umineko no Naku Koro ni Chiru																						
to release	Umineko_When_They_C ry	177	Frontier Works began to produce a set of drama CDs for Umineko starting with the first volume released on June 24, 2009.		release				1																							
to release	Umineko_When_They_C ry	180	Kodansha Box began releasing novelizations of the visual novel arcs in two volume sets, beginning with Legend of the Golden Witch released on July 1, 2009 for volume one and August 4, 2009 for volume two.		release				1						E2				1	1	1	1	1									
to release	Umineko_When_They_C ry	196	The single for "Occultics no Majo" was released on November 26, 2009 by Geneon.		release				1																							
to release	XIII_(video_game)	169	A reimagining of XIII, called XIII: Lost Identity, was released by Anuman Interactive for Windows, Mac, iPhone and iPad on November 15, 2011.	iPhone	release				1																							
to release	XIII_(video_game)	169	A reimagining of XIII, called XIII: Lost Identity, was released by Anuman Interactive for Windows, Mac, iPhone and iPad on November 15, 2011.	Microsoft Windows	release				1																							
to unveil	iPhone	23	Jobs unveiled the iPhone to the public on January 9, 2007, at the Macworld 2007 convention at the Moscone Center in San Francisco.	iPhone	unveil	1								Steve Jobs-unveiled-iPhone																			
to unveil	iPhone	63	On September 10, 2013, Apple unveiled two new iPhone models during a highly anticipated press event in Cupertino, California, U.S.	Apple Inc, iPhone	unveil				1																							
to unveil	iPhone	291	On September 12, 2012, Apple unveiled the iPhone 5, the sixth iteration of the iPhone.	Apple Inc, iPhone 5	unveil	1			C	Apple Inc.-unveil-iPhone 5					C	1	1	1	1	1				1								
to unveil	Nokia	9	Nokia unveiled its third range on 24 February 2014, the Nokia X family, which run a modified version of the Android operating system.	Nokia, Nokia X	unveil	1							1	Nokia-unveil-Nokia X family																	
to unveil	Nokia	196	On 11 February 2011, Nokia's CEO Stephen Elop, a former head of Microsoft business division, unveiled a new strategic alliance with Microsoft, and announced it would shift its efforts to Windows Phone. except for non-smartphones.	Microsoft	unveil				1																							