

UNIVERSIDADE FEDERAL DO RIO DE JANEIRO

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**FIREOWL: IDENTIFICANDO ASSUNTOS EM PÁGINAS DA WEB
UTILIZANDO LINKED OPEN DATA**

RIO DE JANEIRO, RJ - BRASIL

MARÇO DE 2012

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Projeto Final de Curso submetido ao Departamento de Ciência da Computação do Instituto de Matemática da Universidade Federal do Rio de Janeiro como parte dos requisitos necessários para obtenção do grau de Bacharel em Ciência da Computação.

Orientador: Prof. João Carlos Pereira da Silva

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Dedicatória

Dedico este trabalho a meus pais, namorada, amigos e professores por proporcionarem tantos momentos inesquecíveis durante toda minha vida acadêmica.

Agradecimentos

Primeiramente agradeço a meus pais Elenice e Paulo por todo amor e apoio irrestrito que recebi durante minha vida pessoal e acadêmica. Obrigado por confiar e acreditar em mim e na minha perseverança, mesmo quando minhas decisões pareciam loucura.

Agradeço também a minha namorada Albertina pela enorme paciência e compreensão quando não podíamos nos ver por causa dos estudos. Também a agradeço por estar sempre ao mesmo lado, aconteça o que acontecer.

Gostaria de agradecer também a minha avó Maria Alice, com quem vivi por mais de 15 anos e nunca me deixou faltar nada. Sou igualmente grato ao meu irmão Rafael que, apesar de tudo, me faz lembrar que arriscar é preciso.

Quero fazer um agradecimento muito especial ao meu orientador, Prof. João Carlos, pela paciência durante esse longo período de projeto final, com tantos altos e baixos. Sem sua compreensão, ajuda e dedicação esse trabalho não seria possível.

Além disso, um merecido agradecimento pelo esforço e dedicação em ajudar nosso curso a se tornar um dos melhores de nosso país.

Gostaria também de agradecer aos amigos que fiz durante a graduação, mas em especial meus queridos amigos Fabricio Firmino, Julianne de Carvalho e Rafael Costa, com quem compartilhei muitos momentos importantes dessa difícil jornada.

Para finalizar, agradeço a todos que estiveram envolvidos e colaboraram diretamente e/ou indiretamente para a criação deste trabalho, seja por ter dado alguma idéia, ter disponibilizado um trabalho para reuso ou simplesmente ter editado um artigo na Wikipédia.

RESUMO

FIREOWL: IDENTIFICANDO ASSUNTOS EM PÁGINAS DA WEB UTILIZANDO LINKED OPEN DATA

Felipe Almeida Tavares

Orientador: Prof. João Carlos Pereira da Silva

Ao ler o conteúdo de uma página na web, em geral, identificamos sem grandes dificuldades o assunto que o texto trata, devido a nossa inteligência natural. Por outro lado, os computadores não identificam facilmente do que se trata o assunto que ele está exibindo, devido às limitações e características da tecnologia utilizada para exibir esses conteúdos.

Com o surgimento de novas tecnologias e os esforços para transformar a “web de documentos não estruturados” em “web de dados”, torna-se possível combinar tecnologias novas e tradicionais com o objetivo de dar mais inteligência aos computadores e auxiliar seus usuários.

A proposta deste trabalho é criar um agente capaz de identificar o assunto do conteúdo principal da página que está sendo exibida no navegador e exibir um conteúdo complementar relacionado ao assunto, utilizando técnicas e ferramentas da web semântica.

ABSTRACT

FIREOWL: IDENTIFYING TOPICS IN WEB PAGES BY USING LINKED OPEN DATA

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By reading the contents of a web page, we generally identify its subject without great difficulty due to our natural intelligence. Furthermore, computers do not easily identify the subject of the page it is showing due to characteristics and limitations of the technology used to display such content.

With the rise of new technologies and efforts to transform the "web of unstructured documents" on "web data", it becomes possible to combine new and traditional technologies in order to give more intelligence to computers and help your users.

The purpose of this work is to create an agent capable of identifying the subject of the main content of the page being displayed in the browser and display a complementary content related to the subject, using techniques and tools of the semantic web.

Lista de ilustrações

Figura 1: Conjunto de silos existentes que armazenam dados interligados abertos	14
Figura 2: Uma consulta sobre o presidente Barack Obama no “sig.ma”	15
Figura 3: Uma consulta sobre o presidente Barack Obama no “OpenLink Virtuoso built-in Faceted Browser, and Search & Find Service”	15
Figura 4: Diagrama que mostra o relacionamento entre URI, URN e URL.	19
Figura 5: Arquitetura e serviços da DBpedia	24
Figura 6: Arquitetura da solução	29
Figura 7: Etapas do processo do texto no servidor.....	30
Figura 8: Botão do complemento FireOwl na barra de ferramentas do navegador Mozilla Firefox	30
Figura 9: Página da matéria "Supernova Countdown: Giant Star Could Explode Any Day Now"	32
Figura 10: Parte do conteúdo extraído da página da matéria "Supernova Countdown: Giant Star Could Explode Any Day Now"	34
Figura 11: Entidades identificadas na matéria "Supernova Countdown: Giant Star Could Explode Any Day Now"	37
Figura 12: Entidades identificadas no texto "Supernova Countdown: Giant Star Could Explode Any Day Now" e seus relacionamentos	38
Figura 13: Resumo da taxa de acerto da entidade principal	41
Figura 14: Informação complementar obtida sobre o artigo	44

Lista de tabelas

Tabela 1: Parte do resultado da consulta SPARQL utilizada para descobrir pessoas nascidas em Berlim antes de 1900	22
Tabela 2: Ferramentas utilizadas no lado servidor	26
Tabela 3: Classes criadas para a solução, seus métodos e objetivos	31
Tabela 4: Média de entidades identificadas para cada faixa e valor de confiança	35
Tabela 5: Percentual de entidades mantidas com variação da confiança	35
Tabela 6: Comportamento dos seis tipos de ranking para as entidades identificadas no texto "Supernova Countdown: Giant Star Could Explode Any Day Now"	42
Tabela 7: Comparação de resultado de textos de fontes diferentes	45
Tabela 8: Artigos selecionados e assunto identificado do ponto de vista humano.....	46
Tabela 9: Artigos selecionados e assunto identificado pelo aplicativo criado	47

Lista de abreviaturas e siglas

API	Application Programming Interface
HTML	HyperText Markup Language
HTTP	Hypertext Transfer Protocol
JSON	JavaScript Object Notation
REST	Representational State Transfer
URI	Uniform resource identifier
W3C	World Wide Web Consortium
XML	Extensible Markup Language

Sumário

LISTA DE ILUSTRAÇÕES

LISTA DE TABELAS

LISTA DE ABREVIATURAS E SIGLAS

1	INTRODUÇÃO	13
1.1	Motivação	13
1.2	Descrição do problema	14
1.3	Objetivo	16
1.4	Trabalhos relacionados	16
1.5	Estrutura do trabalho	17
2	CONCEITOS BÁSICOS	19
2.1	URI	19
2.2	RDF	20
2.3	SPARQL	21
2.4	Linked Open Data	23
2.5	DBpedia	23
2.6	Agentes	25
3	FERRAMENTAS UTILIZADAS	26
4	DETALHAMENTO DA SOLUÇÃO	29
4.1	Extração de conteúdo	32
4.2	Identificação de entidades	34
4.3	Definição de relacionamentos	37
4.4	Criação de um ranking para identificar a entidade principal	39
4.4.1	Definições e critérios de avaliação	39
4.4.2	Resultados obtidos	40
4.5	Obtenção de conteúdo complementar	43

5	EXPERIMENTOS E RESULTADOS OBTIDOS	45
5.1	Identificando entidades em textos similares de fontes diferentes	45
5.2	Detalhamento dos artigos utilizados	45
6	CONCLUSÃO E TRABALHOS FUTUROS	50
7	BIBLIOGRAFIA	52
	ANEXO A – CONTEÚDOS DAS MATÉRIAS ANALISADAS	54
	Supernova Countdown: Giant Star Could Explode Any Day Now	54
	NASA previews Eta Carinae supernova	57
	Preview: Forthcoming Supernova	59
	Lakers upend Heat, Wade fouls out in second loss in a row	60
	Rush Limbaugh loses another sponsor over 'slut' remark	63
	New Lytro camera an exciting innovation	66
	Ralph McQuarrie, artist who drew Darth Vader, C-3PO, dies at 82	70
	Ronaldo helps promote worker safety at Maracana	74
	Outside AIPAC protesters repeat annual ritual	76
	Rapper Young Buck's car shot at 11 times	79
	Bovespa Index Declines as Greek Default Swaps Move Renews Europe Concern	80
	Apple blocks links to Amazon in iBookstore	82
	Mariah Carey shows off weight loss in first performance since giving birth	85
	Taking a daily vitamin pill could prevent skin cancer, scientists reveal	86
	Storms Demolish Small Towns in Ind., Ky.; 38 Dead	89
	Official 'Angry Birds' theme park hits next month	91
	Condoms With QR Codes Enable Smartphone Check-Ins	92
	Irish people deserve to hear the full truth about abortion	94
	Rio Carnival: bigger, brighter ... more organized?	98
	Texas gun sales boom in expectation of Obama re-election	100
	UK galleries pay \$72 million for Titian masterpiece	101
	Fiat Is 'Winning' With Charlie Sheen Ad	104

1 Introdução

A internet mudou a maneira como nos comunicamos e como compartilhamos dados e informações. Inicialmente as informações eram compartilhadas e acessíveis através de livros, artigos, documentos digitais em servidores locais etc. Com a criação da *World Wide Web*, assim como do HTML e do protocolo HTTP, por Tim Berners-Lee no final dos anos 80, tudo começou a mudar.

A informação passou a ser compartilhada através de documentos de hipertexto, que contém hiperlinks, que levam a outros documentos de hipertexto, porém de maneira não necessariamente estruturada. Esse método de compartilhar informações é muito amigável para seres humanos, mas não para computadores.

Recentemente uma nova proposta surgiu, a Web Semântica, que sugere que os dados e informações devem ser representados e conectados na web de modo estruturados e que sejam “processáveis” por máquinas para que esses dados nos tragam conhecimentos de maneira rápida e simples.

1.1 Motivação

Um dos projetos mais notáveis no campo da Web Semântica é o *Linking Open Data Project*, apoiado pela *W3C Semantic Web Education and Outreach Interest Group* (“Semantic Web Education and Outreach Interest Group Charter”, 2006), cujo principal objetivo é identificar e extrair dados de bases abertas existentes (como banco de dados relacionais abertos, arquivos XML, páginas HTML etc.), convertê-los para o formato recomendado, interligá-los e publicá-los na web para uso público (BIZER *et al.*, 2009).

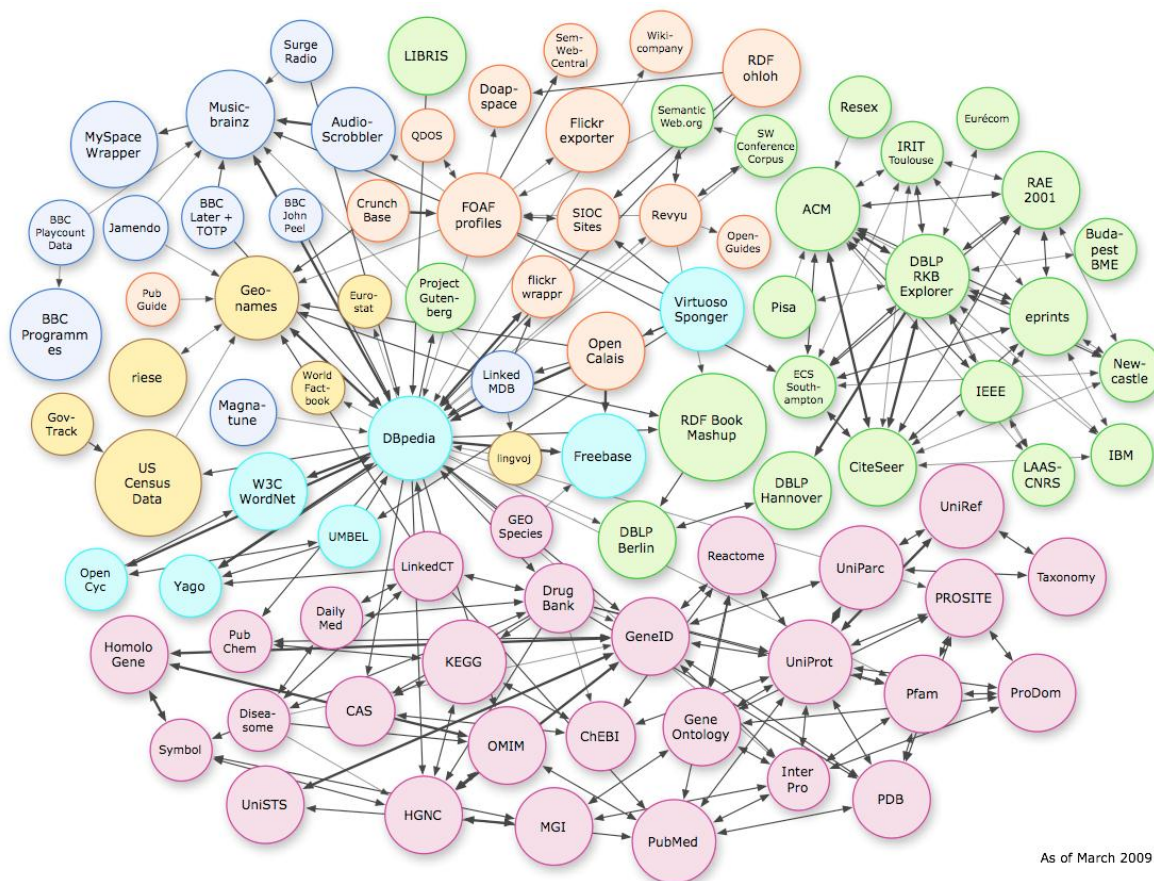


Figura 1: Conjunto de silos existentes que armazenam dados interligados abertos

A Figura 1 mostra um conjunto dos principais armazéns de dados interligados existentes. A variedade de dados e informações é enorme, englobando informações sobre pessoas, empresas, livros, músicas, publicações científicas e até mesmo genes e proteínas.

Todos esses dados estruturados e interligados oferecem um enorme potencial para exploração, especialmente devido à disponibilidade de API para consulta e combinação desses dados.

1.2 Descrição do problema

Ainda que esses dados estejam estruturados e disponíveis na Web, a maioria das ferramentas de consulta desses silos não é amigável e tampouco acessível para o grande público. Caso alguém queira fazer uma consulta nessa nuvem de dados interligados, é necessário utilizar ferramentas on-line como o *sig.ma* (“Sig.ma EE- Semantic Information

Mashup Enterprise Edition”, 2012) e o *OpenLink Virtuoso built-in Faceted Browser, and Search & Find Service* (“Precision Search & Find”, 2012).

O problema é que, além de não serem ferramentas facilmente acessíveis, o resultado retornado pode ser enorme e exibido de forma pouco amigável, como mostrado na Figura 2 e Figura 3, com muitas informações irrelevantes e não compreensíveis.

The screenshot shows the SIG.MA Semantic Information Mashup interface. The main content area displays a search for "Barack Obama" with a list of related images and a comment section. The sidebar on the right shows a list of sources, including "Barack Obama", "Start2: Usa e Russia fir...", "Usa-Cina: Dalai Lama a W...", "Barack Obama", "44th president of the un...", "Barack Obama progress po...", "Barack Obama 'Joker' pos...", "Spider-man barack obama...", "Untitled document", "Barack Obama's 5 facts", "Barack Obama", "Barack Obama", "Who is Barack Obama?", "Barack Obama", "Barack Obama", "Barack Obama", and "Barack Obama".

Figura 2: Uma consulta sobre o presidente Barack Obama no “sig.ma”

The screenshot shows the OpenLink Virtuoso built-in Faceted Browser, and Search & Find Service interface. The main content area displays a search for "Barack Obama" with a list of ranked entity names and text summaries. The sidebar on the right shows a list of entity relations and navigation options, including "Entity Relations", "Navigation", "Types", "Attributes", "Referencing Attributes", "Places", "Shown items", "Options", "Save", "Featured Queries", and "New Search".

Figura 3: Uma consulta sobre o presidente Barack Obama no “OpenLink Virtuoso built-in Faceted Browser, and Search & Find Service”

Logo, quando um usuário deseja consultar algum assunto, ele utiliza ferramentas de busca, como o Google (BRIN; PAGE, 1998), ou em ferramentas de conteúdo colaborativo como a Wikipédia, navegando através de hiperlinks para enriquecer seu conhecimento.

Além disso, frequentemente, visitamos páginas e lemos notícias na internet. Muitas vezes não somos capazes de entender totalmente o assunto tratado, seja por falta de conhecimento, por se tratar de um assunto novo ou até mesmo especializado. Nesses casos, fazemos consultas na web e recorremos a ferramentas como as citadas acima, buscando o conhecimento que nos falta.

1.3 Objetivo

A proposta deste trabalho é explorar o potencial da base de dados interligados da DBpedia (AUER *et al.*, 2007), através de uma ferramenta que extraia o conteúdo mais relevante de uma página HTML qualquer, processe este conteúdo de forma a identificar o assunto principal que a página trata, consulte esta base de dados aberta e exiba, além do principal assunto identificado, uma informação complementar relacionada a este assunto da página que está sendo exibida pelo browser. Como protótipo inicial, usaremos o navegador Mozilla Firefox (“Navegador Firefox em Português Brasileiro”, 2012) para ser o hospedeiro dessa ferramenta, uma vez que a exibição do conteúdo está diretamente ligada à navegação feita pelo usuário.

1.4 Trabalhos relacionados

No artigo “*TopCat: Data Mining for Topic Identification in a Text Corpus*” (CLIFTON; COOLEY, 2000) é descrita uma técnica para identificar assuntos que ocorrem em determinados conjuntos de artigos. São utilizadas técnicas de processamento de linguagem natural para identificar entidades chaves em cada artigo, para que seja possível identificar

cada artigo como um conjunto de entidades para que técnicas de mineração de dados sejam utilizadas.

Na dissertação “*Robust Automated Topic Identification*” (LIN, 2007), Chin-Yew Lin faz um extenso trabalho de investigação e descreve três métodos de identificação de assunto baseado em estatísticas:

- Generalização de conceito, que generaliza palavras em conceitos e verifica a frequência desses conceitos nos textos.
- Assinatura de assunto, que descreve assuntos como conjuntos de palavras chaves que ocorrem com frequência.
- Política de posição ideal, que baseado na Hipótese da Posição, descreve que a posição de uma frase em um texto está diretamente ligada a importância desta frase para o texto.

Algumas das técnicas dos trabalhos supracitados têm um forte relacionamento com as técnicas estudadas e aplicadas neste trabalho, como utilização de frequência de palavra e identificação de entidades.

1.5 Estrutura do trabalho

No capítulo 2, é feita uma breve apresentação de conceitos básicos que serão utilizados ao longo deste trabalho. Exemplos são mostrados e explicados para um melhor entendimento do conceito.

Logo em seguida, no capítulo 3, são apresentadas as ferramentas que serão utilizadas, assim como suas características e particularidades.

O capítulo 4 detalha todo o desenvolvimento da solução, assim como os estudos feitos de modo que conseguíssemos o melhor resultado possível. Este capítulo é separado em

seções, que são etapas importantes do processamento da aplicação. Ao longo desta seção um exemplo é utilizado para ilustrar o resultado de cada etapa do processo.

No capítulo 5 são comparados resultados de entradas similares assim como o resultado de um conjunto maior de entrada.

O capítulo 6 aborda as conclusões alcançadas, as limitações das ferramentas e os trabalhos futuros. A bibliografia fica posicionada logo em seguida, no capítulo 7.

O Anexo A possui todos os textos utilizados como entrada do aplicativo a fim de comparação com os resultados obtidos.

2 Conceitos Básicos

2.1 URI

Um *Uniform Resource Identifier* (URI) (BERNERS LEE, 1994), ou Identificador Uniforme de Recursos em português é uma cadeia de caracteres utilizada para identificar um nome ou recurso na internet. Essa identificação possibilita a interação com outras representações de recursos na internet utilizando protocolos específicos. Os URI são identificados em grupos definindo uma sintaxe específica e protocolos associados (BERNERS-LEE *et al.*, 1998).

Um URI pode ser classificado como nomes (URN), que define a identidade de um recurso, ou localizador (URL), que fornece um método para encontrá-lo.

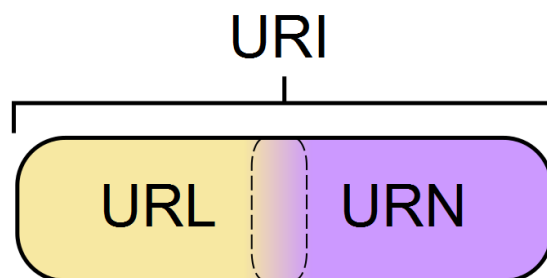


Figura 4: Diagrama que mostra o relacionamento entre URI, URN e URL.

Exemplos de URI:

`urn:isbn:0-486-27557-4`

URN para uma edição específica da obra “Romeu e Julieta”, de Shakespeare, identificado pelo seu número no sistema ISBN

`http://openlibrary.org/books/OL1733521M/Romeo_and_Juliet`

URL que fornece um meio de localizar o recurso (no caso, a obra “Romeu e Julieta”) na rede.

2.2 RDF

O RDF, Resource Description Framework (LASSILA *et al.*, 1998), é essencialmente um modelo de dados utilizado para descrever e representar recursos na web. Este framework foi criado para que os dados e informações sejam lidos e interpretados por computadores.

Sua estrutura padrão é uma tripla “objeto-atributo-valor”, mais conhecida como “statement” e apesar de ser comumente representado por documentos XML (RAY, 2003) é independente de domínio e plataforma. Os conceitos fundamentais são os recursos (resources), propriedades (properties) e statements.

Um exemplo de RDF¹:

```
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:cd="http://www.recshop.fake/cd#">

  <rdf:Description
    rdf:about="http://www.recshop.fake/cd/Empire_Burlesque">
    <cd:artist>Bob Dylan</cd:artist>
    <cd:country>USA</cd:country>
    <cd:company>Columbia</cd:company>
    <cd:price>10.90</cd:price>
    <cd:year>1985</cd:year>
  </rdf:Description>
```

No exemplo acima, a primeira linha do exemplo contém a raiz do documento RDF. A declaração `xmlns:rdf` especifica que os elementos com o prefixo “rdf” são do espaço de nome ² “http://www.w3.org/1999/02/22-rdf-syntax-ns#”, enquanto `xmlns:cd` especifica que os elementos com o prefixo “cd” são do espaço de nome “http://www.recshop.fake/cd#”.

¹ Exemplo extraído de http://www.w3schools.com/rdf/rdf_example.asp. Acessado dia 13/03/2012

² Espaço de nome (“namespace”, em inglês) é um delimitador abstrato que fornece um contexto para os itens que ele armazena o que permite uma desambiguação para itens que possuem o mesmo nome, mas que residem em espaços de nomes diferentes.

O elemento `<rdf:Description>` contém a descrição do recurso identificado pelo atributo `rdf:about`. Os nós `<cd:artist>`, `<cd:country>` e `<cd:company>` são as propriedades do recurso.

Em outras palavras, o RDF descreve o CD Empire Burlesque, do cantor Bob Dylan, o país de origem, preço, ano etc.

2.3 SPARQL

SPARQL, sigla recursiva para *SPARQL Protocol and RDF Query Language* (“SPARQL - Wikipedia, the free encyclopedia”, 2012), é uma linguagem para consultar dados armazenados no formato RDF. Foi definida como padrão pelo RDF Data Access Working Group (DAWG) da W3C, e é considerada uma tecnologia chave da web semântica.

As consultas em SPARQL são compostas por três partes (ARENAS *et al.*, 2009):

1. A parte de correspondência de padrão, que inclui características como união de padrões, filtros de valor e a possibilidade de escolher a fonte de dados.
2. Os modificadores de solução que, uma vez que o resultado tenha sido computado, nos permite modificar esse resultado, como ordenação e limite.
3. E o resultado da consulta, que pode ser do tipo sim ou não, seleção de valores, etc.

Exemplo de uma consulta SPARQL:

```
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
PREFIX dbr: <http://dbpedia.org/resource/>
PREFIX dbo: <http://dbpedia.org/ontology/>
SELECT ?nome ?nascimento ?pessoa WHERE {
  ?pessoa dbo:birthPlace dbr:Berlin .
  ?pessoa dbo:birthDate ?nascimento .
  ?pessoa foaf:name ?nome .
  FILTER (?nascimento < "1900-01-01"^^xsd:date) .
}
ORDER BY ?nome
```

Neste exemplo é feita uma consulta para descobrir quais pessoas nasceram em Berlim antes de 1900.

Nas quatro primeiras linhas utiliza-se a sentença iniciada por `PREFIX` para definir um prefixo para os espaços de nomes que vêm logo em seguida, após o sinal de dois-pontos. São utilizados XML Schema (“W3C XML Schema”, 2001), FOAF (“The Friend of a Friend (FOAF) project | FOAF project”, 2010), utilizado para descrever pessoas e informações e criar ligações entre elas e recursos e ontologia da DBpedia.

No segundo bloco, é feita a seleção de nome, data de nascimento e as pessoas (recursos) encontradas na base de dados, restrita a quem nasceu em Berlim (como especificado na linha 6 da consulta). Ao obter o resultado da consulta, é feito um filtro, para manter somente as pessoas que nasceram antes de 1900 e o resultado é ordenado pelo nome.

O padrão de consulta (restrição) sempre utiliza a tripla “sujeito – predicado – objeto”. Toda variável é precedida do caractere ‘?’, sendo que para este caso, ‘?pessoa’ é o sujeito de todas as restrições (recurso a ser encontrado) e as demais variáveis são os objetos dos predicados (dia em que nasceu, nome etc.) dessas pessoas.

Essas consultas SPARQL são feitas, normalmente, a conjuntos de dados que utilizam RDF como tecnologia de persistência. Se esta consulta for feita ao conjunto de dados da DBpedia, o resultado retornado será exibido na tabela abaixo.

Tabela 1: Parte do resultado da consulta SPARQL utilizada para descobrir pessoas nascidas em Berlim antes de 1900

nome	nascimento	pessoa
Adam Heinrich Müller	1779-06-30 ^{^xsd:date}	<http://dbpedia.org/resource/Adam_M%C3%Bcller>
Bruno Walter	1876-09-15 ^{^xsd:date}	<http://dbpedia.org/resource/Bruno_Walter>
Charles Tindley	1851-07-07 ^{^xsd:date}	<http://dbpedia.org/resource/Charles_Albert_Tindley>
Dora Gerson	1899-03-23 ^{^xsd:date}	<http://dbpedia.org/resource/Dora_Gerson>
Ellen Franz	1839-05-30 ^{^xsd:date}	<http://dbpedia.org/resource/Ellen_Franz>
Franz Bracht	1877-11-23 ^{^xsd:date}	<http://dbpedia.org/resource/Franz_Bracht>

2.4 Linked Open Data

Linked data (dados interligados, em inglês) descreve um método de publicação de dados estruturados que possam ser interligados de modo que se tornem mais úteis. É construído utilizando padrões web como HTTP e URI, mas ao invés de serem utilizados como documentos na web para humanos lerem, ele os estende para compartilhar informações de modo que possam ser lidos por computadores. Isso permite que dados de diferentes origens sejam conectados e consultados (BIZER *et al.*, 2009).

As principais características dos dados interligados, baseado nos princípios básicos apresentados por (BERNERS-LEE, 2009), são:

- Utilizar URI para identificar coisas
- Utilizar URI com protocolo HTTP de modo que essas coisas possam ser referenciadas e buscadas por pessoas e *user agents*.
- Fornecer informação útil sobre a coisa utilizando formatos padrões como RDF/XML
- Incluir ligações para outros dados, URI relacionadas no dado em questão para melhorar a descoberta de informações relacionadas na Web.

O termo “open” (aberto, em inglês) refere-se à ideia de que os dados devem ser livremente disponibilizados para todos, sem restrições de direitos de cópia, patentes etc.

2.5 DBpedia

A DBpedia é uma iniciativa para extrair informações estruturadas da Wikipédia e tornar essas informações disponíveis na web (AUER *et al.*, 2007), permitindo que sejam feitas consultas nesse conjunto de dados assim como sejam criados links de outras fontes da Web para os dados da Wikipédia.

A Wikipédia está em constante revisão e edição pela comunidade devido ao seu formato aberto. Seus artigos estão disponíveis em mais de 250 línguas, sendo o Inglês sua

maior base. Assim como muitas outras aplicações web, a Wikipédia tem limitações em sua busca, sendo feita somente através de “full text search”, o que limita o acesso a informação e ao conhecimento.

O projeto DBpedia se aproveita desta vasta gama de informações disponíveis em tantas línguas para extrair, converter e criar conjuntos de dados estruturados de forma que técnicas de Web Semântica possam ser empregadas.

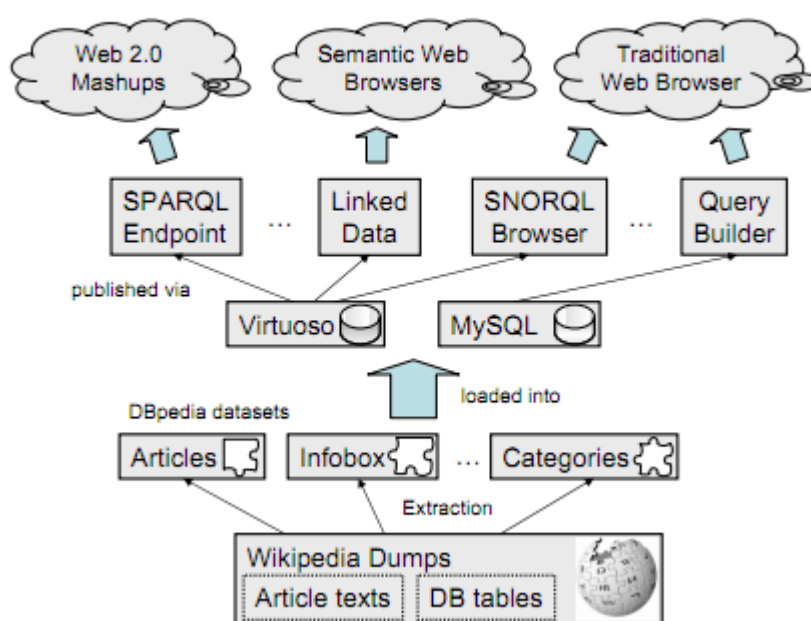


Figura 5: Arquitetura e serviços da DBpedia

Fonte: AUER *et al.*, 2007

A Figura 5, mostra resumidamente como a DBpedia funciona. Analisando a figura de baixo para cima, a caixa “Wikipedia Dumps” refere-se à extração de dados diretamente da base de dados da Wikipédia (“Wikipedia:Database download”, 2012), que é disponibilizado gratuitamente.

Logo acima, são mostradas algumas das partes úteis, como artigos e suas categorias, que são utilizadas e tratadas antes de serem carregadas nos bancos da DBpedia.

Esses dados extraídos e tratados são carregados em dois tipos de banco de dados. O primeiro e mais utilizado é o Openlink Virtuoso, que armazena as informações em triplas RDF e o outro é o banco de dados relacional MySQL.

Para tornar esses dados acessíveis, a DBpedia disponibiliza interfaces e serviços como o SPARQL Endpoint, um serviço web utilizado para consultas SPARQL e o SNORQL Browser, um cliente onde é possível escrever uma consulta SPARQL diretamente em sua página na web.

Na parte superior da figura são mostradas formas de se interagir com os serviços da DBpedia.

2.6 Agentes

Na ciência da computação, agentes são partes de softwares que trabalham de modo autônomo e/ou proativo. Conceitualmente eles evoluíram a partir dos conceitos de programação orientada a objetos e modularização de software.

Um “agente pessoal” na Web Semântica recebe algumas tarefas e preferencias da pessoa, busca informações na Web, compara informações sobre requisitos e preferencias do usuário, seleciona e dá algumas respostas para o usuário. Deve-se estar ciente de que agentes não substituem os usuários na Web Semântica e tampouco tomam decisões. Em muitos casos, o papel deles é coletar e organizar informações e apresentar opções para que o usuário escolha.

3 Ferramentas Utilizadas

A arquitetura utilizada neste projeto segue o modelo cliente-servidor, onde o cliente é responsável por fazer requisições ao servidor e exibir a resposta recebida. O cliente é uma extensão do navegador Mozilla Firefox e para a sua criação foi utilizada a ferramenta online Add-on Builder (“Builder and SDK :: Developer Hub :: Add-ons for Firefox”, 2012), da Mozilla Foundation, utilizando a linguagem Javascript.

O lado servidor é um sistema web escrito na linguagem Java, versão Enterprise Edition, instalado em um servidor Apache Tomcat 6.0. Para o tratamento de requisições HTTP e envio de resposta, foi utilizada a API Java Servlet.

Quando uma requisição é realizada, o servidor executa etapas a fim de enviar de volta uma resposta com o conteúdo esperado. Em algumas etapas do processo foram utilizadas bibliotecas ou serviços web para resolver problemas específicos, conforme listado abaixo:

Tabela 2: Ferramentas utilizadas no lado servidor

ETAPA	FERRAMENTA
Extração do texto principal	Boilerpipe (Biblioteca)
Identificação de entidades	DBpedia Spotlight (Serviço Web)
Definição de relacionamento entre as entidades	Apache Jena (framework)
Obtenção de conteúdo da entidade principal	Apache Jena (framework)

Para a extração do texto principal, a biblioteca *Boilerpipe* (“boilerpipe - Boilerplate Removal and Fulltext Extraction from HTML pages - Google Project Hosting”, 2010) é utilizada. Ela consiste em analisar detectar e remover partes não relacionadas ao texto principal da página, como *templates*, chamadas para outras páginas, banners etc.

A entrada (input) da biblioteca é a URL da página que se deseja o conteúdo e o retorno é o texto puro do conteúdo principal. A biblioteca é configurável e fornece algumas estratégias para alcançar o resultado desejado, como “extração de artigos”, utilizada neste projeto, devido ao seu alto índice de precisão.

O algoritmo utilizado na biblioteca é baseado em conceitos do artigo (KOHLSCHÜTTER *et al.*, 2010), que mostra que, separando um documento HTML em blocos e medindo o número de palavras e a densidade de hiperlinks, é possível detectar o conteúdo principal com bastante precisão. O artigo também traz uma abordagem baseada em linguística quantitativa, como tamanho médio das palavras e tamanho médio das frases.

A biblioteca não inspeciona os documentos HTML em nível tópico (assunto), somente em nível funcional, portanto é independente da língua em que o conteúdo está escrito.

A detecção e identificação de entidades no texto obtido é feita através da ferramenta DBpedia Spotlight, disponibilizada como um serviço web. O Spotlight é uma ferramenta que identifica recursos disponíveis na DBpedia em um texto e o anota, fornecendo uma solução para ligar informações não estruturadas a nuvem de dados abertos, que contém 3,5 milhões de entidades.

Ao fornecer um texto e configurações para realizar a consulta, o serviço retorna uma resposta no formato JSON (“JSON”, 2006), com as entidades identificadas, a sua posição no texto e seu recurso correspondente, um RDF com seus dados, na base do DBpedia.

Esta ferramenta identifica entidades baseado no seu contexto (o texto como um todo) com o auxílio da configuração dos seguintes parâmetros:

- Confidence (confiança): seu valor pode variar de 0 a 1. Ao definir um valor alto, a ferramenta evita o máximo possível de anotações incorretas. Seu valor também é utilizado a fim de comparações com outros parâmetros internos, como “ambiguidade contextual”.

- Support (suporte): especifica o número mínimo de ligações internas que o recurso deve ter para ser anotado. Este número mínimo é baseado nos links internos da Wikipédia, quantos artigos apontam para o artigo em questão.

Maiores detalhes do funcionamento interno do DBpedia Spotlight pode ser encontrado em (PABLO N. MENDES *et al.*, 2011).

O framework Apache Jena foi utilizado com o propósito de identificar relacionamentos entre as entidades, baseado nos seus assuntos em comum, e para obtenção do conteúdo complementar (“resumo” do recurso) da principal entidade identificada no texto, segundo a ferramenta criada neste projeto.

Este framework fornece um conjunto de ferramentas e bibliotecas Java. Neste projeto foi utilizado um subconjunto da biblioteca de consulta, que permite que consultas SPARQL sejam feitas a um endpoint³, que por sua vez, retorna o conjunto de dados e informações solicitado. No caso deste trabalho, foi utilizado o endpoint público <http://dbpedia.org/sparql>, que dá acesso aos dados da DBpedia.

³ Em arquitetura orientada a serviços, um endpoint é o ponto de entrada para um serviço ou processo. Neste caso, o endereço citado é o meio para acessar e utilizar o serviço de consulta SPARQL.

4 Detalhamento da solução

A arquitetura escolhida para a solução foi cliente-servidor, onde o cliente é o complemento do Firefox e o servidor é o processo que executa todas as etapas de processamento do texto. A função do complemento (cliente) é exclusivamente obter a URL da página que está sendo exibida, enviar a requisição com esta URL para o servidor e exibir sua resposta.

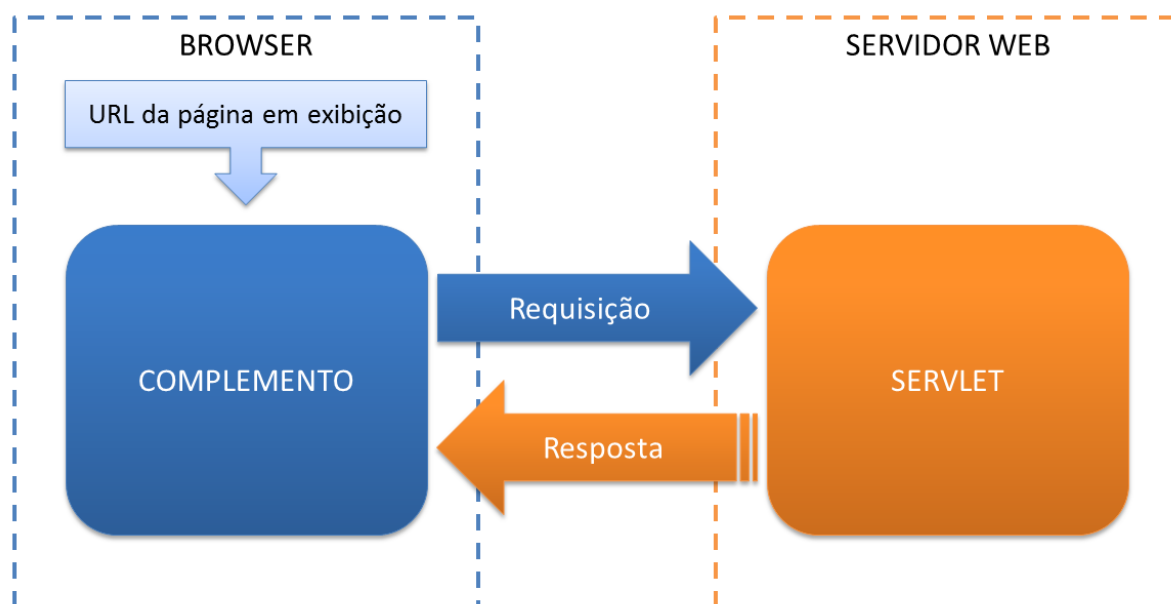


Figura 6: Arquitetura da solução

Ao receber a requisição, o servidor web realiza o processamento em 4 etapas de forma encadeada, onde a saída de cada etapa é a entrada da etapa seguinte. As etapas do processo realizadas no servidor são: **extração**, que extrai o conteúdo textual relevante na página, **identificação**, que identifica entidades no texto, **relacionamentos**, que cria ligações entre as entidades baseadas em certas propriedades, e **informação**, que identifica a entidade mais importante do texto e obtém informações (resumo) da mesma.

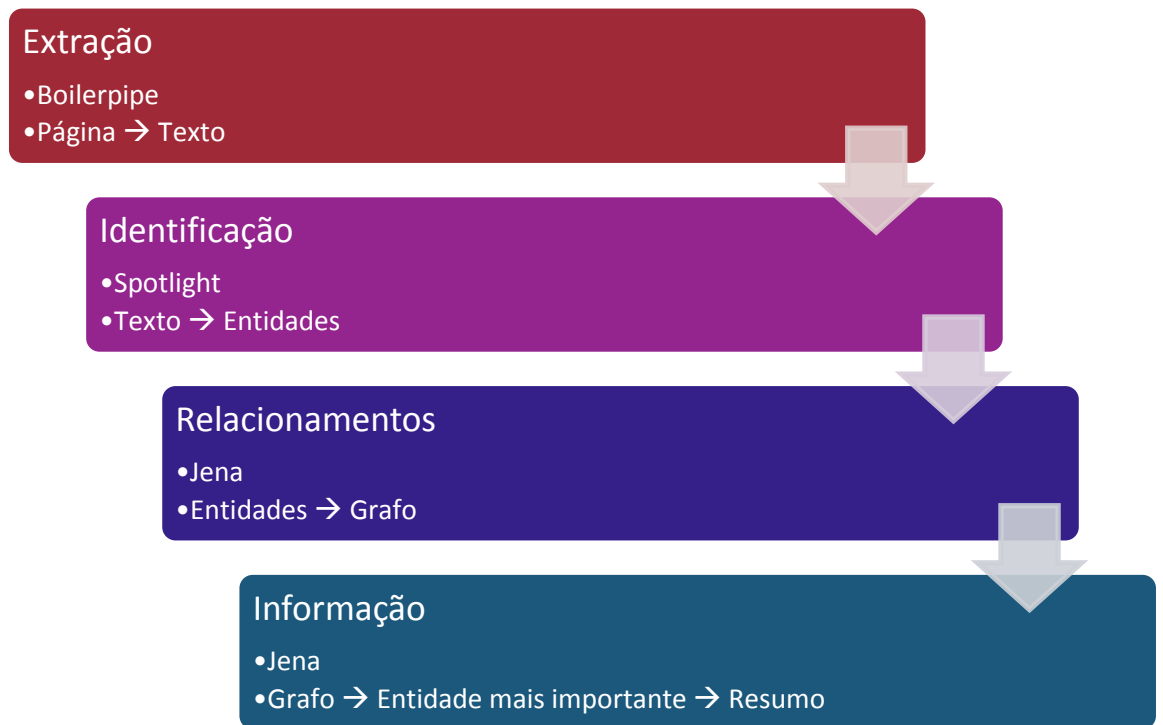


Figura 7: Etapas do processo do texto no servidor

O complemento no lado cliente, criado no Add-on Builder utilizando o Add-on SDK, ambos do Mozilla Foundation, consiste em exibir permanentemente um botão na barra de ferramentas do navegador, para que seja de fácil acesso para o usuário. Ao clicar no botão, o complemento busca a URL da página que está sendo exibida, faz uma requisição ao servidor e abre uma nova aba no navegador para que a resposta seja exibida.

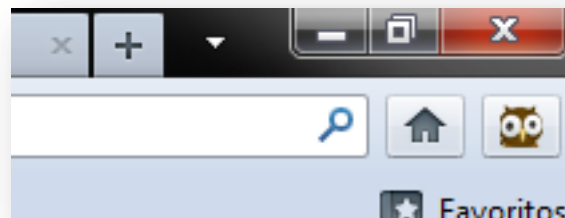


Figura 8: Botão do complemento FireOwl na barra de ferramentas do navegador Mozilla Firefox

No servidor, além do Java Servlet que recebe as requisições, foi criada a classe Entidade, que representa entidades do texto, armazenando seu URI, o número de ocorrências no texto, relacionamento com outras entidades etc. Além disso, foram criadas classes cujos métodos servem como uma interface simplificada para a utilização de ferramentas e bibliotecas de terceiros. Estas classes são expostas na tabela abaixo.

Tabela 3: Classes criadas para a solução, seus métodos e objetivos

Classe	Método	Objetivo
PaginaParser	extrairConteudo	Interface para a biblioteca boilerpipe, utilizada para extrair o conteúdo principal da página.
EntidadesMgr	identificarEntidades	Envia o texto para o serviço web DBpedia Spotlight, processa o JSON de resposta e retorna uma lista de objetos Entidade
	definirRelacionamentos	Realiza consultas ao endpoint SPARQL da DBpedia a fim de descobrir seus assuntos e relacionar entidades através deles.
	obterResumoInformacao	Realiza consultas ao endpoint SPARQL da DBpedia a fim de obter o resumo e o rótulo (label) de uma entidade.

Para mostrar o passo a passo de como a ferramenta funciona, utilizaremos o artigo “Supernova Countdown: Giant Star Could Explode Any Day Now”⁴ do site da revista Time. O artigo trata da explosão (supernova) da Nebulosa Carina, que pode estar próximo de acontecer.

⁴ <http://www.time.com/time/health/article/0,8599,2106904,00.html>. Acessado em 24/02/2012

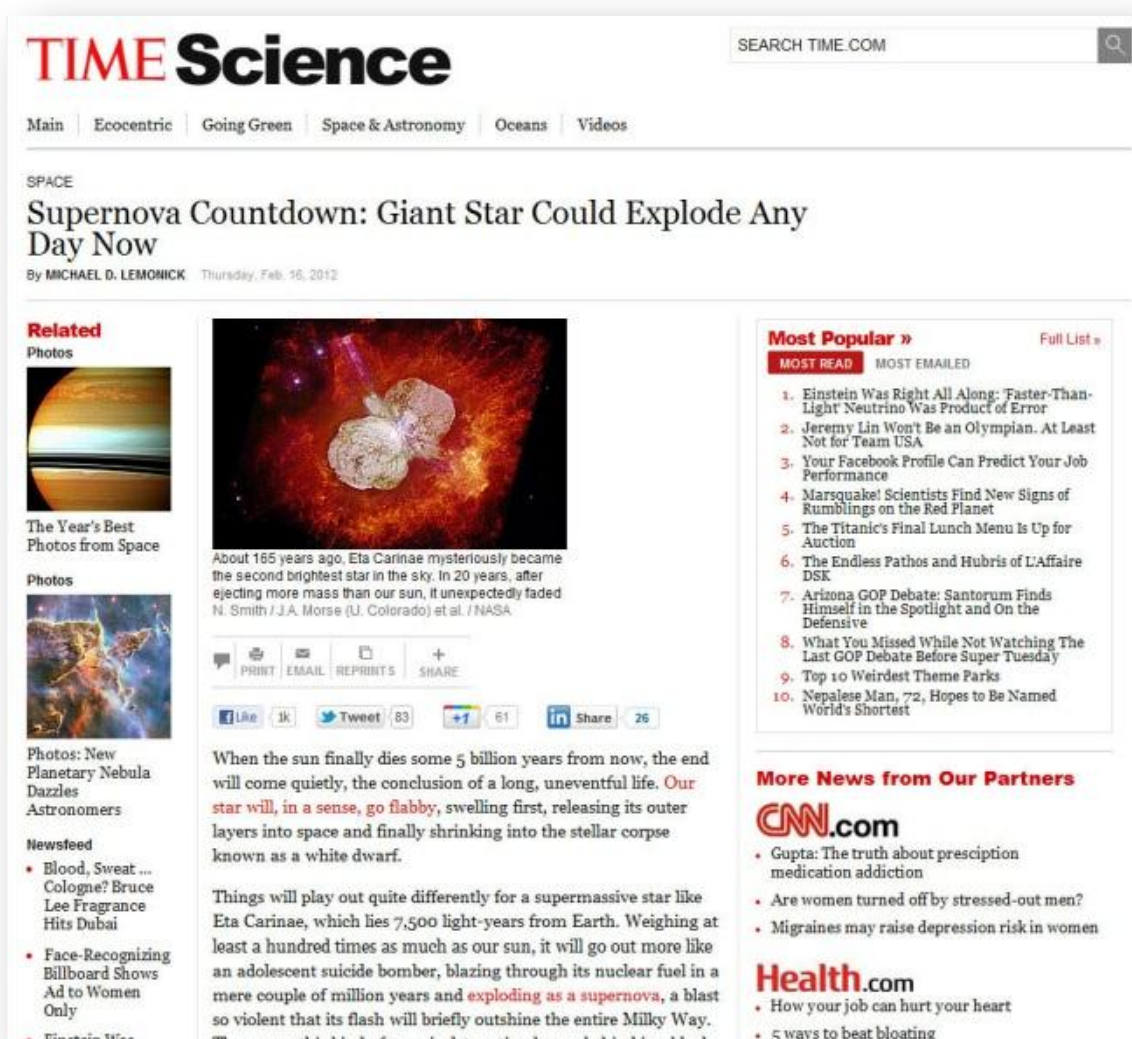


Figura 9: Página da matéria "Supernova Countdown: Giant Star Could Explode Any Day Now"

4.1 Extração de conteúdo

O primeiro passo que deve ser seguido para a identificação do assunto de uma página é descobrir onde o conteúdo principal está posicionado e extrair somente seu texto, sem tags HTML, hiperlinks, imagens etc. Para este fim foi criada a classe `PaginaParser` e o método `extrairConteudo`, que encapsula os métodos de utilização da biblioteca `Boilerpipe`, para que esta possa fazer a remoção das partes inúteis, como menus, banners e templates, e retornar somente o texto com o conteúdo principal. A entrada deste método (input) é a URL da página a ser analisada.

Das diversas estratégias disponíveis na biblioteca para extração de conteúdo, foram escolhidas duas delas, “Default Extractor” e “Article Extractor”, para melhorar a robustez da extração. A primeira é uma estratégia genérica de extração de texto enquanto a segunda é aprimorada para extração de textos de sites de notícias. As duas estratégias retornam resultados bem similares, porém em alguns casos foi observado durante o desenvolvimento da solução que a estratégia “Article Extractor” retornava somente parte do conteúdo.

Para contornar este problema, a extração feita pelo PaginaParser é feita duas vezes, cada uma utilizando uma estratégia e os resultados são comparados utilizando o valor de t , na relação a seguir.

$$t = \frac{\text{tamanho do texto extraído pelo "Default Extractor"}}{\text{tamanho do texto extraído pelo "Article Extractor"}}$$

Ao analisar os resultados obtidos nas duas estratégias e o valor t na relação acima, o valor $t = 2$ foi determinado, empiricamente, como um valor limite para a escolha da estratégia. Se $t \geq 2$, ou seja, se o texto extraído pela estratégia padrão tiver o dobro ou mais que o dobro da extensão do texto obtido pela estratégia “Article Extractor”, o texto extraído pelo “Default Extractor” deverá ser utilizado. Caso contrário, o texto obtido pela outra estratégia citada deverá ser utilizada. O tamanho do texto é medido pelo número de palavras do texto extraído.

Tweet

When the sun finally dies some 5 billion years from now, the end will come quietly, the conclusion of a long, uneventful life. Our star will, in a sense, go flabby, swelling first, releasing its outer layers into space and finally shrinking into the stellar corpse known as a white dwarf. Things will play out quite differently for a supermassive star like Eta Carinae, which lies 7,500 light-years from Earth. Weighing at least a hundred times as much as our sun, it will go out more like an adolescent suicide bomber, blazing through its nuclear fuel in a mere couple of million years and exploding as a supernova, a blast so violent that its flash will briefly outshine the entire Milky Way. The corpse this kind of cosmic detonation leaves behind is a black hole.

For Eta Carinae, that violent end might not be long in coming, according to a report in the latest Nature. "We know it's close to the end of its life," says astronomer Armin Rest of the Space Telescope Science Institute and the lead author of the paper. "It could explode in a thousand years, or it could happen tomorrow." In astronomical terms, a thousand years might as well be tomorrow; as for a supernova blowing up literally tomorrow, well, that's almost unheard of.

(PHOTOS: New Planetary Nebula Dazzling Astronomers)

In 1843 Eta Carinae gave a hint that the end might be near when the hitherto nondescript body flared up to become the second brightest star in the sky, after Sirius. It stayed that way for 20 years or so, then faded and left behind a majestic, billowing cloud of gas known as the Homunculus Nebula. Eta Carinae lost some 10% of its substance in this event, which astronomers now call a "supernova impostor," after which it has returned to relative quiet or what passes for quiet in such an unstable object. Astronomers back in the day did the best they could to observe the 20-year flare, but without modern instruments, they couldn't really learn much. That has frustrated investigators now just as it did then, since studying Eta Carinae in detail could tell them a lot about what caused the outburst and maybe even help them figure out when the inevitable supernova explosion is going to occur.

Figura 10: Parte do conteúdo extraído da página da matéria "Supernova Countdown: Giant Star Could Explode Any Day Now"

4.2 Identificação de entidades

Ao lermos um texto qualquer, conseguimos compreender seu conteúdo e identificar pontos principais, pois identificamos palavras, pessoas, lugares, campos de estudos, entre outros, que conhecemos previamente. Nós identificamos entidades conhecidas no texto.

Para auxiliar na identificação das entidades, o serviço web DBpedia Spotlight é utilizado, que analisa sintaticamente e semanticamente o texto e identifica entidades que sejam recursos da DBpedia. A qualidade do resultado de identificação das entidades está diretamente ligada aos parâmetros de configuração do serviço: confiança e suporte.

Para determinar qual valor utilizar na confiança, foi feito um estudo baseado no número de palavras do artigo analisado e no número de entidades identificadas. Foram utilizados 100 artigos de diferentes tamanhos (número de palavras) variando seu valor de 0,0 a 1,0 ao passo de 0,1. O resultado foi consolidado na tabela abaixo, onde cada linha possui, em sua primeira coluna, a faixa de número de palavras, e nas demais o número médio de entidades identificadas para esta faixa. Para auxiliar a decisão do valor de confiança, foi criada uma tabela adicional com o percentual de entidades mantidas, em relação à confiança anterior.

Tabela 4: Média de entidades identificadas para cada faixa e valor de confiança

Tamanho	0	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,0
Até 100	22	21	19	2	1	0	0	0	0	0	0
101 a 200	56	53	48	23	16	14	12	12	11	10	0
201 a 300	89	86	85	82	79	77	75	72	67	65	0
301 a 400	120	113	112	100	98	95	91	87	80	76	0
401 a 500	150	138	136	116	109	105	95	86	77	72	0
501 a 600	184	156	150	118	108	100	90	79	63	59	0
Acima de 600	214	188	178	143	128	110	91	62	42	32	0

Tabela 5: Percentual de entidades mantidas com variação da confiança

Tamanho	0,0	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,0
Até 100	100%	95%	90%	11%	50%	0%	0%	0%	0%	0%	0%
101 a 200	100%	95%	91%	48%	70%	88%	86%	100%	92%	91%	0%
201 a 300	100%	97%	99%	96%	96%	97%	97%	96%	93%	97%	0%
301 a 400	100%	94%	99%	89%	98%	97%	96%	96%	92%	95%	0%
401 a 500	100%	92%	99%	85%	94%	96%	90%	91%	90%	94%	0%
501 a 600	100%	85%	96%	79%	92%	93%	90%	88%	80%	94%	0%
Acima de 600	100%	88%	95%	80%	90%	86%	83%	68%	68%	76%	0%

Como podemos observar na Tabela 5, para textos com até 200 palavras (curtos), as maiores quedas do número de entidades identificadas foram na variação do valor da confiança

de 0,2 para 0,3, portanto, ficou determinado que para esta faixa o valor da confiança utilizado seria 0,2.

Para texto que possuem mais de 200 palavras (médios e longos), a maior diferença no número de entidades ficou na variação de 0,7 para 0,8. Deste modo, para essa faixa, configuraremos a confiança para o valor 0,7.

O suporte foi mantido em 0 (zero) para toda as faixas pois não mostrou influência relevante no número de entidades identificadas.

Na implementação do servidor, foi criada a classe `EntidadesMgr`, que possui métodos para manipular as entidades. Um dos métodos existentes é o “`identificarEntidades`”, que encapsula a utilização do serviço web Spotlight. Este método possui dois parâmetros que são utilizados em sua configuração: confiança e suporte, que são repassados para o serviço encapsulado.

Este método retorna uma lista de objetos da classe `Entidade`, extraídos do JSON de resposta do DBpedia Spotlight, que representam as entidades identificadas no texto. Cada entidade mantém o número de vezes que apareceu no texto (variável de instância “*hits*”), que é um valor importante para determinação da principal entidade do texto.

O conteúdo obtido no exemplo possui 898 palavras e, portanto, a confiança utilizada para este caso foi 0,7 e suporte 0. Foram identificadas 17 entidades diferentes neste texto para estes parâmetros.

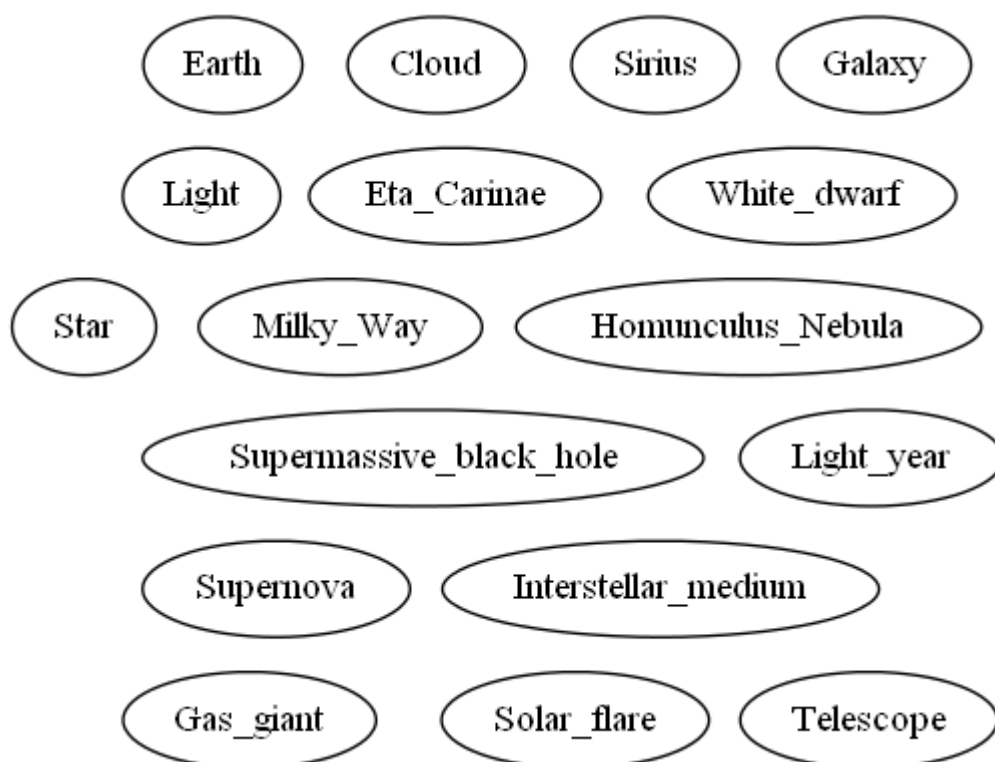


Figura 11: Entidades identificadas na matéria "Supernova Countdown: Giant Star Could Explode Any Day Now"

4.3 Definição de relacionamentos

As entidades possuem ligações (relacionamentos) entre si. Como essas entidades são recursos da DBpedia, seus relacionamentos são determinados através de seus assuntos em comum (propriedade `dcterms:subject`).

Antes de determinar os relacionamentos é necessário conhecer os assuntos de cada uma das entidades identificadas anteriormente. Para isso, fazemos uma consulta SPARQL (abaixo) ao endpoint público da DBpedia, acessível pelo endereço <http://dbpedia.org/sparql>, para cada uma das entidades:

```

PREFIX dcterms: <http://purl.org/dc/terms/>
SELECT ?assunto WHERE {
  <ENTIDADE> dcterms:subject ?assunto }

```

onde ENTIDADE é a URI do recurso que deseja consultar.

Após conhecer os assuntos de cada entidade, é necessário fazer o cruzamento de informações a fim de determinar os assuntos em comum e criar as ligações entre as entidades. Essas ligações entre as entidades resultam em um grafo não direcionado, sendo cada vértice uma entidade e cada aresta um assunto em comum. Cada aresta possui seu grau, que é o número de ligações com outras entidades que ela possui.

A Figura 12 mostra o resultado da ligação entre as entidades baseada em seus assuntos. Na figura, ao lado de cada vértice está seu número de hits e cada aresta representa um relacionamento baseado em um assunto em comum (dcterms:subject). Portanto, se duas entidades estão interligadas por duas arestas, por exemplo, quer dizer que entre elas há dois assuntos em comum.

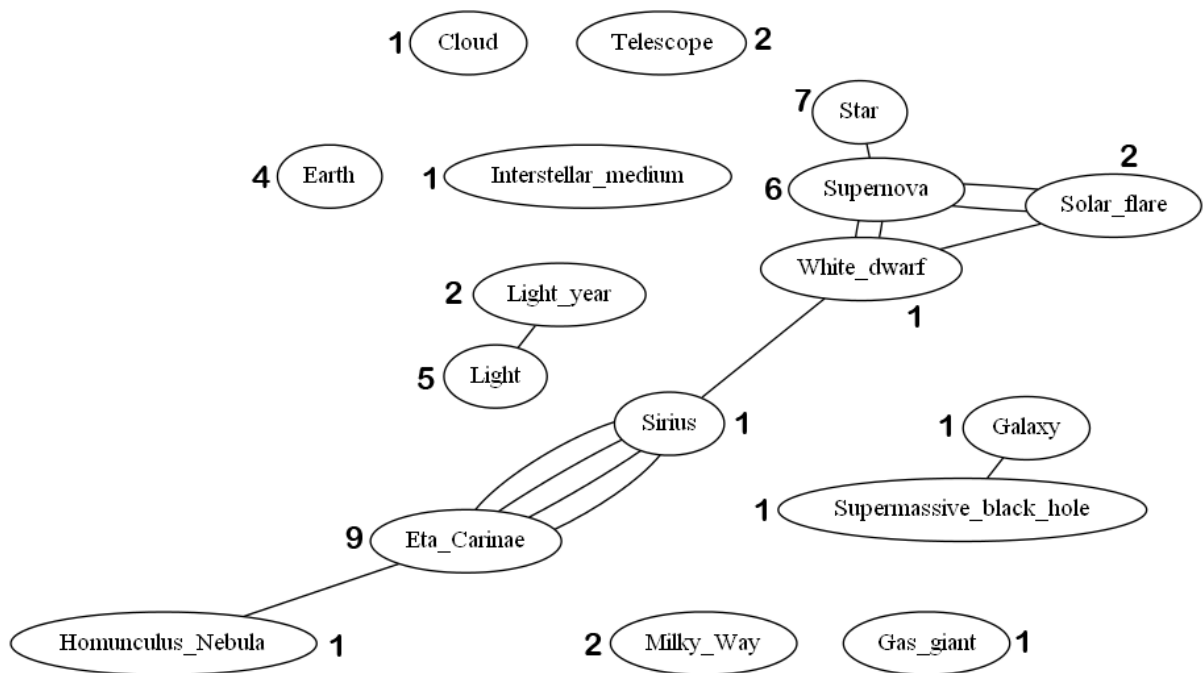


Figura 12: Entidades identificadas no texto "Supernova Countdown: Giant Star Could Explode Any Day Now" e seus relacionamentos

4.4 Criação de um ranking para identificar a entidade principal

4.4.1 Definições e critérios de avaliação

Uma vez que temos um conjunto de entidades com relacionamentos entre si, é necessário definir qual a entidade mais importante do texto. Para resolver este problema, foi criado um ranking utilizando os dados obtidos na etapa anterior. É possível combinar valores de hits e de grau dos vértices (entidades) de modo que consigamos beneficiar e prejudicar entidades.

Foram definidos dois níveis de pontuação para as entidades:

- Primeiro nível: pontuação para classificação
- Segundo nível: pontuação para desempate

Também foram criados 6 critérios de classificação e desempate:

- Primeiro critério
 - Classificação por hits da entidade
 - Desempate por grau da entidade
 - Característica: Beneficia a entidade mais frequente no texto
- Segundo critério
 - Classificação por grau da entidade
 - Desempate por hits da entidade
 - Característica: Beneficia a entidade com mais relacionamento com outras entidades
- Terceiro e quarto critério
 - Classificação pela soma de hits e grau da entidade
 - Desempate por hits e grau, respectivamente.
 - Característica: Pode prejudicar entidades que não tem relacionamentos com outras entidades.

- Quinto e sexto critério
 - Classificação pela multiplicação de hits pelo grau da entidade
 - Desempate por hits e grau, respectivamente.
 - Característica: Entidades sem relacionamentos sempre estarão no final da lista, pois, como seus graus são iguais a zero, as pontuações também serão zero.

Para avalia-los, foi observado o comportamento destes rankings para 20 textos diferentes, assim como a entidade que estivesse no topo do ranking, que é considerada a entidade principal. Para avaliar o resultado da classificação, foram sinalizadas com “(+)” as entidades mais importantes do texto, que devem ficar o mais próximo do topo do ranking, e com “(-)” as menos importantes, que devem ficar o mais próximo do final do ranking (condição 1). Para avaliar a entidade principal, foram definidos três critérios:

- Fora do assunto: a entidade não tem qualquer relacionamento com o conteúdo do texto
- Assunto secundário ou citação: a entidade faz parte do texto, mas não como o assunto principal.
- Assunto central: a entidade é parte do assunto principal.

A taxa de erro (fora do assunto) deve ser a menor possível (condição 2).

O critério a ser utilizado deve satisfazer a condição 1 e 2 simultaneamente.

4.4.2 Resultados obtidos

Foi observado que, para a maior parte dos textos, o sexto critério estava mais próximo do desejado, pois este beneficia quem tem relacionamentos, o que indica um possível contexto e prejudica entidades que não têm, fazendo que elas desçam para o final da lista e teve a menor taxa de erro (fora do assunto) na identificação da entidade principal.

O sexto critério também teve a menor taxa de erro entre todos os critérios. Dos 20 textos observados, somente um obteve uma entidade principal fora do contexto, como é possível observar na Figura 13.

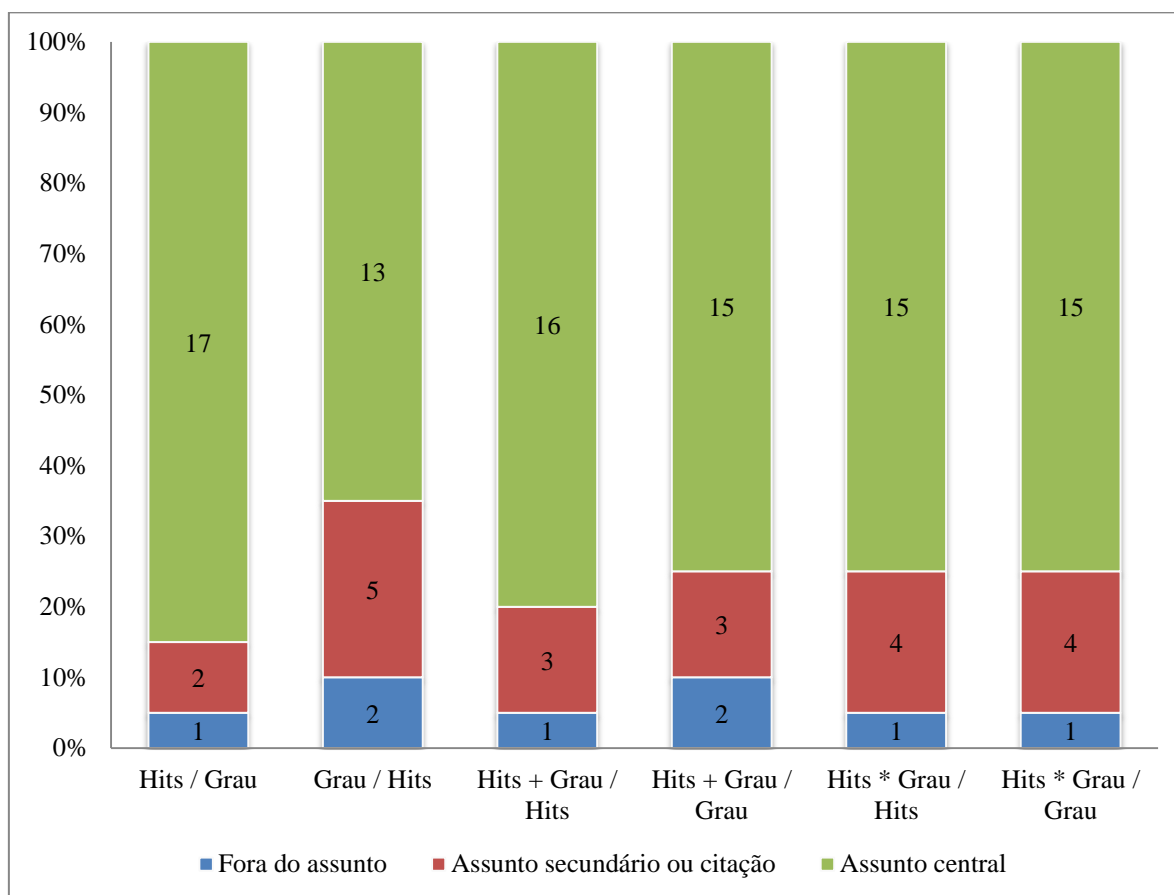


Figura 13: Resumo da taxa de acerto da entidade principal

Portanto, fica definido que o sexto critério será utilizado neste trabalho e que a entidade principal será considerada a que estiver no topo do ranking e este será considerado o assunto principal do texto.

A tabela a seguir ilustra o comportamento das entidades no ranking baseado nos critérios definidos acima. A principal entidade, no topo do ranking, é Eta Carinae.

Tabela 6: Comportamento dos seis tipos de ranking para as entidades identificadas no texto "Supernova Countdown: Giant Star Could Explode Any Day Now"

Hits / Grau	Grau / Hits	Hits + Grau / Hits
Eta_Carinae (+)	Eta_Carinae (+)	Eta_Carinae (+)
Star (+)	Supernova (+)	Supernova (+)
Supernova (+)	Sirius	Star (+)
Light (-)	White_dwarf	Light (-)
Earth (-)	Solar_flare	Sirius
Solar_flare	Star (+)	Solar_flare
Light-year (-)	Light (-)	White_dwarf
Milky_Way	Light-year (-)	Earth (-)
Telescope (-)	Supermassive_black_hole (+)	Light-year (-)
Sirius	Homunculus_Nebula	Milky_Way
White_dwarf	Galaxy	Telescope (-)
Supermassive_black_hole (-)	Earth (-)	Supermassive_black_hole (+)
Homunculus_Nebula	Milky_Way	Homunculus_Nebula
Galaxy	Telescope (-)	Galaxy
Cloud (-)	Cloud (-)	Cloud (-)
Gas_giant (-)	Gas_giant (-)	Gas_giant (-)
Interstellar_medium	Interstellar_medium	Interstellar_medium

Hits + Grau / Grau	Hits * Grau / Hits	Hits * Grau / Grau
Eta_Carinae (+)	Eta_Carinae (+)	Eta_Carinae (+)
Supernova (+)	Supernova (+)	Supernova (+)
Star (+)	Star (+)	Star (+)
Sirius	Solar_flare	Solar_flare
Light (-)	Light (-)	Sirius
White_dwarf	Sirius	Light (-)
Solar_flare	White_dwarf	White_dwarf
Earth (-)	Light-year (-)	Light-year (-)
Light-year (-)	Supermassive_black_hole (+)	Supermassive_black_hole (+)
Supermassive_black_hole (+)	Homunculus_Nebula	Homunculus_Nebula
Homunculus_Nebula	Galaxy	Galaxy
Galaxy	Earth (-)	Earth (-)
Milky_Way	Milky_Way	Milky_Way
Telescope (-)	Telescope (-)	Telescope (-)
Cloud (-)	Cloud (-)	Cloud (-)
Gas_giant (-)	Gas_giant (-)	Gas_giant (-)
Interstellar_medium	Interstellar_medium	Interstellar_medium

Note que até este ponto, os resultados obtidos são referentes aos experimentos realizados a fim de definir o critério de avaliação. Os resultados obtidos pelo uso da aplicação criada serão expostos no capítulo 5.

4.5 Obtenção de conteúdo complementar

Para obter conteúdo complementar, mais uma vez é necessário realizar uma consulta SPARQL ao endpoint do DBpedia, desta vez buscando o “abstract” (resumo) e o “label” (rótulo) da entidade principal:

```
PREFIX dbpedia-owl: <http://dbpedia.org/ontology/>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX dbpedia: <http://dbpedia.org/resource/>
PREFIX dbpedia2: <http://dbpedia.org/property/>
"SELECT ?label ?abstract WHERE {
{
<ENTIDADE> dbpedia-owl:abstract ?abstract .
<ENTIDADE> rdfs:label ?label .
FILTER(lang(?label) = \"en\")
FILTER(lang(?abstract) = \"en\")
}
UNION
{
<ENTIDADE> dbpedia-owl:abstract ?abstract .
<ENTIDADE> rdfs:label ?label .
FILTER ( lang(?label) = \"pt\" )
FILTER ( lang(?abstract) = \"pt\" )
}}
}
```

onde ENTIDADE é a URI do recurso que deseja consultar.

Ao obter o resultado dessa consulta, o Servlet formata a resposta obtida e exibe essa informação complementar para o usuário através do complemento no navegador do usuário.

Para o exemplo utilizado, a principal entidade identificada na etapa anterior foi “Eta_Carinae” (http://dbpedia.org/resource/Eta_Carinae). A Figura 14 mostra a resposta do Servlet, com a informação complementar obtida.

Lendo o texto original do artigo é possível perceber que o texto realmente se trata da Eta Carinae.

Eta Carinae

Eta Carinae, (na constelação da Quilha, ou "Carina", em latim), está a 7500 anos-luz da Terra. Uma estrela visível no Hemisfério Sul, mas não no Hemisfério Norte. De tamanho muito grande (500 vezes o tamanho do nosso sistema solar), seu aspecto mais marcante é a variação de seu brilho em várias ordens de magnitude. Quando foi pela primeira vez catalogada em 1677 por Edmond Halley, era uma estrela de magnitude 4, mas em 1843, após uma erupção que ejetou uma nuvem de poeira 500 vezes maior que o sistema solar, ficou mais brilhante, atingindo o brilho de Sirius, apesar da sua enorme distância. Depois disso (entre 1900 e 1940), a magnitude era apenas de 8. Em 2002, tinha magnitude 5, tendo de repente e surpreendentemente dobrado o seu brilho entre 1998 e 1999. Tudo indica tratar-se de uma sistema binário de estrelas muito próximas uma da outra. A estrela de menor diâmetro é a mais quente (30 000 °C) e a outra com o triplo do diâmetro é mais fria (15 000 °C), mas duas vezes mais brilhante. Este sistema estelar está envolto numa densa nuvem de gases e poeiras, que forma uma nebulosa 400 vezes mais extensa do que o Sistema Solar, conhecida como a Nebulosa de Eta Carinae (ou NGC3372). A perda de luminosidade deve-se, possivelmente, a uma consequência da aproximação máxima entre as duas estrelas, o periastro, altura em que a estrela menor encobre quase metade da maior. A diminuição de brilho é equivalente a 20 vezes o do Sol, mas brilhando como 4 a 5 milhões de sóis. O período de rotação das estrelas (uma em relação à outra) é de 5,5 anos. O que torna Eta Carinae especial é o seu brilho muito instável e de forma extremamente rápida, devido à poeira e o encobrimento da estrela maior pela menor, ao contrário das outras estrelas visíveis a partir da Terra. Em 1830, brilhava tanto como Sirius (a estrela mais brilhante). Atualmente, só é visível em locais muito escuros, sendo o seu brilho muito baixo; há 40 anos atrás até era necessário um telescópio para a poder observar. O astrónomo brasileiro Augusto Damineli, professor do IAG-USP, é um dos que afirmam que a estrela é uma variável pois a cada cinco anos e meio, segundo ele, acontece uma redução no seu brilho, já outros astrónomos não aceitavam essa teoria, no entanto em 1997, ocorreu uma nova redução do brilho, o fenómeno foi confirmado. Em 2003, graças aos registros de mais de 50 especialistas apoiados nas observações através de telescópios terrestres e em órbita, finalmente confirmou-se tratar-se mesmo de mais uma estrela variável do tipo SDOR - Estrelas de alta luminosidade binária, com variações entre 1 a 7 magnitudes, associadas e envolvidas em material em expansão próprio das nebulosas. Estrelas muito grandes como Eta Carinae esgotam seu combustível muito rapidamente devido à sua desproporcionalmente alta luminosidade. Espera-se que Eta Carinae possa explodir como uma supernova ou hipernova dentro de algum tempo nos próximos milhões de anos.

Figura 14: Informação complementar obtida sobre o artigo

5 Experimentos e resultados obtidos

5.1 Identificando entidades em textos similares de fontes diferentes

A fim de comparação de resultados, artigos de outras fontes que contemplam o mesmo assunto foram selecionados. Assim como o artigo “Supernova Countdown: Giant Star Could Explode Any Day Now”, os demais textos tratam da supernova da Nebulosa Carina. Seus respectivos conteúdos podem ser encontrados no Anexo A.

O resultado pode ser observado na tabela abaixo.

Tabela 7: Comparação de resultado de textos de fontes diferentes

Artigo	Fonte	Assunto identificado
Supernova Countdown: Giant Star Could Explode Any Day Now	Time	Eta Carinae
NASA previews Eta Carinae supernova	TG Daily	Eta Carinae
Preview: Forthcoming Supernova	Scientific Computing	Supernova

Como pode ser observado, os assuntos identificados na segunda e terceira matéria estão muito próximos do obtido na primeira matéria. Inclusive o assunto identificado na matéria “Preview: Forthcoming Supernova”, que foi Supernova, está próximo do esperado. Conforme é possível observar na Tabela 6 (página 42), Supernova ficou em segundo lugar no ranking.

5.2 Detalhamento dos artigos utilizados

Para auxiliar na avaliação do resultado deste trabalho, foram selecionados aleatoriamente 20 (vinte) artigos jornalísticos de diferentes fontes e assuntos. Todos estes artigos foram lidos, analisados e classificados. Ao final da leitura de cada um dos artigos, foi feita uma breve descrição do assunto abordado. Os assuntos identificados sob a perspectiva

humana foram expostos na tabela abaixo. Até este ponto, somente a percepção humana do conteúdo foi considerada.

Tabela 8: Artigos selecionados e assunto identificado do ponto de vista humano

Matéria	Fonte	Assunto (percepção humana)
Supernova Countdown: Giant Star Could Explode Any Day Now	Time	Supernova da Nebulosa Carina
Lakers upend Heat, Wade fouls out in second loss in a row	USA Today	Notícia de um jogo entre os LA Lakers e o Miami Heat, destacando a atuação de Dwyane Wade
Rush Limbaugh loses another sponsor over 'slut' remark	Los Angeles Times	Polêmica envolvendo o radialista Rush Limbaugh
New Lytro camera an exciting innovation	The Seattle Times	Lançamento da Lytro (Câmera Fotográfica)
Ralph McQuarrie, artist who drew Darth Vader, C-3PO, dies at 82	The Washington Post	Morte de Ralph McQuarrie, principal designer da série de filmes Star Wars
Ronaldo helps promote worker safety at Maracana	Stamford Advocate	Ronaldo visita as obras do Maracanã para promover a segurança do trabalho
Outside AIPAC protesters repeat annual ritual	The Jerusalem Post	Protestos durante o AIPAC
Rapper Young Buck's car shot at 11 times	Digital Spy	Assassinato do rapper Young Buck
Bovespa Index Declines as Greek Default Swaps Move Renews Europe Concern	Bloomberg	Bolsa de Valores Brasileira (Bovespa)
Apple blocks links to Amazon in iBookstore	Digital Trends	Bloqueio da Amazon pela Apple em sua loja de livros
Mariah Carey shows off weight loss in first performance since giving birth	Fox News	Mariah Carey
Taking a daily vitamin pill could prevent skin cancer, scientists reveal	Mail Online	Relação entre as vitaminas e o câncer de pele
Storms Demolish Small Towns in Ind., Ky.; 38 Dead	Boston	Tornado devasta cidade do estado de Indiana
Official 'Angry Birds' theme park hits next month	in-game	Parque temático do Angry Birds
Condoms With QR Codes Enable Smartphone Check-Ins	digtriad.com	Camisinha e QR Code
Irish people deserve to hear the full truth about abortion	irishtimes.com	Aborto na Irlanda
Rio Carnival: bigger, brighter ... more organized?	ajc	Carnaval do Rio
Texas gun sales boom in expectation of Obama re-election	Valley Central	Relação entre a venda de armas e a reeleição de Barack Obama
UK galleries pay \$72 million for Titian masterpiece	Reuters	Compra de "Diana and Callisto", de Ticiano, por uma galeria de arte inglesa
Fiat Is 'Winning' With Charlie Sheen Ad	KITV	O ator Charlie Sheen se torna garoto propaganda do Fiat 500

Após a classificação do ponto de vista humano, todos os artigos foram submetidos ao processamento do aplicativo criado, através do seu complemento no navegador. O resultado (assunto identificado) pelo aplicativo foi confrontado com o assunto esperado (percepção humana) e classificado em três critérios, assim como na seção 4.4.1:

- Fora do assunto: a entidade não tem qualquer relacionamento com o conteúdo do texto
- Assunto secundário ou citação: a entidade faz parte do texto, mas não como o assunto principal.
- Assunto central: a entidade é parte do assunto principal.

O resumo dos resultados está exposto na tabela abaixo. Na primeira coluna desta tabela está ao título da matéria, na segunda coluna o assunto identificado pela percepção humana, na terceira coluna o assunto (principal entidade) identificado pelo aplicativo criado neste trabalho e na última coluna o resultado a comparação entre o assunto identificado pela perspectiva humana e aquele identificado pelo aplicativo.

Note que um humano tende a identificar uma entidade e uma característica ou fato, como “Assassinato do rapper Young Buck”, ou duas ou mais entidades e o relacionamento entre elas no dado contexto, como “Tornado devasta cidade do estado de Indiana”, enquanto a ferramenta se limita a identificar uma entidade das principais entidades envolvidas.

Tabela 9: Artigos selecionados e assunto identificado pelo aplicativo criado

Matéria	Assunto identificado pela perspectiva humana	Assunto identificado pela pelo FireOwl	Classificação
Supernova Countdown: Giant Star Could Explode Any Day Now	Supernova da Nebulosa Carina	Eta Carinae	Assunto central
Lakers upend Heat, Wade fouls out in second loss in a row	Notícia de um jogo entre os LA Lakers e o Miami Heat, destacando a atuação de Dwyane Wade	Dwyane Wade	Assunto central

Rush Limbaugh loses another sponsor over 'slut' remark	Polêmica envolvendo o radialista Rush Limbaugh	Fluke (filme)	Fora do assunto
New Lytro camera an exciting innovation	Lançamento da Lytro (Câmera Fotográfica)	Ciência da Fotografia	Assunto secundário
Ralph McQuarrie, artist who drew Darth Vader, C-3PO, dies at 82	Morte de Ralph McQuarrie, principal designer da série filmes Star Wars	Star Wars Episode V: The Empire Strikes Back	Assunto secundário
Ronaldo helps promote worker safety at Maracana	Ronaldo visita as obras do Maracanã para promover a segurança do trabalho	Ronaldo	Assunto central
Outside AIPAC protesters repeat annual ritual	Protestos durante o AIPAC	Arab citizens of Israel	Assunto secundário
Rapper Young Buck's car shot at 11 times	Assassinato do rapper Young Buck	Young Buck	Assunto central
Bovespa Index Declines as Greek Default Swaps Move Renews Europe Concern	Bolsa de Valores Brasileira (Bovespa)	Stock	Assunto central
Apple blocks links to Amazon in iBookstore	Bloqueio da Amazon pela Apple em sua loja de livros	Amazon.com	Assunto central
Mariah Carey shows off weight loss in first performance since giving birth	Mariah Carey	Mariah Carey	Assunto central
Taking a daily vitamin pill could prevent skin cancer, scientists reveal	Relação entre as vitaminas e o câncer de pele	Retinol	Assunto secundário
Storms Demolish Small Towns in Ind., Ky.; 38 Dead	Tornado devasta cidade do estado de Indiana	Tornado	Assunto central
Official 'Angry Birds' theme park hits next month	Parque temático do Angry Birds	Angry Birds	Assunto central
Condoms With QR Codes Enable Smartphone Check-Ins	Camisinha e QR Code	Preservativo	Assunto central
Irish people deserve to hear the full truth about abortion	Aborto na Irlanda e caso julgado pela corte irlandesa	Suprema Corte da Irlanda	Assunto central
Rio Carnival: bigger, brighter ... more organized?	Carnaval do Rio de Janeiro	Rio de Janeiro	Assunto central
Texas gun sales boom in expectation of Obama re-election	Relação entre a venda de armas e a reeleição de Barack Obama	Barack Obama	Assunto central
UK galleries pay \$72 million for Titian masterpiece	Compra de "Diana and Callisto", de Ticiano, por uma galeria de arte inglesa	Diana e Callisto	Assunto central
Fiat Is 'Winning' With Charlie Sheen Ad	O ator Charlie Sheen se torna garoto propaganda do Fiat 500	Charlie Sheen	Assunto central

Como pode ser visto na Tabela 9, 15 entidades (75%) foram consideradas corretas (assunto central da matéria) e compatíveis com o assunto identificado com a percepção humana. Quatro matérias (20%) tiveram seus assuntos secundários identificados como sendo principal, enquanto somente uma matéria (5%) teve sua identificação errada.

A identificação errada do assunto (entidade principal) da matéria “Rush Limbaugh loses another sponsor over 'slut' remark” se deve ao fato de, no conteúdo da matéria, existir uma alta concentração da palavra Fluke, devido à menção, em várias partes do texto, a Sandra Fluke, mulher que foi atacada por Rush Limbaugh, em várias partes do texto. Como a entidade “Sandra Fluke” não existe na base de dados da DBpedia, esta não pode ser identificada, dando lugar a identificação de “Fluke (filme)”.

Além disso, esta entidade possui relacionamento (duas arestas) com a entidade Friday_(film), que também foi identificada equivocadamente, e isso fez com que Fluke (filme) fosse favorecida pelo critério definido no ranking.

Apesar disso, o aplicativo criado mostrou uma boa taxa de acerto e uma alta precisão nos assuntos identificados. Mesmo as identificações de assuntos secundários podem ser consideradas boas. Por exemplo, na matéria “Ralph McQuarrie, artist who drew Darth Vader, C-3PO, dies at 82”, é contada a biografia e a história do trabalho de Ralph em Star Wars. Somente pedaço curto do texto está falando da morte do designer. Como texto fugiu do assunto, o assunto identificado, o filme Star Wars Episode V: The Empire Strikes Back, foi próximo do principal assunto abordado ao longo do texto, sua biografia.

6 Conclusão e trabalhos futuros

Como pode ser visto, utilizando ferramentas existentes, técnicas e conceitos simples juntamente com o potencial pouco explorado dos dados aberto interligados, é possível identificar, com uma boa precisão, os assuntos existentes em textos, sem recorrer a complexos modelos matemáticos.

A criação dos relacionamentos entre as entidades identificadas baseadas em seus assuntos é um ponto crítico deste trabalho. Estes relacionamentos geram grafos que, ainda que não sejam grafos completos, quando visualizados graficamente mostram o(s) macro assunto(s) abordados no texto. No maior grafo utilizado no exemplo deste trabalho podemos ver que os assuntos em comum são astronomia e corpos celestes.

Além disso, devido ao caráter colaborativo da Wikipédia, fonte de dados da DBpedia, este trabalho estará em constante mudança e aperfeiçoamento pelos cerca de 100 mil editores da enciclopédia livre que contribuem para criar novos assuntos, criar ligações entre os artigos etc (SZKLARZ, 2009). Esta contribuição favorece indiretamente este trabalho.

Apesar dos bons resultados, o aplicativo criado neste trabalho possui duas limitações, ambas devido ao uso do serviço web DBpedia Spotlight:

1. Só é possível identificar assuntos em textos escritos na língua inglesa, pois o serviço só tem suporte esta língua.
2. Não é possível analisar textos com mais de 1.100 palavras. Como o serviço é acessado através do protocolo HTTP, não é possível criar URLs muito longas, pois este protocolo não permite.

Um trabalho futuro importante é o aperfeiçoamento do critério de ordenação do ranking. Existem informações implícitas nos grafos gerados que não foram exploradas, como o tamanho do grafo. Por exemplo, grafos com número de vértices podem indicar que suas entidades (vértices) são mais importantes para o texto que as entidades de grafos com menor número de vértices.

Outro trabalho futuro importante é a identificação de frases chaves em textos muito longos. A utilização desta técnica pode reduzir o número de entidades identificadas e irrelevantes para o texto, pois evita que frases pouco importantes no texto sejam consideradas.

O resultado deste trabalho pode servir de base para a criação de novos trabalhos futuros, como avaliação automática de redações, avaliando se a redação fugiu do tema ou não e categorização de artigos científicos, livros, revistas etc.

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ANEXO A – CONTEÚDOS DAS MATÉRIAS ANALISADAS

Supernova Countdown: Giant Star Could Explode Any Day Now

Disponível em: <http://www.time.com/time/health/article/0,8599,2106904,00.html>

Tweet

When the sun finally dies some 5 billion years from now, the end will come quietly, the conclusion of a long, uneventful life. Our star will, in a sense, go flabby, swelling first, releasing its outer layers into space and finally shrinking into the stellar corpse known as a white dwarf.

Things will play out quite differently for a supermassive star like Eta Carinae, which lies 7,500 light-years from Earth. Weighing at least a hundred times as much as our sun, it will go out more like an adolescent suicide bomber, blazing through its nuclear fuel in a mere couple of million years and exploding as a supernova, a blast so violent that its flash will briefly outshine the entire Milky Way. The corpse this kind of cosmic detonation leaves behind is a black hole.

For Eta Carinae, that violent end might not be long in coming, according to a report in the latest Nature. "We know it's close to the end of its life," says astronomer Armin Rest of the Space Telescope Science Institute and the lead author of the paper. "It could explode in a thousand years, or it could happen tomorrow." In astronomical terms, a thousand years might as well be tomorrow; as for a supernova blowing up literally tomorrow, well, that's almost unheard of.

(PHOTOS: New Planetary Nebula Dazzling Astronomers)

In 1843 Eta Carinae gave a hint that the end might be near when the hitherto nondescript body flared up to become the second brightest star in the sky, after Sirius. It

stayed that way for 20 years or so, then faded and left behind a majestic, billowing cloud of gas known as the Homunculus Nebula. Eta Carinae lost some 10% of its substance in this event, which astronomers now call a "supernova impostor," after which it has returned to relative quiet ? or what passes for quiet in such an unstable object.

Astronomers back in the day did the best they could to observe the 20-year flare, but without modern instruments, they couldn't really learn much. That has frustrated investigators now just as it did then, since studying Eta Carinae in detail could tell them a lot about what caused the outburst and maybe even help them figure out when the inevitable supernova explosion is going to occur.

(PHOTOS: Views of the Asteroid Vesta)

But as the Nature report makes clear, that understanding may now be at hand. Using a fiendishly clever new observing technique, Rest and his colleagues have been able to take readings of the original blast in real time. "We can look directly at the eruption," says Princeton astrophysicist Jose Prieto, a co-author of the report, "as it's never been seen before."

To understand how they did that, start with the basic fact that light from the outburst sped away from Eta Carinae in all directions. Some of it headed straight toward Earth to wow 19th century astronomers. But some of it took a detour, reflecting off dust clouds in interstellar space in what astronomers call a "light echo." At least a bit of that echo was redirected toward Earth. The dust clouds were so far from the star that the long-delayed light is only now reaching us, and unlike in 1843, we now have the instruments to study it.

(PHOTOS: Images from Space by an Astronaut-Photographer)

It gets even better. The 1843 flare-up played out over 20 years, which means the light-echo version will do the same. "We took observations nine months ago," says Rest, "and we were looking at 1843. Now we're looking at 1844. It's like a movie. It's really cool." (Of course, the images are from 7,500 years before 1843 and '44, since that's when the stellar

event occurred; it just took 7½ millennia for the light to reach us.) Better still, astronomers can see light echoes from a variety of dust clouds, at varying distances from the star. That creates detours of varying lengths, so they can see different phases of the eruption all at once.

"The big puzzle," says Prieto, "is what caused the outburst. This star has been studied to death with all sorts of telescopes, but no one theory has ever been able to tell us what happened." It might have been some sort of instability deep within the star itself, or the blast might have been triggered by matter dumped on Eta Carinae by a stellar companion.

(VIDEO: Galileo and the Year of Astronomy)

The good news is that the light-echo observations will give theorists a trove of information to work with ? and in the next few years, says Rest, "we'll be getting more observations, and they'll keep getting better."

If Eta Carinae is going to blow imminently, the obvious question is whether Earth is in mortal danger. Fortunately, the answer is no. At 7,500 light-years, the intense radiation from even a powerful supernova would lose its punch by the time it reaches us. All we'll experience is the most spectacular light show in many centuries. The last confirmed supernova explosion in the Milky Way happened in 1604, a teasingly close five years before Galileo pointed his first, primitive telescope skyward.

It is, in short, about time for another big blast, and even though the theorists haven't weighed in, Rest has reason for hope. "There was one of these 'supernova imposters' in another galaxy," he says ? something similar to Eta Carinae's 1843 outburst. "And then, a few years later ... kaboom!"

NASA previews Eta Carinae supernova

Disponível em: <http://www.tgdaily.com/space-features/61682-nasa-previews-eta-carinae-supernova>

At the turn of the 19th century, the binary star system Eta Carinae appeared faint and rather undistinguished to astronomers.

However, during the first decades of the century, the system became brighter and brighter, until, by April 1843, it was the second brightest star in the sky, outshone only by Sirius (which is almost a thousand times closer to Earth).

In subsequent years, Eta Carinae gradually dimmed again and by the 20th century was totally invisible to the naked eye.

The star has continued to vary in brightness ever since, and while it is once again visible to the naked eye on a dark night, it has never again come close to its peak of 1843.

The larger of the two stars in the Eta Carinae system is a huge and unstable star nearing the end of its life.

As such, the event witnessed by 19th century astronomers is now known to be a stellar near-death experience. Scientists call these outbursts supernova impostor events, because they appear similar to supernovae - but stop just short of destroying their star.

Although 19th century astronomers did not have telescopes powerful enough to see the 1843 outburst in detail, its effects can be studied today. Indeed, NASA's Hubble Telescope recently captured an image of Eta Carinae consisting of ultraviolet and visible light image.

The huge clouds of matter thrown out a century and a half ago, known as the Homunculus Nebula, have been a regular target for Hubble since its launch in 1990. The image, snapped with the Advanced Camera for Surveys High Resolution Channel, is the most

detailed yet, and shows how the material from the star was not thrown out in a uniform manner, but rather, forms a huge dumbbell shape.

Eta Carinae is not only interesting because of its past, but also because of its future. To be sure, it is one of the closest stars to Earth that is likely to explode in a supernova in the relatively near future. Of course, in astronomical timescales the "near future" could still be a million years away.

Preview: Forthcoming Supernova

Disponível em: <http://www.scientificcomputing.com/news-DS-Preview-Forthcoming-Supernova-030612.aspx>

NASA's Hubble Telescope captured an image of Eta Carinae. This image consists of ultraviolet and visible light images from the High Resolution Channel of Hubble's Advanced Camera for Surveys. The field of view is approximately 30 arcseconds across.

The larger of the two stars in the Eta Carinae system is a huge and unstable star that is nearing the end of its life, and the event that the 19th century astronomers observed was a stellar near-death experience. Scientists call these outbursts supernova impostor events, because they appear similar to supernovae but stop just short of destroying their star.

Although 19th century astronomers did not have telescopes powerful enough to see the 1843 outburst in detail, its effects can be studied today. The huge clouds of matter thrown out a century and a half ago, known as the Homunculus Nebula, have been a regular target for Hubble since its launch in 1990. This image, taken with the Advanced Camera for Surveys High Resolution Channel, is the most detailed yet, and shows how the material from the star was not thrown out in a uniform manner, but forms a huge dumbbell shape.

Eta Carinae is one of the closest stars to Earth that is likely to explode in a supernova in the relatively near future (though in astronomical timescales the "near future" could still be a million years away). When it does, expect an impressive view from Earth, far brighter still than its last outburst: SN 2006gy, the brightest supernova ever observed, came from a star of the same type, though from a galaxy over 200 million light-years away.

Lakers upend Heat, Wade fouls out in second loss in a row

Disponível em: <http://www.usatoday.com/sports/basketball/nba/story/2012-03-04/Lakers-upend-Heat-Wade-fouls-out-in-second-loss-in-a-row/53357698/1>

PHOTOS: Top shots from the week in NBA action

Wade's foul gave Bryant a nasal fracture, a mild concussion and a lingering pain in his neck. But the Lakers star has been a pain to opponents since strapping on a clear mask to protect his nose, scoring 31 against the Minnesota Timberwolves , 38 against the Sacramento Kings and 33 in the 93-83 victory against the Heat.

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The Lakers have won all three games with their masked hero, and are now 23-14. The Heat, losing their second in a row, both on the road, dropped to 28-9, 1½ games behind the Chicago Bulls for the Eastern Conference's best record, with the Bulls playing later Sunday.

Bryant, in triumph, said he didn't have a score to settle with Wade.

"We had already talked about it," Bryant said. "We put it behind us."

Something, though, is always challenging Bryant. Since the All-Star break, he has felt the challenge to play up to his usual superhuman level despite the mask.

"Some people," he said, "are expecting me not to play. Or if I do play, not to play very well."

Do not count Wade, LeBron James and the Heat among those people.

"Kobe's a scorer," James said. "He's one of the best of all time, and he got it going."

Wade said: "He came out aggressive and made a lot of shots early."

Not being able to slow down Bryant was only part of Wade's problems.

Wade scored only two points in the first quarter and ended with a subpar 17 on 7-of-17 shooting from the floor.

Trying to rally the Heat from a double-digit deficit in the fourth quarter, Wade drew two costly offensive fouls and then fouled out with 5:14 left, trying to defend Lakers 7-foot center Andrew Bynum on a lob pass.

It was the first time he has fouled out in more than three years and ended an NBA record streak of 88 games (in the shot clock era) in which a Heat player had not fouled out.

"I don't normally foul out," Wade said. "I guess I had the red flag on me today. But you're not going to get me to talk about the referees. I like my money in my pocket."

With Wade struggling and Heat power forward Chris Bosh absent for the third consecutive game since the death of his grandmother, much of the burden to keep the Heat in the game fell to James. He produced — 25 points, 13 rebounds and seven assists — but got next to nothing from his fellow frontcourt players.

Bynum and Lakers power forward Pau Gasol , however, combined for 27 points and 23 rebounds, compared to seven points and six rebounds for Heat center Joel Anthony and power forward Udonis Haslem .

"They did a good job pounding and continuing to use their size at the rim," Heat coach Erik Spoelstra said. "They really imposed their will under the rim."

For the Lakers, the victory was sweet, even if it came with Bosh out. The Lakers had lost four in a row to Miami, and had not looked competitive much of the time.

Now, there is a growing sense that some of the Lakers role players are stepping up their game enough that the team, despite constant trade reports involving Gasol and others, might stand pat and still be able to make a playoff run.

Metta World Peace is increasingly looking like a young Ron Artest and on Sunday contributed 17 points, seven rebounds, three assists and four steals.

Reserve point guard Steve Blake continues to run an effective second-unit offense, and rookie guard Andrew Goudelock is gaining confidence as a scorer off the bench.

Left to prove for the Lakers is becoming a competitive team on the road. They are 6-12 as the visiting team and will seek to improve on that this week with games at the Detroit Pistons , Washington Wizards and Timberwolves.

"We'll be fine," Bryant said. "We're playing a lot better now."

Bryant was asked if he thinks the Lakers still need to make moves before the March 15 trade deadline.

"Don't know, don't care," he said. "We have to keep truckin' along."

But can they win a title as they are?

"We believe so," he said. "Management has to do their job. It's out of our control."

The things in their control, though, they are getting a lot better at.

Such as, beating the Heat.

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Rush Limbaugh loses another sponsor over 'slut' remark

Disponível em: <http://www.latimes.com/news/politics/la-pn-rush-limbaugh-loses-another-sponsor-over-slut-remark-20120303,0,7068007.story?track=icymi>

March 3, 2012, 10:38 a.m.

Reporting from Washington—

Rush Limbaugh has lost another advertiser on his radio talk show as the fallout continued from his use of the terms “slut” and “prostitute” to ridicule a woman who has advocated for expanded access to birth control .

Quicken Loans Inc. has suspended its advertising on the Limbaugh show, the company said in a statement posted to its website. It was a reversal for the Detroit-based online mortgage lender, which had initially issued a statement in support of Limbaugh’s right to express himself.

“While we do not condone or agree with Mr. Limbaugh’s statements regarding Sandra Fluke, we respect his right to express his views,” Quicken Loans spokesman Paul Silver had told the Detroit Free Press in a prepared statement. “In no instance does Quicken Loans ever have any control of the content or comments of the shows.”

That didn’t satisfy Quicken customers, whose “valuable feedback” eventually led the company to suspend advertising on the show.

Dan Gilbert, the company's founder and the owner of the NBA 's Cleveland Cavaliers , announced the decision on Twitter.

“Due to Rush Limbaugh's inflammatory comments along w/valuable feedback from our clients & staff, Quicken Loans has suspended ads on his show,” Gilbert wrote.

At least two other sponsors, Sleep Train and Sleep Number, announced Friday that they had pulled their ads from the show.

Limbaugh said on his show that Fluke, a third-year Georgetown law student, “wants to be paid to have sex.” Fluke had testified at a mock congressional committee hearing organized by Democratic lawmakers in favor of the Obama administration’s policy requiring health plans to include coverage of contraceptives.

“What does it say about the college co-ed Susan Fluke [sic] who goes before a congressional committee and essentially says that she must be paid to have sex – what does that make her?” Limbaugh said on his show. “It makes her a slut, right? It makes her a prostitute.”

“She’s having so much sex she can’t afford the contraception,” he continued. “She wants you and me and the taxpayers to pay her to have sex.”

Fluke advocated for an employee’s right to contraceptives as a part of health insurance coverage. She did not argue that the government should pay for contraceptives, but said employers and universities that offer health insurance plans should ensure such coverage is included in those plans.

Limbaugh’s comments drew intense criticism from Democrats and softer renunciations from many Republicans . Obama called Fluke on Friday to express his support.

He said that “as a father of two daughters, he knew how proud that my parents would be, and he wanted me to tell them how proud they should be,” Fluke said as she recalled the phone call in an interview Friday night. “And that was really touching.”

Limbaugh stood by his comments during his show Friday, and mocked Obama’s call to Fluke.

“The president called her to make sure she’s OK,” Limbaugh said. “What is she 30 years old? Thirty years old, a student at Georgetown Law, who admits to having so much sex that she can’t afford it anymore.”

Fluke dismissed Limbaugh’s Friday comments.

"What has been made clear," she said, "is that women will not be silenced on this issue, and neither will the men who support them."

kim.geiger@latimes.com

New Lytro camera an exciting innovation

Disponível em:

http://seattletimes.nwsources.com/html/business/technology/2012031666_ptlytrocamera03.html?cmpid=2628

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New Lytro camera an exciting innovation

Something incredibly exciting just happened in technology. It's a new kind of camera that takes pictures in a way that no other camera ever has, letting you take a photo and then refocus the subject in it after the fact.

LYTRO

The new Lytro cameras use something called Light Field technology, which lets you take a photo and then refocus the subject in it after the fact.

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This image of a classic-car badge taken with a Lytro camera can feature different focal points. The digital file created can be refocused after the fact.

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OK, I'm officially a dumb-arse... (I found the pics) Interesting technology. (March 3, 2012, by Forecast Calls 4 Sarcasm) MORE

Something incredibly exciting just happened in technology. No, it's not a new iPhone or iPad, a new TV or the latest Android device.

It's a new kind of camera that takes pictures in a way that no other camera ever has. The innovation behind this gadget, called the Lytro, is Light Field photography, and the company that makes the camera, also named Lytro, calls it "the first major change in photography since photography was invented."

I agree.

First, a little explanation about Light Field photography and what the Lytro does. When normal cameras take a photo, they measure the color and light coming through the lens to produce an image. The Lytro camera not only sees color and light but can understand the direction the light moves in while snapping a photo.

Instead of simply grabbing one point of the light in a scene, Lytro analyzes all the points of light and then converts them to data. Once the image is stored, it can be processed and reprocessed after the photo is taken.

What does this mean, exactly?

Basically, it means that you're able to take a photo and then refocus the subject in it after the fact. It means that if you take a picture of a friend in the foreground and there's something exciting happening down the street, you can use Lytro's custom software to refocus on the background, or almost anything else in the scene that you captured. It's hard to explain, but it's amazing.

The company says it's also working on updates that will allow you to slightly readjust the angle of the picture after you've taken it, or look at the scene in true 3-D.

Being able to refocus an image after it's been uploaded to your computer will irrevocably alter your perception of what a "photo" is. When Lytro's director of photography

showed me what the camera was capable of, and what it will be able to do in the future with software updates, I was awe-struck.

After testing the camera in the real world for two weeks, I can say that although the Lytro's not perfect, it will certainly be a game-changer in photography and lays out an exciting future for how we think about still pictures.

The tubular, simplistic, telescope-shaped Lytro is available for purchase at the company website, www.lytro.com . It comes in three colors (red, gray and blue) and two storage capacities, 8GB and 16GB. The 8GB models cost \$399; the 16GB, \$499.

The camera's body is an odd shape, and most functions are accessed through its display. There's a small touch-screen on the back that responds well to input, though it's so tiny that it can be challenging to get around in it sometimes.

Although the software is rather intuitive, the 128 x 128 pixel screen can be a pain. It does offer some nice features, such as the ability to focus images by tapping on a subject on-screen (but you snap pictures with a small, indented button on the top of the Lytro).

When you're finished taking photos, you can upload them to a personalized page on Lytro's website, as well as store them in a custom application the company provides with the device (Mac only right now, but Windows is coming).

From there, you can make static "prints" of shots, focus points you like or share malleable, embedded versions of your photo online or directly to Facebook. It's a terrific way to let friends and family see the pictures how they want to see them.

My biggest gripe with the product is its shape and size. The camera isn't that comfortable to hold, and framing photos can be awkward. The zoom functions are activated by a strip along the top of the device, which I found myself accidentally tapping from time to time.

I really wish the company had designed a housing for the Lytro that was more akin to a traditional camera.

The Lytro also has some trouble shooting in low light. Because the camera doesn't come equipped with a flash, you really need bright light or daylight to get the best results. Shooting in darker settings can often produce noisy photos and severely inhibits the meaningful features of the camera.

The Lytro doesn't take the highest resolution photos — exported shots are about 1 megapixel — but it takes pictures unlike any other camera you've used. And those pictures can be incredibly good.

I wouldn't recommend this as your only shooter. If you're planning on taking your kids to Disneyland, you probably want a dedicated point-and-shoot in your bag as well. But I'd be willing to guess that by the end of that vacation, the coolest pictures will be the ones snapped with the Lytro.

News where, when and how you want it

The Morning Memo

Ralph McQuarrie, artist who drew Darth Vader, C-3PO, dies at 82

Disponível em: http://www.washingtonpost.com/local/obituaries/ralph-mcquarrie-artist-who-drew-darth-vader-c-3po-dies-at-82/2012/03/04/gIQAY2AYrR_story.html

Text Size

By T. Rees Shapiro, The Washington Post

Ralph McQuarrie, an artist whose paintings of a gold-plated robot in an otherworldly desert and an intergalactic sword duel between a scraggly youth and a black-masked villain helped persuade film executives to gamble on a young director named George Lucas and his visionary story, “Star Wars,” died March 3 at his home in Berkeley, Calif. He was 82.

He had complications from Parkinson’s disease, said John Scoleri, co-author of a book of Mr. McQuarrie’s art.

(Spencer Platt/GETTY IMAGES) - Original artwork titled “Bounty Hunters in Cloud City” by Ralph McQuarrie.

“Ralph McQuarrie was the first person I hired to help me envision ‘Star Wars,’ ” Lucas said in a statement posted online. “When words could not convey my ideas, I could always point to one of Ralph’s fabulous illustrations and say, ‘Do it like this.’ ”

Mr. McQuarrie, for instance, designed the Samurai-inspired helmet and black caped-outfit worn by arch nemesis Darth Vader. (It was Mr. McQuarrie’s idea to put a breathing apparatus on Vader’s mask, so that he could survive in the vacuum of space, which led to the villain’s raspy voice in the films.)

Mr. McQuarrie’s pens, pencils and brushes brought lush color, dramatic scenery and lifelike characters to stunning vibrancy in film classics such as “Close Encounters of the Third Kind,” “Cocoon,” “Raiders of the Lost Ark” and “E.T.”

He was part of a team that won the 1985 Academy Award for best visual effects for his work on “Cocoon,” about aliens who can pass on the gift of immortality.

As an artist for all three episodes of the original “Star Wars” films, Mr. McQuarrie was widely credited with shaping Lucas’s far, far away galaxy.

Mr. McQuarrie had been fascinated with flight and outer space exploration since his days building model airplanes as a youngster.

As a technical artist for Boeing in the 1960s, he drew diagrams for a manual on constructing the 747 jumbo jet and later worked as an illustrator animating sequences of the Apollo space missions for NASA and CBS News.

Through two artist friends, Mr. McQuarrie was introduced to Lucas in the mid 1970s.

At the time, Lucas’ tale of a interplanetary civil war between a loose band of rebels and a Naziesque empire, had been rejected by United Artists and Universal.

Lucas enlisted Mr. McQuarrie’s help to show movie executives his story. Using Lucas’ script for inspiration, Mr. McQuarrie drew scenes of a space battle between laser-shooting fighter planes and lightsaber-wielding warriors.

Lucas, armed with the images, quickly won funding from 20th Century Fox and “Star Wars” was born, beginning with “ Episode IV: A New Hope,” in 1977.

Artist Iain McCaig, who worked on the “Star Wars” prequels, Episodes I, II, and III, called Mr. McQuarrie a pioneer of film conceptual art. Before him, McCaig said, few directors called on artists to help visualize their projects.

“He didn’t just draw a picture of Darth standing in a neutral pose,” McCaig said in an interview, “he did a scene of Darth lashing out at Luke Skywalker. You could feel the power and the pathos going on in that moment. He did more than just design costumes. . . . He helped capture the the story-telling moments in really dazzling pictures.”

Doug Chiang, who worked with McCaig as an artist on Episode I, said that Mr. McQuarrie's artwork was "cinematic."

"He painted and designed with a camera's point of view," Chiang said in an interview. "Most science fiction art at the time were for posters and book covers. But his looked like images you could see on the big screen."

He designed the porcelain armor of the Imperial storm troopers, the shiny gilt frame of the humanoid robot C-3PO and the droid R2D2, which resembled a motorized trashcan.

Anthony Daniels, the British actor who portrayed C-3PO, initially turned down the part, unimpressed by his proposed character's lack of depth.

"He had painted a face and a figure that had a very wistful, rather yearning, rather bereft quality, which I found very appealing," Mr. Daniels said in 2010. He took the job.

Ralph Angus McQuarrie was born June 13, 1929, in Gary, Ind., and grew up on a farm outside Billings, Mont.

He saw combat with the Army during the Korean War and survived a bullet to the head. The round punctured his helmet, bloodying his skull. After the war he attended what is now known as the Art Center College of Design in Pasadena.

He worked as an illustrator for a dental business drawing teeth and dentist's tools before his work in films. His art for "Star Wars" led director Steven Spielberg to tap Mr. McQuarrie to draw space ships for his movies "Close Encounters of the Third Kind" (1977) and "E.T." (1982). Survivors include his wife of 29 years, Joan, of Berkeley.

In "Star Wars Episode V: The Empire Strikes Back" (1980), Mr. McQuarrie makes a cameo appearance in a scene inside a hanger on the icy planet Hoth.

On the 30th anniversary of "Star Wars," a collectible action figure was released of his character, rebel Gen. Pharl (a play on Ralph) McQuarrie, complete with blaster pistol.

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Ronaldo helps promote worker safety at Maracana

Updated 06:44 p.m., Friday, March 2, 2012

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Brazil's former strikers; Ronaldo, left, and Bebeto, who are members of Brazil's 2014 World Cup organizing committee, visit the Maracana stadium in Rio de Janeiro, Brazil, Friday March 2, 2012. The visit was part of a campaign to promote work safety. The Maracana stadium is being renovated to host the 2014 World Cup final. Photo: Felipe Dana / AP

Brazil's former strikers; Ronaldo, left, and Bebeto, who are...

Brazil striker Ronaldo, center, who is a member of Brazil's 2014 World Cup organizing committee, smiles during a visit to the Maracana Stadium in Rio de Janeiro, Brazil, Friday March 2, 2012. The visit was part of a campaign to promote work safety. The Maracana stadium is being renovated to host the 2014 World Cup final. Photo: Felipe Dana / AP

Brazil striker Ronaldo, center, who is a member of Brazil's 2014...

Brazil former soccer player Ronaldo, second from right, who is a member of Brazil's 2014 World Cup organizing committee, Brazil former soccer player Bebeto, right, Minister Joao Oreste Dalazen, third from right, and other authorities visit the Maracana stadium in Rio de Janeiro, Brazil, Friday March 2, 2012. The visit was part of a campaign to promote work safety. The Maracana stadium is being renovated to host the 2014 World Cup final. Photo: Felipe Dana / AP

Brazil former soccer player Ronaldo, second from right, who is a...

Brazil striker Ronaldo, left, who is a member of Brazil's 2014 World Cup organizing committee, poses for photo with a construction and a jersey the former soccer player autographed, during a ceremony at the Maracana Stadium in Rio de Janeiro, Brazil, Friday March 2, 2012. Ronaldo was at the stadium as part of a campaign to promote work safety. Maracana is being renovated to to host the 2014 World Cup final. Photo: Felipe Dana

/ AP

Brazil striker Ronaldo, left, who is a member of Brazil's 2014...

Outside AIPAC protesters repeat annual ritual

Disponível em: <http://www.jpost.com/JewishWorld/JewishNews/Article.aspx?id=260476>

Outside AIPAC protesters repeat annual ritual

By GIL SHEFLER AND JERUSALEM POST CORRESPONDENT

03/05/2012 03:42

Focus this year is on Iran, not Palestinians.

By Gil Shefler

WASHINGTON – An activist dressed as an elderly Palestinian woman lay on the pavement outside the convention center where the American Israel Public Affairs Committee (AIPAC) convened for its annual conference on Sunday, her arms stretched wide while she desperately pleaded for help. The pro-Israel delegates waiting in line in the chilly morning air stared at her coldly. Then, another activist representing an Israeli soldier appeared and rammed the butt of his mock cardboard rifle into her head.

That is the true picture of what is happening in Israel and the occupied territories, according to anti-Israel protesters who gathered outside the AIPAC convention.

Related:

Likud politicians mock Obama AIPAC speech

“We’ve been doing that kind of visual for years and I think it’s pretty powerful to illustrate that there are pregnant [women] who have died in childbirth, [since they were] unable to get to hospitals on time in the West Bank and in Gaza,” said Rae Abileah, one of the organizers of the protest.

While she was reluctant to say assaults on elderly Palestinian women by Israeli soldiers were an everyday occurrence, she did say “there have been cases where that has been the reality.”

Abileah was one of a few hundred people who gathered outside the convention center here to demonstrate against Israel, just as they do every year. The protesters carried banners, sang songs, set up fake checkpoints and built a cardboard wall symbolizing the barrier in the West Bank.

But this year's protests differed slightly from previous ones. Instead of focusing on Palestinian rights and demands for statehood, much of their criticism related to the possibility that either Israel or the US might launch a strike against Iran to stop its nuclear program.

"This country can't afford a military attack," said Abileah. "We've gone through ten years of unjust war in Iraq, we're still in Afghanistan, our budget is a disaster, kids in this country can't afford to go to college, it's insane to be thinking of war."

Her opinion was echoed by Sasha Glzin, a 24-year-old student involved with Jewish Voice for Peace and CODEPINK the two groups that organized the protest. "I don't think [the US and Israel] will be well served by militarily striking Iran," she said. "I think there are better ways to deal with a regime or a country you're not happy with. Striking civilian populations, striking people in Iran isn't going to get the outcome the US and Israel wants."

Michael Figa, 30, a bio-tech engineer from Boston, said he could understand Israeli concerns over Iran. He described himself as a realist, saying he recognizes Israel's right to exist and that Iran was known to fund terrorist groups that launched attacks against Israel. At the same time, he said Israel must end its occupation of the West Bank, accommodate the Palestinians regarding the "right of return" of refugees from 1948 and allow the creation of a Palestinian state.

"If you have peace between Israel and the Palestinians then that would defuse the entire issue because there'd be no more wind in Iran's sails," he said.

Figa said such a deal might placate Iran and persuade it to drop its nuclear program of its own accord.

“Perhaps the mullahs would not like it theologically but peace would defuse the situation,” he added.

Further down the road another group of anti-Israel protesters assembled outside the entrance to the convention center. They chanted slogans against AIPAC and Israeli policy using loudspeakers. One protester was wearing tefillin.

Barbara Isaacson, who traveled from Boston to take part in the AIPAC convention, gazed at the group of protesters from a distance.

“I’m so ashamed of them,” she said. “I can’t believe they’re Jewish.” She brushed aside questions about whether she understood the plight of the Palestinians. The protesters, she said, were more anti-Israel than they were pro-Palestinian.

Besides, she added, Israel had done everything it could to cultivate peaceful ties with the Palestinians.

“We can’t do it, we tried to give them Gaza and look what happened,” she said.

“Every time we give in we get it worse. We can’t give in, we have nowhere else to go.”

Rapper Young Buck's car shot at 11 times

Disponível em: <http://www.digitalspy.co.uk/showbiz/news/a369266/rapper-young-bucks-car-shot-at-11-times.html>

© WENN / Chris Connor

A vehicle which contained rapper Young Buck was shot at 11 times in the early hours of Sunday (March 4) morning, harming a female passenger.

The woman sustained a shoulder injury as she, the 30-year-old hip-hop star and a third passenger were travelling in Nashville, Tennessee.

A car driving alongside their SUV opened fire, but the rapper - who was part of a highly-publicized feud with 50 Cent 's G-Unit - was unharmed, according to reports.

The victim has been treated and released from hospital, according to WSMV .

Young Buck has previously revealed that he was shot at when he worked as a drug dealer.

His track 'Till I'm Dead And Gone' tells the story of the attack, in which he refused to go to hospital, instead driving around to find the culprits immediately afterwards.

Bovespa Index Declines as Greek Default Swaps Move Renews Europe Concern

Disponível em: <http://www.bloomberg.com/news/2012-03-09/bovespa-stock-index-futures-advance-as-europe-debt-concern-eases.html>

Bovespa Index Declines as Greek Default Swaps Move Renews Europe Concern

By Ney Hayashi -

The Bovespa index fell, reversing an earlier gain, as a ruling that Greece's debt restructuring will trigger default insurance payments stoked concern that a deepening Europe crisis will reduce demand for Brazilian stocks.

Sul America SA (SULA11), a Brazilian insurer, fell to the lowest since Feb. 27 after Barclays Capital cut its recommendation to the equivalent of sell. Cia. de Bebidas das Americas, Latin America's largest brewer, and other consumer stocks limited the benchmark's decline, rising on speculation policy makers will continue to cut borrowing costs at an accelerated pace.

The Bovespa fell 0.3 percent to 66,703.96 at the close in Sao Paulo. Thirty-three stocks gained on the measure, while 34 fell. The gauge reversed an earlier gain of as much as 0.8 percent after the International Swaps and Derivatives Association Inc. said Greece's use of collective action clauses forcing investors to take losses under the restructuring will trigger payouts on \$3 billion of default insurance.

"For Greece, the debt restructuring was crucial, but for creditors it was a default," Joao Pedro Brugger, a portfolio manager at Leme Investimentos in Florianopolis, Brazil, said in a phone interview. "For Brazil, the main downside risk is the uncertainties in Europe, which could increase risk aversion around the world, hurting the Bovespa."

The benchmark's decline today extended the weekly drop to 1.6 percent.

Sul America slid 2.9 percent to 17.45 reais. AmBev, as Cia. de Bebidas is known, gained 2.3 percent to 73.67 reais, the best performer on the MSCI Brazil/Consumer Staples Index, which advanced 0.9 percent.

Brazil Inflation

The Bovespa earlier gained as much as 0.8 percent, led by consumer stocks, after a report showed consumer prices in Brazil, as measured by the benchmark IPCA index, rose 0.45 percent in February, after a 0.56 percent increase in the previous month. Last month's result matched the median estimate of 51 analysts surveyed by Bloomberg.

The yield on the Brazilian interest-rate futures contract due in January 2014 fell seven basis points, or 0.07 percentage point, to 9.23 percent.

The Bovespa has advanced 18 percent this year after slumping 18 percent in 2011, buoyed by Brazil's interest-rate cuts, renewed optimism Europe may be closer to solving its debt crisis and signs of growth in the U.S. Today is the third anniversary of the 2009 bear-market low for the Standard & Poor's 500 index. Since then the U.S. gauge has risen 103 percent, while Brazil's benchmark gauge has gained 82 percent.

Traders moved 6.55 billion reais in stocks in Sao Paulo today, data compiled by Bloomberg show. That compares with a daily average of 7.22 billion reais this year through March 1, according to data from the exchange.

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Apple blocks links to Amazon in iBookstore

Disponível em: <http://www.digitaltrends.com/lifestyle/apple-blocks-links-to-amazon-in-ibookstore/>

Apple has reportedly blocked eBooks from being published in its iBookstore that contain hyperlinks to rival Amazon

According to an author's first-hand account, Apple has begun rejecting eBooks containing links to rival Amazon for publication in its iBookstore. Seth Godin, a best-selling author 13 times over, and founder of Squidoo, reports that Apple rejected his new manifesto, "Stop Stealing Dreams," due to the presence of hyperlinks, which would send readers to the Amazon pages of the books he mentioned in his own work. Apple's rejection letter stated the reasons for non-publication clearly and succinctly: "Multiple links to Amazon store. IE page 35, David Weinberger link," according to an article Godin published yesterday on Paid Content .

Major book retailers and publishing houses have been playing Russian roulette with Amazon for years, not the least of which included last week's announcement that Amazon would be pulling over 5,000 titles from independent book distributor IPG over disagreements in contract terms . Just last month, Barnes & Noble itself announced that it would refuse to carry any books published by Amazon in its retail stores , an attempt to keep Amazon out of the brick and mortar business. However, this could mark a decisive turning point for Apple, which has in effect denied artistic content from being published due to a competitive conflict, as opposed to an ethical or moral issue , as it was previously wont to do. Last year, however, Apple released a revision to its iOS software — the OS that powers popular devices such as the iPhone and iPad — which perhaps laid the ground work for such a decision. The update

forced Amazon, among others, to remove links to its own bookstore from its popular Kindle app, a move consumers found frustrating, and some deemed anti-competitive.

What is more troubling than a standard policy shift, a la the iOS change (no links to stores through apps, use mobile Safari instead), is the notion that there was a degree of subjectivity to blocking Amazon; because the book was rejected on grounds of content, it opens the doors to further subjective restrictions. What if a specific hardcover is only available through Amazon? As Godin writes,

“I think that Amazon and Apple and B&N need to take a deep breath and make a decision on principle: what’s inside the book shouldn’t be of concern to a bookstore with a substantial choke on the marketplace. If it’s legal, they ought to let people read it if they choose to. A small bookstore doesn’t have that obligation, but if they’re seeking to be the one and only, if they have a big share of the market, then they do, particularly if they’re integrating the device into the store. I also think that if any of these companies publish a book, they ought to think really hard before they refuse to let the others sell it.”

Godin goes on to suggest that Apple’s policy would be similar to YouTube blocking videos that promoted Vimeo.

In traditional business, however, Godin’s claims wouldn’t hold much water. No brick and mortar bookstore in the world would allow an author to sell a book that included advertisements for a competing bookstore on the 35th page, and why should Apple’s iBookstore be any different? But there lies a fundamental difference between how competition should be viewed online, as Godin states, “Once you are reading your books on a device that is hooked into a store, the person curating the store has a great deal more power than a local bookseller ever did.”

In the most basic terms, Apple’s move is a clear case of a business protecting against blatant free advertising — but in a world of restrictive online ecosystems and increasingly

closed-off operating systems, tech companies may need to take a step back and consider how their decisions will influence the most important players in all of this: the readers.

Mariah Carey shows off weight loss in first performance since giving birth

Disponível em: <http://www.foxnews.com/entertainment/2012/03/02/mariah-carey-debuts-slim-figure-in-first-performance-since-giving-birth-photos/>

Mariah Carey made her triumphant return to the stage last week, marking the first time she has performed since giving birth to her twin babies in April.

Hitting the stage for Caesar's Entertainment "Escape to Total Rewards" event, Mariah flaunted her slim figure in a curve hugging black dress, as she belted a seven song set which included hits like "It's Like That," "Shake It Off," "Touch My Body," "Obsessed," "We Belong Together" and a cover of the Jackson 5's "I'll Be There."

Mariah revealed during the concert that she thought about bringing "dem babies" to the show but realized it'd be past their bedtime — so she decided not to. Although Monroe and Moroccan (affectionately nicknamed Roc and Roe) weren't there, Mariah dedicated "Always Be My Baby" to them, much to the delight of the crowd.

Later in the set, Mariah also gave a shout out to her husband Nick Cannon, who recently stepped down from his radio show after his recent health scare.

"Nick, I love you. I know you're out there somewhere," Mariah cooed into the mic.

"Coming complete with an onstage beauty crew and even making a few pauses to get a spritz of perfume, Mariah proved she's still the diva her fans have always known and loved," one concertgoer tells Celebuzz.

Although she had some trouble with her ear piece and laughed off forgetting a few lyrics, Mariah brought down the house. She even returned to the stage for an encore to sing her hit, "Hero."

"Mariah seemed a little nervous when she hit the stage, but she's a total pro and will hopefully be touring again in no time," another partygoer added.

Taking a daily vitamin pill could prevent skin cancer, scientists reveal

Disponível em: <http://www.dailymail.co.uk/health/article-2109081/Taking-daily-vitamin-pill-prevent-skin-cancer-scientists-reveal.html?ito=feeds-newsxml>

Hope: A daily vitamin pill could help prevent skin cancer - particularly among women, scientists have revealed

A daily vitamin pill could help prevent skin cancer - particularly among women, it has emerged.

Scientists say taking food supplements containing vitamin A can make people less likely to develop melanoma, the deadliest form of the disease.

A study found that retinol - a key component of Vitamin A - could protect against the illness.

The strongest protective effects were found in women and in sun exposed sites, suggesting retinol actually combats skin cancer.

However, there was no association between dietary intake of vitamin A, found in liver, eggs and milk, and a reduction in risk.

There was also no reduced risk seen by the intake of carotenoids, which are abundant in vegetables including carrots and tomatoes and soak up compounds that can damage the skin.

Previous research with mice has shown retinol and carotenoids can shrink melanoma tumours and improve survival.

Retinol is also good for the immune system and eyesight

Exercise makes you smarter 'by boosting energy levels in the brain'

So dermatologist Dr Maryam Asgari and colleagues analysed the disease risk in 69,635 men and women aged between 50 and 76 who consumed vitamin A through either dietary or supplementary methods.

Their findings, published in the Journal of Investigative Dermatology, found those who used retinol regularly were 60 per cent less likely to develop skin cancer, rising to 74 per cent among participants on the highest doses of more than 1,200 mg a day.

Good news: The strongest protective effects were found in women and in sun exposed sites, suggesting retinol actually combats skin cancer

Dr Asgari, of the Kaiser Permanente Northern California Division of Research in Oakland, said: 'Our data suggest a possible interaction between supplemental retinol use and the anatomic site of melanoma, with sun-exposed sites showing a stronger protective effect than sun-protected sites.

'It may be that retinol's effects may be mediated by sunlight exposure. This intriguing possibility warrants further exploration in future studies.'

Retinol belongs to a class of compounds called retinoids that have been shown to stop cells dividing and spreading.

Dr Asgari said: 'In summary, our data, which are based on a large prospective cohort, suggest retinol intake from individual supplements is associated with a reduction in risk for melanoma, especially among women.

'Our findings suggest vitamin A supplementation may hold promise as a chemopreventive agent for melanoma.'

Dangerous: Skin cancer is the most common type of cancer among white populations, in the UK and worldwide. Sun is one of the major causes of the disease

Skin cancer is the most common type of cancer among white populations, in the UK and worldwide.

Most are easy to treat and pose only a small threat to life, but melanoma is difficult to treat unless detected early.

Over the past 25 years, rates of melanoma in the UK have risen faster than any other common cancer.

About 1,800 people die from melanoma annually in the UK. Even so, nearly 80 per cent of men and over 90 per cent of women are alive at five years following treatment.

However, Dr Claire Knight, senior health information officer at Cancer Research UK, said: 'We don't recommend people start taking retinol supplements based on this study, particularly as high doses can be toxic.

'The result was based on a very small number of people with melanoma, and the authors didn't account for other important factors that influence the risk of skin cancer, such as the number of moles a person has.

"And crucially, when the authors looked at whether a particular dose was linked to risk, the link between retinol and melanoma disappeared.

Storms Demolish Small Towns in Ind., Ky.; 38 Dead

Disponível em:

http://www.boston.com/news/nation/articles/2012/03/04/storms_demolish_small_towns_in_ind_ky_38_dead_associated_press/

Across the South and Midwest, survivors emerged Saturday to find blue sky and splinters where homes once stood, cars flung into buildings and communications crippled after dozens of tornadoes chainsawed through a region of millions, leveling small towns along the way.

At least 38 people were killed in five states, but a 2-year-old girl was somehow found alive and alone in a field near her Indiana home. Her family did not survive. A couple that fled their home for the safety of a restaurant basement made it, even after the storms threw a school bus into their makeshift shelter.

Saturday was a day filled with such stories, told as emergency officials trudged with search dogs past knocked-down cellphone towers and ruined homes looking for survivors in rural Kentucky and Indiana, marking searched roads and homes with orange paint. President Barack Obama offered federal assistance, and Ohio Gov. John Kasich declared an emergency Saturday.

The worst damage appeared centered in the small towns of southern Indiana and eastern Kentucky's Appalachian foothills. No building was untouched and few were recognizable in West Liberty, Ky., about 90 miles from Lexington, where two white police cruisers were picked up and tossed into City Hall.

"We stood in the parking lot and watched it coming," said David Ison, who raced into a bank vault with nine others to seek safety. "By the time it hit, it was like a whiteout."

In East Bernstadt, two hours to the southwest, Carol Rhodes clutched four VHS tapes she'd found in debris of her former home as she sobbed under a bright sun Saturday.

"It was like whoo, that was it," said Rhodes, 63, who took refuge with four family members in a basement bedroom that she had just refinished for a grandchild.

"Honey, I felt the wind and I said, 'Oh my God,' and then it (the house) was gone. I looked up and I could see the sky.'"

The spate of storms was the second in little more than 48 hours, after an earlier round killed 13 people in the Midwest and South, and the latest in a string of severe-weather episodes that have ravaged the American heartland in the past year.

Friday's violent storms touched down in at least a dozen states from Georgia to Illinois, killing 19 people in Kentucky, 14 in Indiana, three in Ohio, and one each in Alabama and Georgia.

The National Weather Service said the four twisters to hit Kentucky were the worst in the region in 24 years. In Indiana, an EF-4 tornado — the second-highest on the Fujita scale that measures tornadic force — packing 175 mph winds hit the town of Henryville, and stayed on the ground for more than 50 miles.

Official 'Angry Birds' theme park hits next month

Disponível em: <http://www.ingame.msnbc.msn.com/technology/ingame/official-angry-birds-theme-park-hits-next-month-295671>

Those Angry Birds are heading into space later this month. And where will they land after that?

Finland, apparently. Not only is it home base for the enraged avians (that's where its publisher, Rovio, is located, in the city of Espoo to be exact), it's also where Angry Birds Land, an upcoming theme park attraction, will be situated.

According to The Daily Mail , Angry Birds Land is set to be part Särkänniemi Adventure Park in Tampere, and will feature a combination of both traditional theme park rides and interactive installations, all based upon the hit game. It promises to be, according to Miikka Seppälä, the CEO of Särkänniemi, "an interactive entertainment experience where the physical and virtual worlds combine."

The park opens for business on April 28. Until then, sneak peak pictures will be posted on Särkänniemi Adventure Park's Facebook page . But for those who can't wait, simply remember how Angry Birds Land is only the first official attraction of its kind. You still have the unofficial "Angry Birds" amusement park , located in the Huan Province of China.

Matthew Hawkins is an NYC-based game journalist who has also written for EGM, GameSetWatch, Gamasutra, Giant Robot, and numerous others. He also self-publishes his own game culture zine, is part of Attract Mode , and co-hosts The Fangamer Podcast . You can keep tabs on him via Twitter , or his personal home-base, FORT90.com .

Condoms With QR Codes Enable Smartphone Check-Ins

Disponível em: <http://www.digtriad.com/news/health/article/217811/8/Condoms-With-QR-Codes-Enable-Smartphone-Check-Ins>

Condoms With QR Codes Enable Smartphone Check-Ins

11:37 AM, Mar 4, 2012 |

Health

Think social media couldn't get any more personal? Planned Parenthood has introduced new QR-coded condoms that take social sharing to another level.

As part of National Condom Week (Feb. 14 - Feb. 21), Planned Parenthood of the Great Northwest distributed 55,000 condoms throughout western Washington. The condom packaging contained QR codes, barcodes that can be scanned by smart phones which direct users to a mobile website.

What site did the QR codes take users to? www.WhereDidYouWearIt.com , a geo-location service website that allows users to "check-in" their safe sex activity.

The site is intended to promote healthy sexuality and encourage millennials, chief social media users, to "be proud to wear protection," Planned Parenthood said in a written statement.

"Condoms are an essential tool in preventing unintended pregnancy and stopping the spread of sexually transmitted infections (STIs), including HIV," Nathan Engebretson, new media coordinator for Planned Parenthood Great Northwest, said in the statement. "We hope the site promotes discussions within relationships about condoms and helps to remove perceived stigmas that some people may have about condom use. Where Did You Wear It attempts to create some fun around making responsible decisions," he said.

The check-in map can be searched by gender, orientation, approximate age and location, among other filters. But Planned Parenthood said it wouldn't invade privacy for these private moments.

"We intentionally made it so you couldn't zoom in superclose," Engerbretson told CNET. "We really wanted to give people an option so they could see their check-in reflected on the map but at the same time give them some privacy."

Just because a person is using a condom doesn't mean they're practicing safe sex, according to a recent study by the Kinsey Institute. The study found many people don't know how to use condoms correctly, with common errors including not using condoms throughout sex, not leaving space or squeezing air from the tip of the condom, putting condoms on upside down, not using water-based lubricants, and incorrect withdrawal.

According to study author Dr. Richard Crosby, public health professor at the University of Kentucky, encouraging condom use and accessibility is important, but so is the need to improve clinic-based counseling and public education efforts.

According to Planned Parenthood, one in two sexually active persons will get a sexually transmitted disease by age 25 - and most won't know it. Every year, there are approximately 15 million new cases of STDs.

CBS News

Irish people deserve to hear the full truth about abortion

Disponível em:

<http://www.irishtimes.com/newspaper/opinion/2012/0305/1224312792483.html>

The Irish Times - Monday, March 5, 2012

Irish people deserve to hear the full truth about abortion

RUTH CULLEN

OPINION: TWO DECADES have passed since the Supreme Court ruled on the tragic X case.

The teenage girl at the centre of that case found herself in a horrific situation, and the Irish people's overriding feeling at the time was one of immense sympathy for her.

Tragically, however, the decision of the Supreme Court seemed to be that, in order to show care for the girl, article 40.3.3, introduced specifically to protect the unborn child, had to be interpreted to allow abortion.

Over the last 20 years, there has been quite an amount of legal and political commentary on the ruling.

However, the evidence, or rather the lack of evidence, upon which the ruling was grounded has received less scrutiny.

The court decided that Ireland's pro-life amendment permitted legal abortion in circumstances where there was "a real and substantial risk to the life of the mother".

It further ruled that these circumstances included the threat of suicide.

However, the court heard no medical evidence on the question of whether abortion protected women from suicide. And increasingly, we are seeing medical research demonstrating that far from protecting women from suicide, abortion increases the risk that women will suffer grave mental health problems.

For example, the widely publicised Finnish study, which appeared in the European Journal of Public Health, showed that there was a significantly increased risk of suicide among women who had abortions.

They were six times more likely to commit suicide compared with those who had their babies.

Research carried out recently by Dr David Fergusson in New Zealand and published in the British Journal of Psychiatry found that, compared to other women, there was a 30 per cent greater risk of mental health complications among women who had abortions.

This research undercuts the rationale at the very heart of the X case ruling, a rationale for which there had been little basis in the first place.

The Supreme Court also failed to hear evidence showing that Ireland is the safest place in the world for women to give birth.

Sadly, and alarmingly, politicians seeking to legalise abortion are inexcusably ignoring this fact even today. The TDs who introduced a private members' Bill on abortion a fortnight ago have attempted to create the impression that pregnant women in Ireland are being denied medical treatment because of the lack of available abortion.

However, they are wilfully ignoring the evidence of UN statistics which show Ireland as a world leader in terms of maternal mortality.

What has been missing from this debate are the voices of women who regret their abortions.

Five years after the X case, Ireland was confronted with yet another traumatising abortion court case, the C case.

This involved a young girl who was pregnant as a result of rape. The High Court decided that it was in the best interests of the girl to permit the then Eastern Health Board, who had taken the girl into care, to take her to England for an abortion.

But in an interview in 2009 the woman at the centre of the case said that her abortion caused great pain and sorrow.

Her story and the stories of many other women who regret their abortions have been effectively silenced.

For too long they have been ignored and in some cases dismissed by those, such as the National Women's Council, who claim to speak for all women.

The group recently appointed by the Government to examine Irish law on abortion, must take these stories into account, as well as the reality that Ireland is the safest country in the world in which to be pregnant.

It might also look at what happens in countries where abortion is made legal.

In the US, abortionist Dr Kermit Gosnell was recently charged with killing seven born babies and a 41-year-old woman on whom he had performed an abortion.

One of Gosnell's victims, Robyn Reid, said that when she heard he had been charged with killing viable babies with scissors and giving a woman a lethal dose of painkillers, she felt sick.

"I didn't know that he was such a monster doing this to everyone," Reid said.

"I didn't think it'd happened to somebody else. I thought it was just me."

Stories like this and the recent revelations from Britain about abortionists performing sex-selective abortions reveal the full implications of what legal abortion entails.

Fine Gael gave clear commitments at the last election that "women in pregnancy will receive whatever treatments in pregnancy are necessary to safeguard their lives, and that the duty of care to preserve the life of the baby will also be upheld".

Public opinion backs this stance.

When people have the distinction between necessary medical interventions during pregnancy and induced abortion made clear to them, in poll after poll, they reject abortion.

Twenty years after the X case, the Irish people deserve to hear the full story about abortion.

Dr Ruth Cullen is a spokeswoman for the Pro-Life campaign

Rio Carnival: bigger, brighter ... more organized?

Disponível em: <http://www.ajc.com/travel/rio-carnival-bigger-brighter-1352851.html>

U.S. and International travel

Rio officials say they're also better prepared to keep the chaos under some semblance of control, with more portable toilets, traffic guards and paramedics, as well as a new central command center monitoring it all.

"We want revelers to be conscious that they can party but also care for the city's public spaces," the president of Rio's tourism department, Antonio Figueira de Mello, said in a statement.

About 850,000 tourists are expected during the raucous, five-day free-for-all that kicks off when Rio's mayor hands the key to the city to rotund King Momo, the mythical jester figure who reigns over Carnival.

Merrymakers are expected to spend \$640 million and generate 250,000 jobs, according to the city's economic development department. But the world's biggest party traditionally leaves a hangover to match: last year, the weeklong romp left about 850 tons of trash strewn around town.

Rio officials have dispatched 80 mobile medical emergency units, 1,000 traffic guards and 15,000 toilets around the city and officials are running a campaign against urinating in public. Rio residents are humming along with a catchy little samba running on TV, telling partiers, "If you want to pee, don't do it here, don't do it here." The jingle rhymes in Portuguese.

Rio also launched a smartphone app, free for iPhones and Androids, that tells visitors in English, Spanish or Portuguese where to go for blocos, the roving samba bands that draw

millions, pied-piper style, through the streets, as well as basic information on public transit, eateries and museums.

The federal aviation authority expects 3 million people to shuttle in and out of airports during Carnival week, 13 percent more than last year. Airports taking in visitors will also have 30 percent more federal police, and workers with "May I help you?" vests will be circulating to take care of visitors' last-minute questions.

Helping this notoriously gridlocked city tackle the street closures, mass gatherings and parading parties is Rio's new central command center, which the city hopes will be a key to keeping order when Rio hosts the 2014 World Cup matches and the 2016 Olympics.

It has been fully operational since November, but this is the first big test of the command center's ability to keep the city running during a large event.

"The center was created to work during great events, minimizing the impact they have on the daily routine of residents," said Savio Franco, who heads it.

It was in this center, which takes feeds from more than 500 cameras spread around the city, that the routes of Rio's more than 400 roving street parties were plotted out, along with the points where guards, medical units and toilets would be placed. Once the party is in full swing, the action can be monitored in real time, allowing the city to respond immediately to any problems, Franco said.

With all this planning, he said he's hoping maintaining control of Carnival should be a cinch.

"There will be more than 5,000 city government workers involved in making this party go as smoothly as possible for cariocas and for the tourists," Franco said.

Texas gun sales boom in expectation of Obama re-election

Disponível em: <http://www.valleycentral.com/news/story.aspx?id=726646>

(AP) -- FORT WORTH, Texas (AP) -- Gun sales are booming across Texas, and some buyers say their growing belief that President Barack Obama's re-election is inevitable is fueling their race to bear more arms.

Fort Worth gun shop owner DeWayne Irwin tells the Fort Worth Star-Telegram (<http://bit.ly/y3YDO6>) that the rush is similar to one seen shortly after the president's 2008 election.

Book author Alan Korwin tells the Star-Telegram that some are worried that Obama's re-election would embolden a major gun control push.

Korwin has written nine books on gun laws and operates a gun laws website.

Korwin says people worry that if Obama wins "he will go after firearms in a way we have never seen before."

UK galleries pay \$72 million for Titian masterpiece

Disponível em:

<http://www.reuters.com/article/2012/03/01/us-britain-titian-idUSTRE8200UN20120301>

A staff member poses in front of Titian's painting 'Diana and Callisto' at the National Gallery in London, March 1, 2012.

Credit: Reuters/Paul Hackett

By Mike Collett-White

LONDON | Thu Mar 1, 2012 7:15am EST

LONDON (Reuters) - Two British galleries have raised 45 million pounds (\$72 million) for an important painting by Renaissance master Titian, dipping into their own coffers rather than asking the cash-strapped public to help.

The acquisition of "Diana and Callisto" by London's National Gallery and the National Galleries of Scotland in Edinburgh, follows a similar purchase in 2009 for the accompanying canvas "Diana and Actaeon," which cost the galleries 50 million pounds.

National Gallery director Nicholas Penny said the museums decided to use bequests left them, ranging from 100 to 500,000 pounds, to raise 25 million pounds towards the second work.

"There was no special request for a government grant and there was no public appeal in these very difficult times," Penny told reporters on Thursday at the gallery in central London.

"We have of course used these reserves before, but never on this scale, and no purchase ever made by the National Gallery has begun to approach the magnitude of this acquisition.

"The trustees believed no greater old master painting could possibly be secured."

The acquisition means that Titian's 16th century paintings "Diana and Callisto" and "Diana and Actaeon" can continue to hang together and be viewed by the general public.

The purchase from the Duke of Sutherland also means that the loan of the Bridgewater Collection, billed as the greatest private collection of old master paintings in the world, will remain intact at the National Galleries of Scotland.

The two galleries said they were grateful to the Duke of Sutherland for agreeing to sell the second painting for 45 million pounds, which they said was "significantly lower" than the market value.

The old master auction record stands at 49.5 million pounds set in 2002 at Sotheby's for Peter Paul Rubens' "The Massacre of the Innocents."

Penny said he anticipated being asked why a national gallery was spending such large sums to acquire works by a painter who was not British at a time when the economy was so weak.

"If you lined up (British artists) Reynolds and Gainsborough and Turner and Constable, not only would they feel that this was a very great day for Great Britain but they would also admit that they would not have been the artists they were had it not been for the example of Titian.

"We do have quite a few (works by Titian). But that is to me a question rather similar to (asking) 'there is one play by Shakespeare, do you really need any other ones?'. "

John Leighton, director-general of the National Galleries of Scotland, said the four-year campaign to acquire the two Titians had been fraught with difficulties.

"The risk of failure was of course a very real one, and we began this venture back in 2008 in what was obviously a very different economic climate, and there have been moments when success seemed far from assured," he said.

Diana and Actaeon was purchased in 2009 and Diana and Callisto was acquired with the help of the Art Fund and Heritage Lottery Fund as well as donations and grants from individual donors and trusts.

The two works were painted for King Philip II of Spain between 1556 and 1559 as part of a series of six large pictures executed when Titian was at the height of his powers.

The paintings moved to France in 1704 as a diplomatic gift and were auctioned off almost a century later, after the French Revolution, in the famous Orleans sale before being acquired by British aristocrats.

Diana and Callisto tells the story of a nymph whose association with the gods has tragic consequences.

The two Titians will be shared between the London and Edinburgh galleries, and displayed together starting in London in July when "Diana and Actaeon" returns from a regional tour.

(Reporting by Mike Collett-White, editing by Paul Casciato)

Fiat Is 'Winning' With Charlie Sheen Ad

Disponível em: <http://www.kitv.com/r/30595287/detail.html>

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POSTED: 10:33 am HST March 2, 2012

UPDATED: 11:36 am HST March 2, 2012

Mario Anzuoni / Reuters

CNNMoney (New York) -- Hollywood actor and warlock Charlie Sheen is getting a second chance, this time from Fiat.

The Italian car company's latest commercial for its tiny Fiat 500 Abarth prominently features Sheen, whose career took a nosedive last year amid several public breakdowns. The ad, released this week, acknowledges the crazed-bad boy persona Sheen has developed -- and exploits it.

In it, Sheen is under house arrest. His response? Host a wild party at his mansion with attractive models dancing and screaming as he races his tiny car around inside his home.

Sheen, wearing a fitted suit and ankle bracelet, exits the car and smirks as he faces the cheering crowd on the balcony above him.

"I love being under house arrest," he says confidently, clinging to a brunette model in red. "What do I get for bad behavior?"

The better question is what Fiat, which is a major stakeholder in Chrysler, will get for hiring Sheen. He is, after all, an actor whose self-destructive and reckless actions were until recently seen as radioactive.

Chrysler executives were not immediately available to comment. But in a statement released Thursday, the head of Fiat branding explained why the company chose to go with last year's largest public relations disaster.

"The Fiat 500 Abarth is the bad boy of the Fiat vehicle lineup, and Charlie Sheen personifies the edgy and fun attributes of the Fiat 500 Abarth," said Olivier Francois, who also serves as Chrysler's chief marketing officer.

The ad tries to drive that point home with the slogan, "Not all bad boys are created equal." Presumably, the 160-horsepower, five-speed transmission car with a 1.4-liter engine instantly gains Sheen's street cred.

But using a controversial star is a risky move reserved for companies that aren't household names, according to Lee Garfinkel, chief creative officer of global brands at marketing firm Euro RSCG Worldwide.

"It's got be about talk value," said Garfinkel, who supervises beer company Dos Equis' "The Most Interesting Man in the World" advertising campaign. He said a company like Fiat, which is well known in Europe and just starting to grow in the U.S., has less to lose than a brand like Coca-Cola.

Garfinkel adds that Fiat's latest commercial is much more believable than the spot it did last year with Jennifer Lopez. That ad showed her driving a Fiat 500 in the Bronx, but viewers were skeptical that Lopez would drive a Fiat - much less in the Bronx. It was later discovered that the ad wasn't even filmed in New York.

"Those just didn't work at all. I was thinking, 'There's no way Jennifer Lopez is driving a Fiat, and no way in the Bronx,'" Garfinkel said. "For comedy that works, there's got to be some essence of truth. It reeked of advertising baloney."

"If he is a joke at this point, some people will ignore the commercial or find it interesting. I don't think there will be a downside to it. And if it's successful, then maybe five

or six months from now we'll see Charlie Sheen Part Two," Garfinkel joked.

Fiat better hope not.