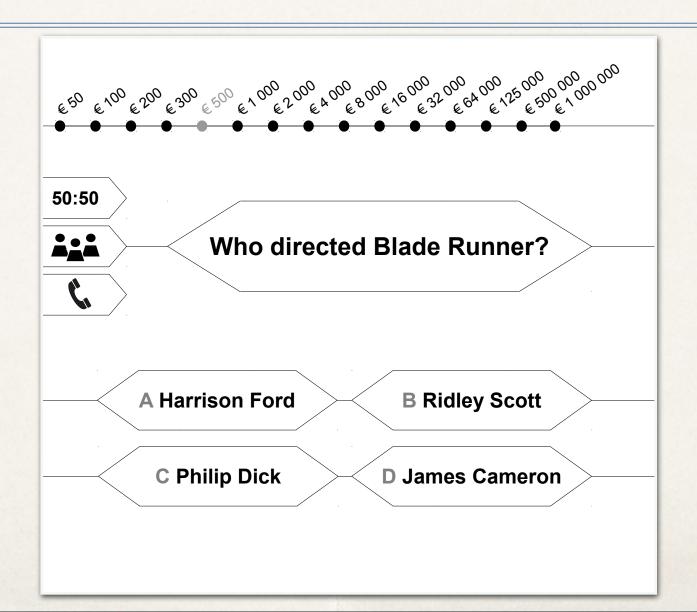# A Virtual Player for "Who Wants to Be a Millionaire?" based on Question Answering

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Who wants to be Millionaire?

€ 50 € 100 € 200 € 300 € 500 € 1 000 € 2 000 € 4 000 € 8 000 € 16 000 € 32 000 € 64 000 € 125 000 € 500 000 € 1 000 000

50:50

Who directed Blade Runner?

A Harrison Ford

B Ridley Scott

C Philip Dick

D James Cameron

Methodology

✤ Obtain scored passages from a *QA system*

✤ Answers are *paragraphs* obtained from *Wikipedia* or *triples* from *DBpedia*

✤ Calculate the *confidence* in each of the four answers using this information

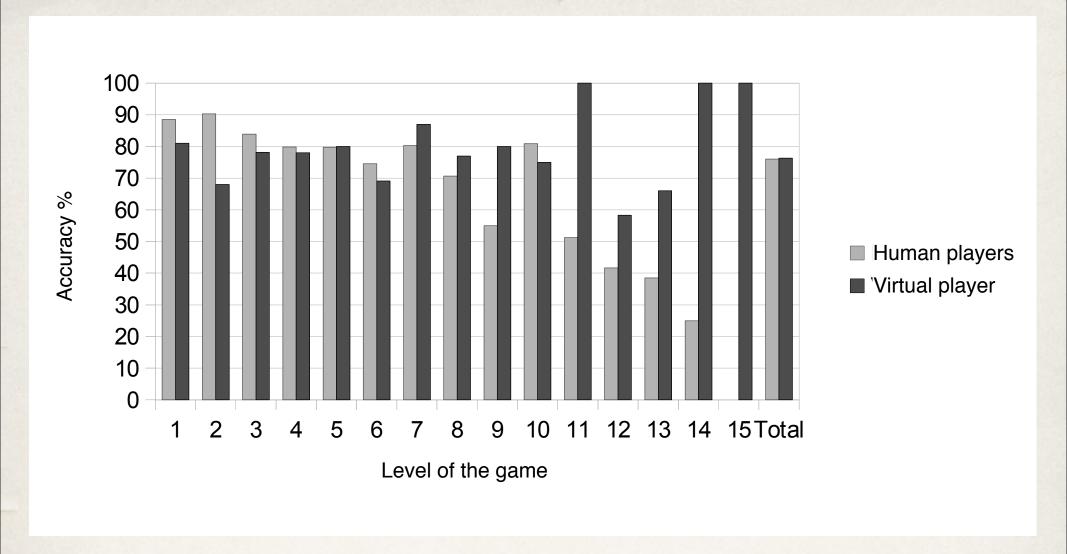✤ Choose the answer according to the *confidence*

Who directed Blade Runner?

Article Title	Passage Text	Score
Ridley Scott	Sir Ridley Scott (born 30 November 1937) is an English film director and producer. Following his commercial breakthrough with Alien (1979), his best-known works are the sci-fi classic Blade Runner (1982) and the best picture Oscar-winner Gladiator (2000).	5.3
Blade Runner	Blade Runner is a 1982 American dystopian science fic- tion action film directed by Ridley Scott and starring Harrison Ford, Rutger Hauer, and Sean Young. The screenplay, written by Hampton Fancher and David Peo- ples, is loosely based on the novel Do Androids Dream of Electric Sheep? by Philip K. Dick.	5.1
Blade Runner	Director Ridley Scott and the film's producers "spent months" meeting and discussing the role with Dustin Hoffman, who eventually departed over differences in vision. Harrison Ford was ultimately chosen for several reasons.	5.0
Blade Runner	The screenplay by Hampton Fancher was optioned in 1977. Producer Michael Deeley became interested in Fancher's draft and convinced director Ridley Scott to film it.	4.9
Blade Runner	Interest in adapting Philip K. Dick's novel Do Androids Dream of Electric Sheep? developed shortly after its 1968 publication. Director Martin Scorsese was inter- ested in filming the novel, but never optioned it.	1.2

Calculating confidence

* Single criteria: *Title Levenshtein, LCS, Term Overlap, Exact Substring* and *Density*

* Parameters: number of passages, level of linguistic analysis, score of the passages, question expansion

* Example: `TermOverlap(2, Lemma, Score, StopWord, QuestionExpansion)`

* Composite criteria: *CombSum* and *Majority Vote*

Experimental Setting

* 262 *italian* questions from the official WWBM boardgame (only 5 have no answer in Wikipedia)

* 60 humans, at least 7 games each one

* 2 Settings:

  * Virtual Player accuracy

  * Virtual Player vs. Human

Virtual Player Accuracy   76.34%

Human Player Accuracy   76.02%

Thank you for your attention

For more informations on *experiments, QA System, DBpedia usage* and *Answer Selection* come to my desk