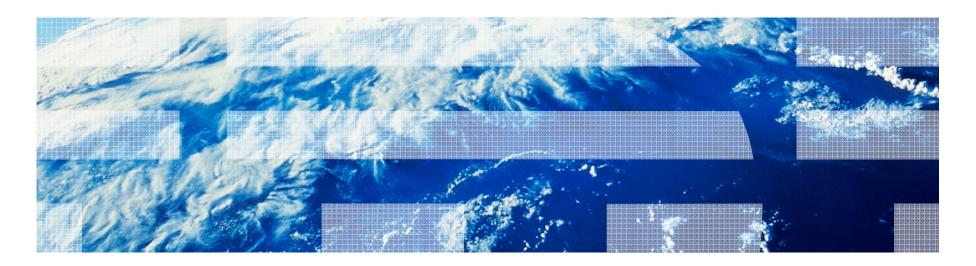


# The Future Watson





## Precision, Accurate Confidence and Speed – What's Next?





#### The Future Watson

# Extend Watson technology

 Moves beyond "question-in & answer-out" to always "learning" evidence-based decision support

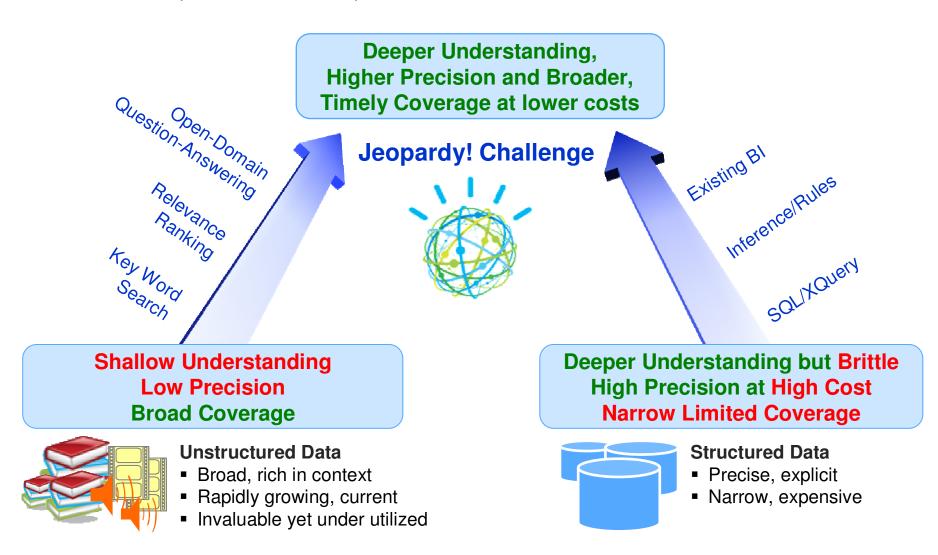
#### Lead in new domains

- Addresses the enterprise need to convert growing volumes of information into actionable knowledge
- Demonstrates business value in critical problem spaces, starting with Healthcare

# **Enable efficient adaptation**

 Efficiently adapting and scaling Watson to new domains requires a novel blend of engineering and research

# Watson's real value proposition: Efficient decision support over unstructured (and structured) content





### Taking Watson beyond Jeopardy!

#### **Specific Questions**

Understanding

The type of murmur associated with this condition is harsh, systolic, and increases in intensity with Valsalva

> From specific questions to rich, incomplete problem scenarios (e.g. EHR)



Rich Problem Scenarios

#### Question-In/Answer-Out

Interacting



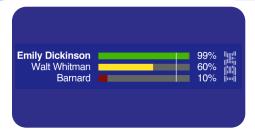
Evidence analysis and look-ahead. drive interactive dialog to refine answers and evidence

# Input, Responses **Dialog**

Refined Answers, Follow-up Questions

#### **Precise Answers & Accurate Confidences**

**Explaining** 

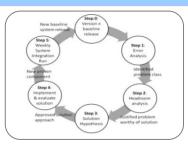


Move from quality answers to quality answers and evidence

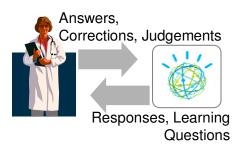
Comparative **Evidence Profiles** 

#### **Batch Training Process**

Learning



Scale domain learning and adaptation rate and efficiency



**Continuous Training** & Learning Process

**Teach Watson** 

5

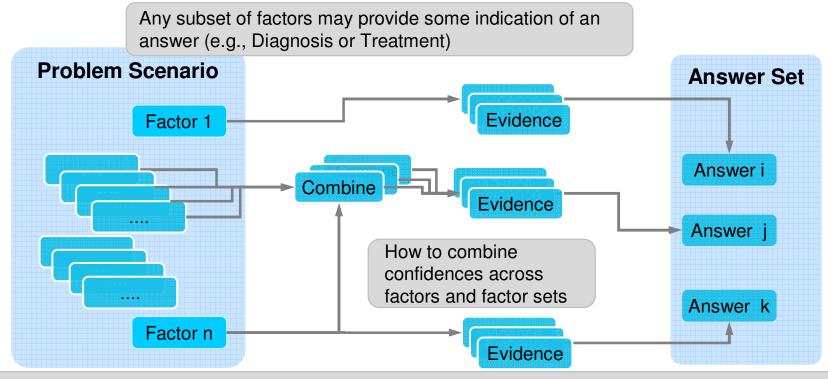


### Moving from specific questions to high-value problem scenarios



Specific, short questions produce a narrow, targeted range of hypotheses.

### Much Harder - Multi-Dimensional Input and Multi-Dimensional Confidence Merging



Which subsets of factors represent fruitful hypotheses and which may be sufficiently evidenced by the content? There are ~55K fields in an EMR – any subset may predict one or more of some several 100K diseases or conditions. And the clinicians will want to know WHY.



Teach Watson technology generates questions to enhance understanding and acquire new knowledge – used in dialog or crowd-sourcing opportunities

Watson considers...

What would have to be true for seizure disorder to be correct?

What neurological condition contraindicates the use of bupropion?

Patients with preexisting seizure disorder should not use bupropion due to a higher-than-proportional increase in the possibility of seizure as the dose is increased.

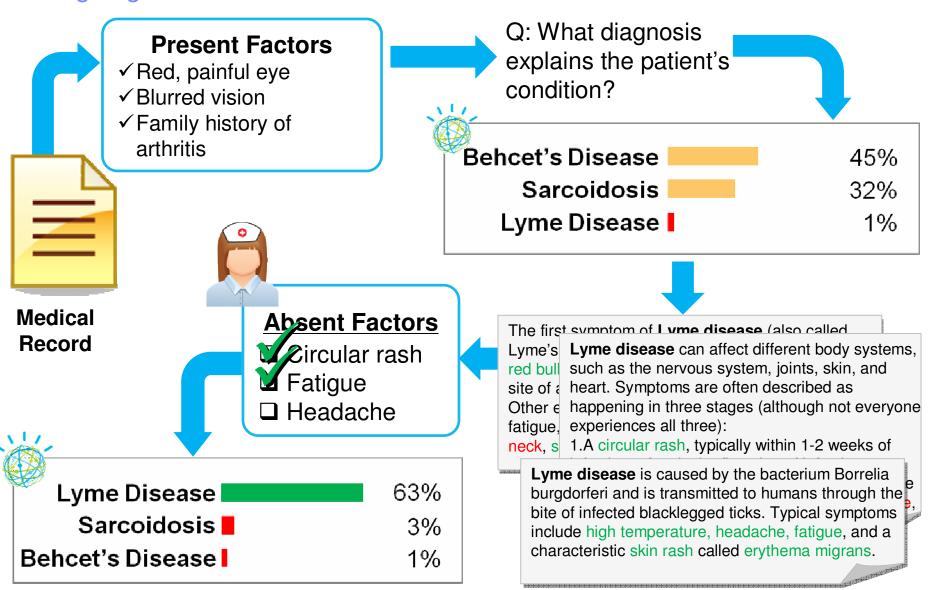
Automatically generates Learning Questions...

Does contraindicates the use of bupropion mean should not use bupropion?

Does "contraindicates the use of" mean "should not use" in general?

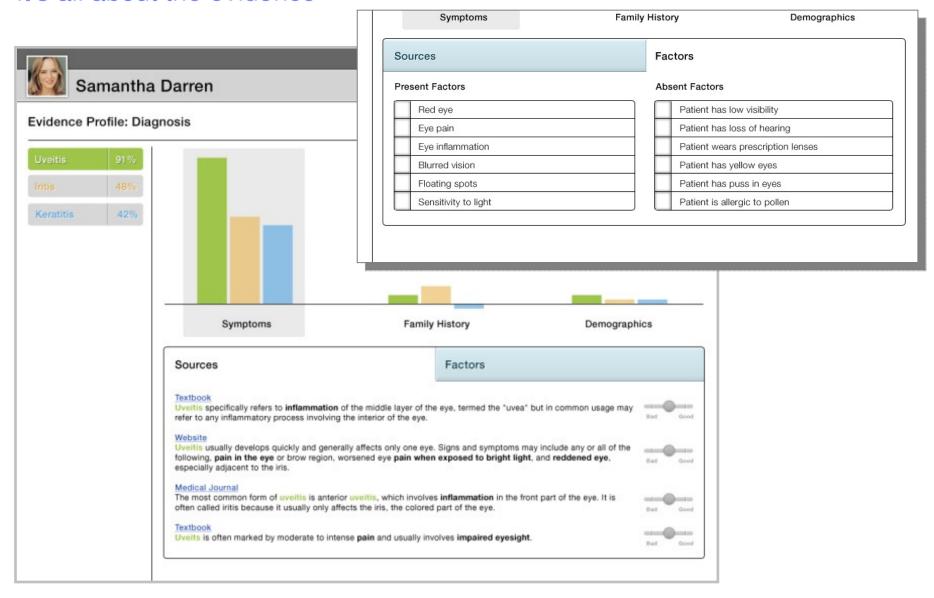


### Dialoguing to an answer



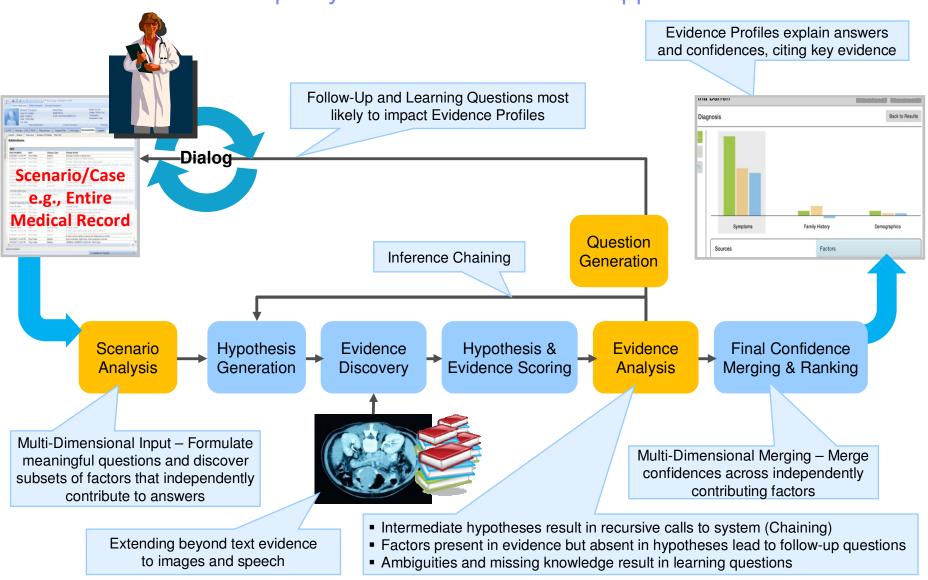


### It's all about the evidence



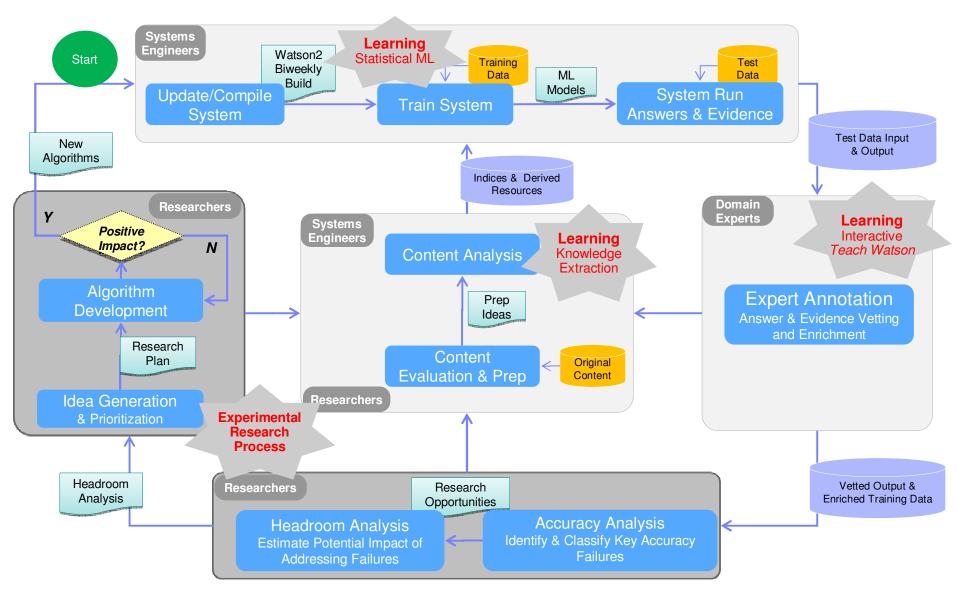


### Watson 2.0: From Jeopardy! to Clinical Decision Support





### Domain learning: Training and adapting Watson to new domains





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