RoboTalk

Created by Tim Rutherford

Introduction

- Robot AI trying to learn about humans

Goals:

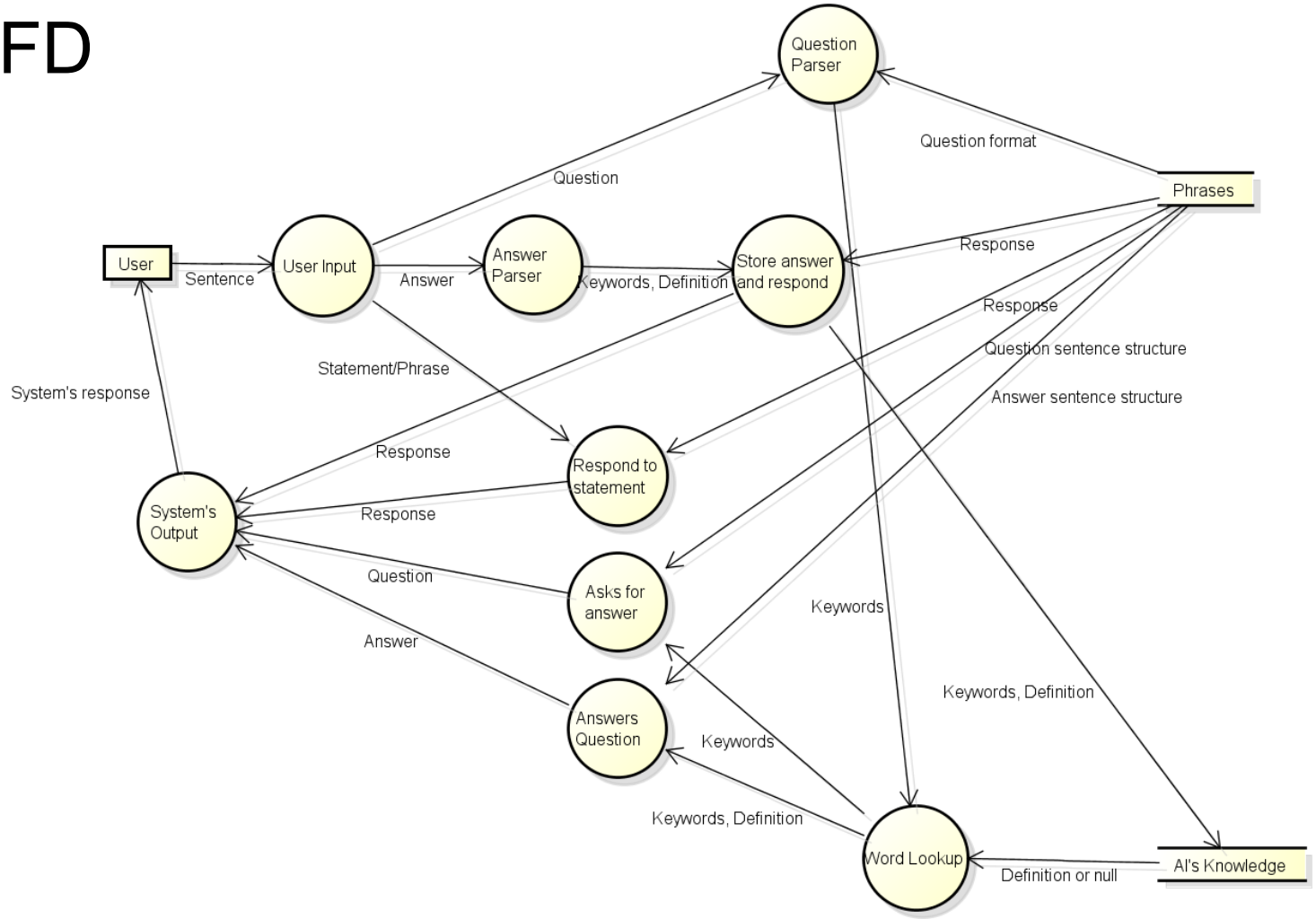
- It can have a basic conversation with the user
- It can learn words and concepts from the user
- It can answer users questions on a variety of topics
- It can associate words and concepts with others
- It can detect words even when misspelled

A+ Features

- The system will learn new words and concepts it does not already know and use them in future conversations
- The system will detect emotions from the users input and respond accordingly
- The system will have a GUI for desktop computers and a GUI for iPhone/Android devices

How it all Works

DFD



How it all Works

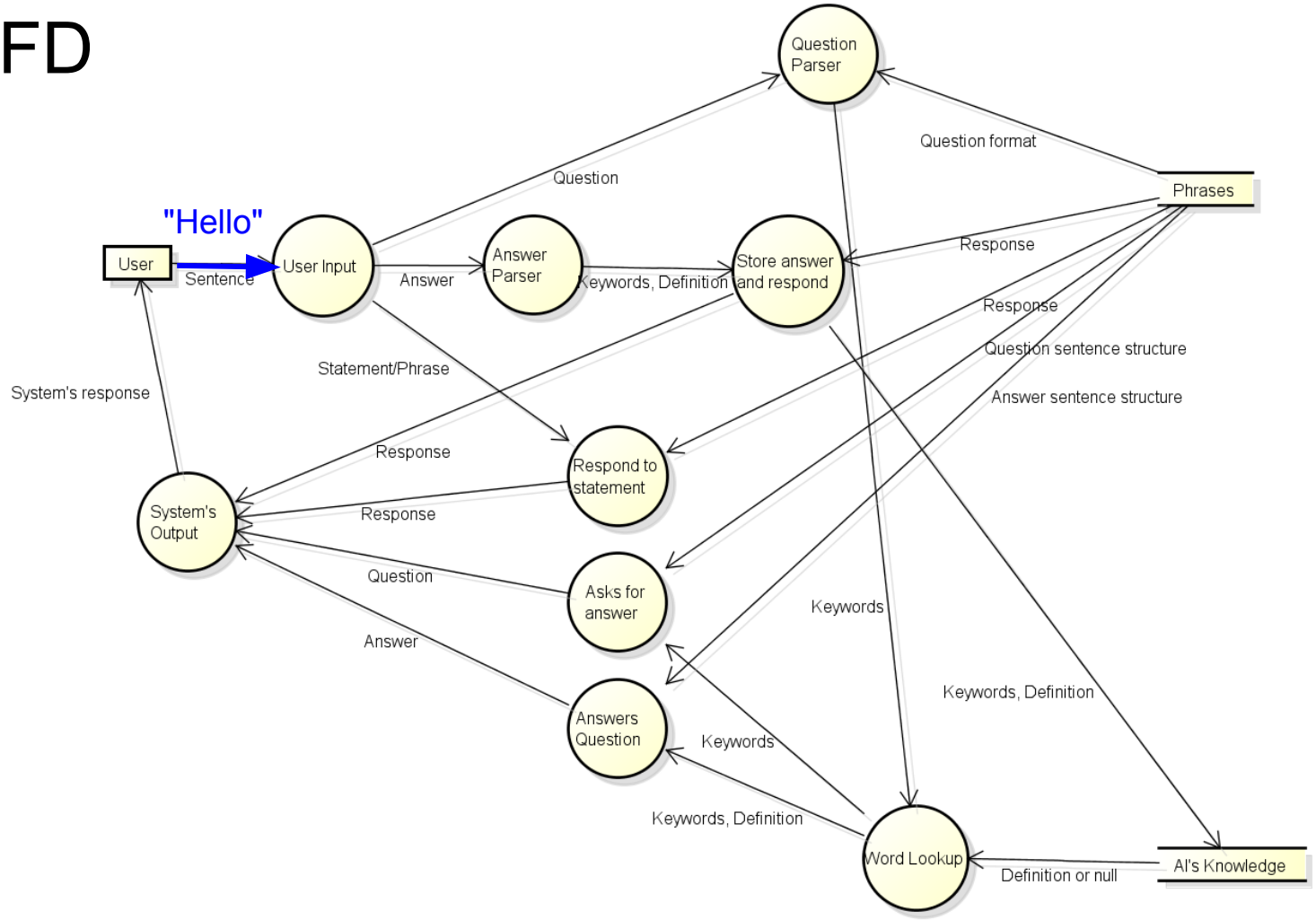
Path A

1. User inputs a sentence and the system determines if it is a question, answer to a question, or a phrase.

    Ex. user: "Hello"

How it all Works

DFD



How it all Works

Path A

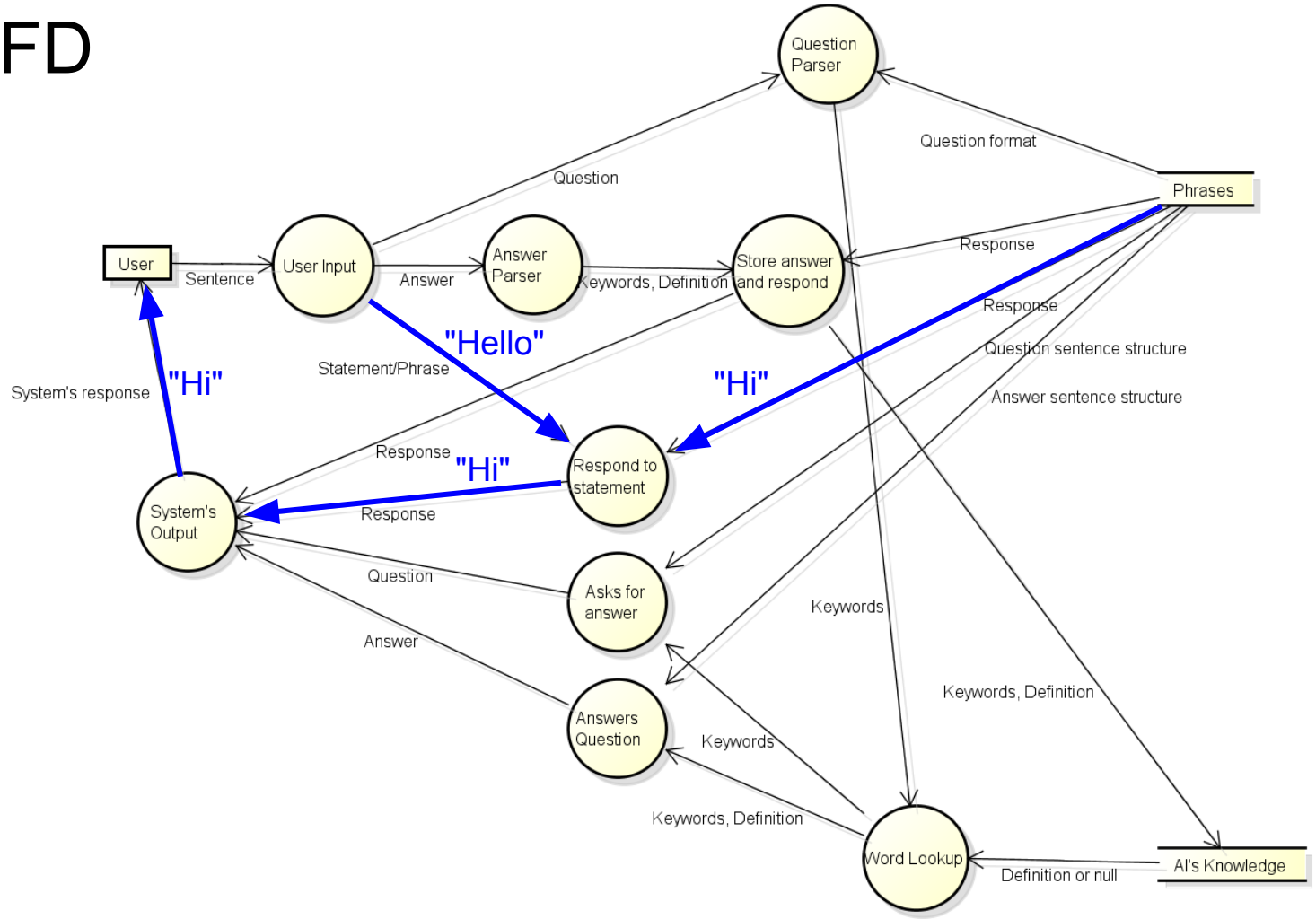
2. It is a phrase so it will then do a lookup on the keyword(s) to determine what to respond with.

Ex. user: "Hello"

system: "Hi"

How it all Works

DFD



How it all Works

Path B

3. Lets say the user now inputs a question. The system recognizes this and sends it to the Question Parser.

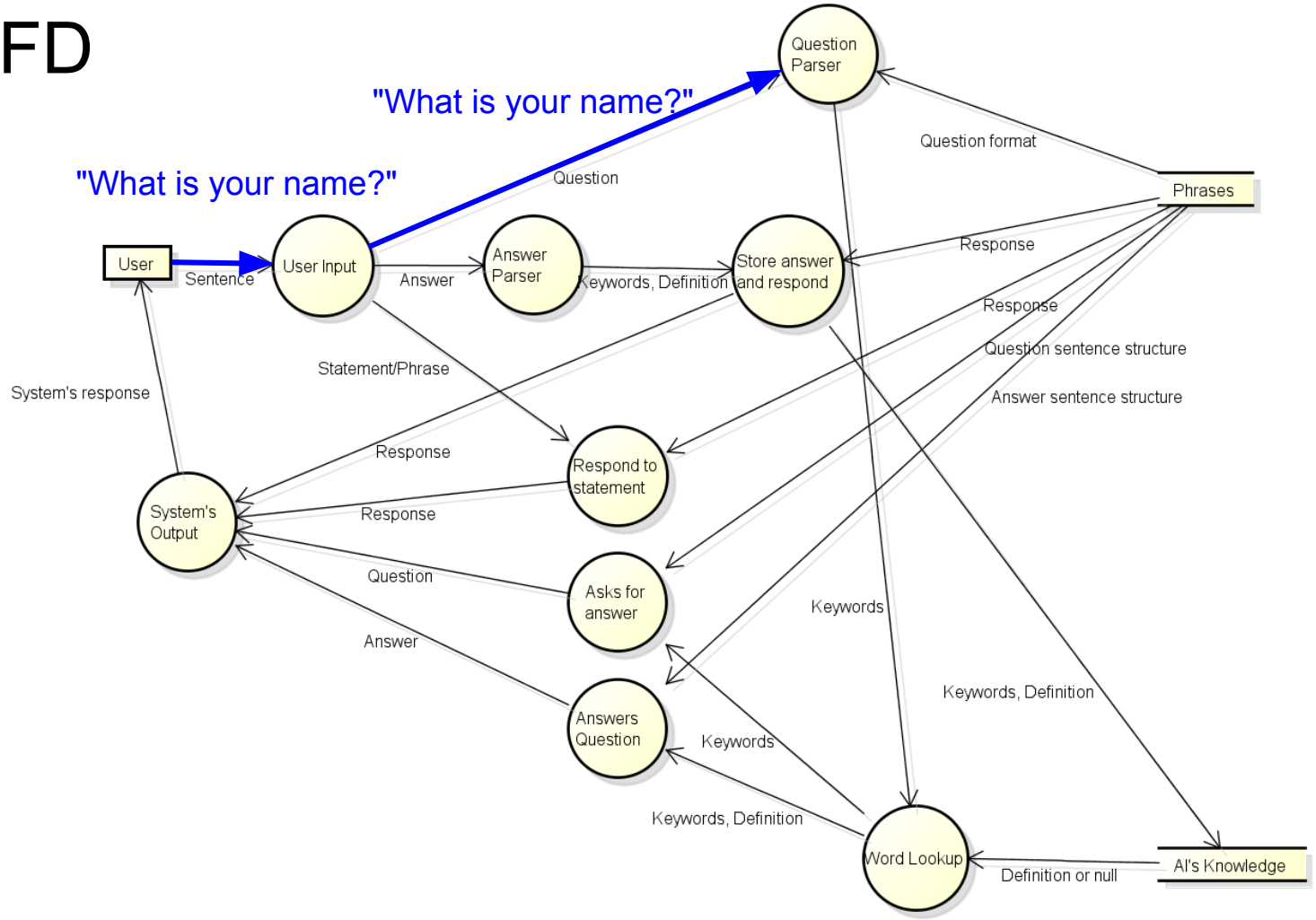
Ex. user: "Hello"

system: "Hi"

user: "What is your name?"

How it all Works

DFD



How it all Works

Path B

4. The Question Parser parses the sentence into 3 pieces of information. Type of question: "what", primary word: "your", and secondary word: "name".

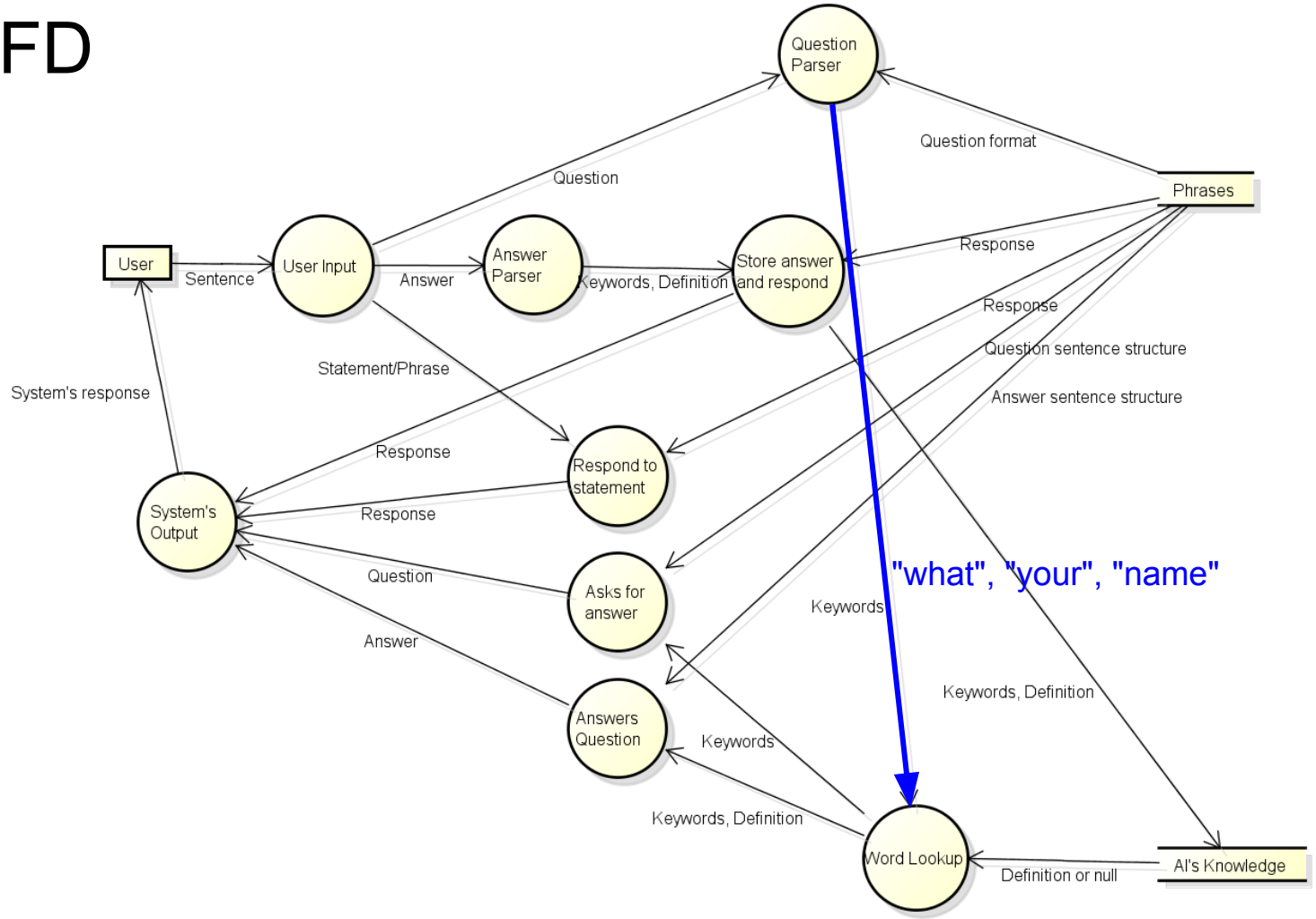
Ex. user: "Hello"

system: "Hi"

user: "What is your name?"

How it all Works

DFD



How it all Works

Path B

5. The system now looks up the definition (or answer) using the keywords. At this point it either knows the answer or does not. Lets assume it does not.

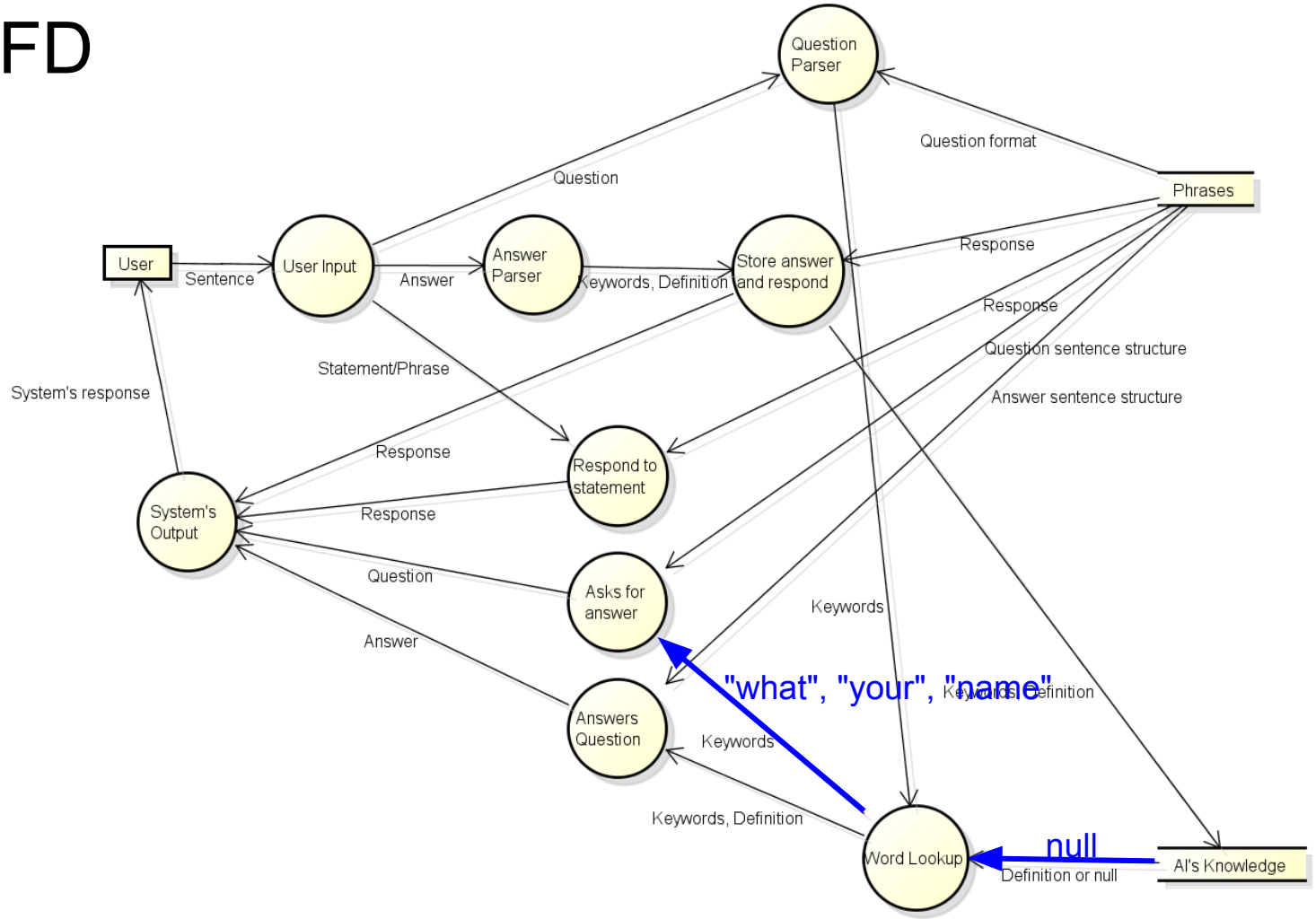
Ex. user: "Hello"

system: "Hi"

user: "What is your name?"

How it all Works

DFD



How it all Works

Path B

6. The system then responds by asking for an answer.

Ex. user: "Hello"

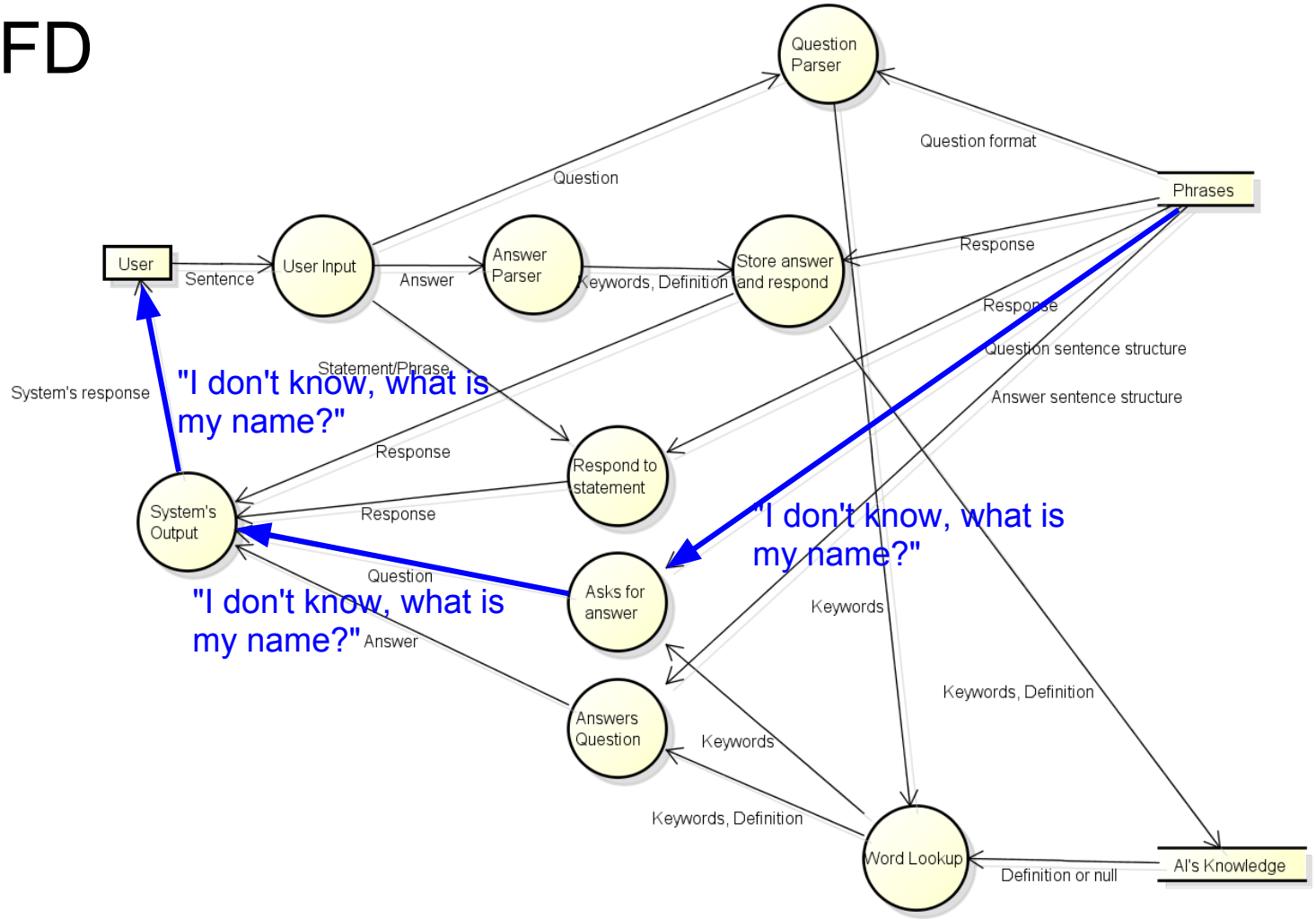
system: "Hi"

user: "What is your name?"

system: "I don't know, what is my name?"

How it all Works

DFD



How it all Works

Path C

7. The system will now be looking for an answer to the question. It will parse the answer into keywords for storage.

Ex. user: "Hello"

system: "Hi"

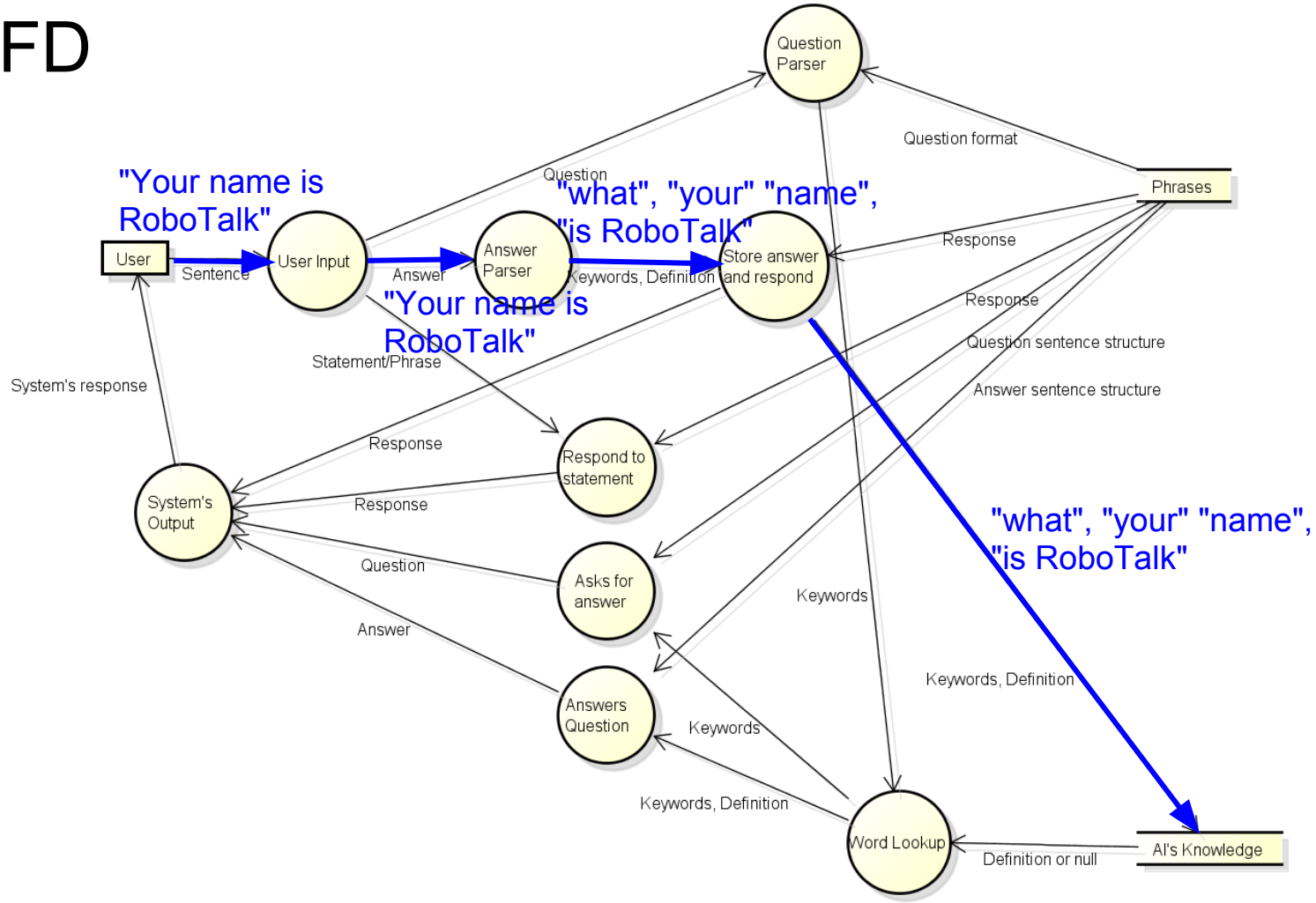
user: "What is your name?"

system: "I don't know, what is my name?"

user: "Your name is RoboTalk."

How it all Works

DFD



How it all Works

Path C

8. The system now responds with a generic phrase.

Ex. user: "Hello"

system: "Hi"

user: "What is your name?"

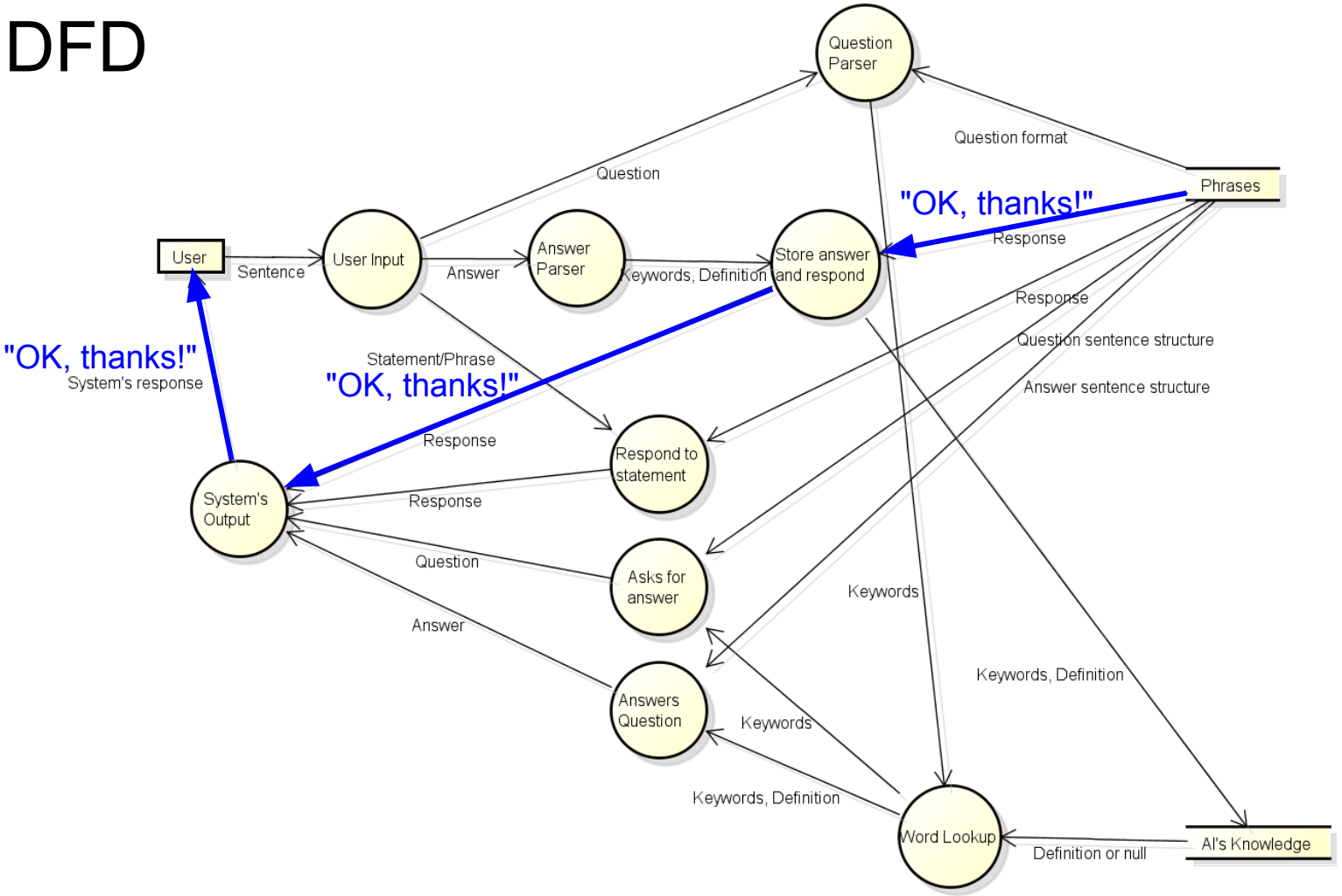
system: "I don't know, what is my name?"

user: "Your name is RoboTalk."

system: "OK, thanks!"

How it all Works

DFD



How it all Works

Result

user: "Hello"

system: "Hi"

user: "What is your name?"

system: "I don't know, what is my name?"

user: "Your name is RoboTalk."

system: "OK, thanks!"

Some Sample Conversations

user: Hey.
system: Hello.
user: Why do humans eat?
system: I'm not sure why humans eat.
user: Humans eat because they need energy.
system: Interesting.
user: Do you know what energy is?
system: No.
user: Energy is required for anything to function.
system: Oh, ok.
user: Why do humans eat?
system: Humans eat because energy is required for anything to function.
user: Thats right!
system: Thanks.
user: Bye.
system: Goodbye.

Some Sample Conversations

user: Hi.
system: Hey.
user: I like cake.
system: Why do you like cake?
user: Because it tastes good.
system: Cool.
user: What is cake?
system: Cake is a dessert.
user: What is a dessert?
system: No idea, what is a dessert?
user: A dessert is a sweet food.
system: Ok.
user: What is a cake?
system: A cake is a sweet food.
user: Cya.
system: Bye.

Some Sample Conversations

user: Hi.
system: Hey.
user: I am mad.
system: Why are you mad?
user: Because I hate homework.
system: So homework makes you mad?
user: Yes.
system: Ok.
user: What makes me mad?
system: Homework makes you mad.
user: Bye.
system: Goodbye.

SDLC

- Used Agile method (XP)
- Chose it because it would be easier to change my project if I needed to add or remove features (such as A+ options)
- Liked the fact I could plan my next week of development based on how much work had to be done in other classes (if it was a busy week I would plan on getting less done for that week)

Project Overall

- Most challenging part of the project is to properly associate words and definitions with others. If done correctly the system should be able to answer questions by combining definitions of related words. (Eg: Cake is a dessert, a dessert is a sweet food, so cake is a sweet food.)
- Most rewarding part of the project was when I finally got the file structure for reading and writing to work (should have just used a database).