

Dialogue Management in Type Theory (a teaser)

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GF Summer School, 25 August 2009

Let's start with a movie. . .

“The Famous Pizza Demo”

<http://www.cs.chalmers.se/~bringert/xv/pizza/pizza-movie-large.html>

This dialogue system is specified in GF.

The grammar is automatically translated into VoiceXML.

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abstract Pizza

cat

Number; Size; Topping; Order

fun

pizza : Number \rightarrow Size \rightarrow Topping \rightarrow Order

one, two : Number

small, large : Size

ham, cheese : Topping

concrete PizzaEng of Pizza

printname

Order = "What would you like to order?"

Size = "What size pizzas do you want?"

Topping = "What topping do you want?"

lin

$\text{pizza } n \text{ s } t = \{s = n.s \ ++ \ (s.s \ | \ []) \ ++ \ \text{pizzaN } ! \ n.n \ ++ \ (\text{"with"} \ ++ \ t.s \ | \ [])\}$

$\text{one} = \{s = \text{"one"}; n = \text{Sg}\}$

$\text{two} = \{s = \text{"two"}; n = \text{Pl}\}$

$\text{small} = \{s = \text{"small"}\}$

$\text{large} = \{s = \text{"large"}\}$

$\text{ham} = \{s = \text{"ham"}\}$

$\text{cheese} = \{s = \text{"cheese"}\}$

oper

$\text{pizzaN} = \text{table } \{\text{Sg} \Rightarrow \text{"pizza"}; \text{Pl} \Rightarrow \text{"pizzas"}\}$

Dialogue model

The Pizza Demo has a very simple dialogue model – similar to a web form:

Pizza Order Form

System Question	User Answer
What would you like to order?	
What size pizzas do you want?	
What topping do you want?	

Can the basic idea be extended to a more advanced dialogue system?

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