

A Visualization

M: Hello , welcome to the Cambridge restaurant system ? You can ask for restaurants by area , price range or food type . How may I help you ?
 U: and expensive restaurant that serves tuscan food
 M: Sorry there is no tuscan restaurant in the expensive price range
 U: french food
 M: cote is a great restaurant serving french food and it is in the expensive price range
 U: may i have the phone number
 M: The phone number of cote is 01223 311053 .
 U: thank you good bye

(a) Dialogue script

NAME	PRICE RANGE	FOOD	AREA	ADDRESS	POST CODE	PHONE
charlie chan	cheap	chinese	east	Regent Street City Centre	C.B 2, 1 D.B	01223 361763
chiquito restaurant bar	expensive	mexican	south	2G Cambridge Leisure Park Cherry Hinton Road Cherry Hinton	C.B 1, 7 D.Y	01223 400170
city stop	expensive	food	north	Cambridge City Football Club Milton Road Chesterton	.EMPTY	01223 363270
clowns cafe	expensive	italian	centre	.EMPTY	C.B 1, 1 L.N	01223 355711
cocum	expensive	indian	west	71 Castle Street City Centre	C.B 3, 0 A.H	01223 366668
cote	expensive	french	centre	Bridge Street City Centre	C.B 2, 1 U.F	01223 311053
curry garden	expensive	indian	centre	106 Regent Street City Centre	.EMPTY	01223 302330
curry king	expensive	indian	centre	5 Jordans Yard Bridge Street City Centre	C.B 1, 2 B.D	01223 324351
curry prince	moderate	indian	east	451 Newmarket Road Fen Ditton	C.B 5, 8 J.J	01223 566388

(b) Attention heat map: cote is a great restaurant serving french food and it is in the expensive price range.

NAME	PRICE RANGE	FOOD	AREA	ADDRESS	POST CODE	PHONE
charlie chan	cheap	chinese	east	Regent Street City Centre	C.B 2, 1 D.B	01223 361763
chiquito restaurant bar	expensive	mexican	south	2G Cambridge Leisure Park Cherry Hinton Road Cherry Hinton	C.B 1, 7 D.Y	01223 400170
city stop	expensive	food	north	Cambridge City Football Club Milton Road Chesterton	.EMPTY	01223 363270
clowns cafe	expensive	italian	centre	.EMPTY	C.B 1, 1 L.N	01223 355711
cocum	expensive	indian	west	71 Castle Street City Centre	C.B 3, 0 A.H	01223 366668
cote	expensive	french	centre	Bridge Street City Centre	C.B 2, 1 U.F	01223 311053
curry garden	expensive	indian	centre	106 Regent Street City Centre	.EMPTY	01223 302330
curry king	expensive	indian	centre	5 Jordans Yard Bridge Street City Centre	C.B 1, 2 B.D	01223 324351
curry prince	moderate	indian	east	451 Newmarket Road Fen Ditton	C.B 5, 8 J.J	01223 566388

(c) Attention heap map: The phone number of cote is 01223 311053 .

Table 7: Dialogue visualization 1

M: Hello , welcome to the Cambridge restaurant system ? You can ask for restaurants by area , price range or food type . How may I help you ?
 U: cheap restaurant
 M: What kind of food would you like ?
 U: in the west part of town
 M: la margherita is a nice restaurant in the west of town in the cheap price range
 U: address
 M: Sure , la margherita is on 15 Magdalene Street City Centre
 U: thank you
 M: la margherita is a nice restaurant in the west of town in the cheap price range
 U: good bye

(a) Dialogue script

NAME	PRICE RANGE	FOOD	AREA	ADDRESS	POST CODE	PHONE
india house	expensive	indian	west	31 Newnham Road Newnham	_EMPTY	01223 461661
j restaurant	cheap	oriental	centre	86 Regent Street City Centre	C.B 2, 1 D.P	01223 307581
jinling noodle bar	moderate	chinese	centre	11 Peas Hill City Centre	C.B 2, 3 P.P	01223 566188
kohinoor	cheap	indian	centre	74 Mill Road City Centre	_EMPTY	01223 323639
kymmoy	expensive	oriental	centre	52 Mill Road City Centre	C.B 1, 2 A.S	01223 311911
la margherita	cheap	italian	west	15 Magdalene Street City Centre	C.B 3, 0 A.F	01223 315232
la mimosa	expensive	mediterranean	centre	Thompsons Lane Fen Ditton	C.B 5, 8 A.Q	01223 362525
la raza	cheap	spanish	centre	4 - 6 Rose Crescent	C.B 2, 3 L.L	01223 464550
la tasca	moderate	spanish	centre	14 -16 Bridge Street	C.B 2, 1 U.F	01223 464630
lan hong house	moderate	chinese	centre	12 Norfolk Street City Centre	_EMPTY	01223 350420

(b) Attention heat map: la margherita is a nice restaurant in the west of town in the cheap price range

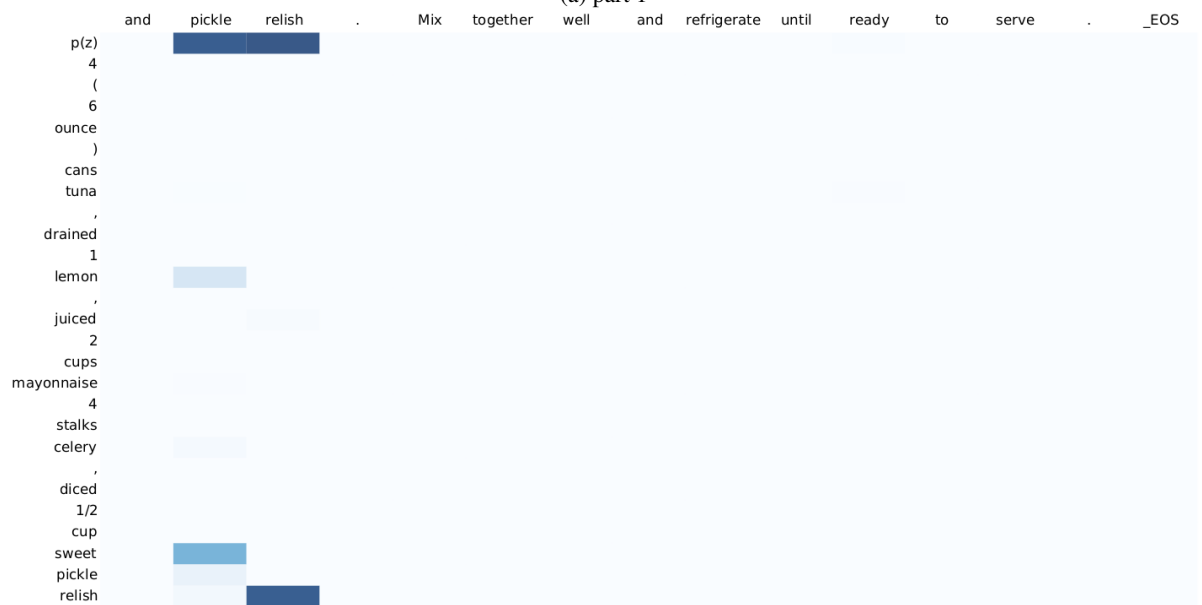
NAME	PRICE RANGE	FOOD	AREA	ADDRESS	POST CODE	PHONE
india house	expensive	indian	west	31 Newnham Road Newnham	_EMPTY	01223 461661
j restaurant	cheap	oriental	centre	86 Regent Street City Centre	C.B 2, 1 D.P	01223 307581
jinling noodle bar	moderate	chinese	centre	11 Peas Hill City Centre	C.B 2, 3 P.P	01223 566188
kohinoor	cheap	indian	centre	74 Mill Road City Centre	_EMPTY	01223 323639
kymmoy	expensive	oriental	centre	52 Mill Road City Centre	C.B 1, 2 A.S	01223 311911
la margherita	cheap	italian	west	15 Magdalene Street City Centre	C.B 3, 0 A.F	01223 315232
la mimosa	expensive	mediterranean	centre	Thompsons Lane Fen Ditton	C.B 5, 8 A.Q	01223 362525
la raza	cheap	spanish	centre	4 - 6 Rose Crescent	C.B 2, 3 L.L	01223 464550
la tasca	moderate	spanish	centre	14 -16 Bridge Street	C.B 2, 1 U.F	01223 464630
lan hong house	moderate	chinese	centre	12 Norfolk Street City Centre	_EMPTY	01223 350420

(c) Attention heap map: Sure , la margherita is on 15 Magdalene Street City Centre.

Table 8: Dialogue visualization 2

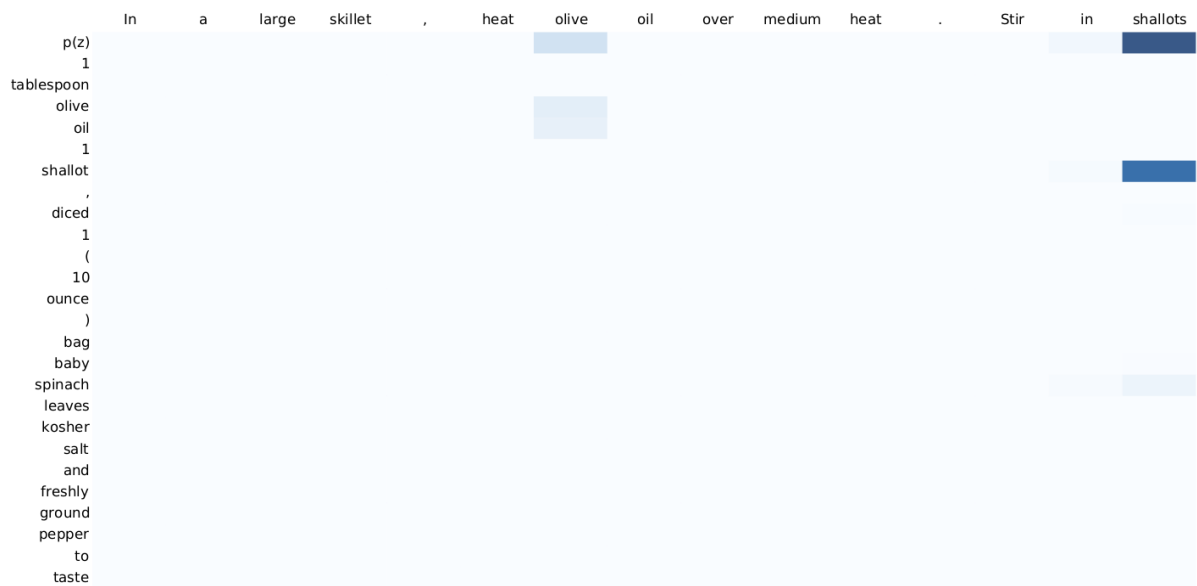


(a) part 1

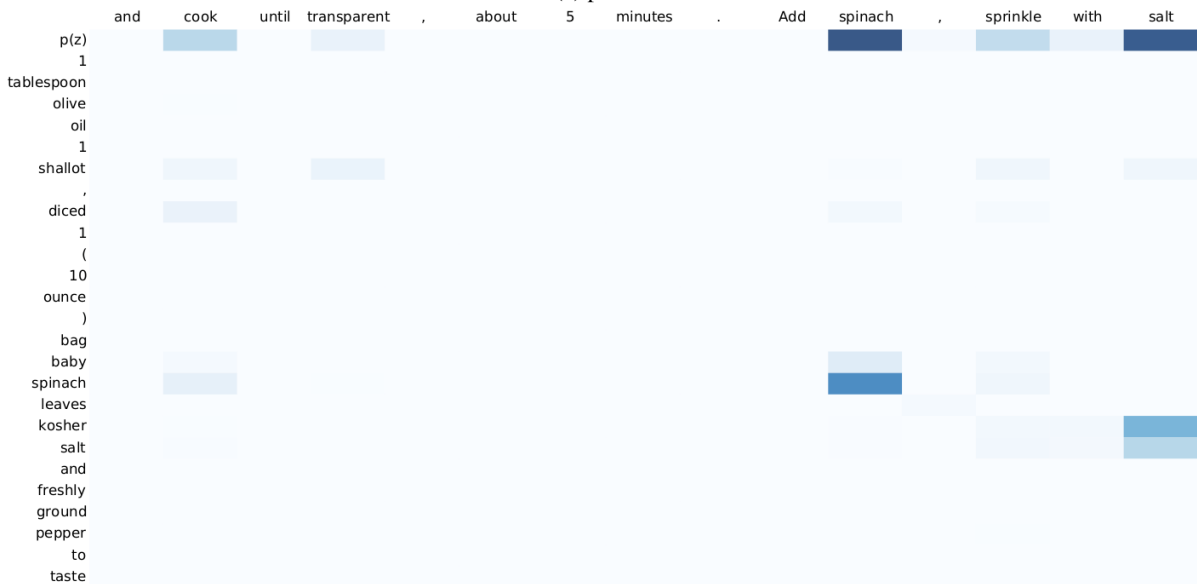


(b) part 2

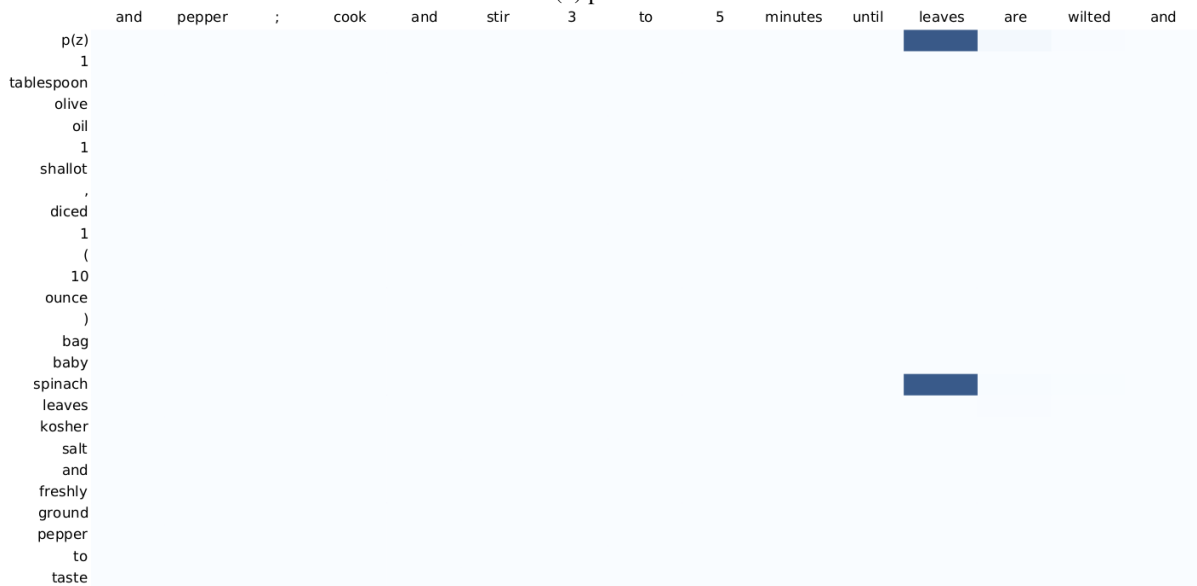
Figure 6: Recipe heat map example 1. The ingredient tokens appear on the left while the recipe tokens appear on the top. The first row is the $p(z_v|s_v)$.



(a) part 1



(b) part 2



(c) part 3

Figure 7: Recipe heat map example 2.