

# A User Study on Clarifying Comparative Questions

## Motivation:

- Correct information need interpretation is difficult for ambiguous queries.
- Clarification is one of the solutions in conversational search interfaces.

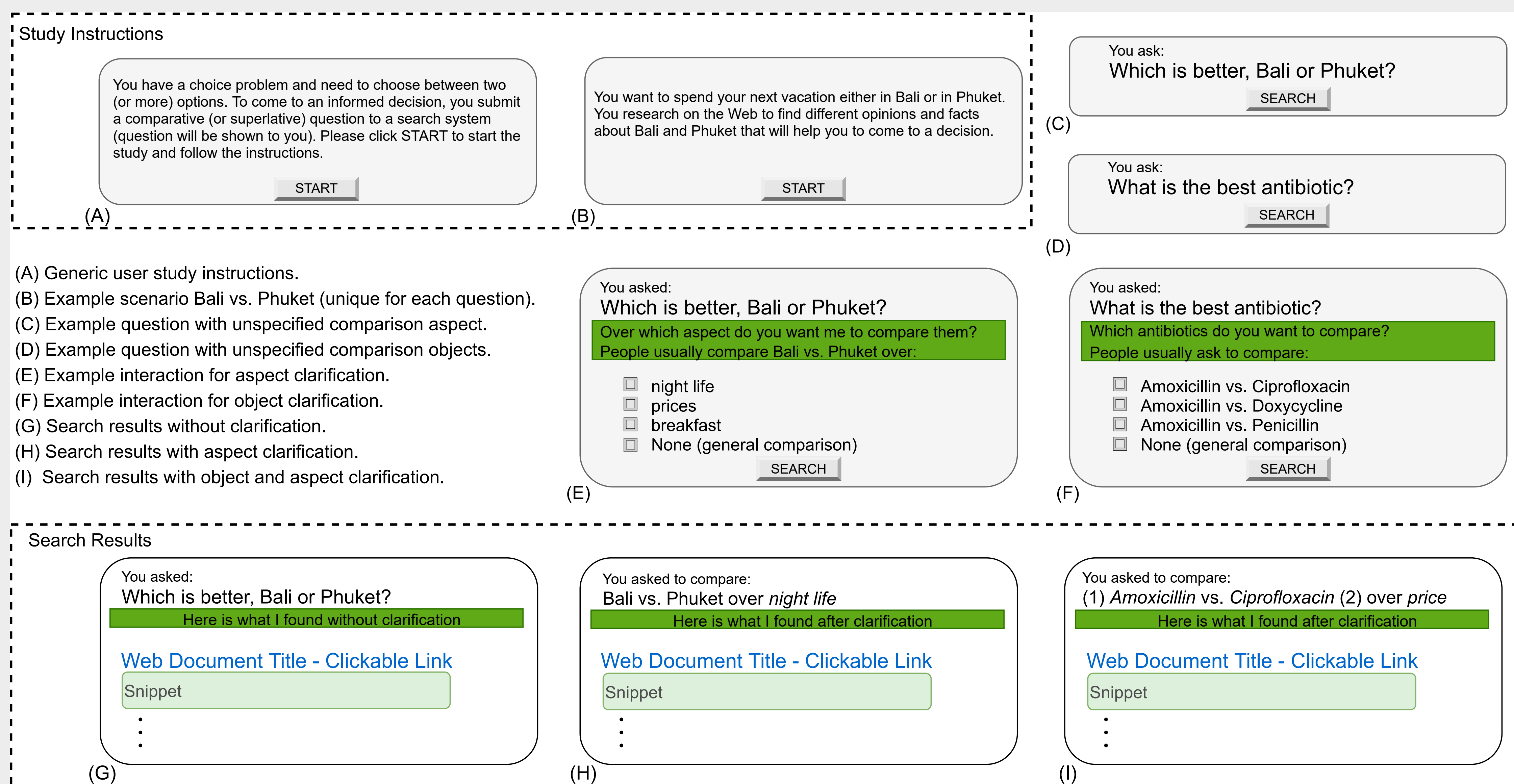
## Contribution:

- A user study on clarifying comparative questions.
- Questions with unclear comparison aspects:  
“Which is better, Bali or Phuket?”
- Questions without explicit comparison objects and aspects:  
“What is the best antibiotic?”

U (Turn 1): Which is better, Bali or Phuket?  
 S (Turn 2): Over which aspect do you want me to compare them?  
 People usually compare Bali vs. Phuket over:  
 (1) night life, (2) prices, (3) breakfast.  
 Or do you want (4) a general comparison?  
 U (Turn 3): Night life.  
 S (Turn 4): Both, Bali and Phuket offer a vibrant nightlife.  
 Bali has more of a sophisticated spirit with many beach side and rooftop clubs, while Phuket has more go-go bars and casual nightclubs.

Conceptual design of a search system (S) that interacts with a user (U) by suggesting clarification options that was used in the study.

## User Study Interface Design



## Clarifying Comparison Aspects

Search result quality		Aspect clarification		Overall	
I found an answer:	(%)	Clarification helpful:	(%)	Pleasant to use:	(%)
Yes	76	Yes	41	Yes	15
More or less	23	More or less	28	More or less	85
No	1	No	21	No	0
Don't know	0	Don't know	0	Don't know	0
	$\alpha=0.42$	Clarification not used	10		$\alpha=0.32$

- “Did you find a satisfactory answer to your question?”
- “Was clarification useful / helpful in finding the answer?”
- “Was the system overall pleasant to use?”

- 15 predefined comparative questions, 7 participants.
- 76% of the participants stated they were able to find satisfactory answers.
- 23% found only partial answers: they would want more information.
- 90% of the initial vague questions were refined with suggested comparison aspects.
- Majority found clarification helpful to obtain good results.
- All enjoyed the system, however, only 15% were entirely satisfied.

## Clarifying Comparison Objects and Aspects

Search result quality		Object clarification		Aspect clarification		Overall	
I found an answer:	(%)	Clarification helpful:	(%)	Clarification helpful:	(%)	Pleasant to use:	(%)
Yes	43	Yes	37	Yes	34	Yes	14
More or less	41	More or less	33	More or less	20	More or less	72
No	3	No	1	No	6	No	14
Don't know	13	Don't know	0	Don't know	0	Don't know	0
	$\alpha=0.49$	Clarification not used	29	Clarification not used	40		$\alpha=0.27$

- 10 predefined comparative questions, 7 participants.
- 71% decided to use suggested object clarification options.
- 60% used both, an object and an aspect clarification.
- 86% of the participants enjoyed the system.
- 84% stated they had found a satisfactory answer.

## Conclusions

- A user study on clarifications in the scenario of vague comparative searches.
- In at least 70% of the cases, the participants decided to use clarifications to refine the initial search results.
- The majority enjoyed the experience with the system's clarification component and found clarifications helpful for finding satisfactory answers.

## Future Work:

- Develop the actual approaches that generate clarifying suggestions for comparison aspects and objects.
- Larger user study.