

ACT Always Correct Translation for Face-to-Face Communication

Feiyu Xu

DFKI and Yocoy Technologies

Joint Work with Hans Uszkoreit and Sven Schmeier

The Problem of Understanding is Everywhere

- For travellers and expats in foreign countries

How can I tell a Chinese waiter that I am vegetarian?

- For multicultural and multilingual society or communities

How can a German doctor in Berlin Charité Hospital understand what a Turkish patient is suffering from?

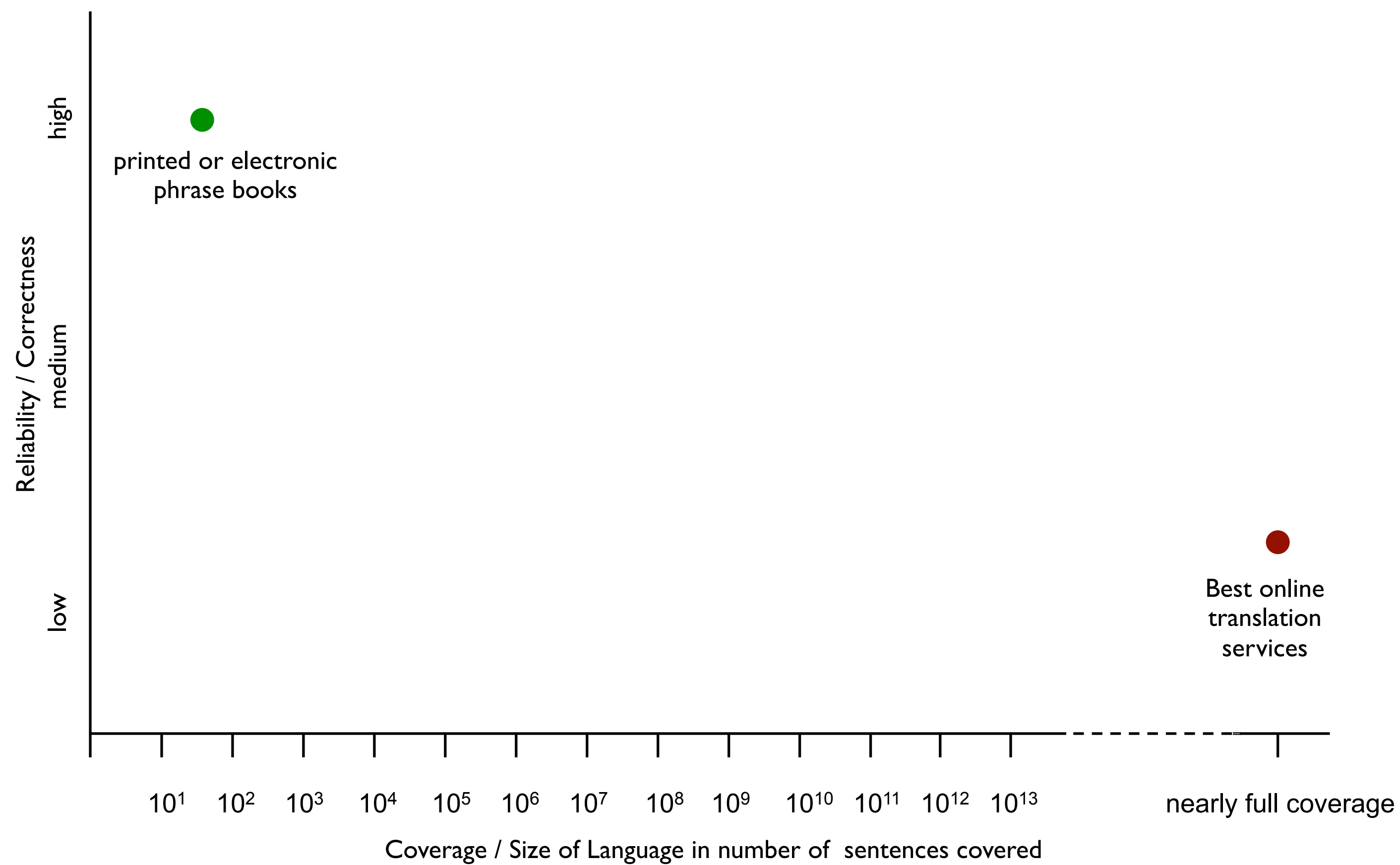


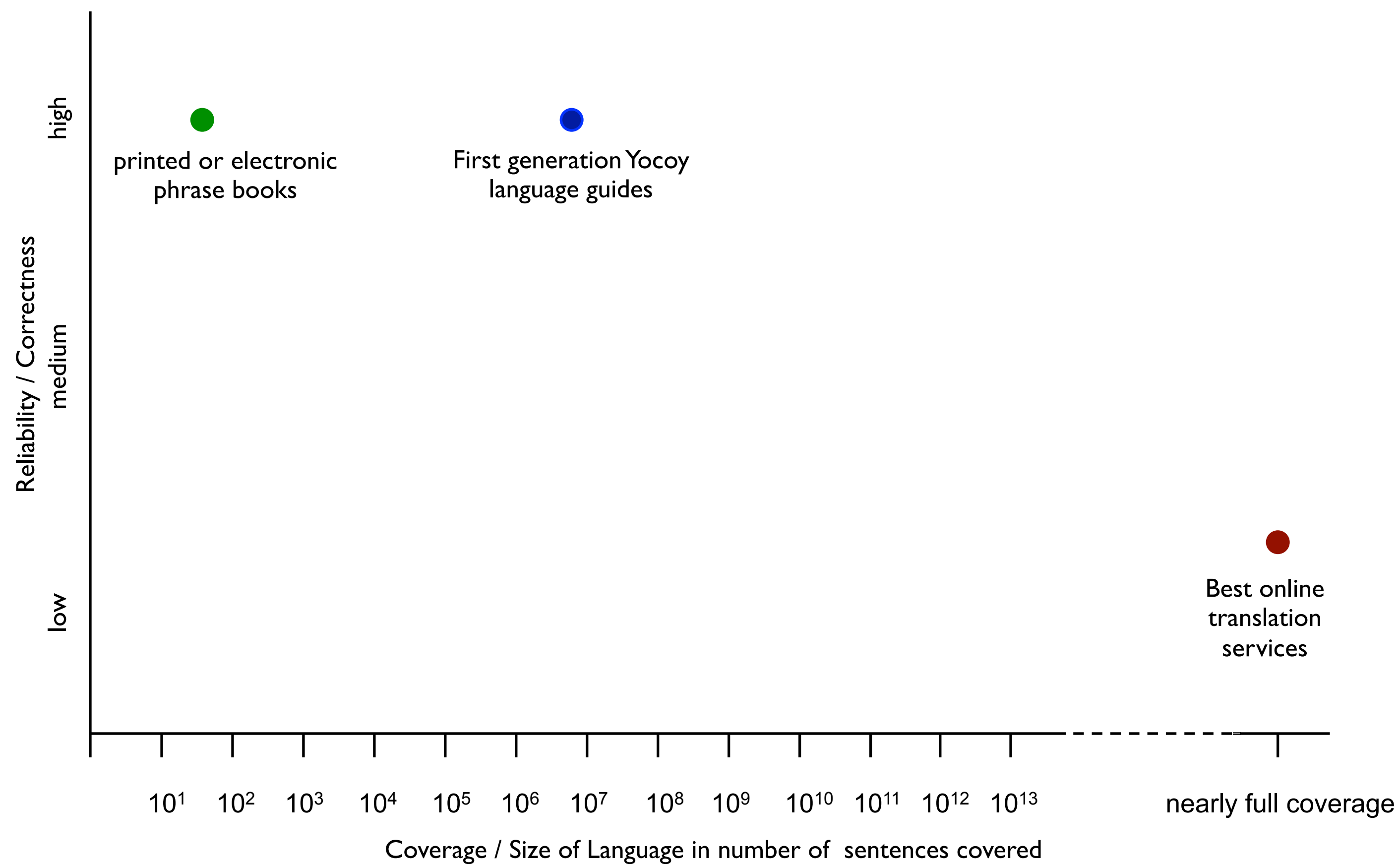
Causes for the Understanding Problem

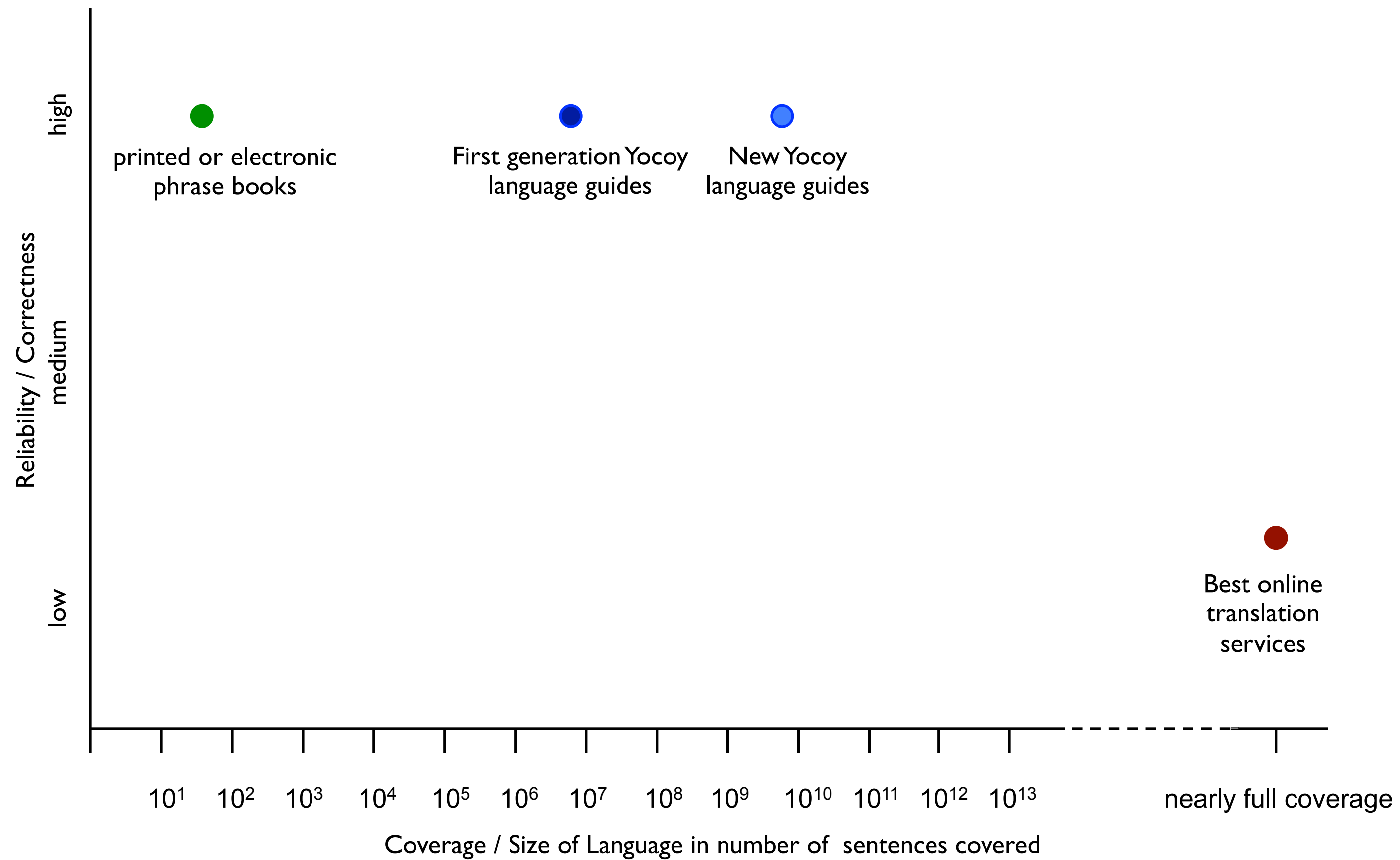
- Missing language knowledge
- Missing knowledge about situation, culture, domain and context

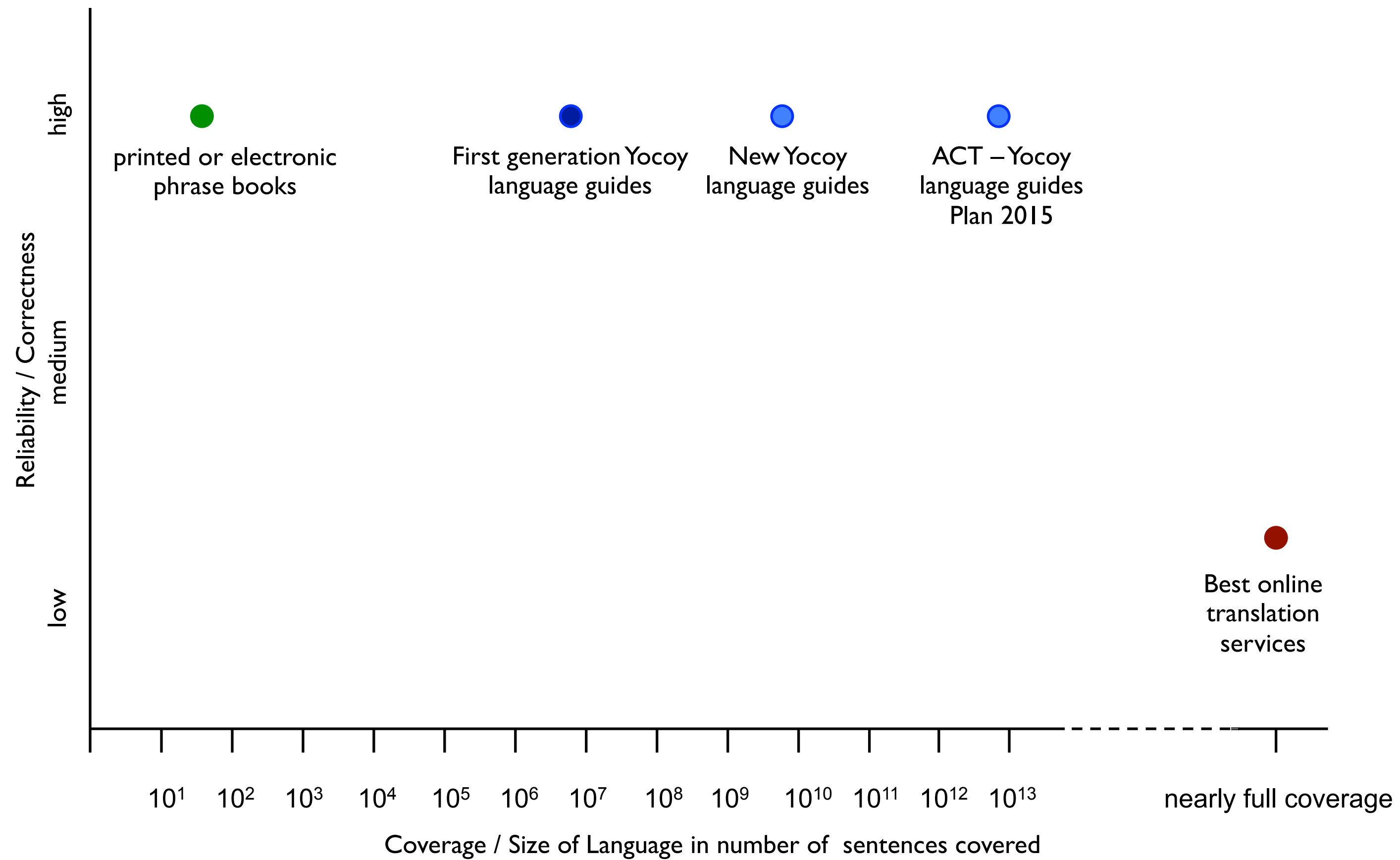
Requirements for Technological Solutions

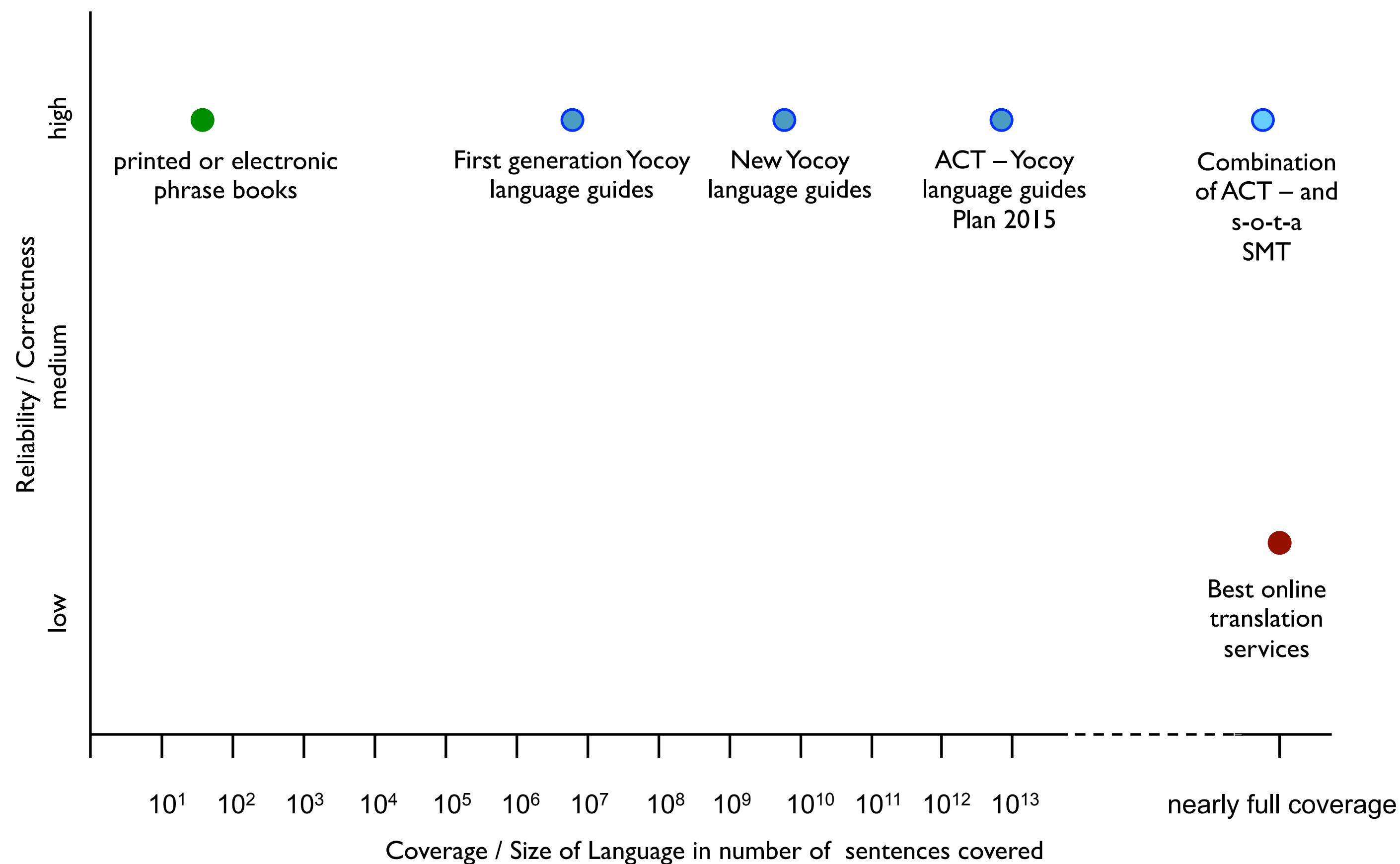
- Truly reliable translation (semantic adequacy)
- Well-formed in grammar and style (fluency)
- Adequate for situation, culture, domain and context (pragmatic, cultural and contextual adequacy)
- Support of two-way communication (interactivity and bi-directionality)
- Always available (mobile and stand-alone)
- Easy to use (usability)











Always Correct Transformation – Always Correct Translation

- Language Technology can transform:
 - English texts into German text (MT)
 - English speech into German speech (speech translation)
 - Spanish texts into Spanish speech (TTS)
 - Italian speech into Italian text (ASR)
 - Czech text into OWL/RDF (text understanding)
 - French speech into machine commands (voice control)
- All of these technologies work nearly error free for very small parts of the language.
- All of them make many mistakes when the language gets bigger.



Existing Yocoy Solutions for Face to Face Communication

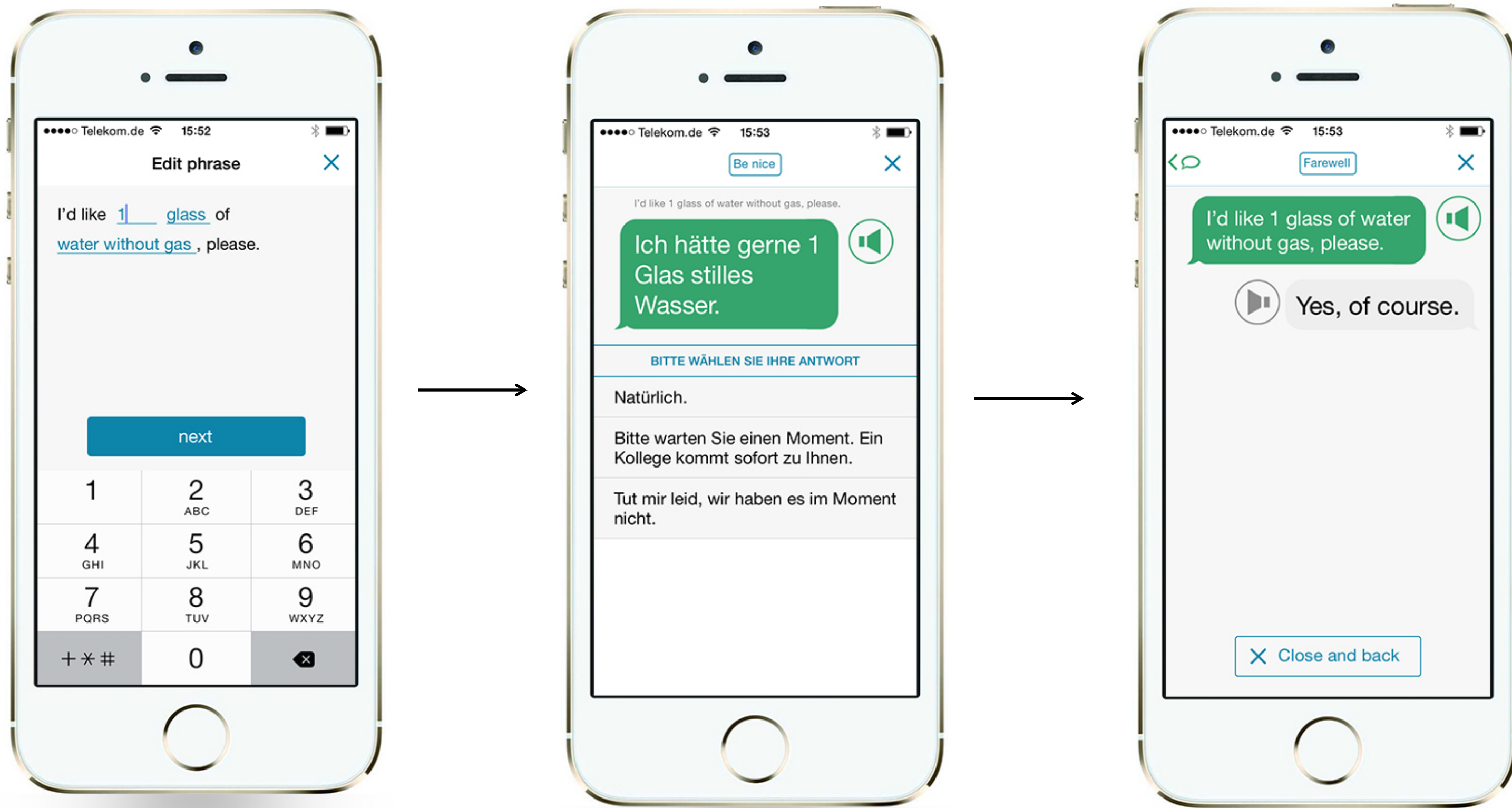
- Well-designed template-based translation
- Situation based dialogues
- Offline speech output
- Integration of communication and Information
 - Language guides
 - Travel guides
 - Culture guides
- Mobile apps for
 - iPhone, iPad
 - Android
- 5 languages, 20 directions:
 - Chinese, English, French, German, Spanish



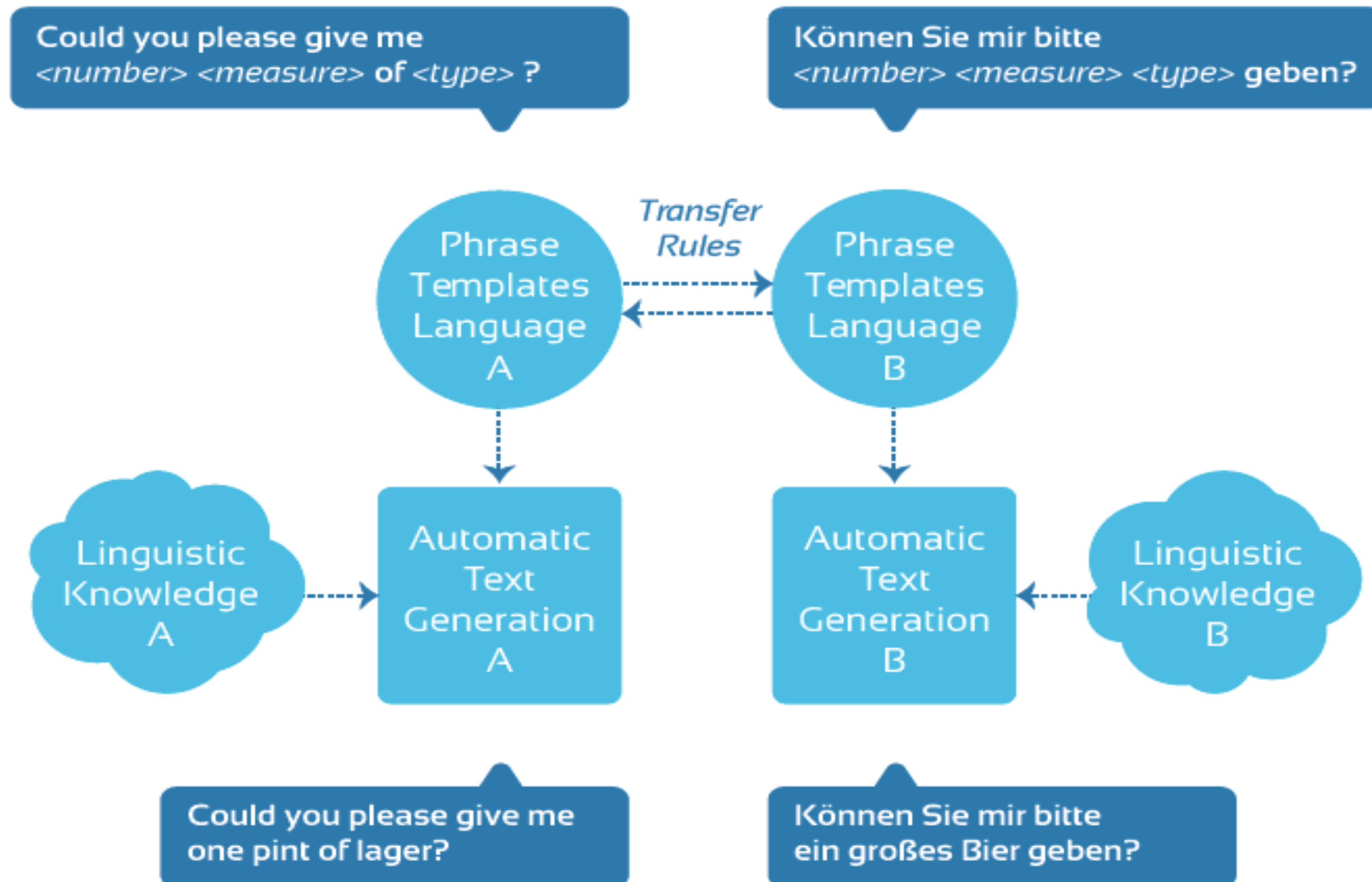
The Hotel is nearby.
我很想尝尝北京烤鸭 Wie ist ihr Name?
Thank you!
A table for four persons, please. 谢谢
Dankeschön.

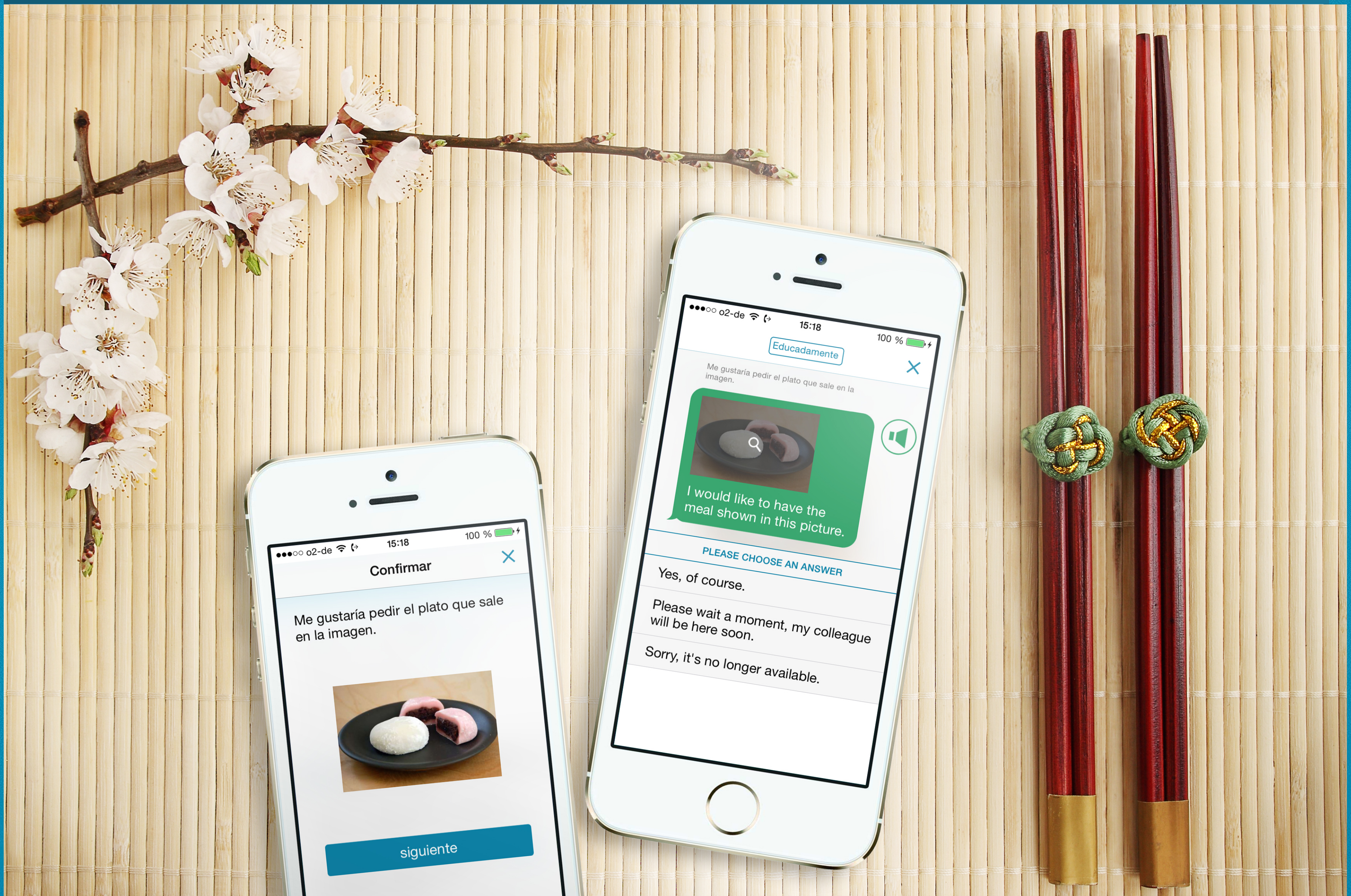


YOCOY
understanding everywhere



Yocoy Template-Based Translation





Hello.

What is your name?

My name is Peter Smith.

You are looking great.

Thank you.

Can I get you a drink?

Hola.

¿Cómo se llama?

Mi nombre es Peter Smith.

Estás muy guapo/a

Gracias.

¿Puedo traerte una bebida?

你好

你的名字叫什么？

我叫比特 史密斯

你看上去很棒

你想喝什么吗？

Minimally or Distant Supervised Learning Approach to Template-based Translation Rules

- Built on top of the research work of Domain Adaptive Relation Extraction (DARE: Xu et al (2007), Xu (2007), Krause et al (2012))
- Automatic Learning template-based transfer rules from unannotated free texts
- Start with examples of semantic relations as seed knowledge
- Learning language-specific template rules
- Advantage:
 - Collection of monolingual corpora
 - No annotation needed
 - Only minimal/existing domain knowledge needed

In the near future, we will have

- combination of template-based translation with sub-language driven machine translation
- situation-based speech input
- multilingual Web-services of
 - Yocoy language guides
 - Yocoy travel guides
 - Yocoy culture guides