Personalized Review Generation by Expanding Phrases and Attending on Aspect-Aware Representations

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Reviews in recommender system

★★★★★ **Great purchase. Works fast and has all the applications ...**

By Nick on July 19, 2017

Style: Tablet | **Verified Purchase**

So much more reliable so far than my laptop which was more expensive. Great purchase. Works fast and has all the applications I might need for general work, school and play.

33 people found this helpful

| Helpful | Not Helpful | ▸ Comment | Report abuse |

★★★★★ **Great unit!**

By Thinking Independently on April 12, 2018

Style: Tablet | **Verified Purchase**

This is a great tablet! Setup was super easy, I had it going in short order. I've been using it a lot with no issues. Battery life is great, lasts a few hours with constant use. I don't know how long the battery would last in standby mode because I haven't left it unused for more than a few hours.

The screen is nice and bright for reading. I've watched a number of videos, they look fine both visually, and audio. I don't know the frame rate and the other technical specs off the top of my head, but I am well pleased with the display and the audio performance.

I have run some apps from the App Store and it runs fine for those. I'm not a big app person, I primarily use it for email, web browsing, and to stream video and music and I've been very happy with it, and have had no issues. I've paired it with a small Bluetooth speaker and it worked fine with no issues also.

The Samsung Galaxy Tab E 16 GB WiFi works fine for me, it does everything I want it to do. I'm happy with my purchase and would buy it again.

5 people found this helpful

| Helpful | Not Helpful | ▸ Comment | Report abuse |

Help user write reviews in an easier way?

- Expand and rewrite phrases
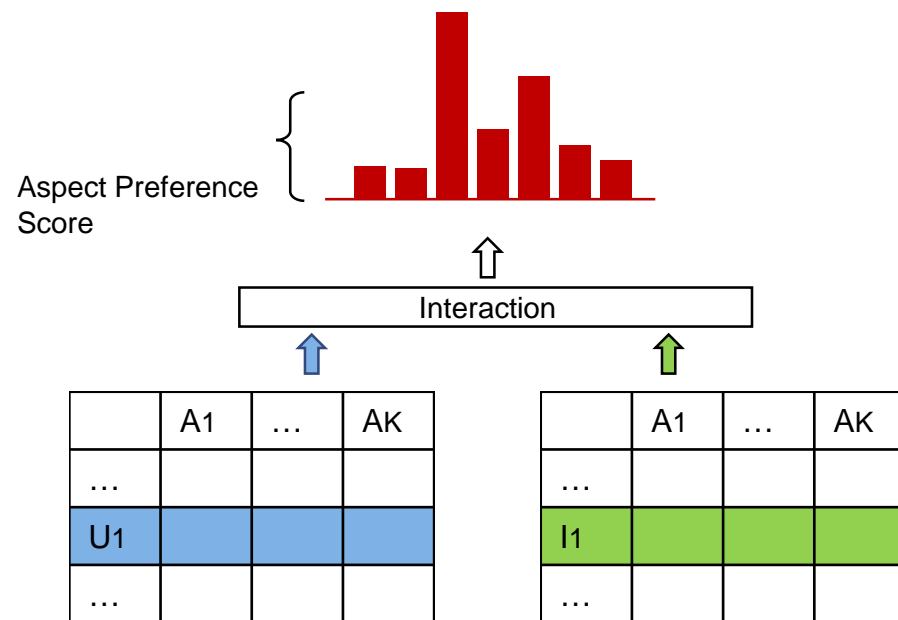- Estimate reactions and provide suggestions

Incorporate information & knowledge

- ## User and item attribute
  - Dong et al. EACL 2017. *Learning to Generate Product Reviews from Attributes.*
  - Tang et al. Arxiv 2016. *Context-aware Natural Language Generation with Recurrent Neural Networks.*
- ## Rich auxiliary information!
  - Short phrases (user input)
  - Product title
  - Aspect preference
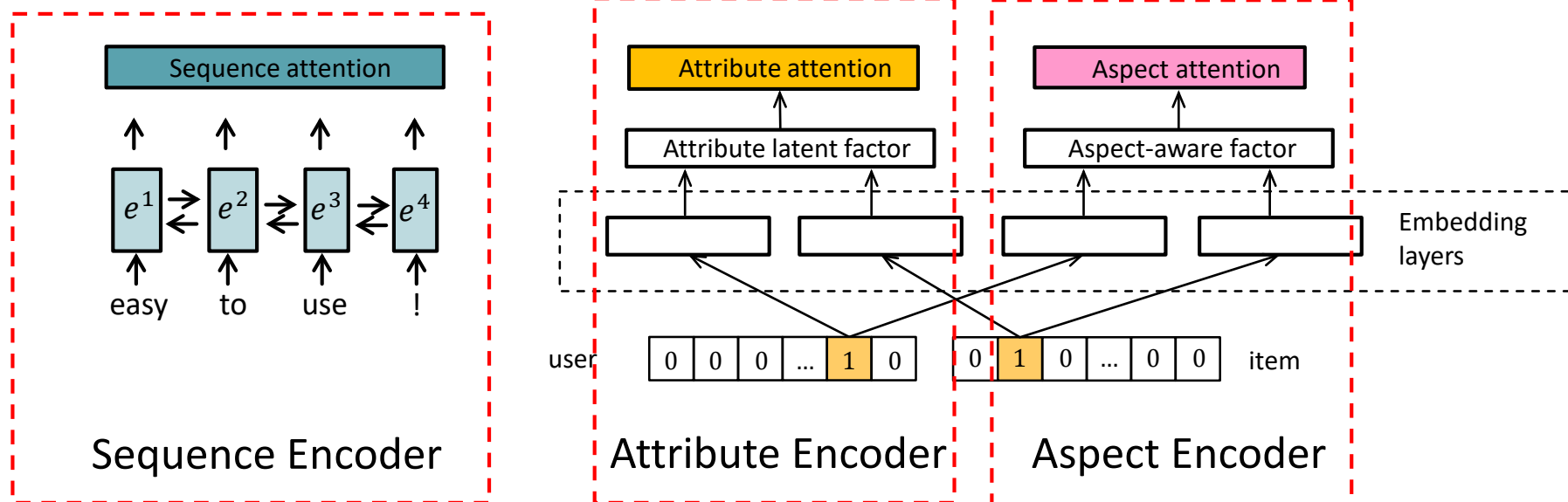
Incorporate information & knowledge

- ## Aspect preference
  - ### User-aspect preference
  - ### Item-aspect relation

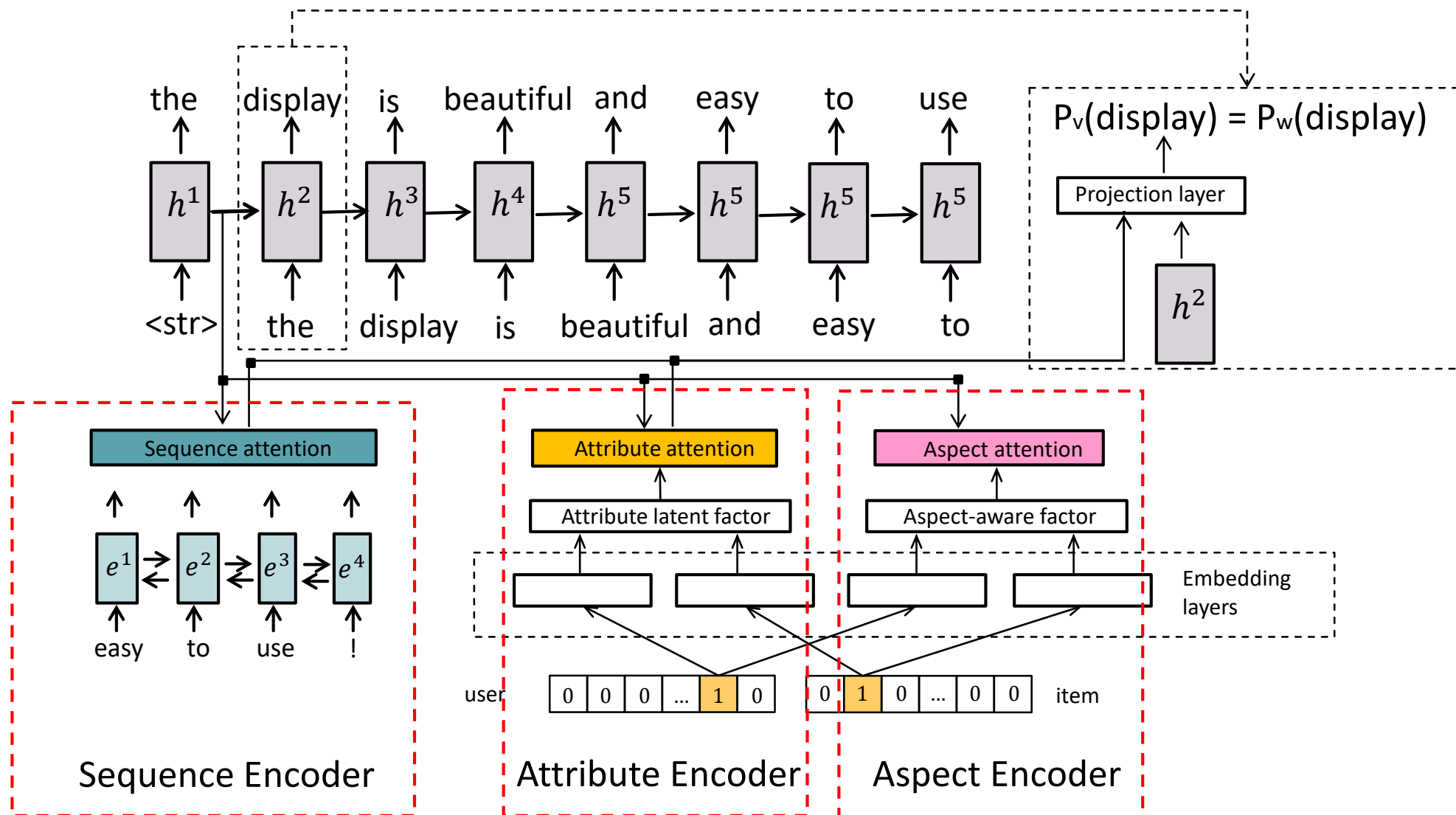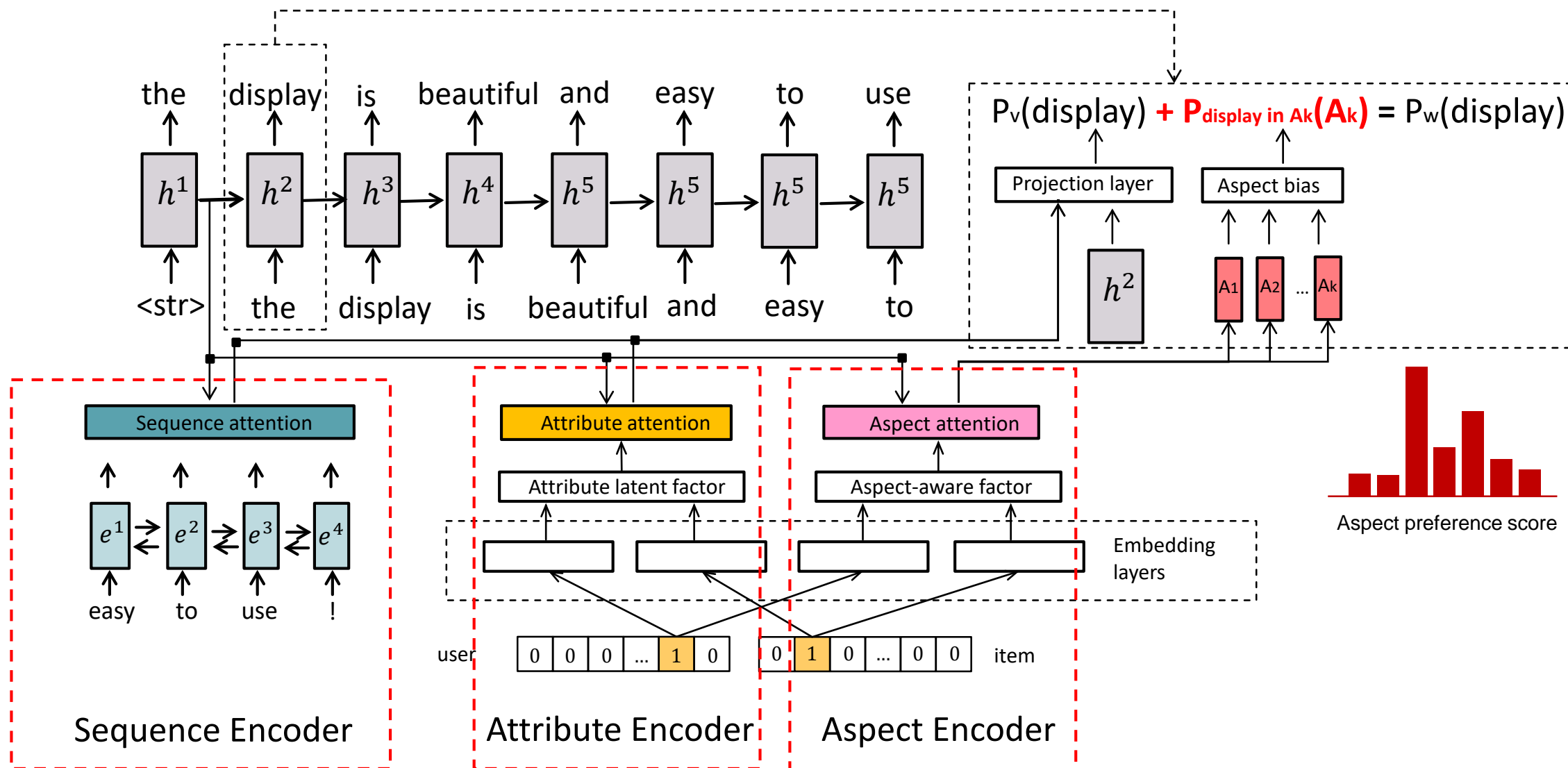| Aspects	Representative words
Service	vendor seller supplier reply refund
Price	price value overall dependable reliable
Screen	screen touchscreen browse display scrolling
Case	case cover briefcase portfolio padded
Drive	drive disk copying copied fat32

Table 1 Representative words of aspects

Proposed method

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Experiment setting

- Dataset: Amazon Electronics
  - Vocabulary of 30,000 tokens
  - 182,850 users, 59,043 items, and 992,172 reviews
  - Much sparser than previous work
- Training
  - Use teacher-forcing and masked cross-entropy loss
- Testing
  - Greedy decoding

Automatic evaluation metrics

Model	PPL	BLEU-1(%)	BLEU-4(%)	ROUGE-L	Distinct-1(%)	Distinct-2(%)
Rand	/	20.24	0.45	0.390	1.311	13.681
GRU-LM	35.35	30.79	1.20	/	/	/
Att2Seq	34.21	26.16	1.23	0.403	0.014	0.051
+aspect	34.26	26.87	1.51	0.397	0.018	0.069
ExpansionNet	34.18	26.05	2.21	0.404	0.096	0.789
+title	30.70	27.90	2.50	**0.415**	0.099	0.911
+attribute & aspect	**31.70**	**30.33**	**2.63**	0.408	**0.133**	**1.134**

Table 2 Comparison of different algorithms

Examples of generated review

User/Item Review Item	user A3G831BTCLWGVQ and item B007M50PTM
Summary	**easy to use** and **nice standard apps**
Title	samsung galaxy tab 2 (10.1-Inch, wi-fi) 2012 model
Real review	the display is beautiful and the tablet is very easy to use. it comes with some really nice standard apps .
Attr2Seq	i bought this for my wife 's new ipad air . it fits perfectly and looks great . the only thing i do n't like is that the cover is a little too small for the ipad air .
ExpansionNet	i love this tablet . it is fast and easy to use . i have no complaints . i would recommend this tablet to anyone .
+title	i love this tablet . it is fast and easy to use . i have a galaxy tab 2 and i love it .
+attribute & aspect	i love this tablet . it is easy to use and the screen is very responsive . i love the fact that it has a *micro sd slot* . i have not tried the *tablet app* yet but i do n't have any problems with it . i am very happy with this tablet ."

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Broader aspect coverage in generation

- # aspect plus one, if the review covers the representative words from that aspect
- Our model covers more real review's aspects

Model	# aspects (real)	# aspects (generated)	# aspects in generated review also covered in real review
Attr2Seq	2.875	**2.744**	**0.686**
ExpansionNet	2.875	1.804	0.807
+title	2.875	1.721	0.894
+attribute & aspect	2.875	**1.834**	**0.931**

Conclusion and future work

- ## Conclusion
  - Build ExpansionNet to incorporate short phrases, product title and aspect preference in review generation
  - Show aspect embedding and aspect extraction can be used in personalized text generation

- ## Future work
  - Combine text expansion task with text rewriting techniques
  - Generate longer text such as product recommendation articles

Thank you!

Code and data available:

https://github.com/nijianmo/textExpansion