论文写作的易读性原则

案例分析：基于Seq2Seq的对话数据增广

报告人：刘一佳

合作者：侯宇泰、车万翔、刘挺

http://yjliu.net/cv/res/2018-08-19-nlpcc-sws.compressed.pdf

学术报告中的一些设计技巧

报告人：刘一佳
导师：秦兵、车万翔

错误地利用
报告与论文结构的相似性

思考题

- 为什么做学术报告
  - 为了更好地交流

- 做怎样的学术报告
  - ☐ “向听众展示我对问题的深入理解”
  - ☐ “让听众明白我的论文中的技术”
  - ☐ “引起听众的兴趣”

思考题

- 为什么做学术报告
  - 为了更好地交流

- 做怎样的学术报告
  - ☐ “向听众展示我对问题的深入理解”
  - ☐ “让听众明白我的论文中的技术”
  - ☑ “引起听众的兴趣”

听众模型

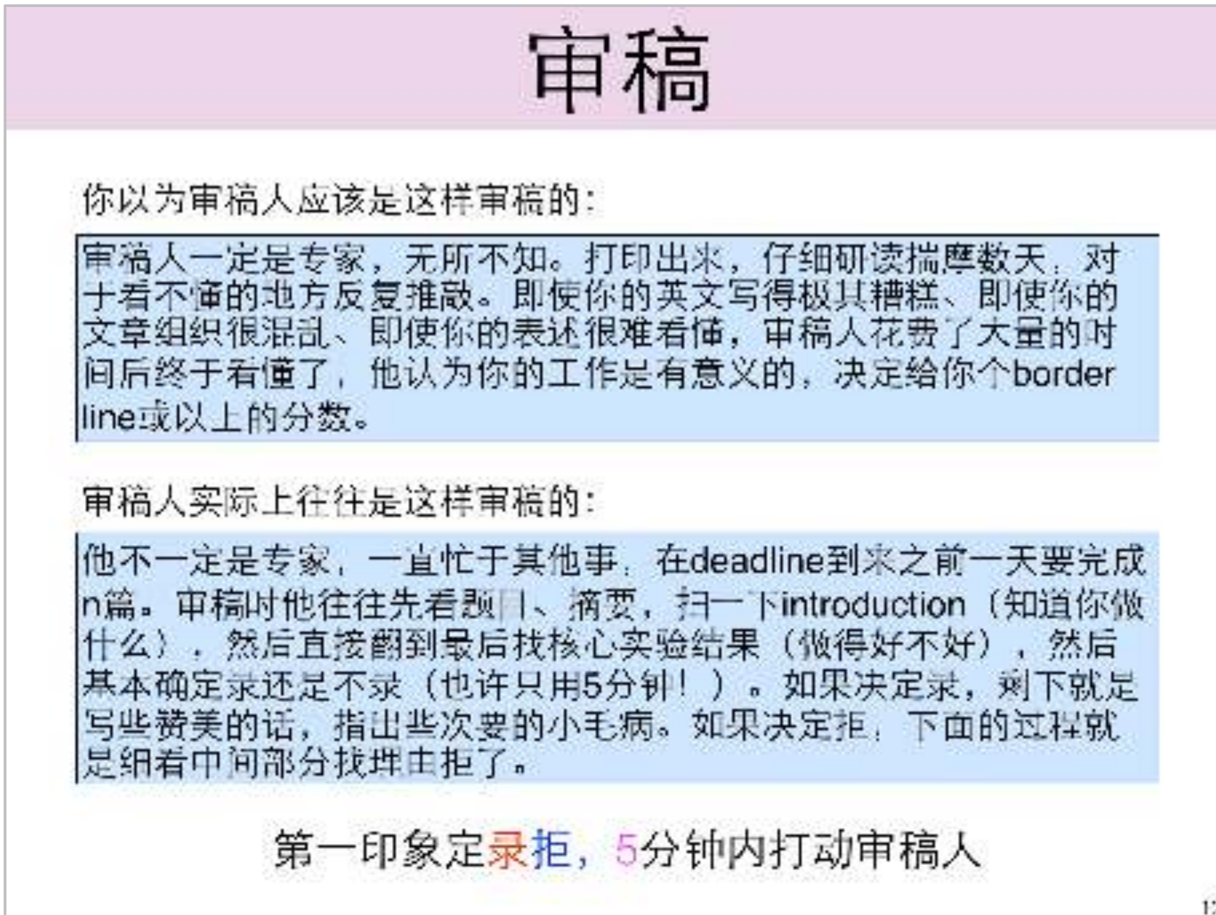
理想中的听众

- 领域专家
- 已经读过你的论文
- 对于你的工作非常感兴趣

现实中的听众

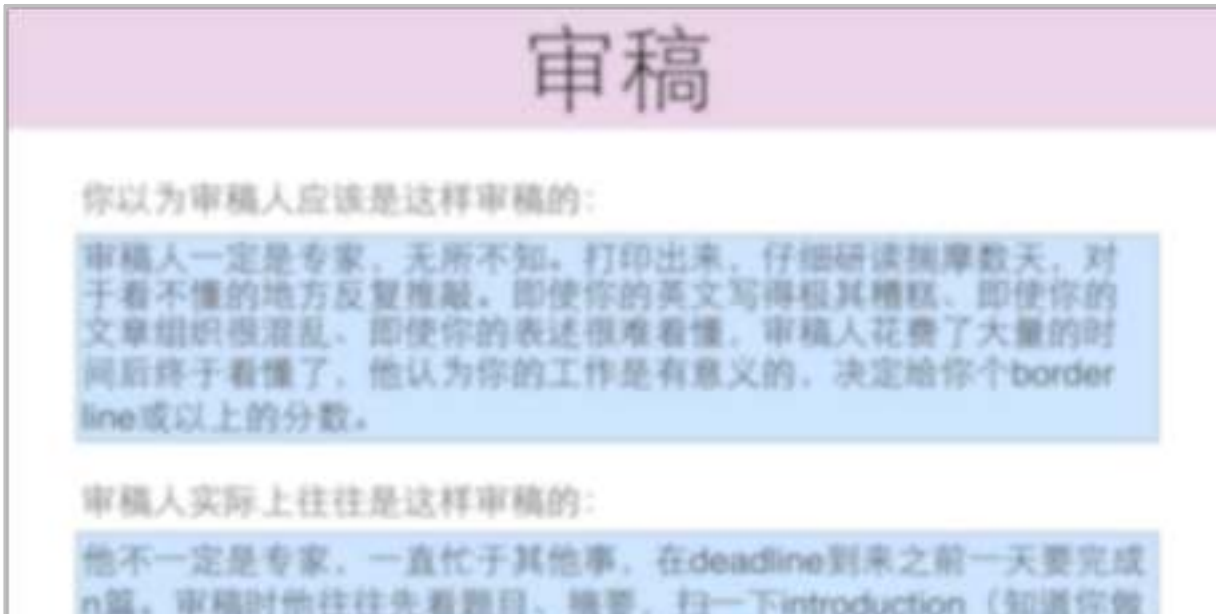
- 来自其他领域
- 刚刚了解到你的工作
- 这个时段没什么可听的，恰巧发现这屋子网络比较好

类比审稿人模型



刘洋. 2014. 机器翻译学术论文写作方法与技巧

类比审稿人模型



审稿

你以为审稿人应该是这样审稿的：

审稿人一定是专家，无所不知。打印出来，仔细研读揣摩数天，对于看不懂的地方反复推敲。即使你的英文写得极其糟糕，即使你的文章组织很混乱，即使你的表述很难看懂，审稿人花费了大量的时间后终于看懂了，他认为你的工作是有意义的，决定给你个border line或以上的分数。

审稿人实际上往往是这样审稿的：

他不一定是专家，一直忙于其他事，在deadline到来之前一天要完成n篇。审稿时他往往先看题目、摘要，扫一下introduction（知道你做

"You have **two minutes** to engage your audience before they start to doze." -- Simon Peyton Jones in *How to give a great research talk*

简介部分：展示最好的部分

(Zhang and Nivre 2011, Martins et al. 2013)

Our Work

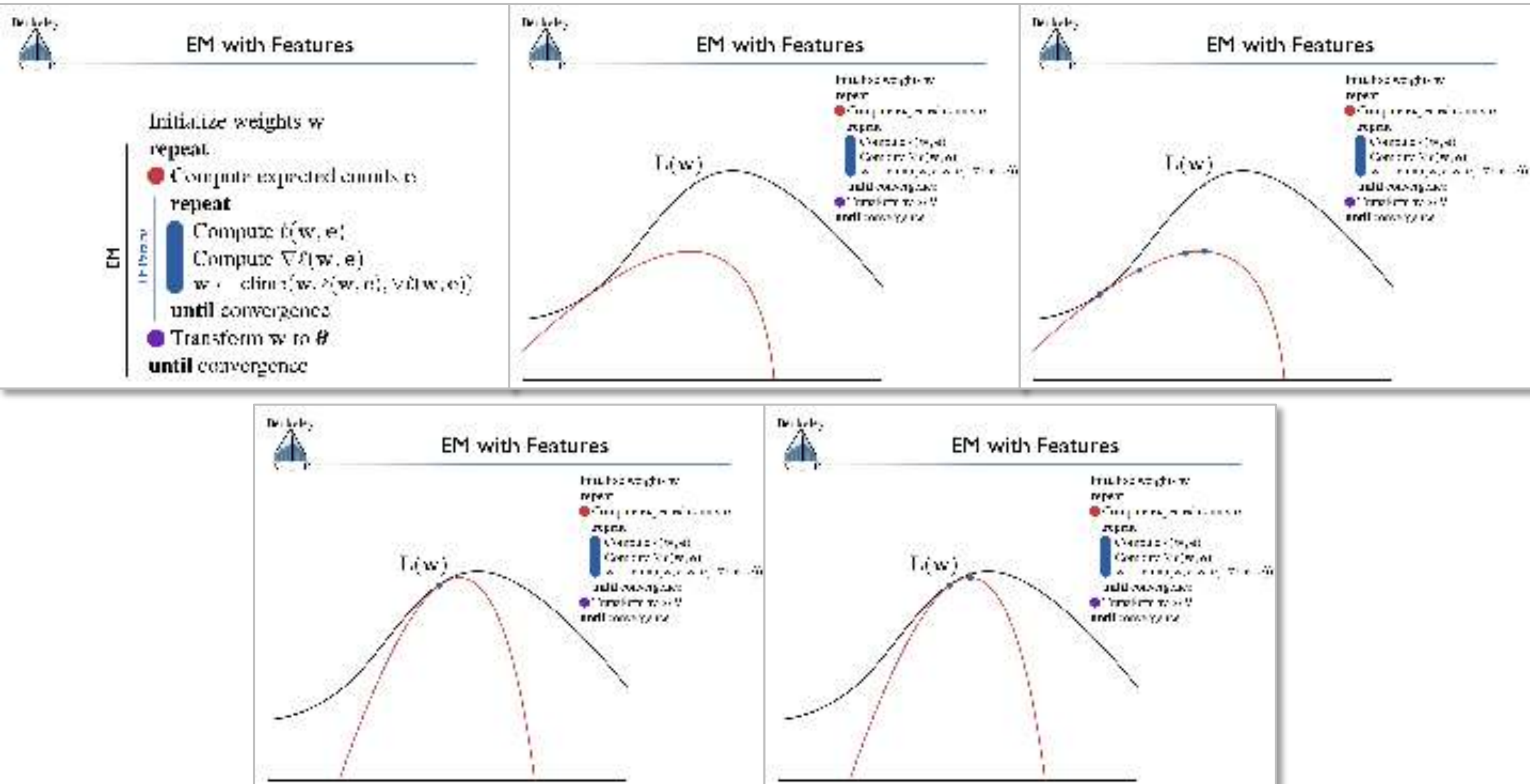
- A neural network based dependency parser!

Parsing on English Penn Treebank (§23):

		Unlabeled attachment score (UAS)	sent / s
Transition -based	MaltParser (greedy)	89.9	560
	Our Parser (greedy)	92.0 (+2.1)	1013 (×1.8)
	Zpar: beam = 64	92.9*	29*
Graph -based	MSTParser	92.0	12
	TurboParser	93.1*	31*

Danqi Chen and Christopher Manning. 2014. A Fast and Accurate Dependency Parser using Neural Networks，第三页

模型部分：多用例子



Taylor Berg-Kirkpatrick, Alexandre Bouchard-Côté, John DeNero, and Dan Klein. 2010. Painless Unsupervised Learning with Features，第28到54页

模型部分：反例

Transition	Current State	Resulting State	Description
DROP	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A]$	$[\sigma \vert s_0,\ \delta,\ \beta,\ A]$	pops out the word that doesn't convey any semantics (e.g., function words and punctuations).
MERGE	$[\sigma \vert s_0,\ \delta,\ b_0 \vert b_1 \vert \beta,\ A]$	$[\sigma \vert s_0,\ \delta,\ b_0\_b_1 \vert \beta,\ A]$	concatenates a sequence of words into a span, which can be derived as a named entity (`name`) or `date-entity`.
CONFIRM(c)	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A]$	$[\sigma \vert s_0,\ \delta,\ c \vert \beta,\ A]$	derives the first element of the buffer (a word or span) into a concept c.
ENTITY(c)	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A]$	$[\sigma \vert s_0,\ \delta,\ c \vert \beta,\ A \cup \text{relations}(c)]$	a special form of CONFIRM that derives the first element into an entity and builds the internal entity AMR fragment.
NEW(c)	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A]$	$[\sigma \vert s_0,\ \delta,\ c \vert b_0 \vert \beta,\ A]$	generates a new concept c and pushes it to the front of the buffer.
LEFT(r)	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A]$	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A \cup \{s_0 \xleftarrow{r} b_0\}]$	links a relation r between the top concepts on the stack and the buffer.
RIGHT(r)	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A]$	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A \cup \{s_0 \xrightarrow{r} b_0\}]$	
CACHE	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A]$	$[\sigma,\ s_0 \vert \delta,\ b_0 \vert \beta,\ A]$	passes the top concept of the stack onto the deque.
SHIFT	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A]$	$[\sigma \vert s_0 \vert \delta \vert b_0,\ [\,],\ \beta,\ A]$	shifts the first concept of the buffer onto the stack along with those on the deque.
REDUCE	$[\sigma \vert s_0,\ \delta,\ b_0 \vert \beta,\ A]$	$[\sigma,\ \delta,\ b_0 \vert \beta,\ A]$	pops the top concept of the stack.

实验部分：图比表格好

LDC2014T12 Experiments

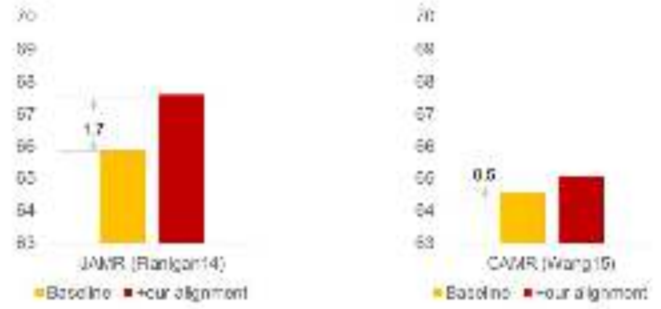
- alignment F-score

Aligner	Alignment F1 (on hand-align)	Oracle's Smatch (on dev. dataset)
JAMR	90.6	91.7
Our	95.2	94.7

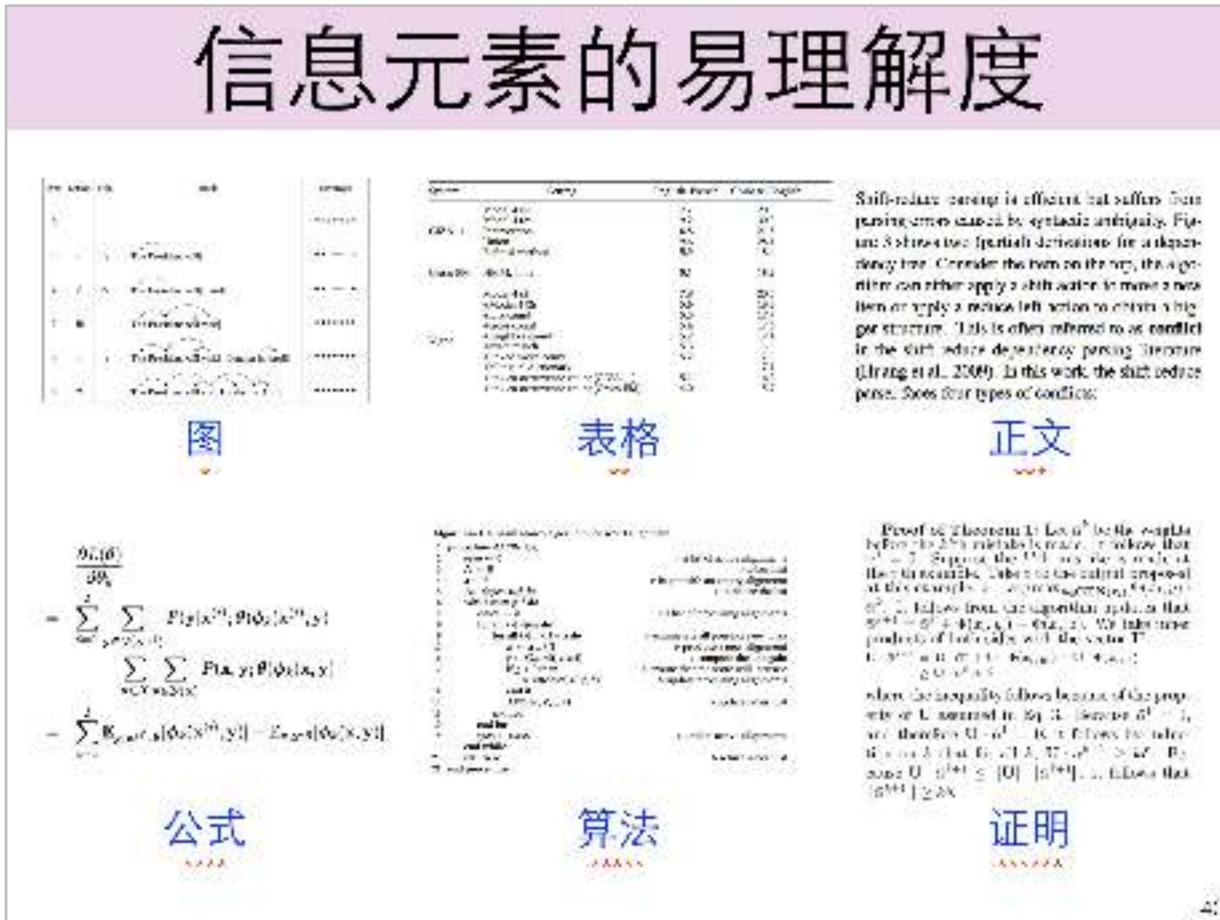
- parser improvements

model	newswire	all
JAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	71.3	65.9
+ Our aligner	73.1	67.6
CAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	68.4	64.6
+ Our aligner	68.8	65.1

Aligner Experiments: Two Open-sourced AMR Parsers



实验部分：图比表格好

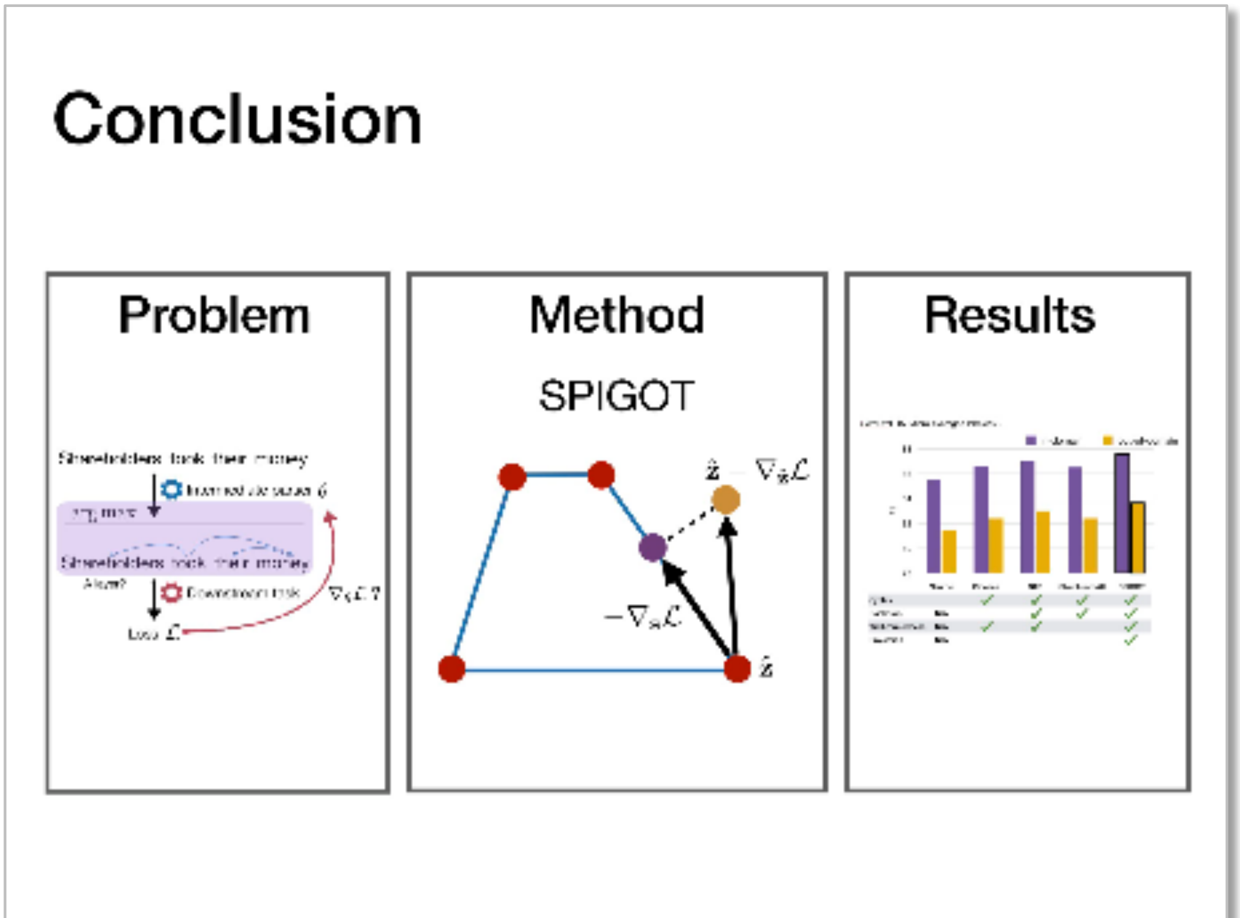


刘洋. 2014. 机器翻译学术论文写作方法与技巧

实验部分：图比表格好

用图与例子来描述方法和实验

结论部分：新的展现形式

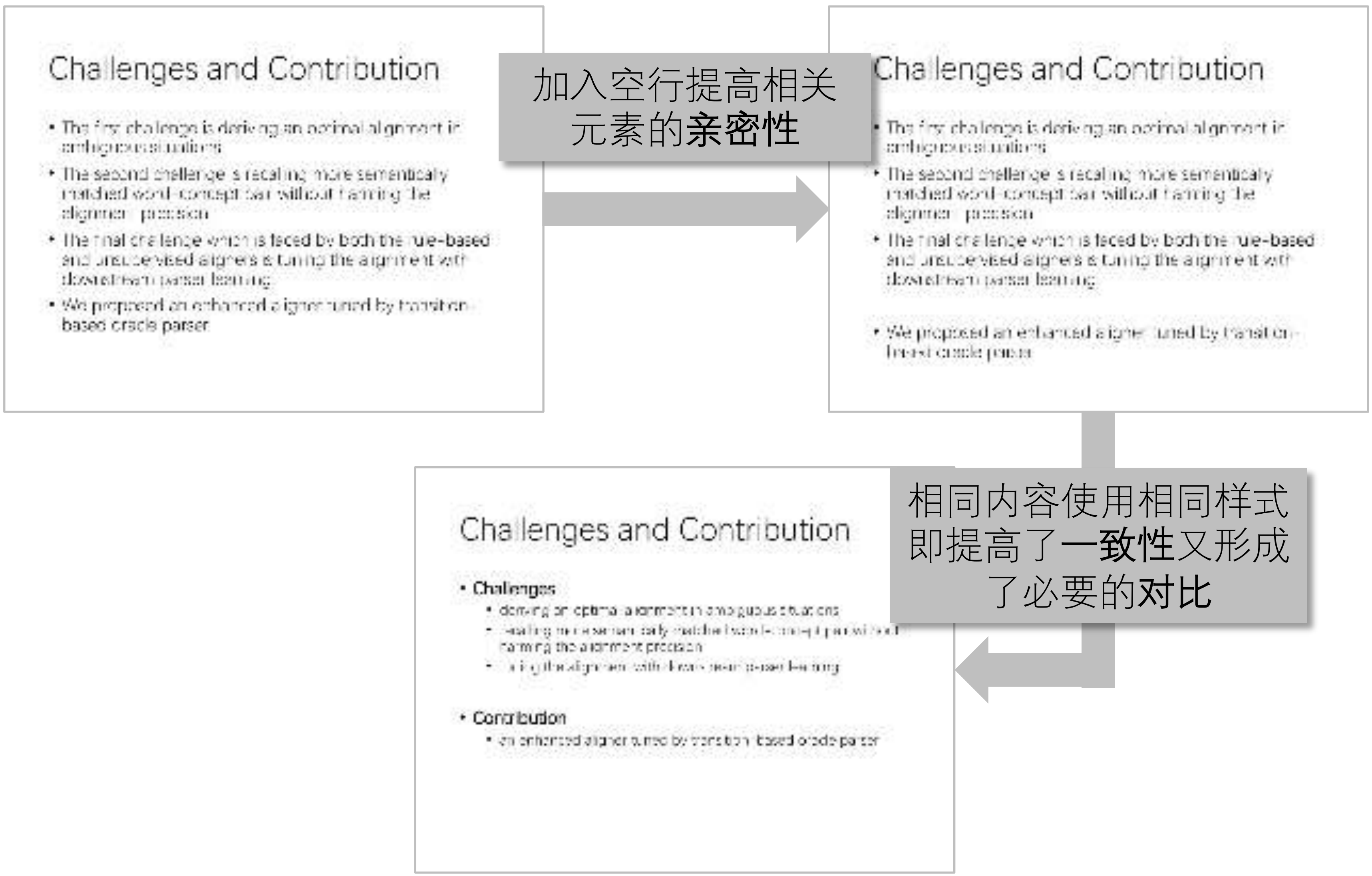


Hao Peng, Sam Thomson, and Noah A. Smith. 2018. Backpropagating through Structured Argmax using a SPIGOT，最后一页

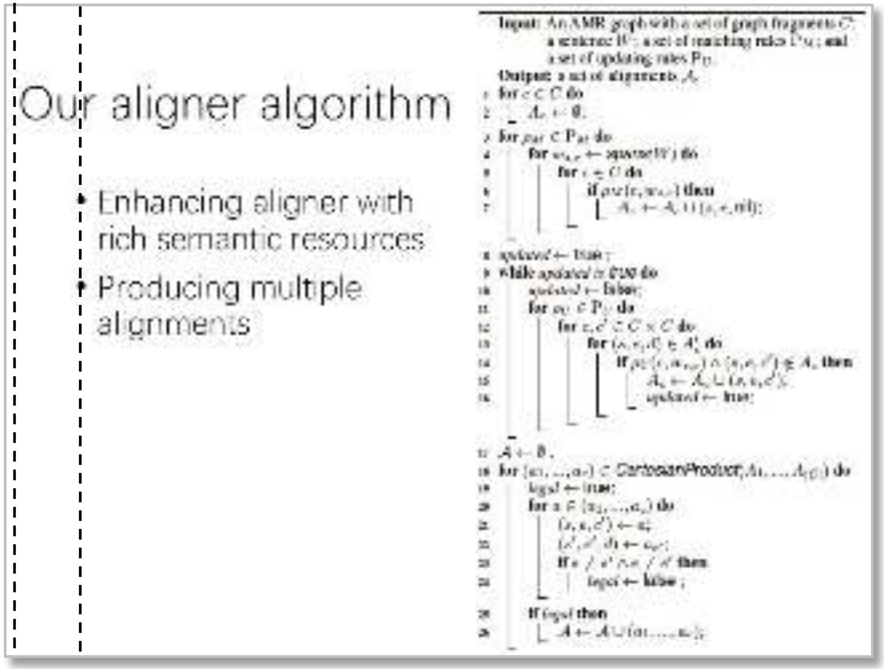
设计原则

- 亲密性：相关的元素应该组织到一起
- 重复：相同的内容达到形式的统一
- 对比：如果两项不完全相同，就应使之截然不同
- 对齐：使元素之间产生关联，有关联的都应对齐

根据设计原则做幻灯片


Challenges and Contribution
加入空行提高相关元素的**亲密性**
Challenges and Contribution
相同内容使用相同样式即提高了**一致性**又形成了必要的**对比**
Challenges and Contribution
Challenges
Contribution

避免不对齐


Our aligner algorithm
Enhancing aligner with rich semantic resources
Producing multiple alignments

“乱” 的原因：视线跳动过多

Experiments

- We conduct experiments on LDC2014T12
- We evaluate the alignment F-score and Smatch of resulted parsers

Aligner	Alignment F1 (on hand-align)	Oracle's Smatch (on dev. dataset)
JAMR	90.6	91.7
Our	95.2	94.7

model	newswire	all
JAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	71.3	65.9
+ Our aligner	73.1	67.6
CAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	68.4	64.6
+ Our aligner	68.8	65.1

model	newswire	all
Our single parser: Word only		
+ JAMR aligner	68.6	63.9
+ Our aligner	69.3	64.7
Our single parser: Word, POS		
+ JAMR aligner	68.8	64.6
+ Our aligner	69.8	65.2
Our ensemble: Word only + Our aligner		
x3	71.9	67.4
x10	72.5	68.1
Our ensemble: Word, POS + Our aligner		
x3	72.5	67.7
x10	73.3	**68.4**

“乱” 的原因：视线跳动过多

Experiments

- We conduct experiments on LDC2014T12
- We evaluate the alignment F-score and Smatch of resulted parsers

Aligner	Alignment F1 (on hand-align)	Oracle's Smatch (on dev. dataset)
JAMR	90.6	91.7
Our	95.2	94.7

model	newswire	all
JAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	71.3	65.9
+ Our aligner	73.1	67.6
CAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	68.4	64.6
+ Our aligner	68.8	65.1

model	newswire	all
Our single parser: Word only		
+ JAMR aligner	68.6	63.9
+ Our aligner	69.3	64.7
Our single parser: Word, POS		
+ JAMR aligner	68.8	64.6
+ Our aligner	69.8	65.2
Our ensemble: Word only + Our aligner		
x3	71.9	67.4
x10	72.5	68.1
Our ensemble: Word, POS + Our aligner		
x3	72.5	67.7
x10	73.3	**68.4**

“乱” 的解法：重新组织内容

Experiments

- We conduct experiments on LDC2014T12
- We evaluate the alignment F-score and Smatch of resulted parsers

Aligner	Alignment F1 (on hand-align)	Oracle's Smatch (on dev. dataset)
JAMR	90.6	91.7
Our	95.2	94.7

model	newswire	all
JAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	71.3	65.9
+ Our aligner	73.1	67.6
CAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	68.4	64.6
+ Our aligner	68.8	65.1

model	newswire	all
Our single parser: Word only		
+ JAMR aligner	68.6	63.9
+ Our aligner	69.3	64.7
Our single parser: Word, POS		
+ JAMR aligner	68.8	64.6
+ Our aligner	69.8	65.2
Our ensemble: Word only + Our aligner		
x3	71.9	67.4
x10	72.5	68.1
Our ensemble: Word, POS + Our aligner		
x3	72.5	67.7
x10	73.3	68.4

LDC2014T12 Experiments

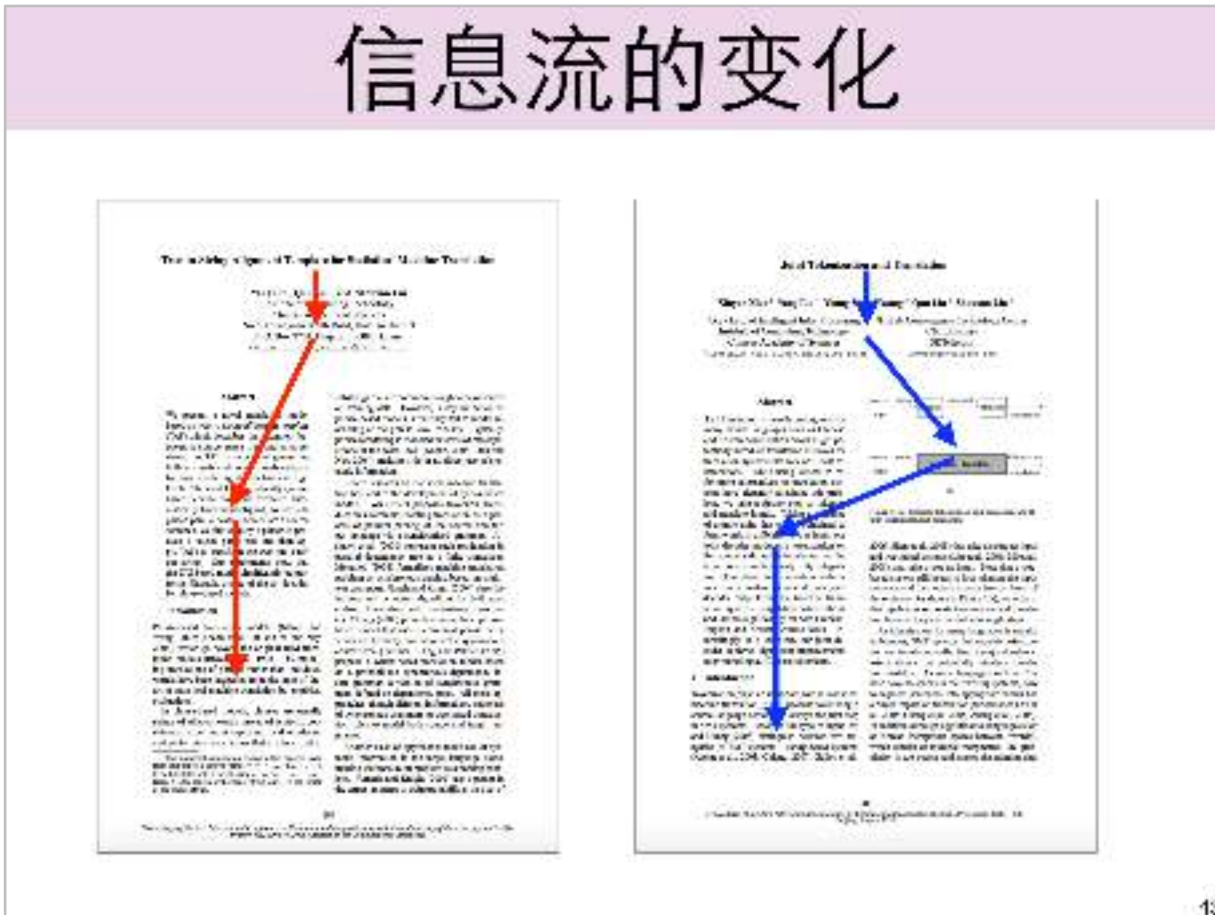
- alignment F-score

Aligner	Alignment F1 (on hand-align)	Oracle's Smatch (on dev. dataset)
JAMR	90.6	91.7
Our	95.2	94.7

- parser improvements

model	newswire	all
JAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	71.3	65.9
+ Our aligner	73.1	67.6
CAMR parser: Word, POS, NER, DEP		
+ JAMR aligner	68.4	64.6
+ Our aligner	68.8	65.1

视线跳动在论文写作中的作用

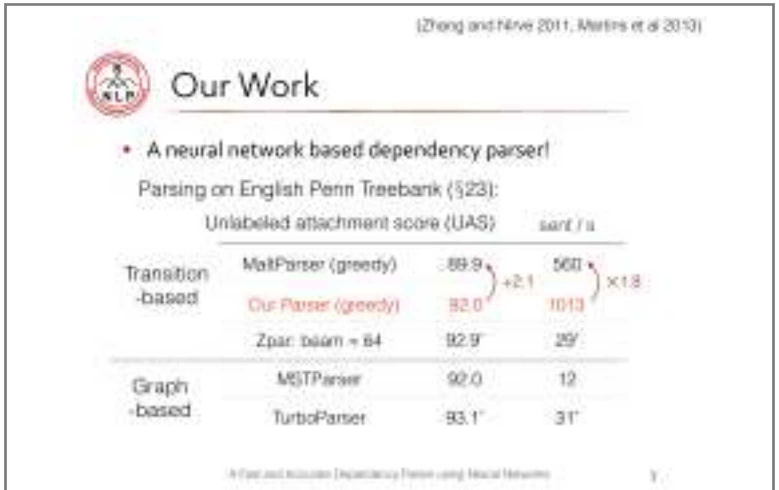


刘洋. 2014. 机器翻译学术论文写作方法与技巧

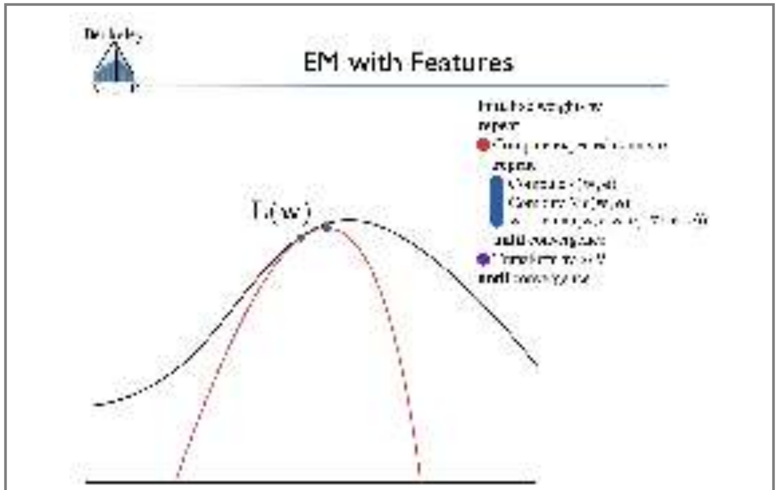
参考文献

- Simon Peyton Jones: How to give a great talk
- 写给大家看的设计书
- 机器翻译学术论文写作方法与技巧
- 知乎专栏：跟我学个P

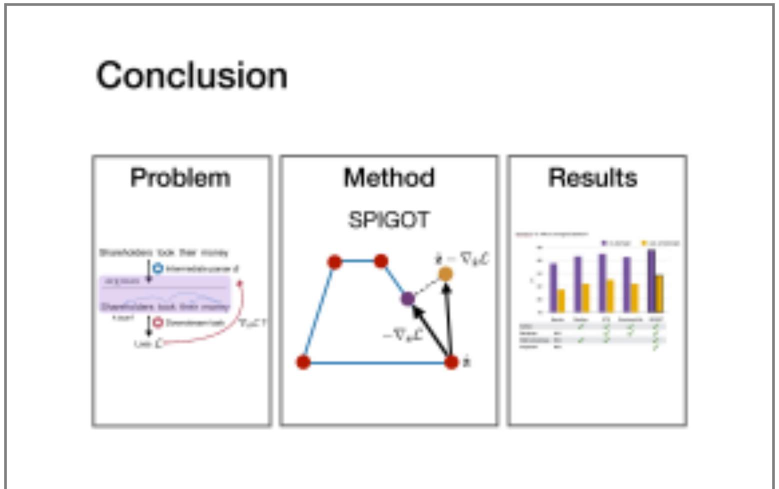
总结



为了抓住听众，把最好的部分前置



模型部分有取舍，用好图和例子



“结论” 也有新思路

四项设计的基本原则

祝大家产出优秀的学术工作