

Human-computer interaction in pun translation

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Introduction

- Wordplay is tricky to translate, and so is widely researched in translation studies
- Translation is now a highly technologized profession
- Little/no prior work on using computers for wordplay translation
- Most language technology, including machine translation (MT), is not geared towards literary texts
- Existing digital tools ignore or eliminate linguistic anomalies and ambiguities

- Punning is a particularly common form of wordplay
- Puns employ sophisticated semantic and pragmatic mechanisms
- Puns are often held to be “untranslatable”, particularly by MT
- Can language technology nonetheless play some role in pun translation?

- PunCAT is our tool for computer-mediated translation of puns
- Evaluation in user study with puns from published texts
- Research questions:
 - Does PunCAT support, improve, or constrain the translation process?
 - If so, in what ways?
 - What are the tool's benefits as perceived/described by the participants?

Background

- **Punning** is a rhetorical device where one word evokes the meaning of a similar-sounding word
 - The **pun** is the word that carries the double meaning
 - The **target** is the secondary word it evokes

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- The linguistic mechanisms of punning are well understood:
 - Phonology
 - Semantics/humour-theoretic
- Does this knowledge sufficiently equip us to translate puns, either manually or automatically?

What is translation? (I)

Translating may be defined as the process of transforming signs or representations into other signs or representations. If the originals have some significance, we generally require that their images also have the same significance, or, more realistically, as nearly the same significance as we can get. Keeping significance invariant is the central problem in translating between natural languages.



Anthony Oettinger (1929–)

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What is translation? (II)

When the question of the superiority of one translation over another is raised, the answer should be looked for in the answer to another question, “Best for whom?” The relative adequacy of different translations of the same text can only be determined in terms of the extent to which each translation successfully fulfils the purpose for which it was intended.



Eugene Nida (1914–2011)

- **Functional equivalence:** Aim for target-language solutions that prioritize the **intention** over the literal meaning of the text
- In the case of puns, this intention is to amuse the reader in the context of the discourse
- Implications: For puns, it's OK to...
 - ...substitute a different pun
 - ...substitute a different form of humour
 - ...omit the pun/humour altogether, as long as you compensate
- Translation strategies that preserve wordplay are preferable, but challenging to pull off

- Current MT can't yet produce publication-quality output for conventional language, let alone humour and wordplay

Machine(-in-the-loop) translation for literature

- Current MT can't yet produce publication-quality output for conventional language, let alone humour and wordplay
- AI can still play an important role in literary translation
- Rather than model the entire end-to-end translation task, put the machine in the loop:
 1. Study how human translators approach the problem
 2. Provide them with tools that support rather than replace these approaches
- Apply language technology to those subtasks it performs best
- Leave tasks that depend heavily on real-world knowledge to the human

The Translator's Amanuensis

Translation is a fine and exacting art, but there is much about it that is mechanical and routine and, if this were given over to a machine, the productivity of the translator would not only be magnified but his work would become more rewarding, more exciting, more human.



Martin Kay (1935–)

Computer-assisted translation (CAT)

- Computer-assisted translation: integrating information technology into traditional, manual translation workflows

default_en_US-de_DE - Wordfast Pro 3

ID	English (United States)	German (Germany)	Score
1	Number Replacement		N/A
2	There are 12 rooms	Es gibt 100 Zimmer	100
3	{ut1}This tests numbers with {ut2}placeables{ut3} has 7 words.		N/A

TM Lookup

There are 12 rooms

ID	Source	Target	Score	TM Name	User Name	Date/Time
1	There are 12 rooms	Es gibt 12 Zimmer	100	Replacables_TM.txt	replacer	3/11/14 11:30 AM
2	There are 12 rooms	Es gibt 82 Zimmer	100	Replacables_TM.txt	cjacques	3/11/14 11:06 AM
3	There are 12 rooms	Es gibt 15 Zimmer	99	Replacables_TM.txt	jsingaram	6/4/13 2:02 PM

TM[en_US-de_DE] SC: 18 TC: 18 25M of 36M

Computer-assisted translation (CAT)

- Computer-assisted translation: integrating information technology into traditional, manual translation workflows
- No CAT tools devoted specifically to creative language

The screenshot displays the Wordfast Pro 3 interface. The main window shows a translation memory search for the source text "There are 12 rooms". The results table is as follows:

ID	Source	Target	Score	TM Name	User Name	Date/Time
1	There are 12 rooms	Es gibt 12 Zimmer	100	Replacables_TM.txt	replacer	3/11/14 11:30 AM
2	There are 12 rooms	Es gibt 82 Zimmer	100	Replacables_TM.txt	cjacques	3/11/14 11:06 AM
3	There are 12 rooms	Es gibt 15 Zimmer	99	Replacables_TM.txt	jsingaram	6/4/13 2:02 PM


The interface also shows a list of translation memory entries on the right, including "Number Replacement", "There are 12 rooms", "This tests numbers", "Up to 105,000", "Up to 100,000", "This segment tests", and "Check this decimal". The status bar at the bottom indicates 18 source and 18 target segments, with a total size of 25M of 36M.

Experiment

PunCAT user interface

File
PunCAT
⌵ ⌶ ⌷

I was using the subjunctive instead of the past tense. Yes, we're a way past tense; we're living in bungalows now.



Keywords:

Jiang and Conrath ALINE

Pun	Target	sem %	phon %
Zeitstufe	Zelt	100	64

Source Target

tense

/tens/ (tense) a grammatical category of verbs used to express distinctions of time

/tens/ (tense up) become tense, nervous, or uneasy; "He tensed up when he saw his opponent enter the room"

/tens/ (strain, tense) become stretched or tense or taut; "the bodybuilder's neck muscles tensed;" "the rope strained when the weight was attached"

/tens/ (tense) increase the tension on; "alternately relax and tense your calf muscle"; "tense the rope manually before tensing the spring"

/tens/ (tense up) cause to be tense and uneasy or nervous or anxious; "he got a phone call from his lawyer that tensed him up"

/tens/ (tense) in or of a state of physical or nervous tension

/tens/ (tense) pronounced with relatively tense tongue muscles (e.g., the vowel sound in

Source Target


tent

/tent/ (collapsible shelter) a portable shelter (usually of canvas stretched over supporting poles and fastened to the ground with ropes and pegs); "he pitched his tent near the creek"


/tent/ (tent) a web that resembles a tent or carpet

/tent/ (tent) live in or as if in a tent; "Can we go camping again this summer?"; "The circus tented near the town"; "The houseguests had to camp in the living room"

Zeitstufe

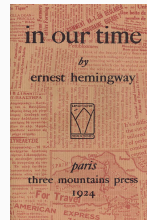


Zelt



Source data

- Six puns from six published works
- All have published translations
- Puns were provided to participants in PunCAT (annotated) and in hard copy (unannotated)



Pun #4: Finding Nemo

NEMO
What's that?

Nemo spots a DIVE BOAT, anchored 100 feet out. It floats high above on the water's surface.

TAD
I know what that is -- oh, oh! Sandy Plankton saw one. He said it was called... a butt!

PEARL
Wow. That's a pretty big butt.



'Then we play somewhere where the Guild won't

42

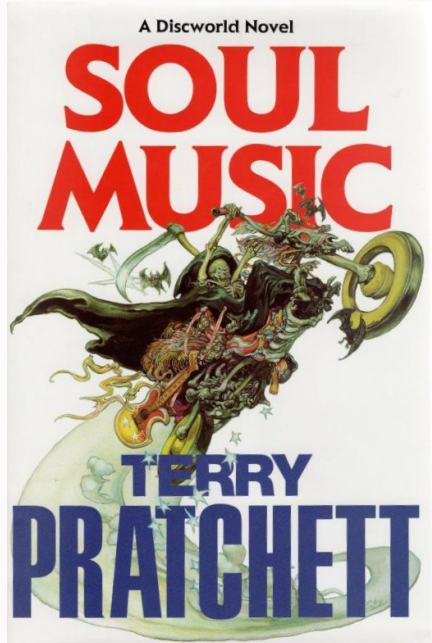
SOUL MUSIC

find us,' said Glod cheerfully. 'We find a club somewhere—'

'Got a club,' said Lias, proudly. 'Got a *nail* in it.'

'I mean a night club,' said Glod.

'Still got a nail in it at night.'



Experimental setup

- Participants
 - 9 female Master's in Translation students at the University of Vienna
- Equipment:
 - Media lab workstation with PunCAT, Word, Chrome, Inputlog
 - Hard copy of source texts
 - Note paper

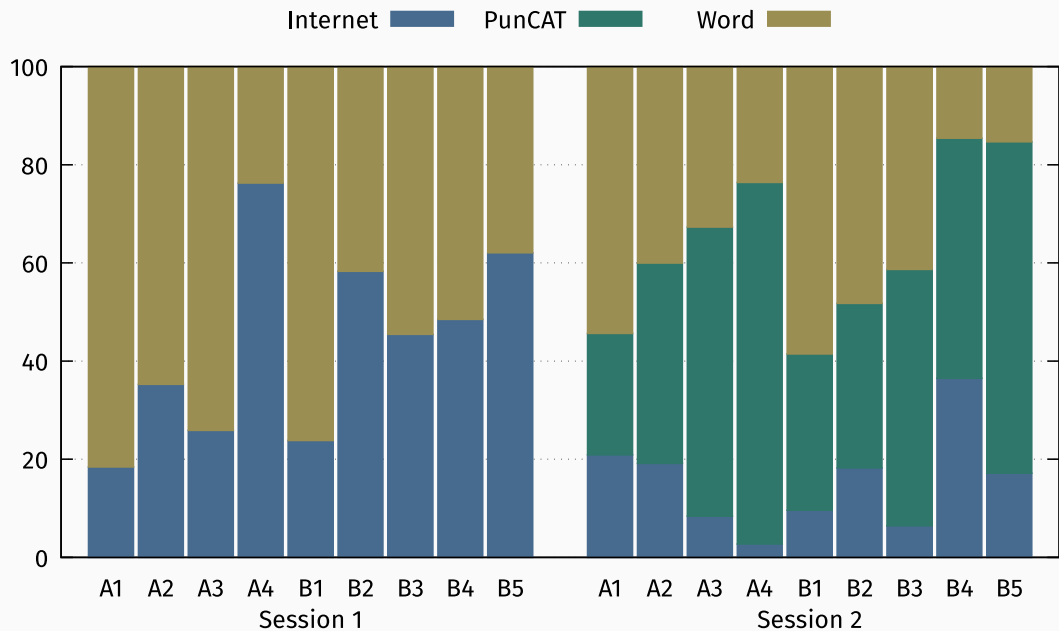
Experimental setup

- Participants
 - 9 female Master's in Translation students at the University of Vienna
- Equipment:
 - Media lab workstation with PunCAT, Word, Chrome, Inputlog
 - Hard copy of source texts
 - Note paper
- Structure:
 - Two 45-minute sessions
 - Three puns to translate per session
 - PunCAT used in Session 2 only
 - Group A: Puns 1–3 in Session 1 and 4–6 in Session 2
 - Group B: Puns 4–6 in Session 2 and 1–3 in Session 1
 - Post-translation questionnaires

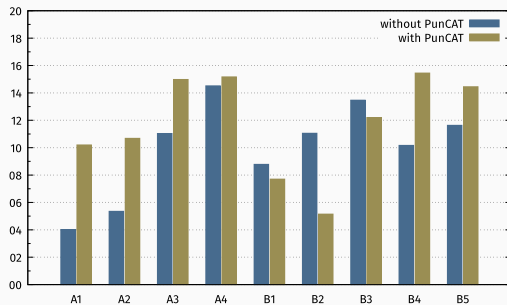
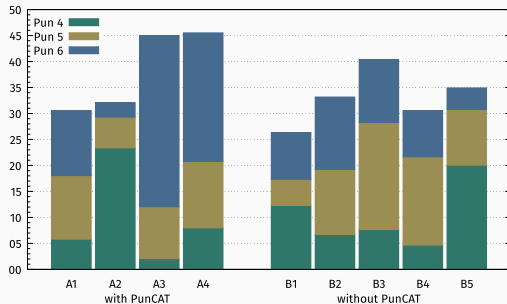
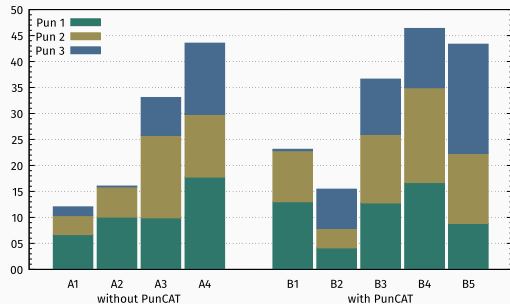
Results and analysis

- Based on triangulation of logging data, questionnaire, and handwritten notes
- Focus on interaction with PunCAT and their role in the overall translation process
- 62 translations were produced in total

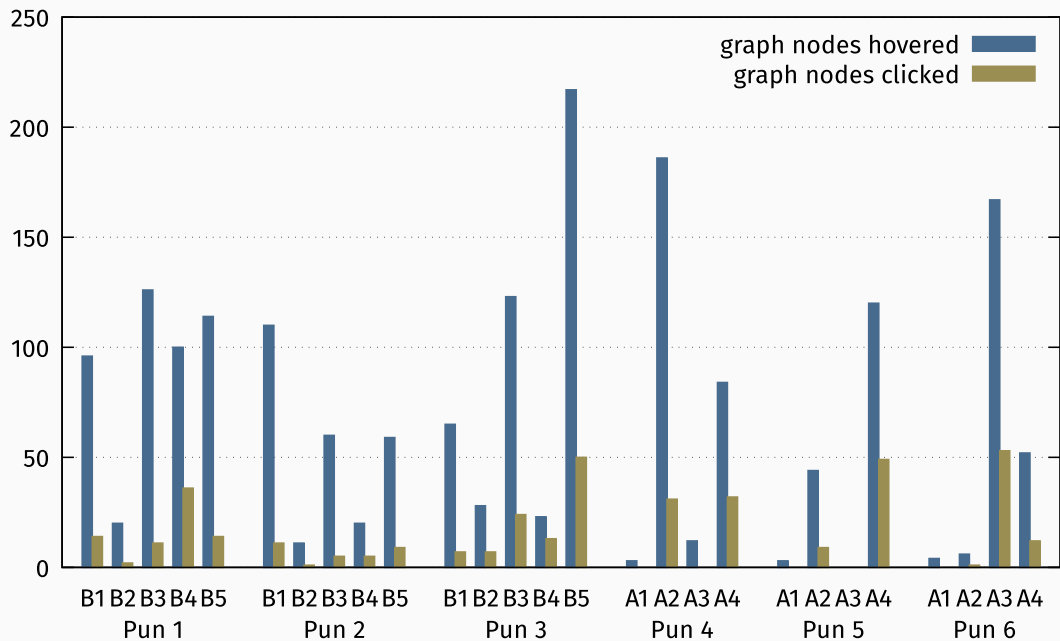
Percentage of participants' work time by session and activity



Participants' work time (in minutes) per pun



PunCAT graph interaction statistics



- Participant A4 interacted longer with PunCAT than anyone else (74% of Session 2)
- Working style was highly systematic in both sessions:
 - long, contiguous period of research and brainstorming
 - quick writeup of translation
 - some local revisions, but little switching between writing/research modes
- In Session 2, 4 of 5 target puns came exclusively from PunCAT

Case study: Participant A4, Pun #4

NEMO
What's that?

NEMO spots a DIVE BOAT, anchored 100 feet out. It floats high above on the water's surface.

TAD
I know what that is -- oh, oh! Sandy Plankton saw one. He said it was called... a butt!

PEARL
Wow. That's a pretty big butt.

TAD: Er sagt, es heißt ... Po...po...Boot!

PEARL: Wow, das ist ein richtig großes Popoboot.

‘Then we play somewhere where the Guild won’t

42

SOUL MUSIC

find us,’ said Glod cheerfully. ‘We find a club somewhere—’

‘Got a club,’ said Lias, proudly. ‘Got a *nail* in it.’

‘I mean a night club,’ said Glod.

‘Still got a nail in it at night.’

“We will look for a *Schuppen*₁ somewhere—”

“I’ve got *Schuppen*₂,” Lias said proudly. “Quite a lot, actually.”

“I meant a *Schuppen*, a building where we can play,” Glod said.

“I can play in a building also with my *Schuppen*₂.”

Case study: Participant A4's experiences

- A4 indicated that working with PunCAT was a positive experience
- Her satisfaction with her target texts was higher when using PunCAT
- She thought she had saved time using PunCAT “because no notes, no extra searching for synonyms etc.”

Case study: Participant A1

- Participant A1 spent the least time in PunCAT (24.7%)
- Interaction with PunCAT was exceptionally low (3–4 graph hovers per pun, no clicks)
- Internet research time same across both sessions (about 20%)
- Tends to rely extensively on her own linguistic knowledge
- Claims that none of her ideas were prompted by PunCAT

‘Then we play somewhere where the Guild won’t

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‘Got a club,’ said Lias, proudly. ‘Got a *nail* in it.’

‘I mean a night club,’ said Glod.

‘Still got a nail in it at night.’

“We will go look for a *Schlager*—”

“I’ve got a *Schläger*,” Lias said proudly.

“Got a nail in it.”

“I meant a *Schlagerclub*,” Glod said.

“Still got a nail in it at night.”

Participants' criticisms of PunCAT

- A1's reluctance to use PunCAT down to confidence in personal resources and unfamiliarity with the tool
- Other participants also expressed reservations about the tool:

While the tool wasn't bad and I enjoyed working with it, my personal choice of pages (dictionaries, rhyming pages etc.) proved to be more useful. (B1)

I felt like it limited my thinking. There are so many directions you could think in but the tool only gives you synonyms... Working with the tool stressed me, when I had my own ideas because I felt like my mind was going to be biased. (B3)

- Other participants found their unfamiliarity with PunCAT to be counterbalanced or outweighed by its benefits:

[It] did provide useful input and even if I didn't choose one of the offered options/translations, it made me think in different directions than I usually would have. (A2)

For me, translating without the tool was more stressful. Even though I didn't use the exact candidates proposed by PunCAT, the tool made it a lot easier to come up with ideas... I used the tool mostly for inspiration. It felt like assisted brainstorming. (B2)

- 62 target texts produced: 32 with PunCAT and 30 without
- Slightly more of the PunCAT target texts used puns (25 vs. 21)
- In four cases, the target text using non-punning plain language
- In all other cases, the target text used some other wordplay or rhetorical device (alliteration, assonance, homœoteleuton, irony)

PunCAT and translation successfulness

	with PunCAT	without PunCAT
(fully) acceptable	22	20
potentially acceptable	7	5
non-acceptable	3	5
total	32	30

Conclusion

Conclusions

- PunCAT provides users with a specialized environment intended to structure the pun translation process without unduly constraining it
- We find good evidence that PunCAT can effectively support the translation process in terms of
 - facilitating brainstorming
 - stimulating creative thinking
 - providing inspiration
 - broadening the translator's pool of solution candidates
- But working styles vary, and PunCAT may be more suitable for some than others

- Account for gaps in the coverage of lexical-semantic resources
- Integrate rhyming dictionaries or similar resources for retrieving phonetically matching terms
- Integrate algorithms for the automatic detection and interpretation of punning words in the source material

- Concurrent or retrospective verbalization protocols
- Use of eye-tracking software
- User study with professional rather than student translators

Thank you!

References



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