Augmenting the Web

for Facilitating Learning

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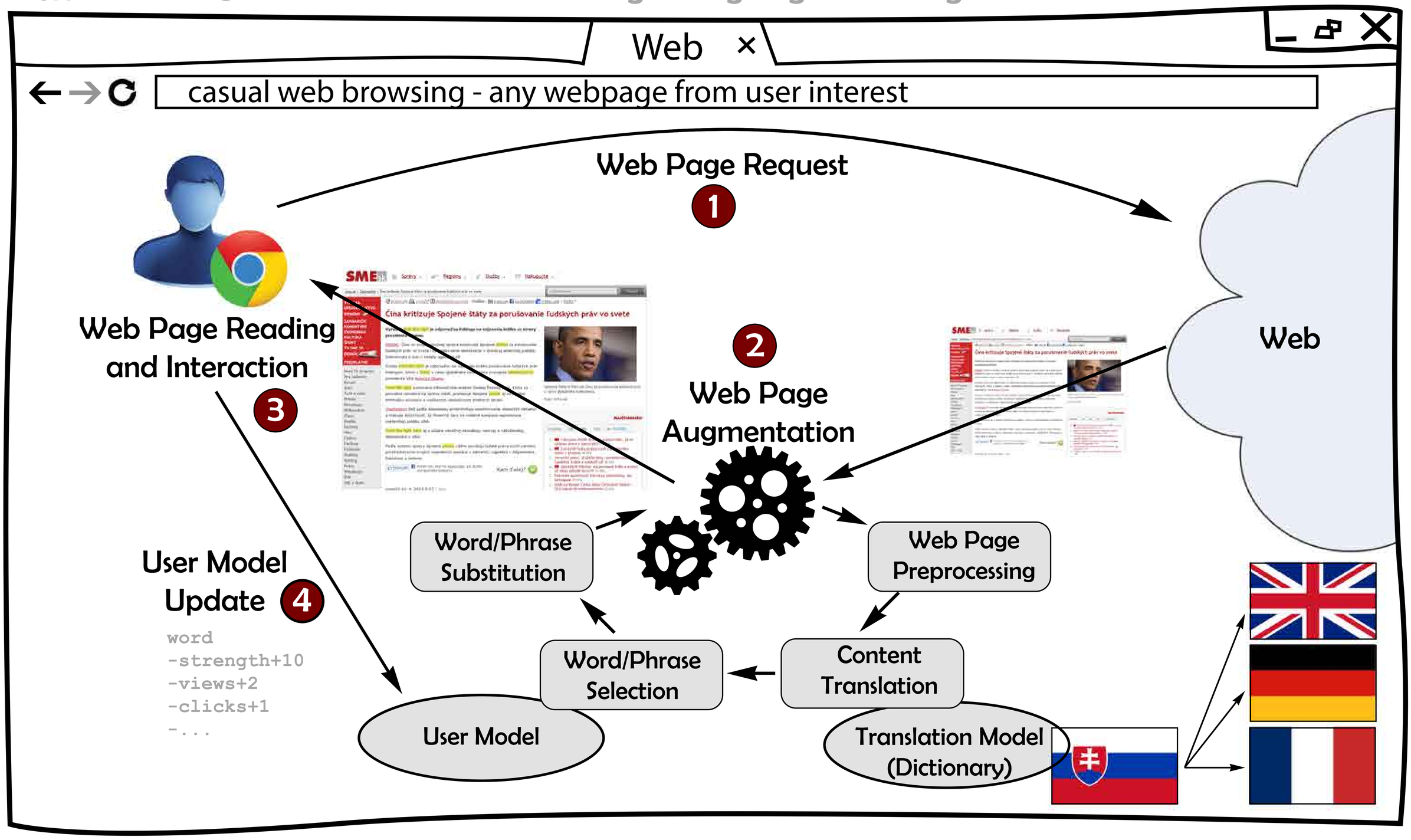
vocabulary acquisition · personalization · natural language processing · foreign language learning · web augmentation · unintentional learning · user model

"Surf and Learn"



Webpage preprocessing

- webpage content -> plain text
- segmentation and lematization
- dictionary translation
- matching translations with user knowledge
- chosing learning candidates
  - matching foreign language proficiency
  - repetition vs new vocabulary

Webpage augmentation

- word replacement and highlightment
- proper portion of foreign words for meaning deduction (5%)
- word cluster prevention
- possibility of seeing original translation

User monitoring and model update

- Implicit feedback
  - Does user read webpage ?
  - Which words does he translated ?
  - Which words does he ignored ?
- Explicit feedback
  - Vocabulary tests

Evaluation

2 hypotheses

"Augmentation improves foreign language vocabulary size."

"Time spent with reading will increase insignificantly,"

Qualitative experiment

- impact on user comfort
  - reading speed
  - text understanding
  - web browsing experience
- ability to learn new vocabulary
- method parameters

✓ 30% slower, but without loss of comfort
✓ 15+ words remembered after 30 min. session
✓ parameters suitable for beginners

Quantitative experiment

- ability to learn new vocabulary
- difference between personalized and non-personalized augment.
- precision of user modeling

still gathering data:
32 users
2100 webpages
37000 words