(Invisible) pictures in online dictionaries: Shall we see them?

Anna Dziemianko

Pictures in online dictionaries

- a welcome feature (e.g., Klosa 2015, Lew and Szarowska 2017, Dziemianko 2022)

- useful in dictionary-based reception and retention (Nesi 1998, Gumkowska 2008, Dziemianko 2022)

- harmful effect on vocabulary learning, overestimated by students (Van den Broek et al. 2021)

Pictures in online dictionaries: Basic questions

1. **Should pictures be included in online dictionaries?**
   – images on the Internet
   – reference to photo-oriented sites and applications (e.g., Conole et al. 2006; Conole 2008, Steel and Levy 2013, Pettitt 2017)

2. **How to display pictures?**
   – constrained presentation space in hand-held portables & regular computers (the latter still used for dictionary consultation, Kosem et al. 2019)
   – **instantly visible or hyperlinked pictures**

Aims

the presence of pictures in online dictionaries and their access path (instant/default visibility vs. hyperlinking)
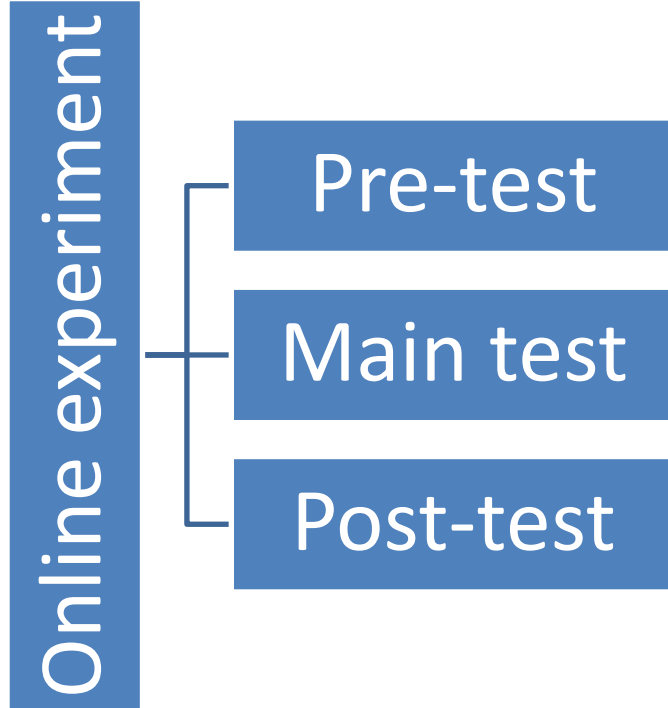
meaning reception & retention

Research questions

1. Does the **reception of meaning** depend on the **presence of pictures** in online dictionaries?

2. Is **meaning reception** affected by how pictures are **accessed** (immediately visible vs. hyperlinked)?

3. Is the **retention of meaning** conditioned by the **presence of pictures** in entries?

4. Are **pictures visible in entries by default or hyperlinked** ones more useful for **learning meaning**?
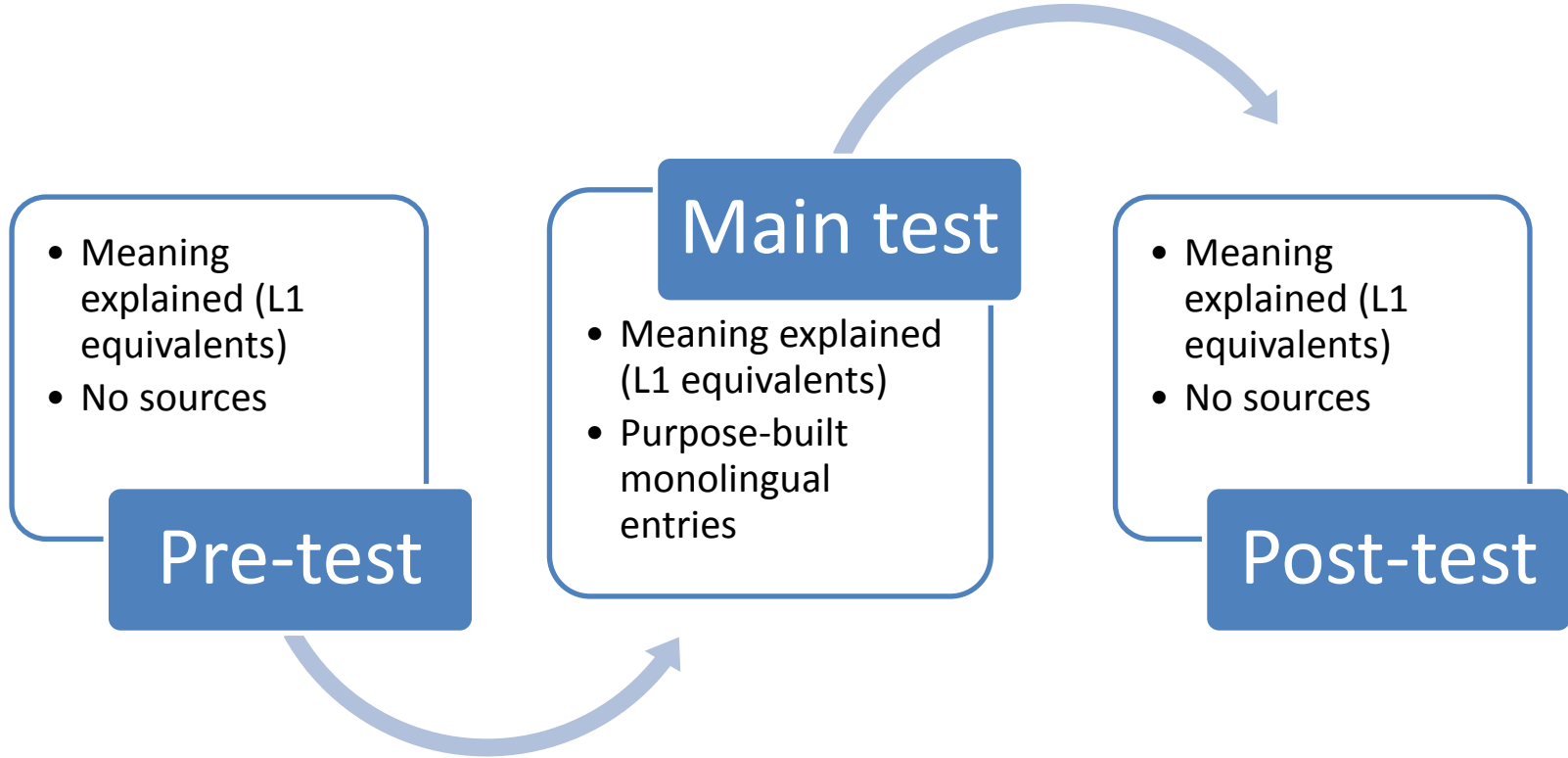
Methods

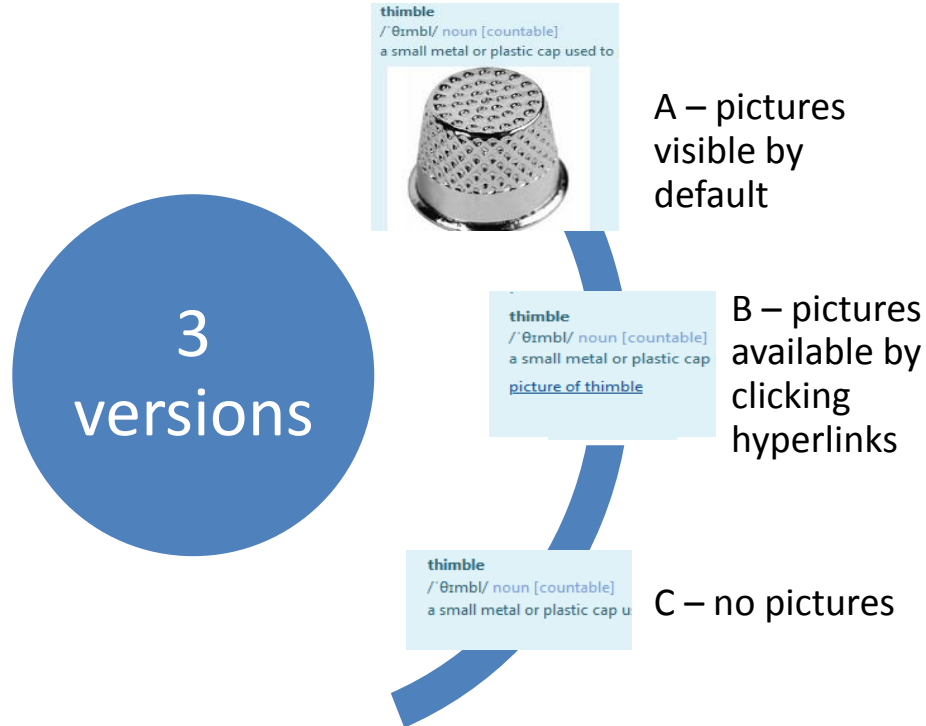**Online experiment**

- Pre-test
- Main test
- Post-test

15 English concrete nouns

awning, barrel, bib, copse, gavel, hubcap, mortar, nightstick, pickax, playpen, plunger, rolling pin, thimble, trough, turnstile

Materials

Pre-test
- Meaning explained (L1 equivalents)
- No sources

Main test
- Meaning explained (L1 equivalents)
- Purpose-built monolingual entries

Post-test
- Meaning explained (L1 equivalents)
- No sources

The main test

3 versions

thimble
/ˈθɪmbl/ noun [countable]
a small metal or plastic cap used to

A – pictures visible by default

thimble
/ˈθɪmbl/ noun [countable]
a small metal or plastic cap
picture of thimble

B – pictures available by clicking hyperlinks

thimble
/ˈθɪmbl/ noun [countable]
a small metal or plastic cap u

C – no pictures

A – pictures visible by default

thimble

/ˈθɪmbl/ noun [countable]

a small metal or plastic cap used to protect your finger when you are sewing

Answer:

B – hyperlinked pictures

thimble
/ˈθɪmbl/ noun [countable]
a small metal or plastic cap used to protect your finger when you are sewing

picture of thimble

Answer:

C – no pictures

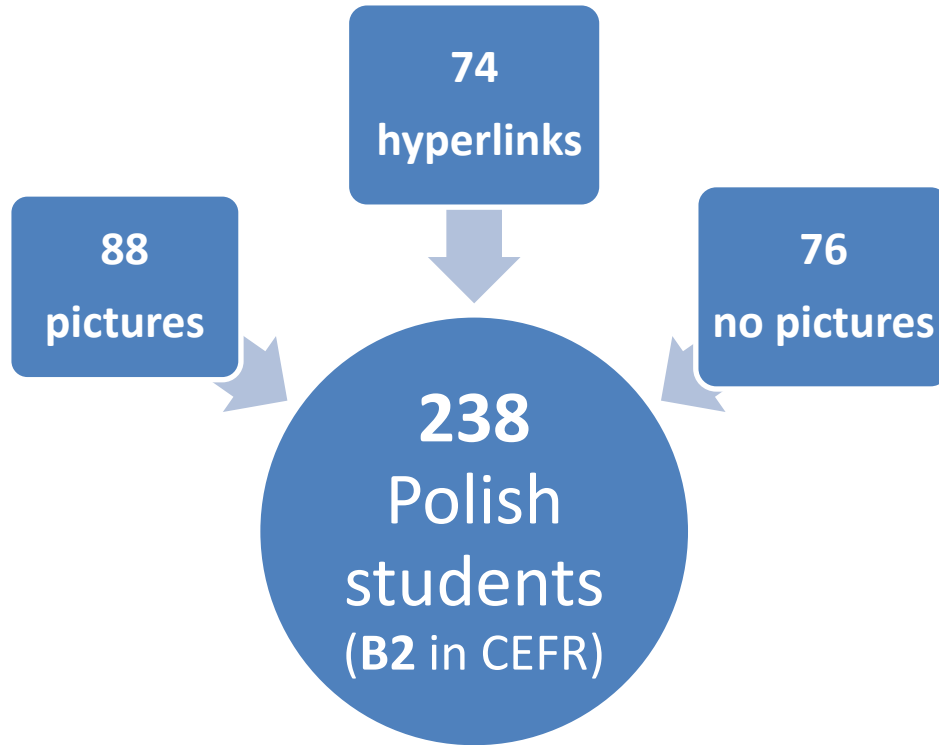**thimble**
/ˈθɪmbl/ noun [countable]
a small metal or plastic cap used to protect your finger when you are sewing

Answer:

Subjects

Setting

- Regular class

- Conducted in a computer lab

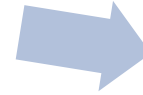- Participants seated at uniform desktop computers

Procedures

Pre-test

- L1 equivalents
- no dictionaries
- to check familiarity with the words

Main test

- L1 equivalents
- purpose-built monolingual entries
- three test versions (A,B,C)
- reception vs (access to) pictures
- order changed

Post-test

- L1 equivalents
- provided from memory
- order changed

Scoring

- Correct answer – 1 point
- Equivalents in the leading bilingual English-Polish dictionaries
- Descriptive explanations of the target nouns in L1 – no point – translations of English definitions

Data analysis

one-way ANOVAs for each dependent variable (meaning reception and retention)

access to pictures – a between-groups independent variable
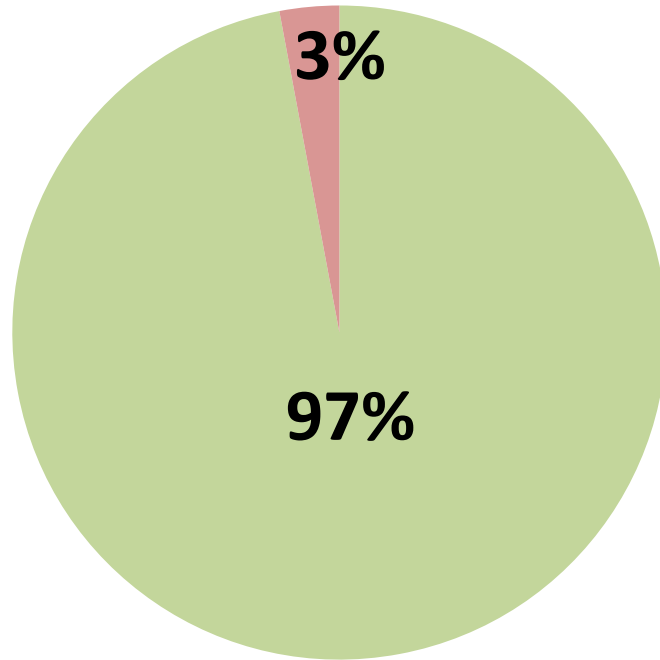
- (one subject – one test version)

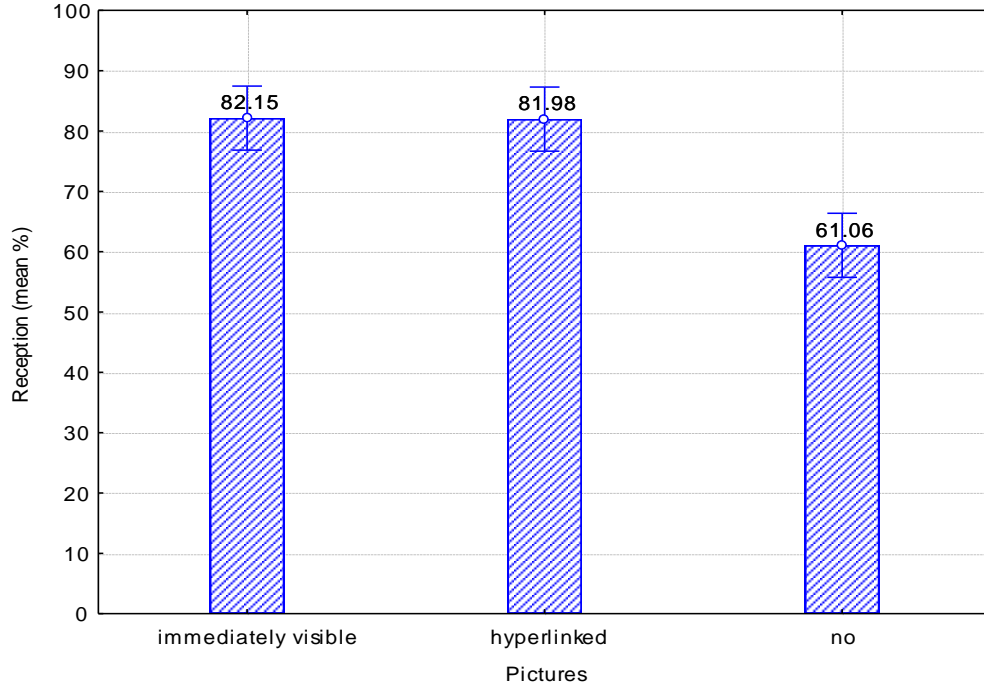significant ANOVA results – Tukey HSD test

Results

Hyperlinks clicked!
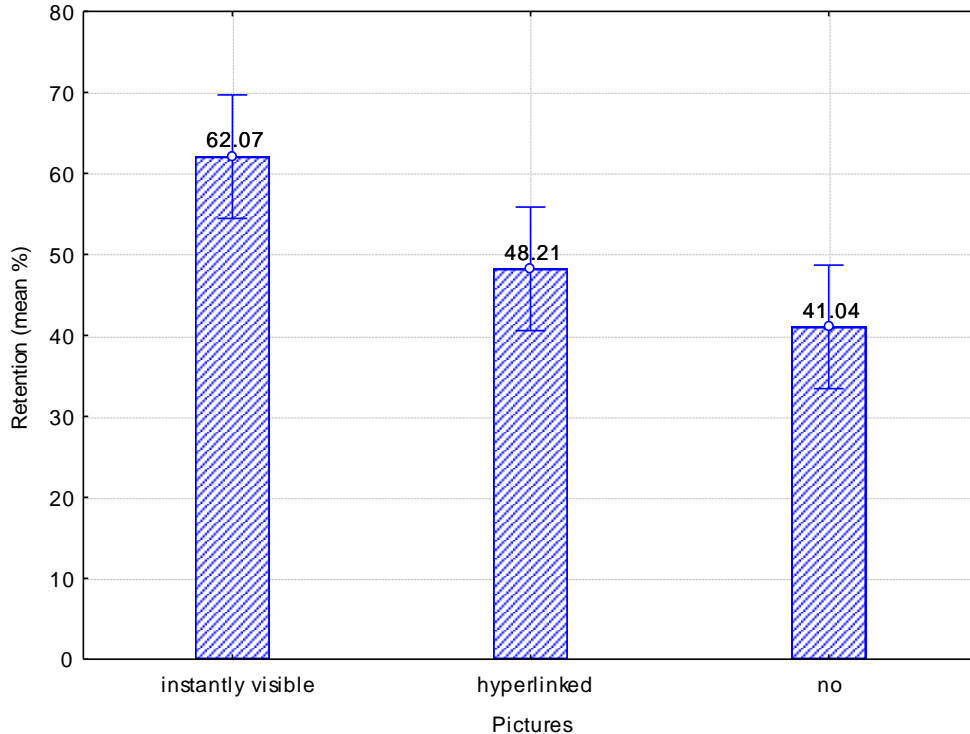
Reception

F = 21.23, p = 0.00, partial η^2 = 0.503

reception dependent
on pictures

pics visible by default
≈ hyperlinked (p=1.00)

1/3 better reception
(cf. no pictures)

Retention

$F = 7.99$, $p = 0.00$, partial $\eta^2 = 0.276$

affected by pictures

facilitated most by pics available by default

hyperlinked pics ≈ no pics (p=0.38)

1/4 and 1/3 worse, respectively, cf. instantly visible pics (p < 0.05)

Conclusions

Major findings

- understanding meaning affected by the presence of pictures (RQ1)
- the way of accessing pictures – inconsequential for reception; pictures available by default ≈ hyperlinked (1/3; RQ2)
- learning meaning dependent on whether pictures are instantly visible in entries or hyperlinked (RQ3)
- instantly visible pics – significantly better for meaning retention, hyperlinked pics – no effect (as good as no pictures; RQ4)

Why?

- the role of access to pictures in vocabulary learning – surprising

- the Involvement Load Hypothesis (Hulstijn and Laufer 2001; Laufer and Hulstijn 2001):
    - greater effort in accessing information → better learning
    - clicking hyperlinks (more effortful than seeing pictures right away) → stronger memory trace → better learning

- NO!

Why?

- the Cognitive Load Hypothesis (Sweller 1994, 2010) – needlessly complicated presentation
  - bad for learning
  - reduced cognitive powers available for processing the information to be learnt
- hyperlinking pictures
  - meaning presentation less straightforward
  - dictionary users' cognitive powers involved (not invested in learning)

Clicking

- Almost everybody (97%) consistently accessed hyperlinked pictures
- Subjects feeling inscure making out definitions → see the picture **to grasp meaning**
- Definitions understood but confirmation needed → see the picture to help **visualize the objects and confirm initial understanding**
- Problems with finding L1 equivalents → see the picture to **name the objects** more easily

Limitations

- Definitions understood – equivalents in L1 not known
- The selection of targets
  - denotata rare in the subjects' environment
  - infrequent concrete nouns unfamiliar to B2 learners

Further research

Further research

- Different words to illustrate - equivalents in L1 easy to come up with, but lower proficiency level

- Access to pictures in dictionaries consulted on mobile devices – tapping hyperlinks or miniature pictures expandable upon tapping

- Hyperlinks vs expandable miniature pictures?

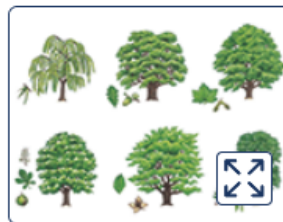# Miniature pictures (OALD)
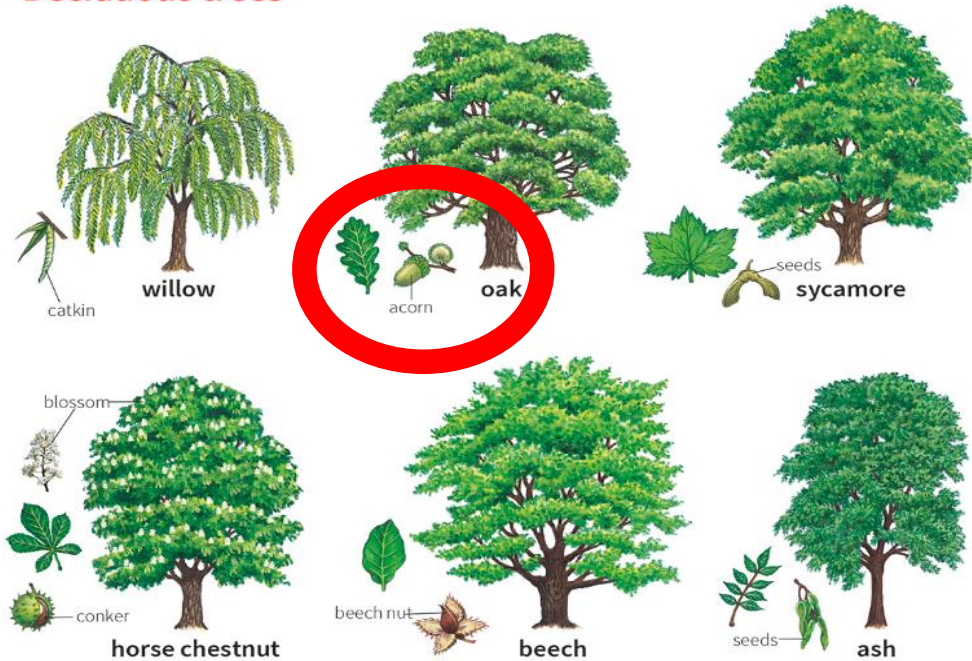
acorn *noun*

🔊 /ˈeɪkɔːn/

🔊 /ˈeɪkɔːrn/

Idioms

⭐ the small brown nut of the oak tree, that grows in a base that is like a cup

TOPICS **Plants and trees** C2

Miniature pictures expanded (OALD)

Deciduous trees

willow — catkin

acorn — oak

sycamore — seeds

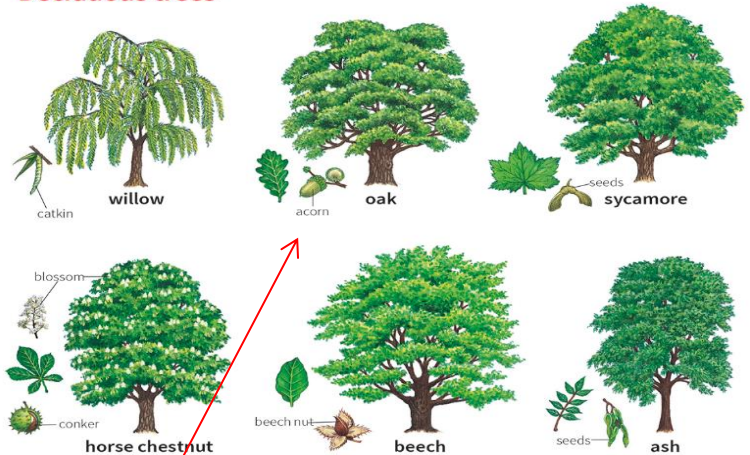horse chestnut — blossom, conker

beech — beech nut

ash — seeds

- scenic (Svensén 2009: 310; Klosa 2015: 519) or synoptic (Luna 2013) illustrations

- a set of thematically related objects in a given context

- assembled items identifed by labels

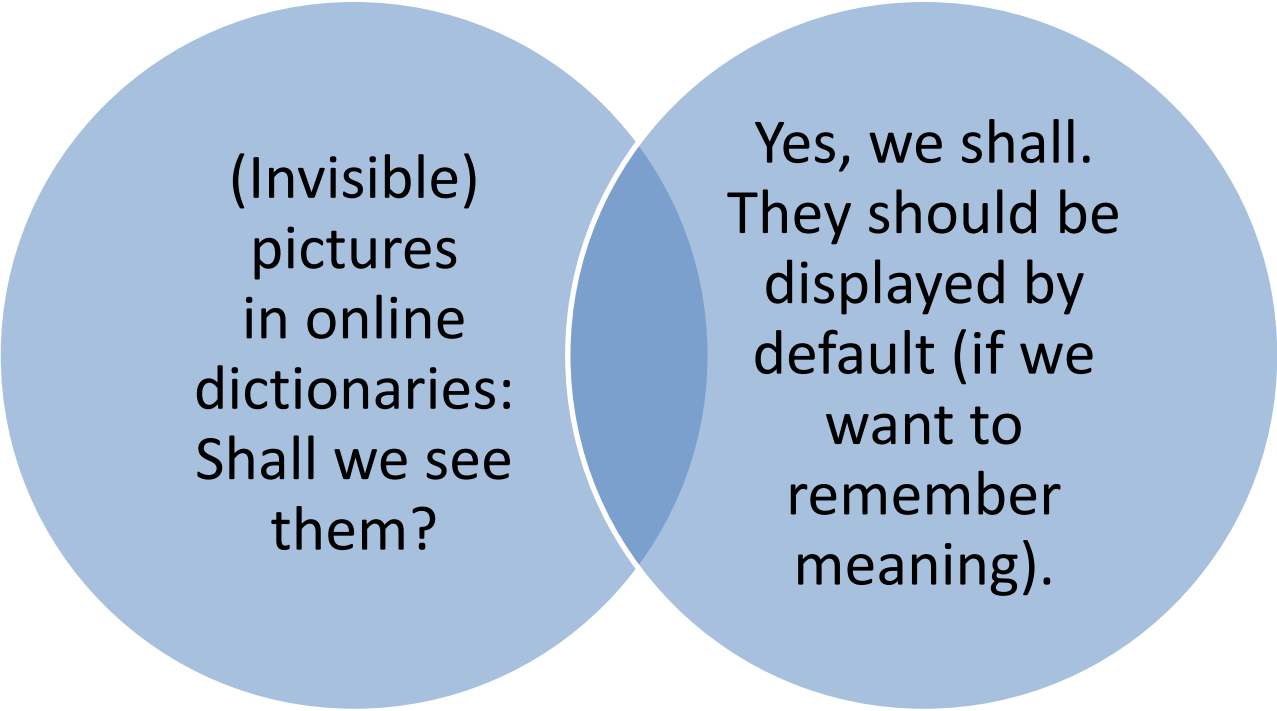- effort needed to find a picture of the looked up word

Which is better?

Further research

- A different task / test items - hyperlinks accessed so willingly?

- No L1 equivalents needed / more frequent nouns – learners less eager to click hyperlinks?

For now…

(Invisible) pictures in online dictionaries: Shall we see them?

Yes, we shall. They should be displayed by default (if we want to remember meaning).

Thank you

danna@amu.edu.pl