Managing Structured Collections of Community Data

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1: Flashcards

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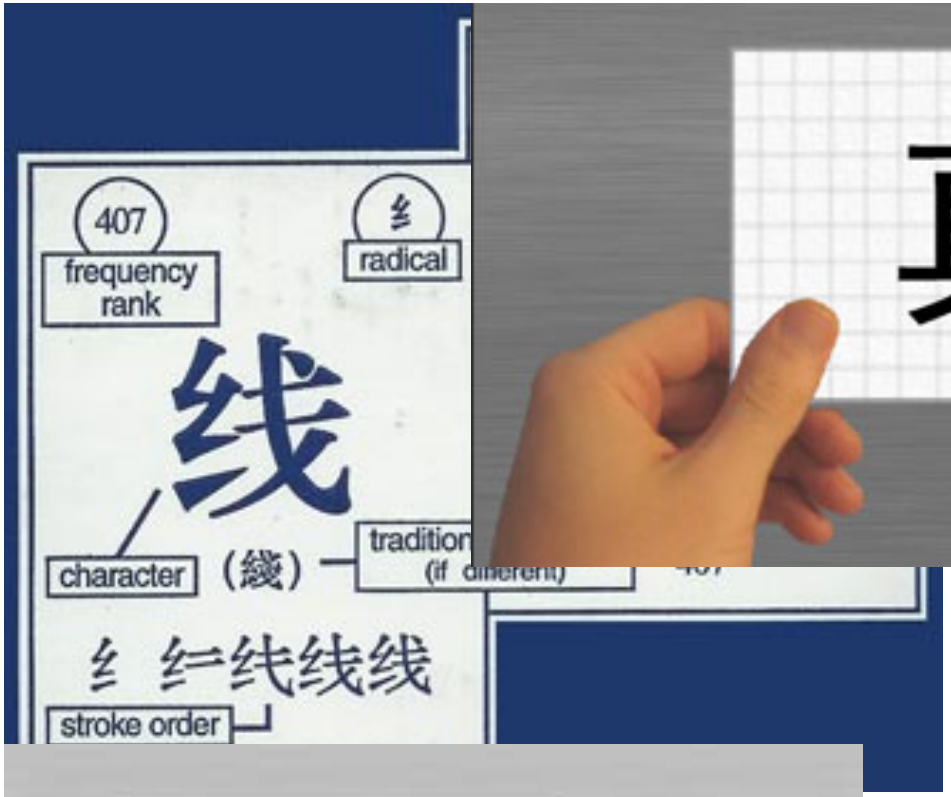

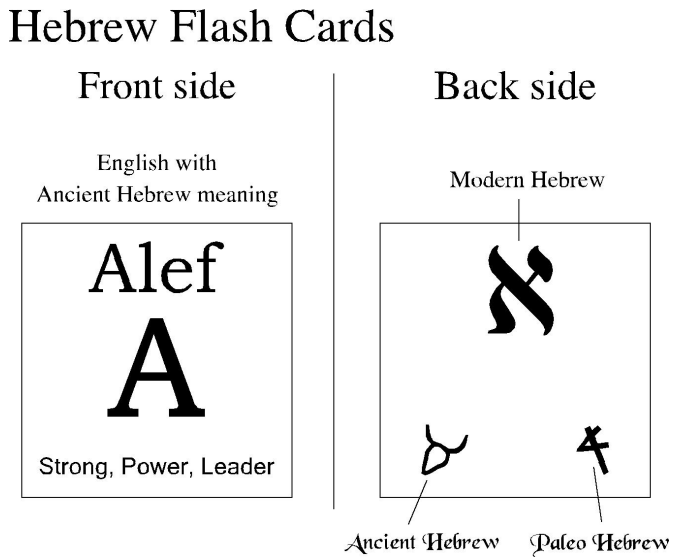

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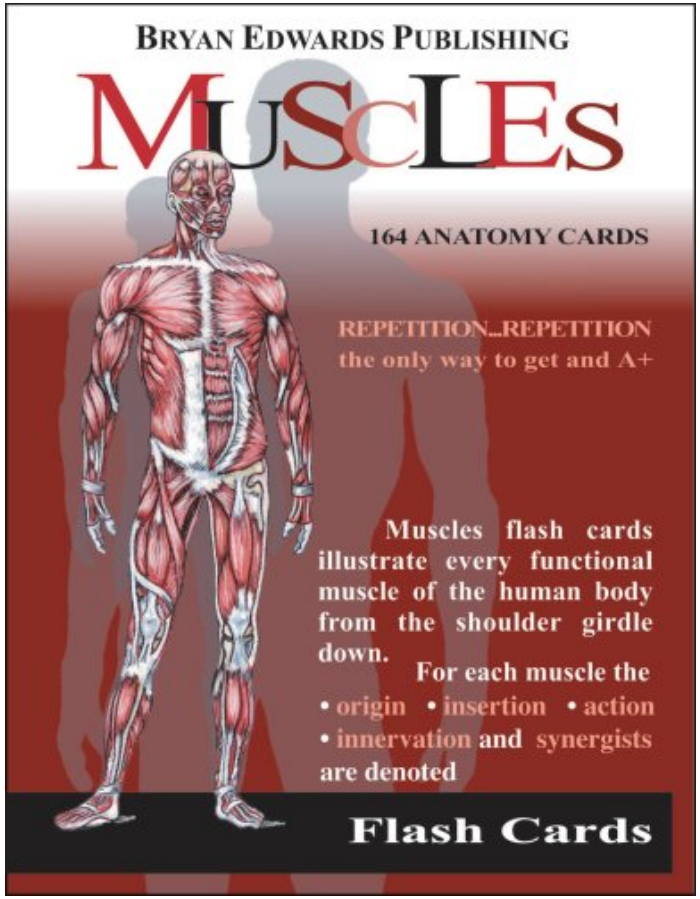
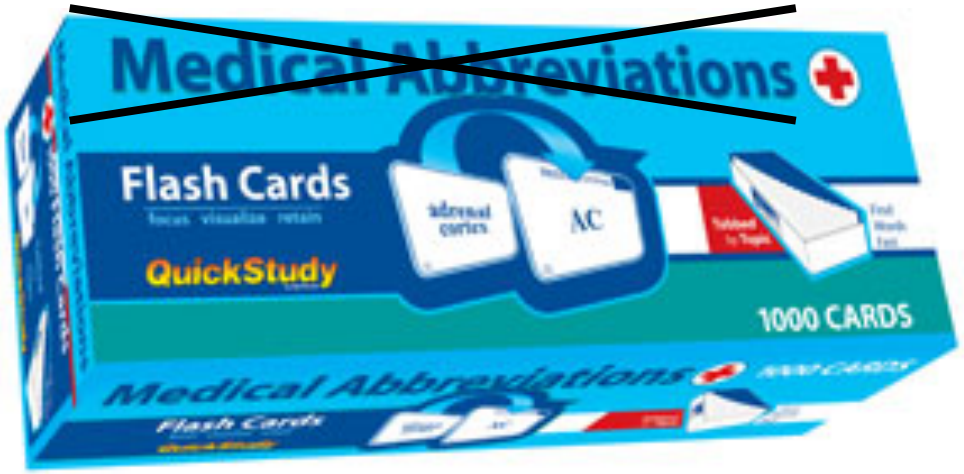


1: Flashcards

Computer Science Abbreviations:



- 4NF
- ACID
- MVD
- RAID
- SQL
- FPGA
- FTL
- …

Computer Science Concepts:

- Merge Sort
- Two-phase locking
- …

1: Flashcards

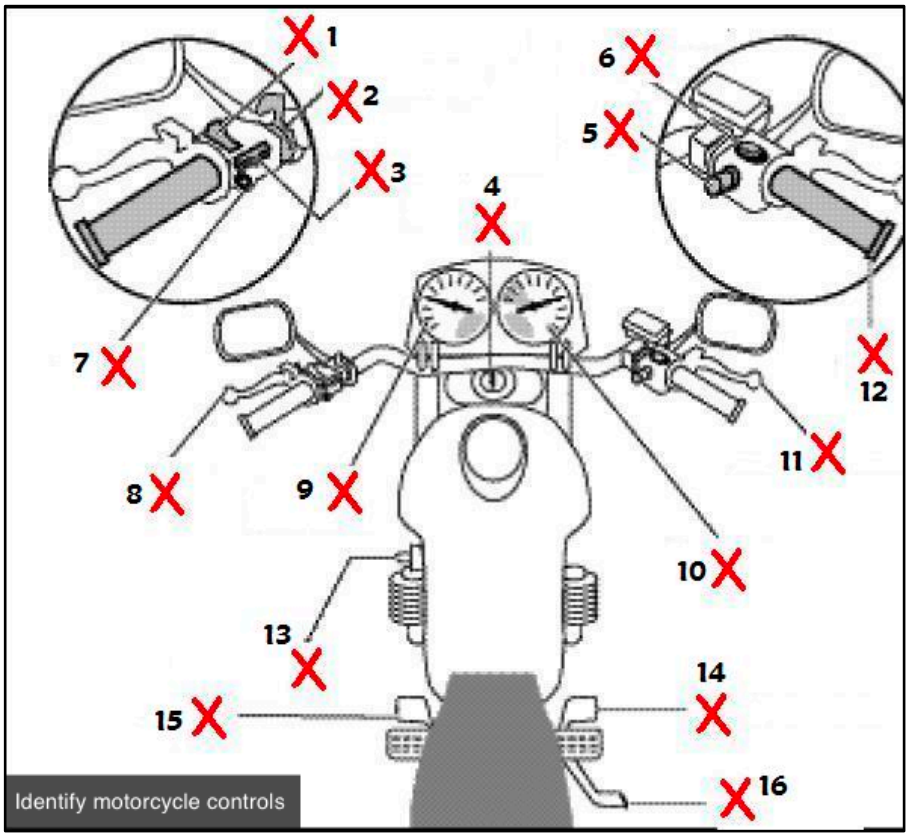
What is
height

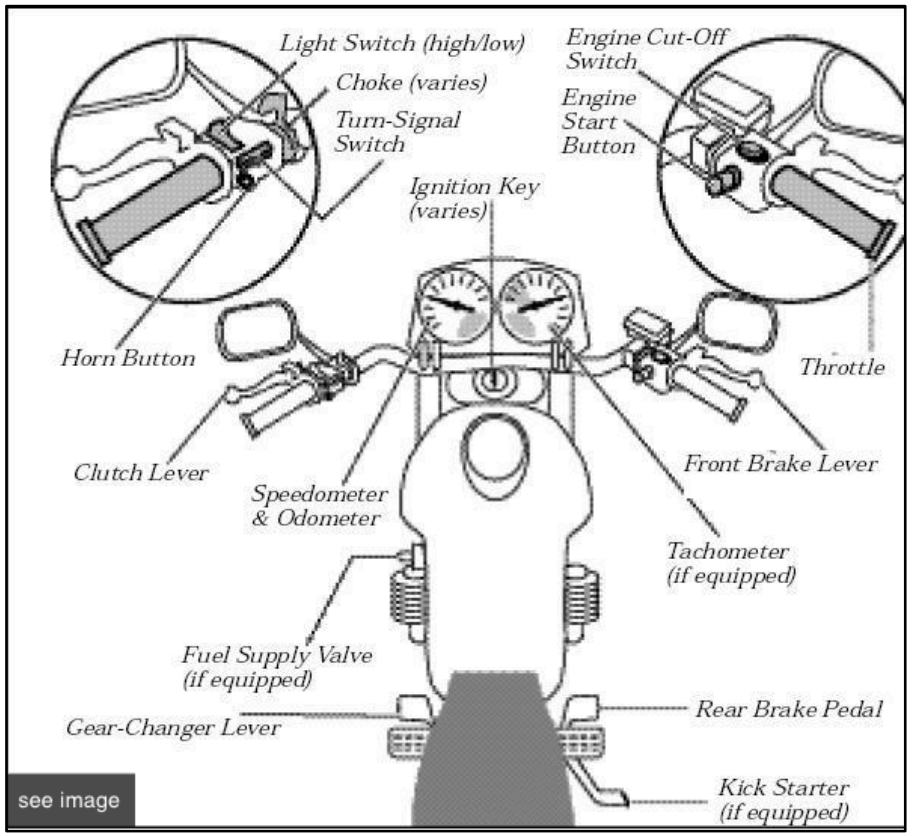
16mm

The fitting height for a progressive addition lens (FPD) is measured from the lowest point on the lens, or lens opening, to the center of the wearer's pupil.

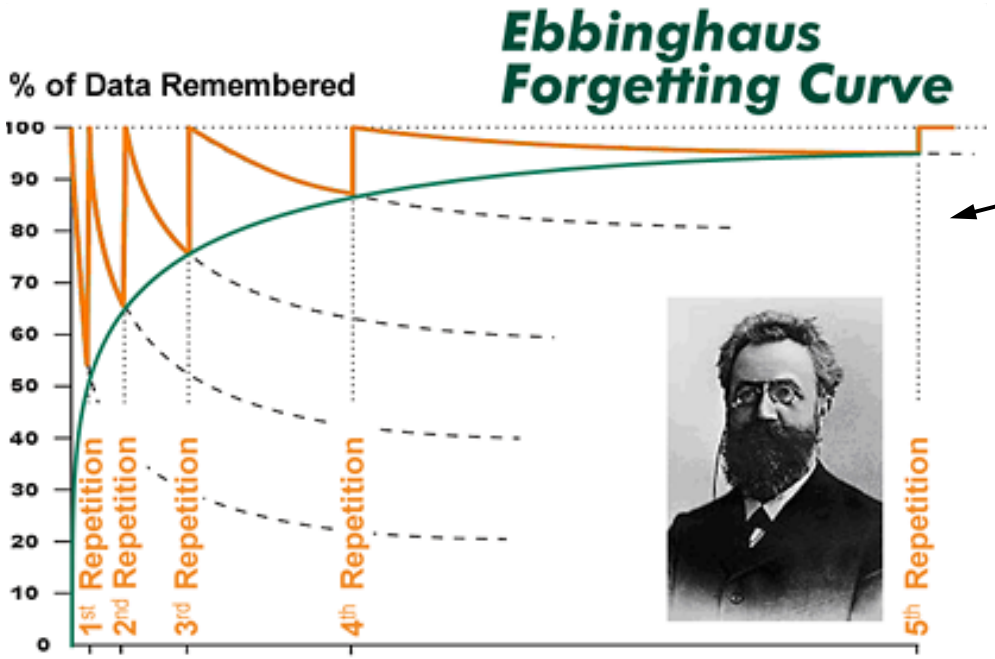
1: Flashcards

Texas DPS Motorcycle Operators Manual



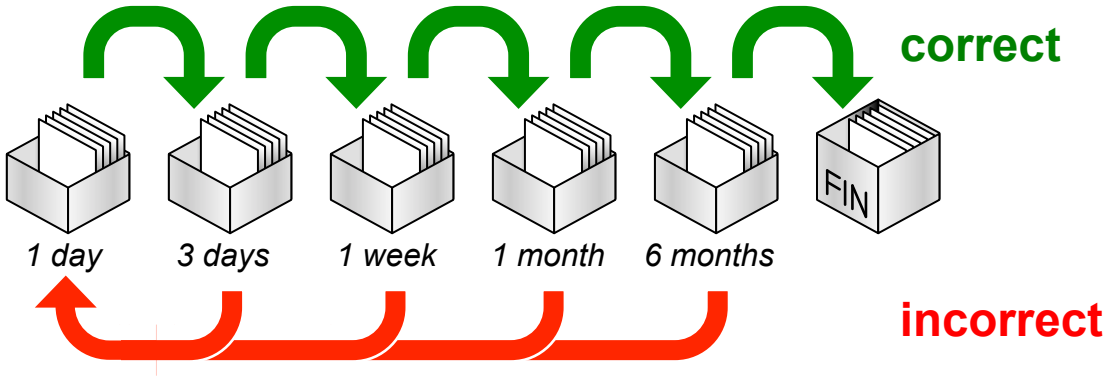


2: Spaced Repetition



Ebbinghaus Forgetting Curve

Leitner System (Pimsleur's graduated interval recall)



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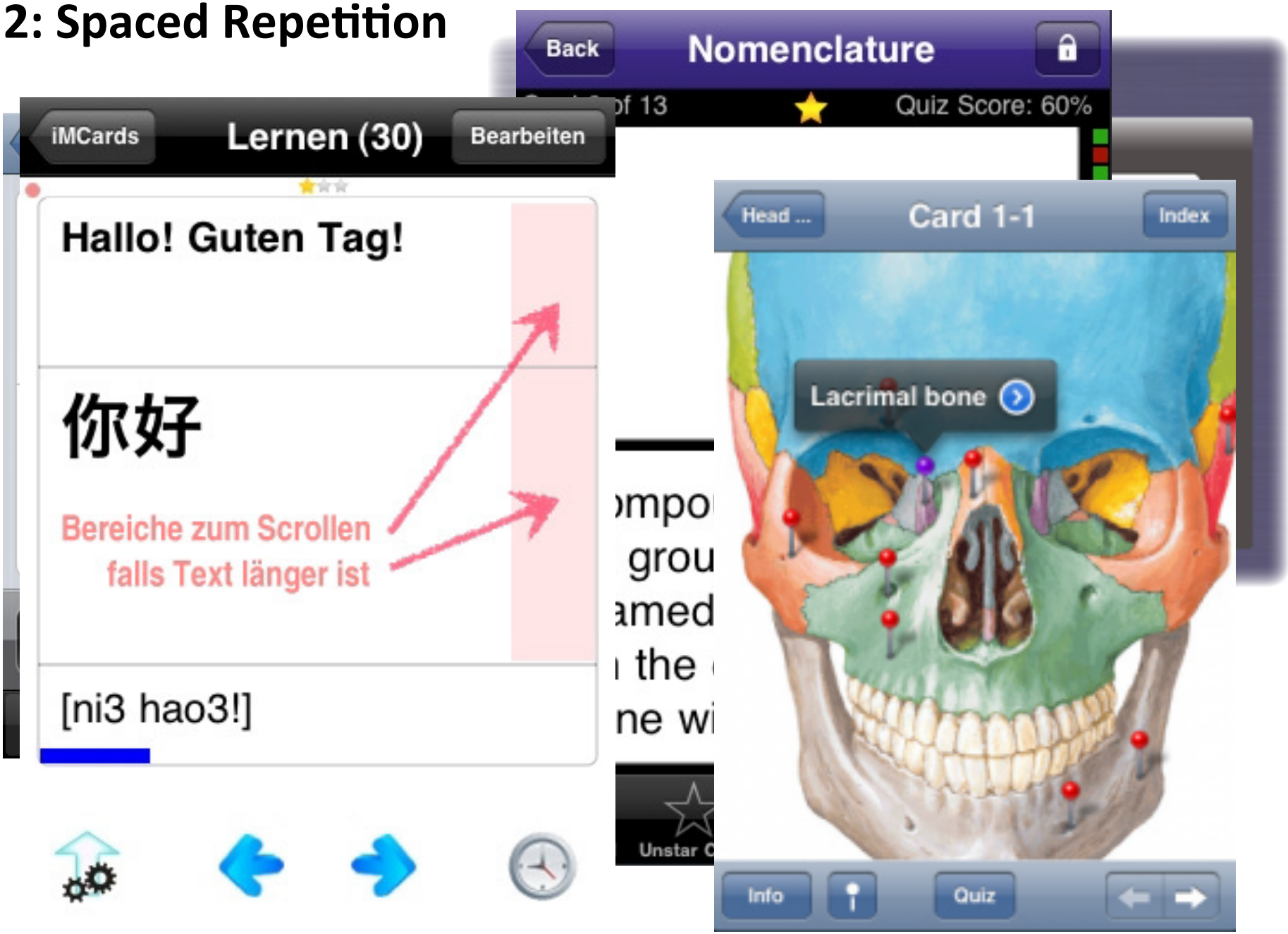


2: Spaced Repetition

Specialized Software

- used by 3.000 schools
- sold 500.000 times

3: A Community







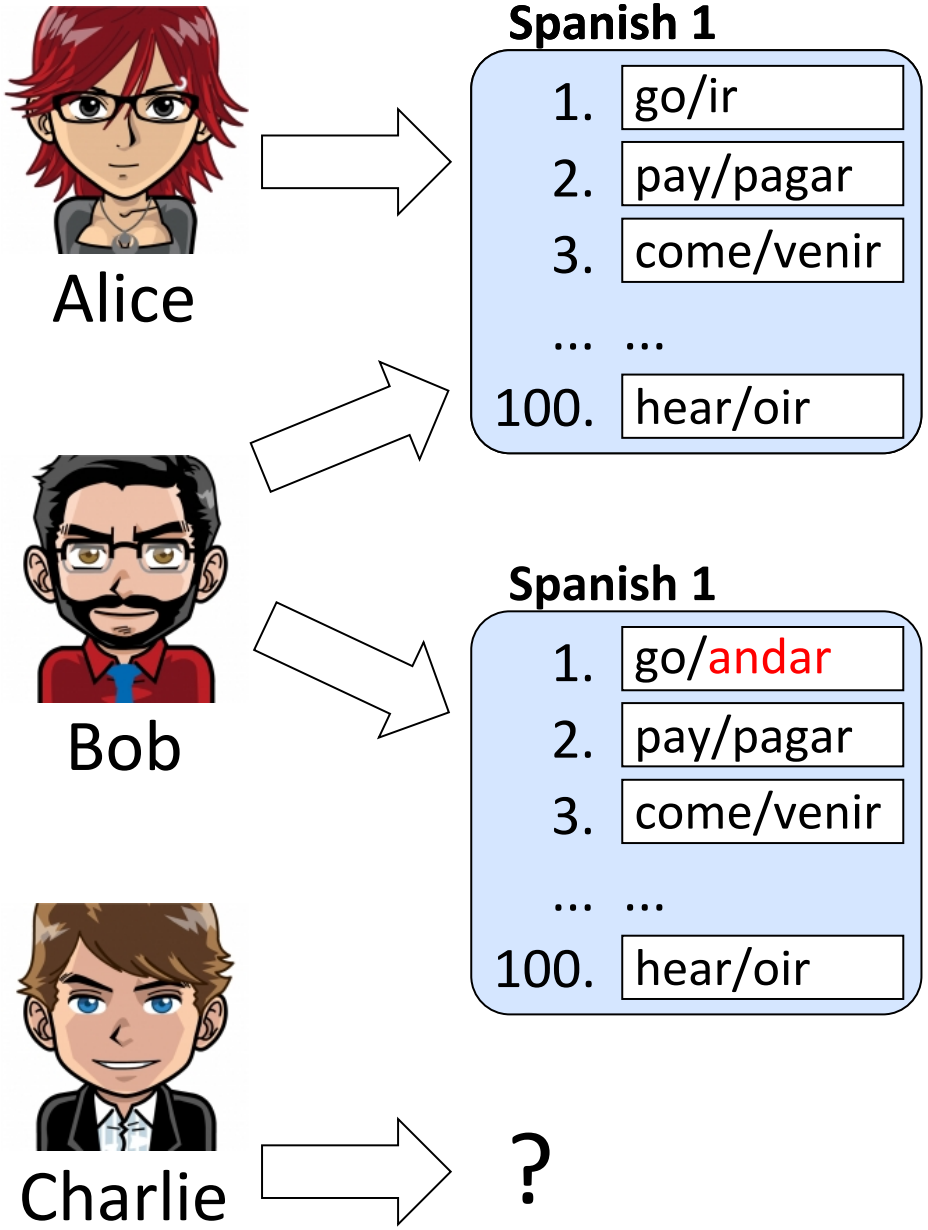
myPairSpace.com







An example PairSpace scenario



A. Alice inserts her first Spanish lesson

B. Bob searches and finds Alice's lesson

C. Bob adapts his copy of her original lesson

D. Charlie comes and searches for Spanish lessons

What to return, how to present, how to query, and how to rank?

Challenge 1

Alice

Spanish 1

1.	go/ir
2.	pay/pagar
3.	come/venir
...	...
100.	hear/oir

Bob

Spanish 1

1.	go/andar
2.	pay/pagar
3.	come/venir
...	...
100.	hear/oir

Charlie

?

1: What to return?

- Alice's (original)
- Bob's (most recent)
- their intersection
- their union
- presenting the one *conflicting* tuple

How to inform the user about the structural variation in collections?

Challenge 2

2: How to present?

- lists of tuples ☹
- lists lessons & example tuples
- majority vs diversity
- cluster collections into meta-collections

What are optimal "return structures" and their visual representation?

Challenge 3

3: How to search?

- Keyword-based
- Form-based
- Language-based
  - varying trust
  - given we search for collections

How to best (fast, easy) allow users to to express their search needs?

Challenge 4

4: How to rank?

- Syntactic & semantic similarity (across languages)
- Structure (items vs collection)
- Trust (vote- vs rule-based
- Provenance (on collections)
- Learning/Adjustment over time

Overview of Challenges

- New Challenges
  - Representation
  - Interface
  - Relevance measures
- Cross-Cutting Challenges
  - inconsistency/trust
  - non-monotonicy (dynamic evolution)
  - uncertainty
  - provenance

Some promising solutions

- New Challenges
  - Representation
  - Interface
  - Relevance measures

- Cross-Cutting Challenges
  - inconsistency/trust
  - non-monotonicy (dynamic evolution)
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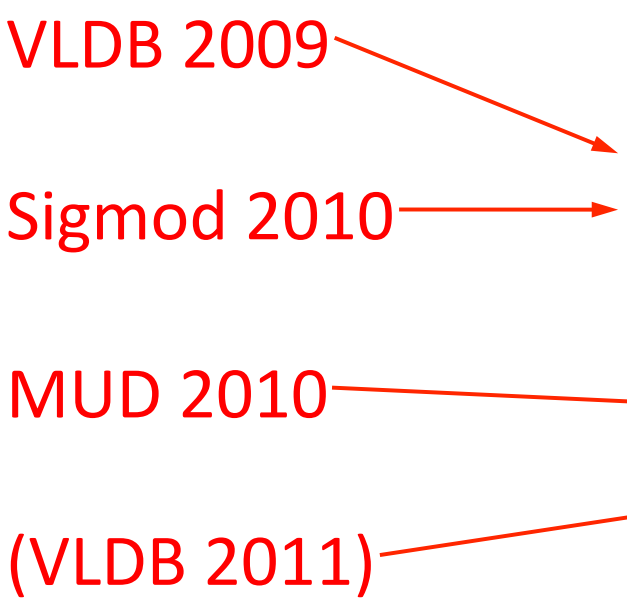
  - provenance



Managing the human genome

1: ACCGCAACGTTATAGGCACGCTATATCG

2: ACCGCAACGTATTATAGGCACGCTATATCG

3: ACCGCAACGTATTATAGGCACGATATCTCG

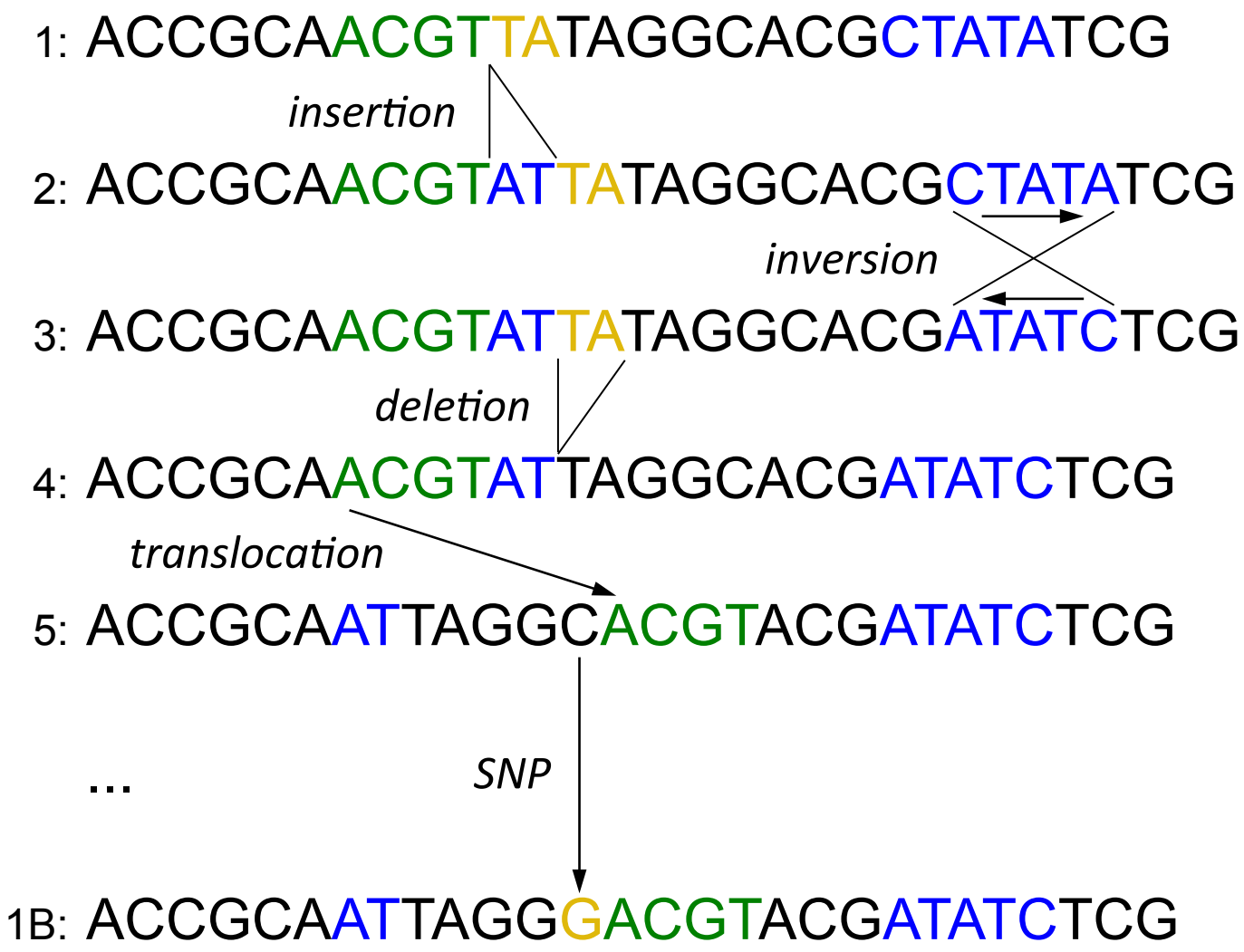
4: ACCGCAACGTATTAGGCACGATATCTCG

5: ACCGCAATTAGGCACGTACGATATCTCG

...

1B: ACCGCAATTAGGGACGTACGATATCTCG

Managing the human genome



large-scale structural variations

single nucleotide polymorphism

The Vision

- myPairSpace.com
  - one massive central repository for ce-learning needs
  - has the typical DM challenges of any community DB
  - new: management of *collections* and their evolution

- Then abstract and apply learned principles
  - data determines the structure
  - management of the human genome ("management" versus "scientific management")