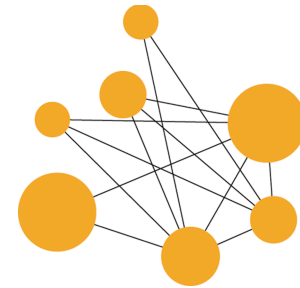


(Towards) The Last Annotation Tool

K. B. COHEN, D. DEMNER-FUSHMAN, K.
FORT, C. GROUIN, L.E. HUNTER, U. LESER,
A. NÉVÉOL, M. NEVES, P. ZWEIGENBAUM

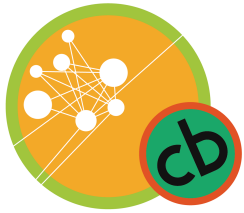
U. Colorado School of Medicine
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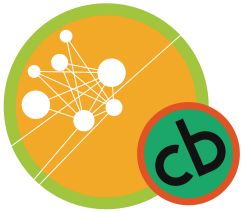
denver.edu/Hunter_lab/Cohen



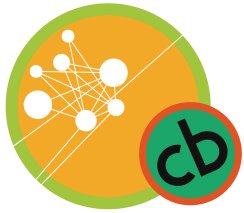


Neves and Leser (2012): Multiple good annotation tools are available

- ...so, why has the community spent \$500,000 building new ones in the past 5 years?
- ...and can we do it just one more time, and be done for a while?

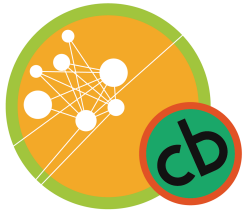


- Hypothesis: None of the existing tools has a sufficiently broad set of capabilities
- So: Figure out what that set is, build it, and we're done (for a while)



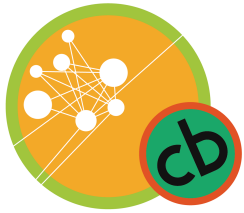
Textual annotation tools: Why build, why reuse?

Incentives to build	Incentives to reuse
Don't have to learn	Community of maintainers
Don't have to modify task	Be productive sooner
Overhead	Already beta-tested
Fun	
Tangible deliverable	
LPU	
Your format definitely supported	



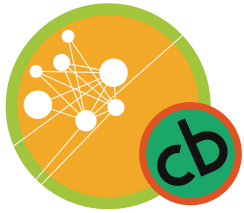
What's different about annotation in biomedicine?

- Frequent need to accommodate **large, deep ontologies**
- **Longer texts** than are common in other domains
- Frequent **multi-model annotation tasks**
- Frequent combination with **light annotation tasks**



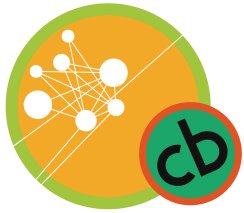
Approach (abstract)

- A. Find out what features people have been building
- B. Find out what else they might want
- C. Figure out how to prioritize affordances



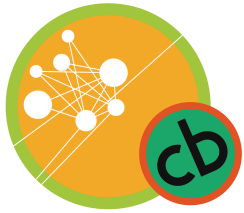
Approach (concrete)

1. Draft paper
2. Literature review
3. Design a survey
4. Delphi: BLAHmuc participants; authors of corpus construction papers; ...
5. Write requirements specification



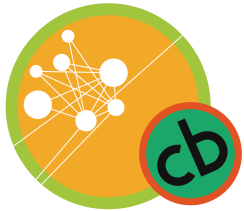
One way to carry out the Delphi procedure

- *Which of these functionalities would be more important to you?*
 - A. Annotate portions of a word
 - B. Discontinuous annotations
- *Which of these functionalities would be more important to you?*
 - A. Discontinuous annotations
 - B. Unicode support
- *Which of these functionalities would be more important to you?*
 - A. Link to Wikipedia
 - B. Unicode support



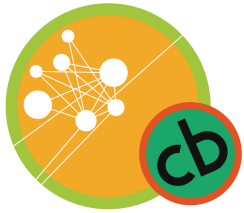
I just made a bunch of unsubstantiated claims

Claim	How to test it
Frequent need to accommodate large, deep ontologies	Sample 20 each biomedical and other projects—determine size of ontologies
Longer texts than are common in other domains	Sample 20 each biomedical and other projects; necessary to specify scientific/clinical?
Frequent multi-model annotation tasks	Need to differentiate between multiple « ontologies » and multiple « models »
Frequent combination with light annotation tasks	Need to « normalize » across papers



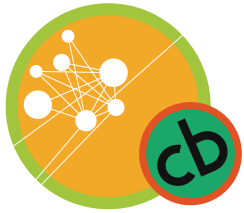
Should we be designing a **tool**, or an **architecture**?

- Tool plusses:
 - Tangible deliverable
 - Far shorter learning curve for potential users
 - May make problems more obvious
- Tool minusses:
 - Easy to « design in » limitations from the beginning
- Architecture plusses:
 - Far more extensible
 - Easier for a community to pick up development
- Architecture minusses:
 - Adopted less often than tools
 - Probably need to understand what the tool would need to provide before we can design an architecture



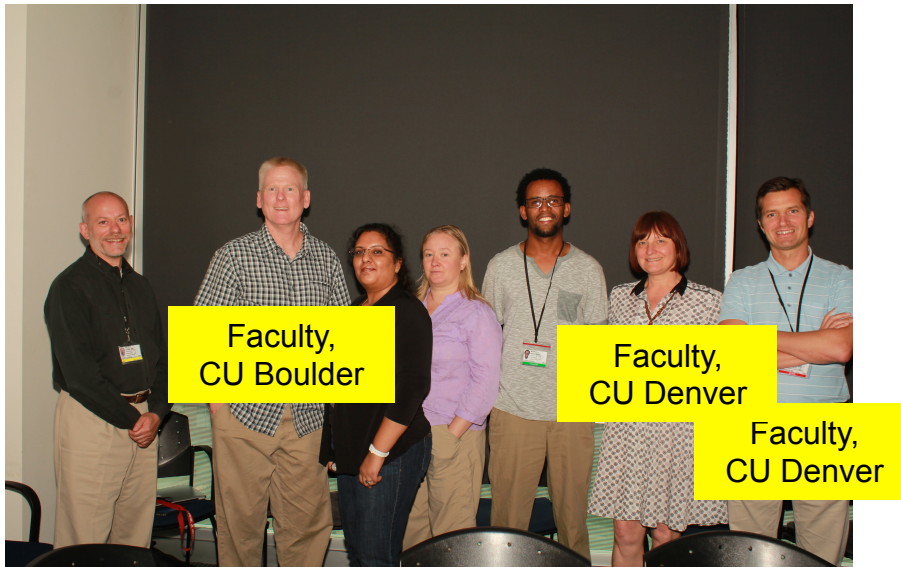
Schedule

- Monday: Symposium
- Tuesday:
 - Assemble list of extant tools to examine
 - *Does it need to be sub-classed by task?*
 - Design feature matrix
 - *If it gets boring, can this be outsourced?*
 - Populate same
 - *If it gets boring, can this be outsourced?*
- Wednesday: How to find out what else people want?
- Next week: design Delphi procedure.
- Next month: Delphi. Survey Monkey? Email? ...



Acknowledgments

- BioHackathon 2016 participants
- BLAHmuc organizers



Me, Rick Osborne, Prabha Yadav,
Natalya Panteleyeva, Negacy Hailu,
Irina Grichtchenko, Ivo Georgiev
(not pictured: Lisa Ensign)