SOURCE SYNTHESIS

Revealing Patterns and Trends

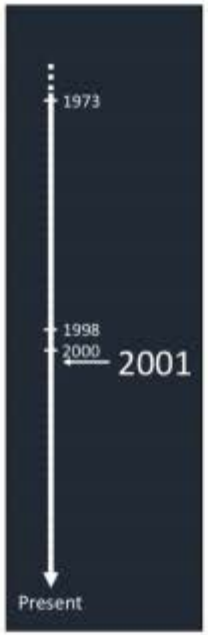
Writing,
Rhetoric,
And
Professional
Communication

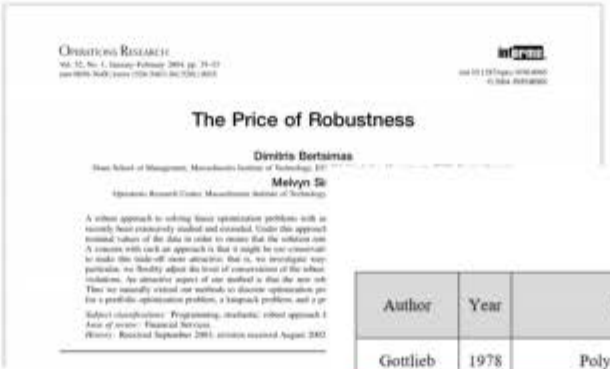
Mapping multiple sources

- How can we visually represent the relationships between sources (in written documents or on slides)?

• Renewed interest in the three-body problem and proliferation of work due to the space race and the advent of modern computing

History is super-compelling, but you need t make sure you get across what the technic gap is: what did people not know how to do, and what were the limitations of the previous approaches.





Previous Work

Author	Year	Name
Gottlieb	1978	Polygon Match
Groth	1986	2D Coordinate Pattern Matching
Kosik	1991	Distance-Orientation
Anderson	1991	Permutation Matrix
Renken	1992	Renken
Liebe	1992	Lost in Space
Baldini	1993	Multi-Step Algorithm
Scholl	1994	6 Feature Method
Ketchum	1995	2nd Sequential Filter
Mortari	1997	Pyramid Algorithm

Credit: Steven Paul Brätt

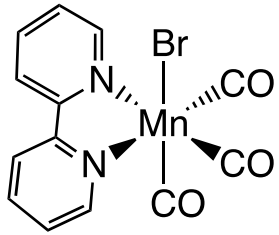
As will be seen below, some steps in the algorithm require computation time proportional to a high power of n, the number of elements in either list, so it is important to reduce the size of each list. For a typical minicomputer, n in the range 20–30 is a manageable number. In the case of the astronomical problem, the n brightest stars in each list can be selected. For other applications, other selection criteria may

20-30 Catalog Stars

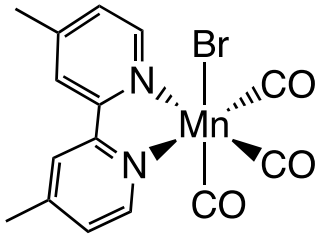
For the tests described in this section, the algorithm was implemented in FORTRAN on a VAX 11/750 with the VMS 3.4 operating system. Representative computation times are taken from test 1 in Table I. The times (in seconds) required for the several steps of the algorithm were: generating and sorting the triangle lists, 21.4; matching triangles, 131.7; discarding false matches, 2.6; voting 1.2; and repeating the algorithm on the matches found, 12.2.

2 Minute Runtime

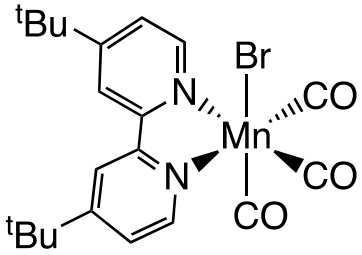
…But More Optimization is Necessary



Bourrez, 2011



Bourrez, 2013

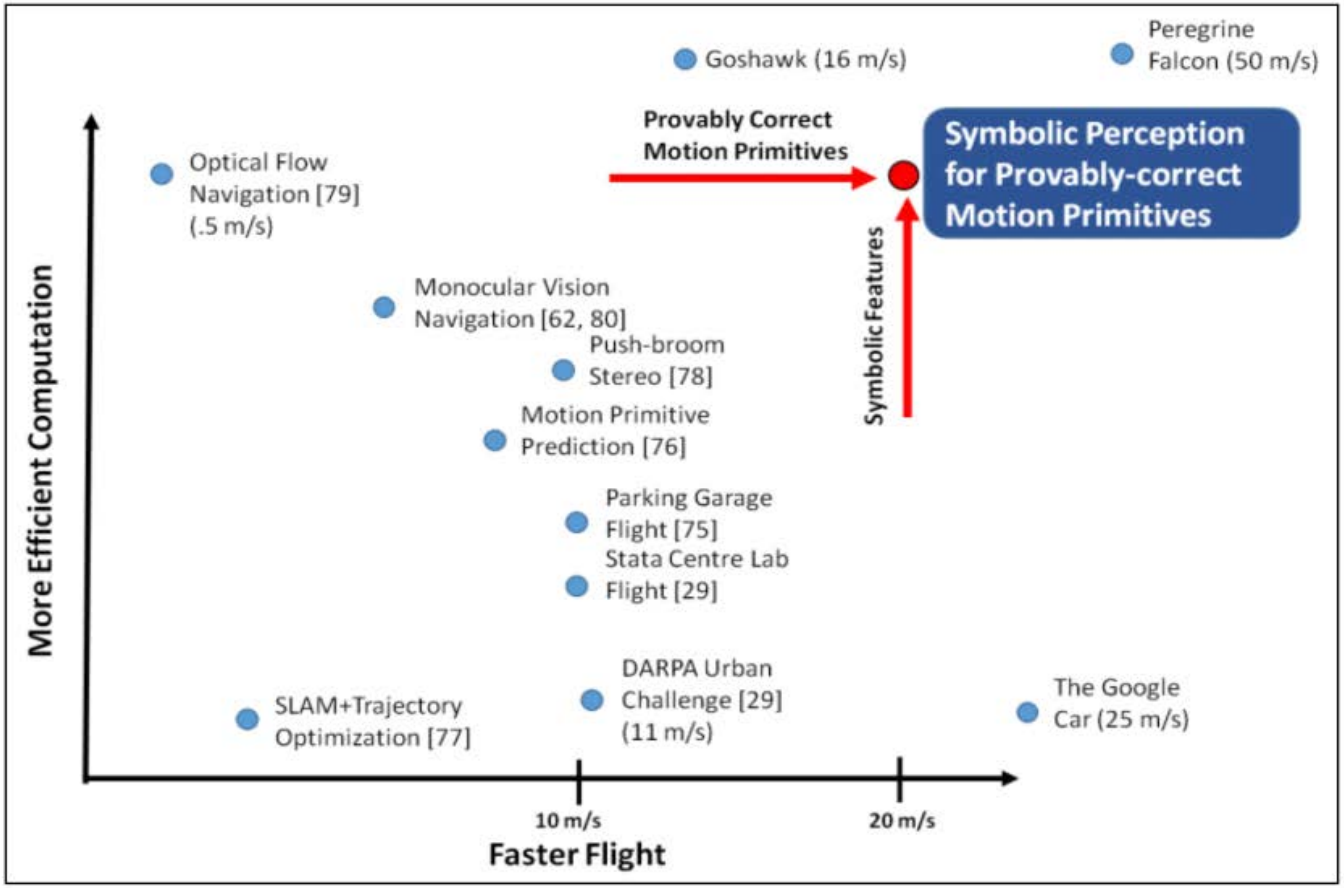


Kubiak, 2013

Light-Induced Decomposition

Varying Ligand Design

Two-Axis Model



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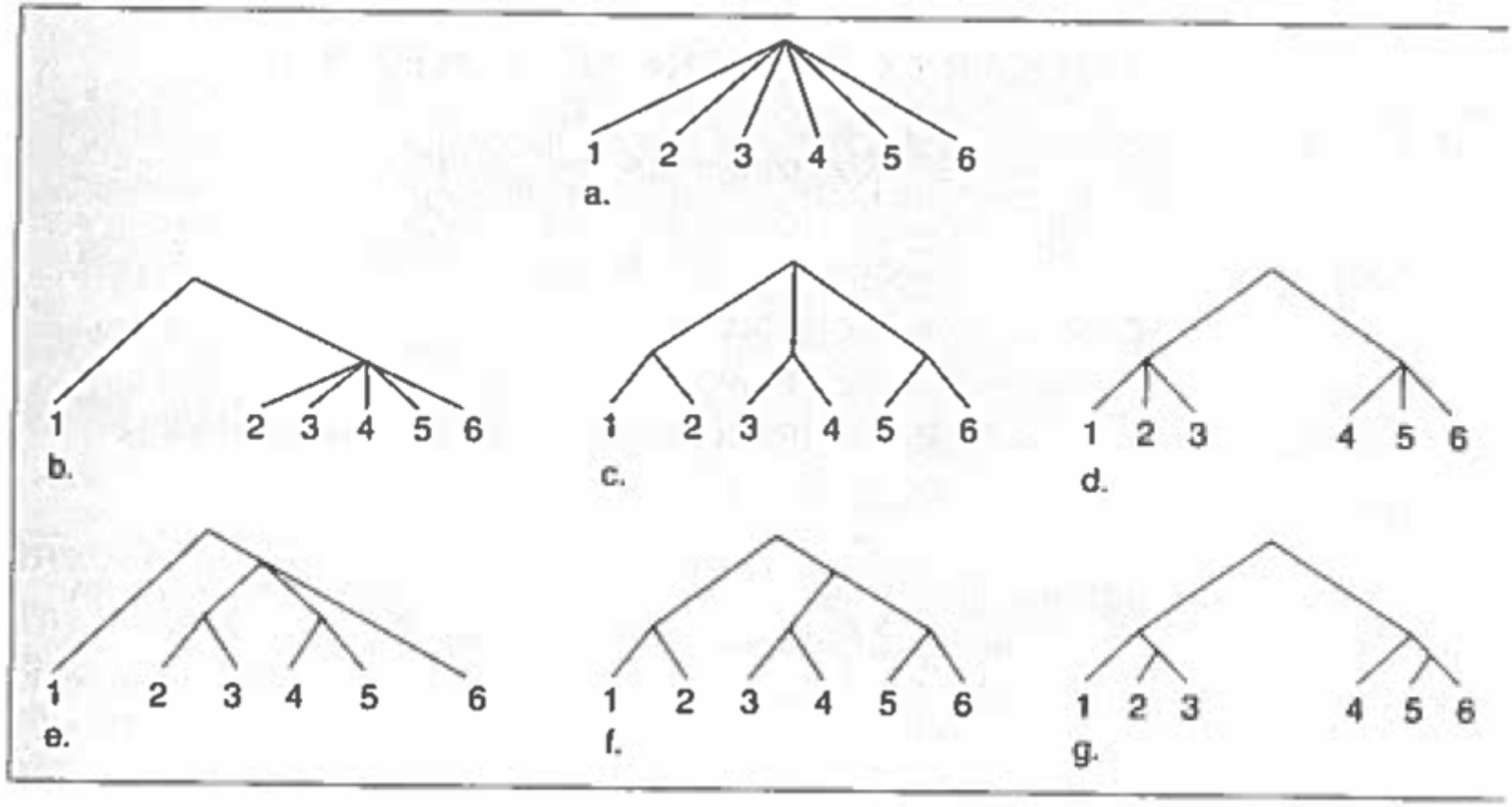
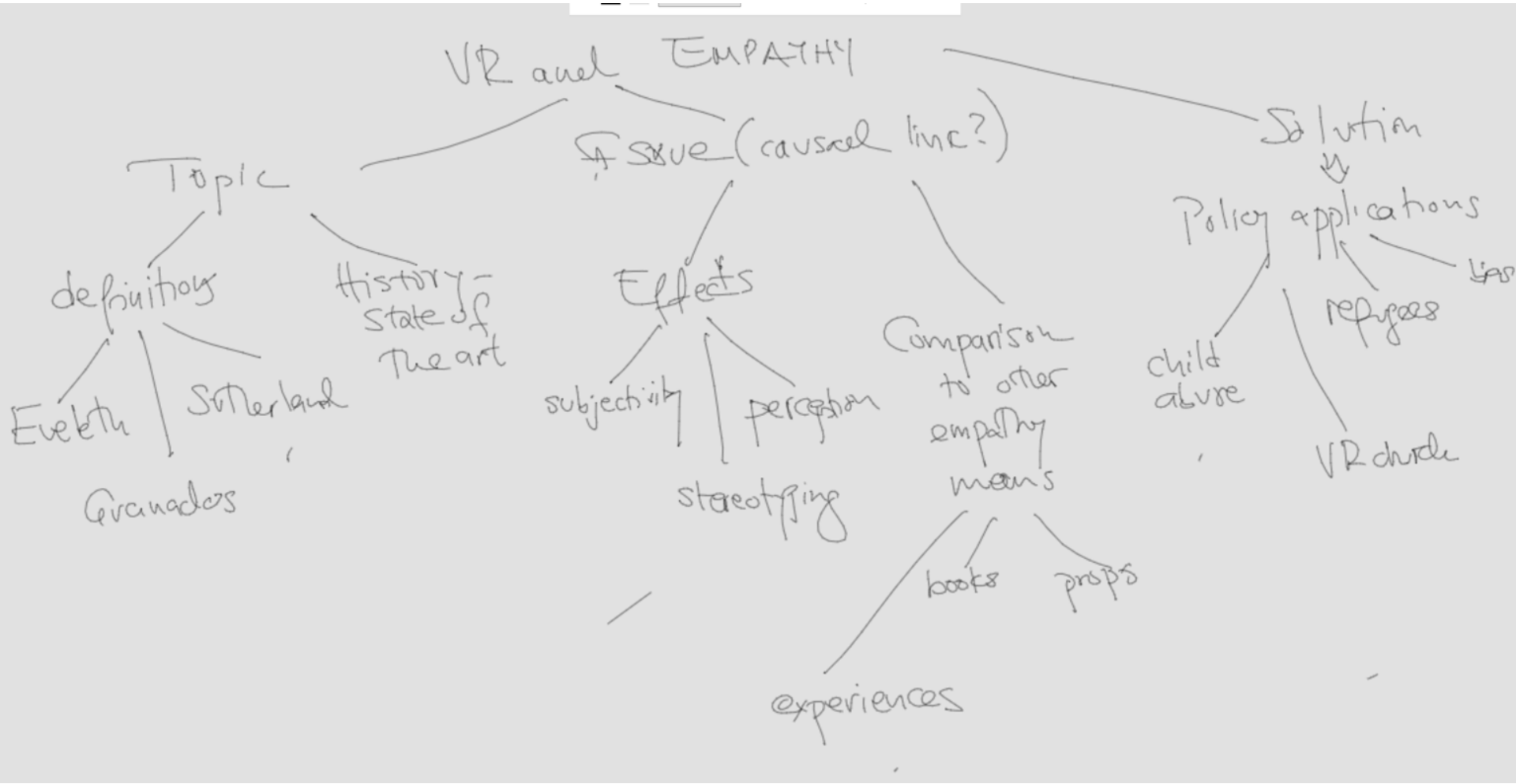
Our rhetorically-framed approach

Article	Author/ Source	Definition of VR and Empathy	Other Key Concepts and Terms	Effects described (Causation)	How it compares to other means of creating empathy (Value, significance, and hierarchy)	Goal/applications (what VR has been applied to in terms of empathy) (policy)	People named (who does it) (Fact)	Qualifers, concessions, etc
Can VR Really Make You More Empathetic?	Zhang, Sarah (Wired, 2016)	No clear definition of either	"empathy engine" "avatars" "simulation-based empathy interventions" "Arrival of a Train at La Ciotat," virtual reality as uranium metaphor	People used fewer napkins; dark-skinned avatars led to "negative stereotypes about black people"; identifying with avatars led to reduced stereotyping;	'could be more effective than the traditional public service ad" Acting as disabled (blindfold, wheelchair) also led to sympathy but misunderstanding	Superman (kindness), Coral (ocean acidification), Ebola, Gaza, Cow (reduce meat consumption), aging, paper waste	Jeremy Bailenson (Stanford) Mel Slater (U of Barcelona and UC London) Leaf van Boven (U of Colorado) Hal Hershfield (UCLA)	No research yet on demographics beyond college students. Unclear how long effects last. Influence on behavior could be negative.

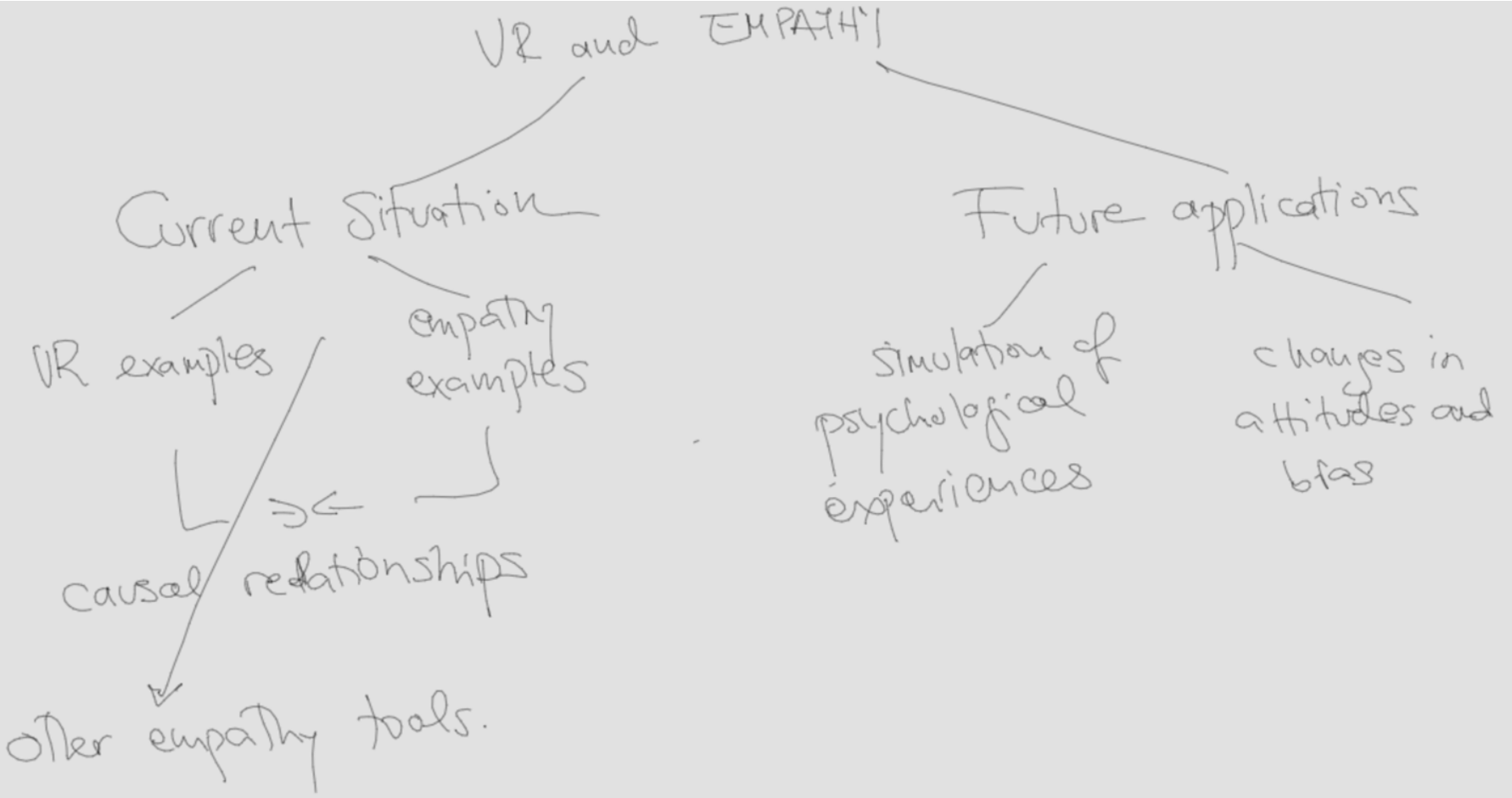
Synthesis trees



Problem-solution structure



Current situation - future structure



Activity time (in pairs)

Generate a synthesis tree from your literature review charts

Present to the class in 2-3 minutes

Generating discourse

Overview:

Write a couple sentences explaining the focus of the research as a whole and the patterns you've found.

Paraphrase

- Identify the verbs
- Identify the nouns
- Break into basic grammatical units (simple subject-verb object sentences)
- Find synonyms for the verbs, then decide whether the nouns are technical (use as is) or nontechnical (find synonyms)
- Link the simple sentences back into complex sentences by paraphrasing the relationship terms.

- Longman Dictionary: https://www.ldoceonline.com/about.html

Production: Generate a body paragraph from the synthesis tree

Topic sentence (stasis)

Supporting statements (identify relationships)

Phrases within moves

Academic Phrasebank: http://www.phrasebank.manchester.ac.uk

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