

Chapter 5. Meeting 5, Discussion and Workshop

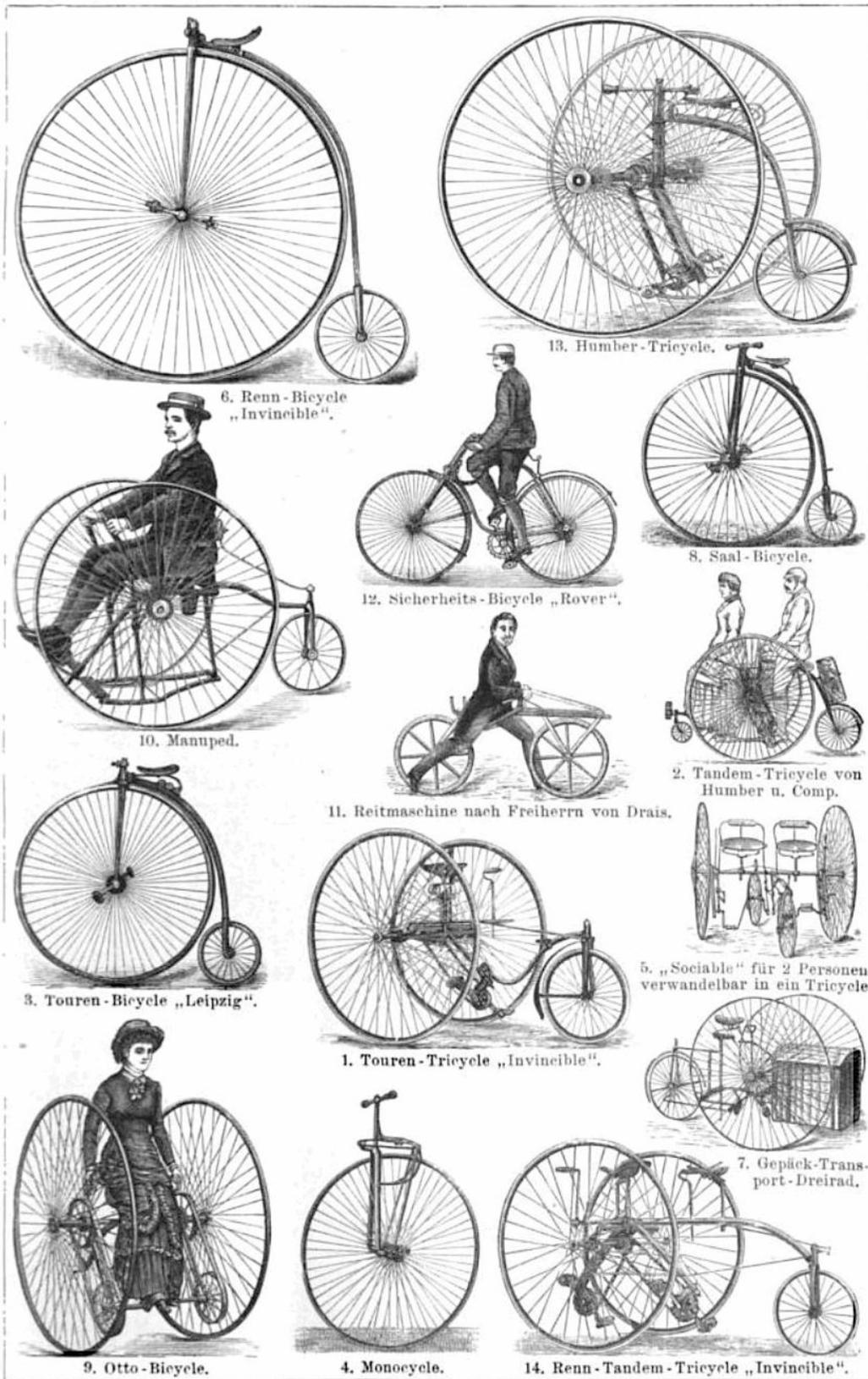
5.1. Announcements

- We will review quizzes on Tuesday

5.2. Reading: Pinch and Bijker

- Pinch, T. J. and W. E. Bijker. 1984. "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." *Social Studies of Science* 14(3): 399-441.
- Velocipedes, Boneshaker

VELOCIPED.

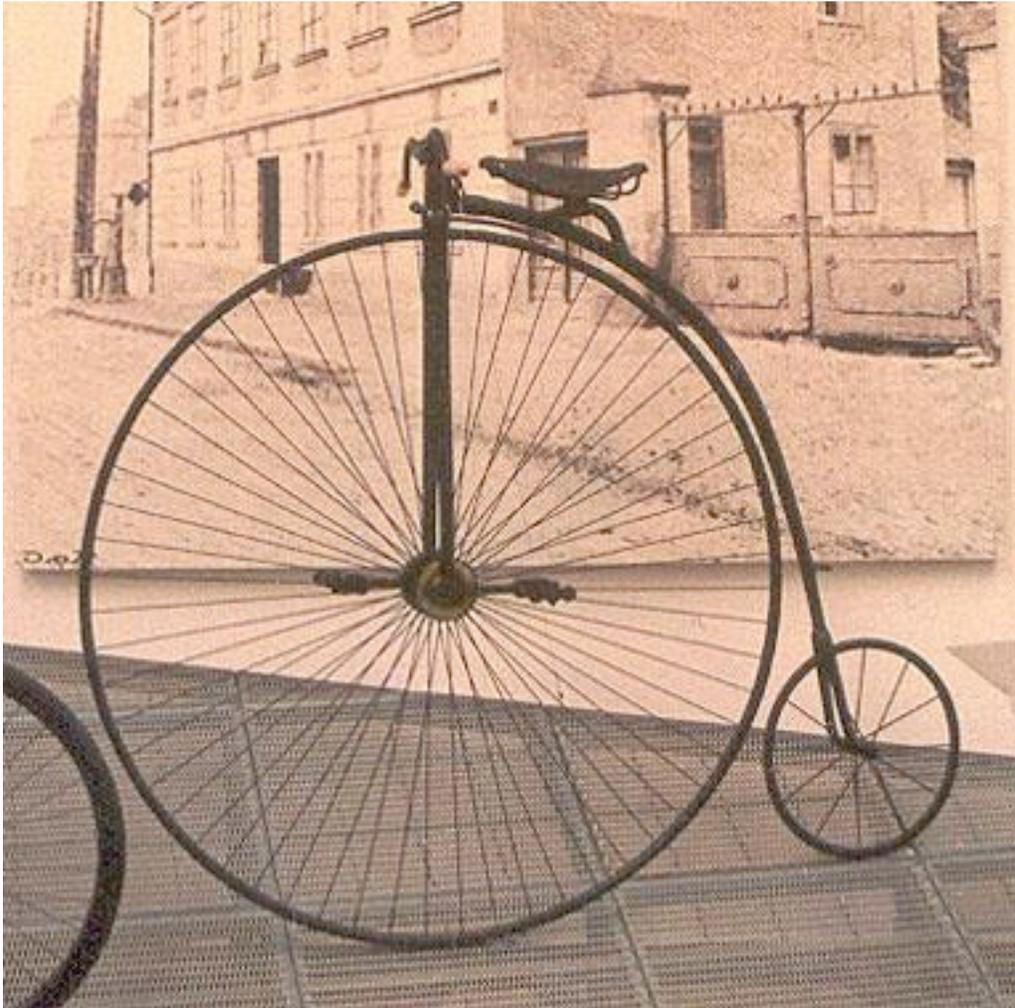


Brockhaus Conversations-Lexikon. 13. Aufl.

Zu Artikel: Velociped.

Source: Wikimedia Commons. From Brockhaus, F. A., ed. *Brockhaus' Conversations-Lexikon*. Vol. 16, 13th ed. Leipzig, Germany, 1887. pp. 142. Public domain.

- Penny-Farthing, or Ordinary



Source: [Wikipedia](#)

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- Bicycleette, or Safety

“Cogent” Safety,
No. 18.

**Good Sound
Materials.**



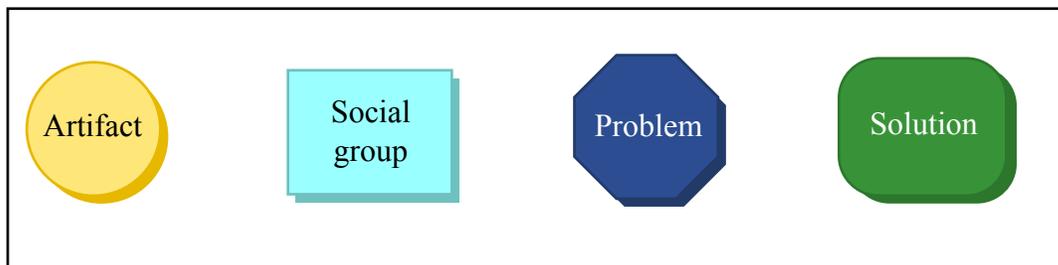
**Cheapest & Best
Rear-driver made.**

PRICE £12 10s. 0d.
SEND FOR A LIST OF 20 CLASSES OF CYCLES.

✠ H. CLARKE, ✠
COGENT WORKS, DARLINGTON STREET, WOLVERHAMPTON.

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- Diagrams:



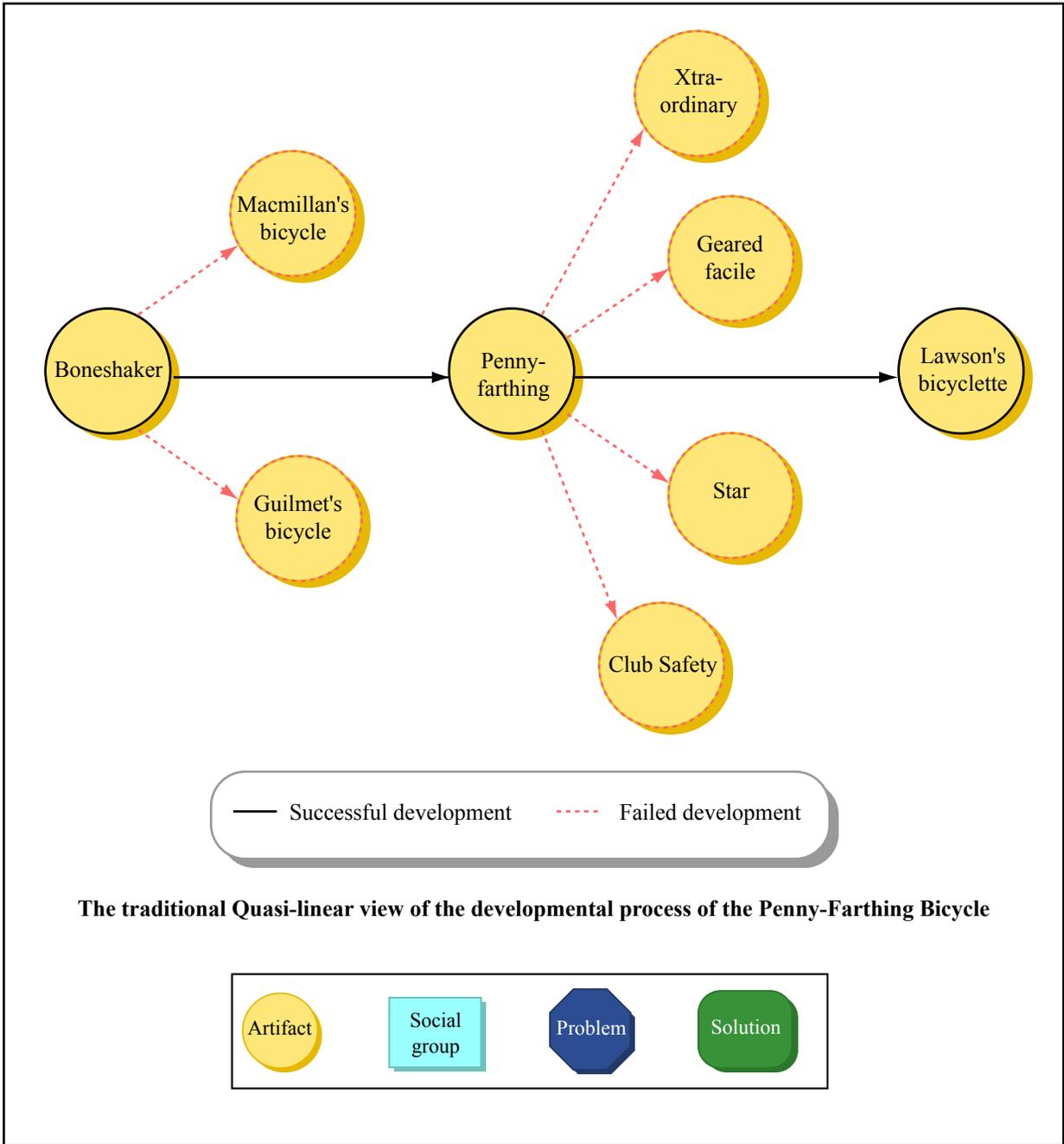


Image by MIT OpenCourseWare. After Pinch and Bijker, 1984.

- Diagrams:

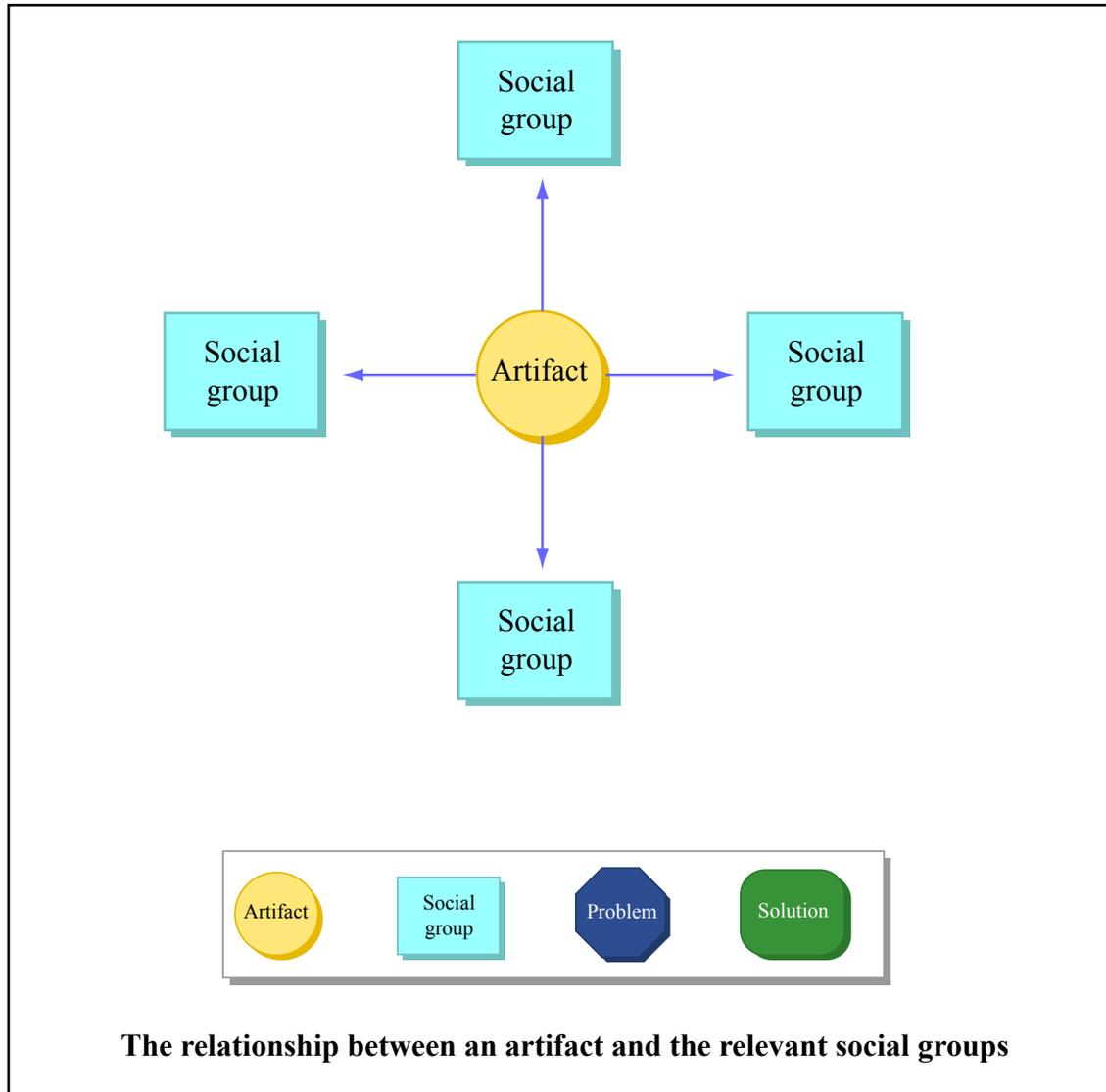
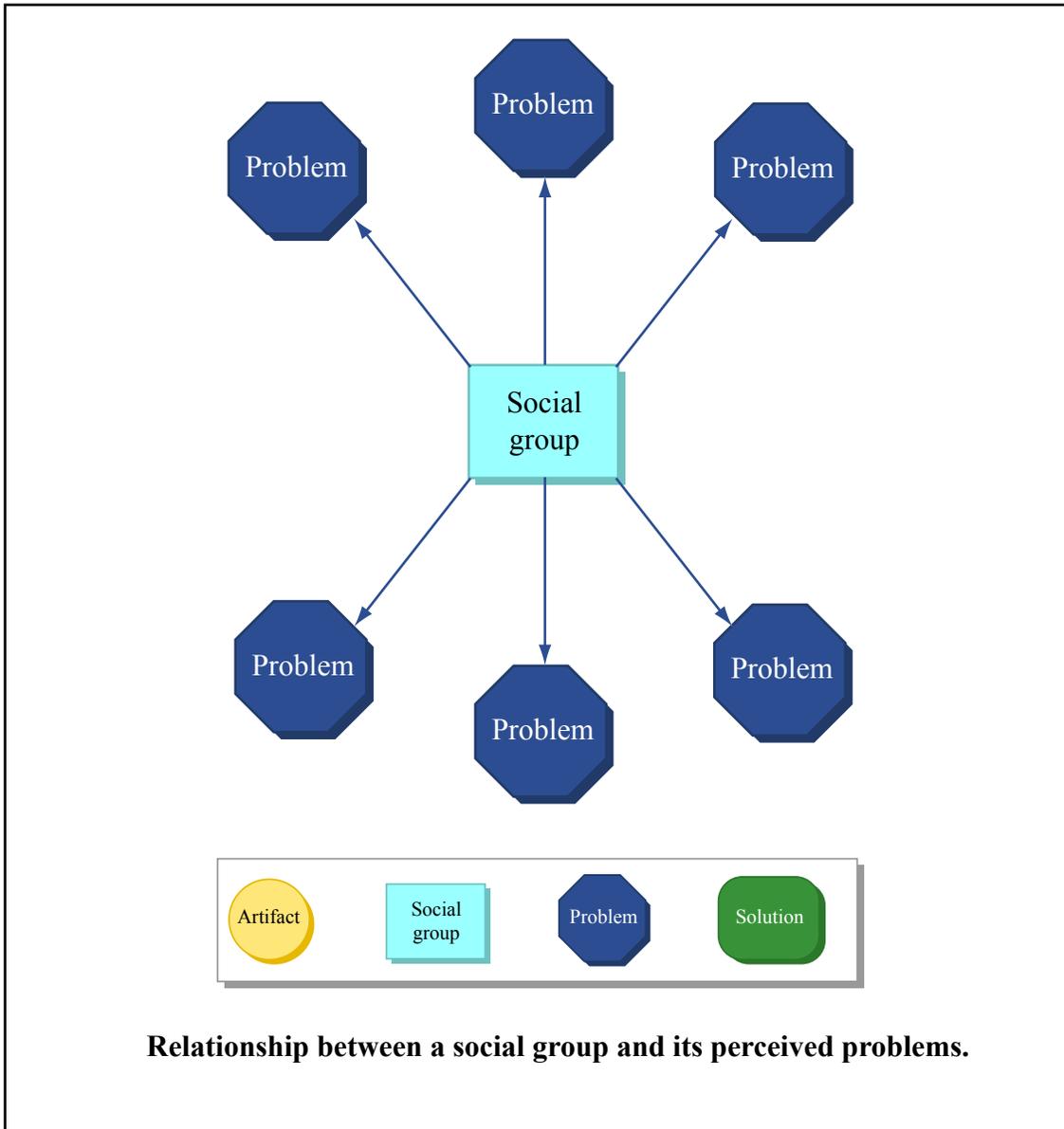
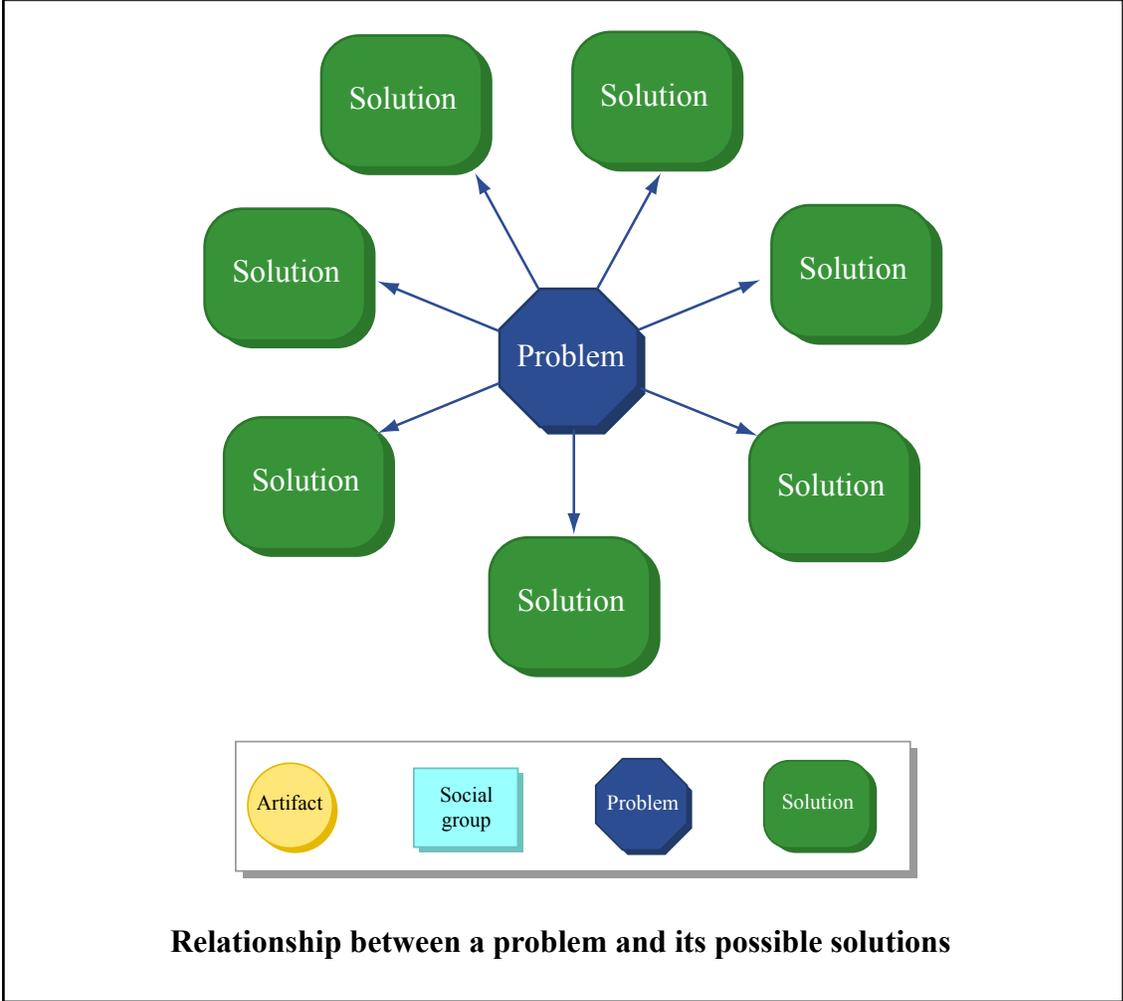


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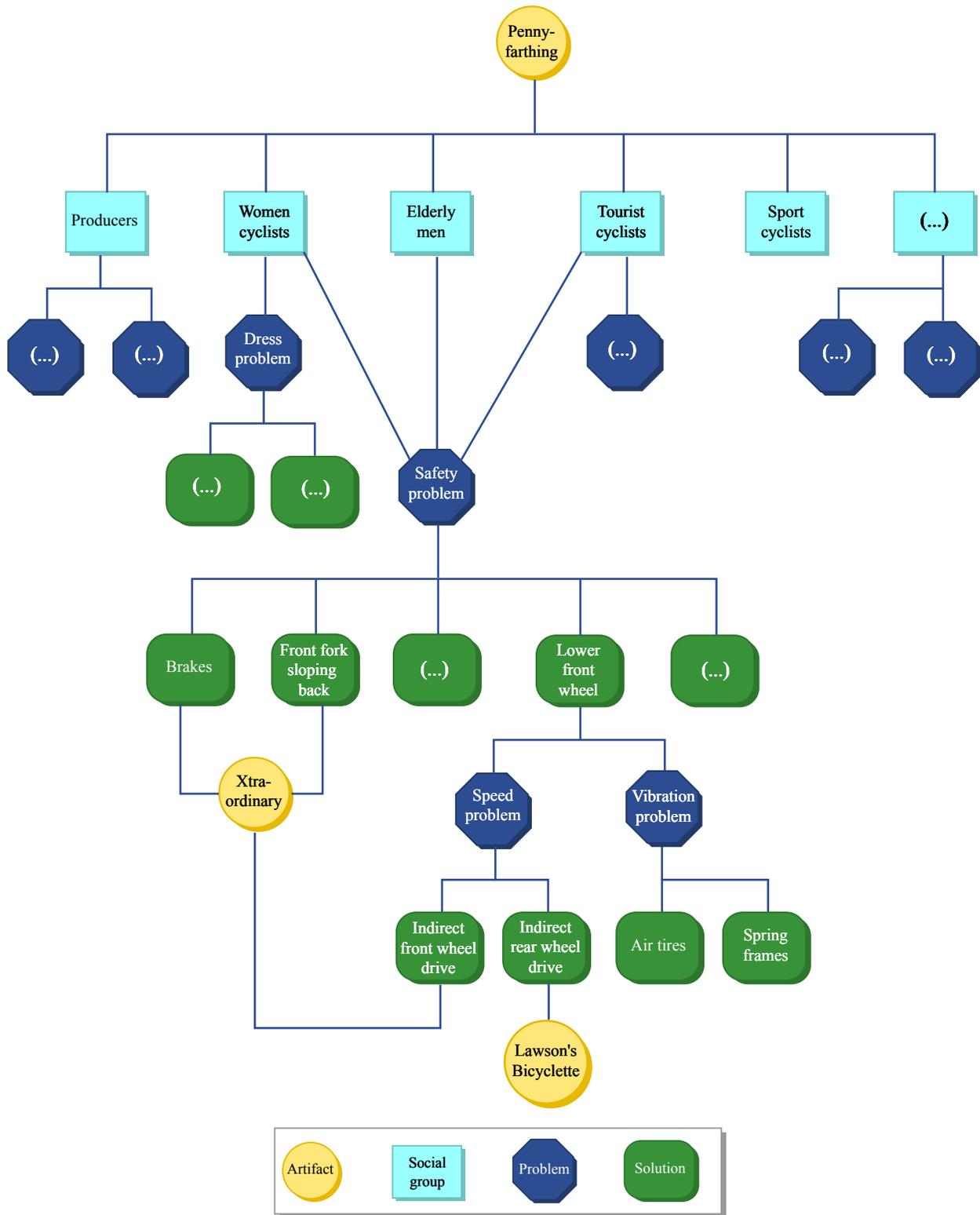
Relationship between a social group and its perceived problems.

Image by MIT OpenCourseWare. After Pinch and Bijker, 1984.



Relationship between a problem and its possible solutions

Image by MIT OpenCourseWare. After Pinch and Bijker, 1984.



Some social groups, problems and solutions in the developmental process of the penny-farthing bicycle.

Image by MIT OpenCourseWare. After Pinch and Bijker, 1984.

5.3. Reading: Pinch and Bijker

- Pinch, T. J. and W. E. Bijker. 1984. "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." *Social Studies of Science* 14(3): 399-441.
- On the necessity of sociological explanation:

Text quotes from the paper removed due to copyright restrictions.

- On symmetrical explanation:

Text quotes from the paper removed due to copyright restrictions.

- On the multi-directional model

Text quotes from the paper removed due to copyright restrictions.

- On relevant social groups:

Text quotes from the paper removed due to copyright restrictions.

- On closure:

Text quotes from the paper removed due to copyright restrictions.

5.4. Reading: Fouché

- Fouché, R. 2006. "Say It Loud, I'm Black and I'm Proud: African Americans, American Artifactual Culture, and Black Vernacular Technological Creativity." *American Quarterly* 58(3): 639-661.

- Fouché criticizes SCOT in its reliance on “relevant social groups” and the idea of “closure”: how are these concepts relevant to the African Americans he writes about?
- Fouché states that, even with a more fluid definition of social groups, “SCOT still is limited by overlooking structural factors such as institutional racism, regional discrimination, economic disparity, and a host of other factors that have led many forms of African American technological creativity to be categorized as inferior” (646); do you agree?
- How can technologies be redeployed, reconceived, and recreated?
- Fouché states that, “by acknowledging the tensions between discordant discourses and accepting nondominant communities as legitimate locations from which to explore the nature of technology within American culture, we can embrace the complexity and contradiction in technology and societies” (650): in addition to African American, what other non-dominant communities might be addressed with this approach?

5.5. The PD Window

- Reports system status
- Console can be used to see printed output with [print]
- Used to turn audio process on and or off: “compute audio”
- No sound or signals will happen without “compute audio”

5.6. The Patcher Window

- A window represents a patch
- Windows can communicate between each other
- A patch can be embedded in another patch
- A patch can be stored as a file and loaded into another patch (abstraction)

5.7. The Patcher Window: Edit and Run Modes

- Patch windows have two modes: edit and run
- Changing modes: Menu: Edit > Edit mode (command E)
- Edit mode: configure objects, create patches, move things around, selected objects are blue
- Run mode: objects do not move, user interface components (knobs, sliders) function

- Example: Put a Vslider; when blue, in edit mode, cannot use slider; in run mode, black, can use slider

5.8. Objects

- An object has a class: a paradigm, an archetype
- We can make many instances of the same object, each with its own behavior and settings
- Example: [random 20], [random 4]

5.9. Objects: Creation

- Use the Put menu: Menu: Put > Object (command 1)
- An empty dotted-line box emerges: this is not an object
- An object has to have at least one creation argument to specify its type
- Example: [+], [random], [line], [select], [print], [osc~]

5.10. Objects: Types

- There are event objects and signal objects
- Event objects process data: [line], [select]
- Signal (tilde) objects process signals: [line~], [osc~]
- There may be two versions of a type of object, one for events, one for signals: [+], [+~]

5.11. Object Inlets

- Inlets provide data or signals into objects
- White inlets are for data, dark inlets are for signals
- Example: [+], [+~]
- For some event objects, leftmost inlet is hot: output is provided only when values are provided in this inlet
- Example: [+], [pack]

5.12. Object Outlets

- White outlets are for data, dark inlets are for signals
- Example: [+], [+~]
- Outlets usually provide output from right to left
- Example: [unpack f f f]

5.13. Object Interconnections

- Connections between objects can transmit signals or data
- Signal and data connections are different, and cannot be interconnected
- To create a connection: in Edit mode, mouse over outlet until cursor is a circle; click and hold; mouse over desired inlet until cursor is a circle; release click.
- Example: [* 4] to [+ 3], [*~ 4] to [+~ 3]

5.14. Data

- Data can be bangs, numbers, symbols, lists, or signals
- Bangs (b): a trigger, an event, a “do something now”
- Numbers (f): numbers can be integers or floating point values
- Symbols (s): character strings
- Lists (l): a space separated collection of numbers or symbols
- Signals (v): floating-point number stream at the sampling rate (when “computer audio” is on)

5.15. Data Storage

- Data can be seen (in objects, interfaces, etc) and unseen (in objects, through patch connections)
- Only data that is “seen” is saved with patch

5.16. Data Storage: Message Boxes

- Use the Put menu: Menu: Put > Message (command 2)

- One inlet, one outlet; note curved left side
- Store bangs, numbers, symbols, or lists
- Saved with patches
- Provide a user interface: can be clicked in Run mode to provide output
- Example: (bang) to [random 10] to [print]
- Example: (3) and (10) to [+] to [print]

5.17. Data Storage: Objects

- Objects can have additional construction arguments
- These arguments configure how the object performs
- These arguments can sometimes be overridden by inlet values
- Example: [* 3]

5.18. Interface Objects: Number Boxes

- Can be used to provide number inputs to other objects
- Can be used to receive the numbers outputted from objects
- Can be varied only in Run mode
- Holding down shift permits enter floating point values

5.19. Interface Objects: Bang

- Can click to send a bang
- When receiving a bang, darkens
- Sending a bang can be replaced by a message box with “bang” specified

5.20. Selecting, Moving, and Copying Objects

- Objects can only be moved in edit mode
- Can click and drag to create a selection area

- Objects (and interconnections) can be duplicated and copied
- Always duplicate

5.21. Object Help, Documentation, and Tutorials

- Control click on an object and select “help” to view a help patch
- Demo patches provide examples and explanation
- The PD Glossary <http://www.flexatone.net/docs/pdg/>
- Kreidler, J. 2009. “Programming Electronic Music in Pd.” Wolke Publishing House. Internet: <http://www.pd-tutorial.com>.

5.22. Object Properties

- Control click on a bang interface object and select “properties” to specify visual appearance
- Colors and other attributes can be configured

5.23. Comments

- Comments are notes left to readers of the program
- Comments cannot be used as data in a patch
- Use the Put menu: Menu: Put > Comment (command 5)

5.24. Saving Patches and PD files

- Always save files with a .pd extension at the end
- PD files are text files that specify the interconnections between objects

5.25. Abstractions and Martingale

- Abstractions are PD patches that can be used in other PD patches
- Abstractions may have any number of inlets or outlets
- To load an abstraction, it must be placed in a directory that PD knows about
- Download Martingale manually: <http://code.google.com/p/martingale/>

- Get Martingale via SVN command-line argument: svn checkout <http://martingale.googlecode.com/svn/trunk/martingale-read-only>
- Add the “martingale/pd/lib” directory to Preferences > Path; this permits loading abstractions from the martingale library

5.26. Managing Files

- PD patch files can be stored anywhere
- Any number of additional paths can be added to the Path list to load user-created abstractions

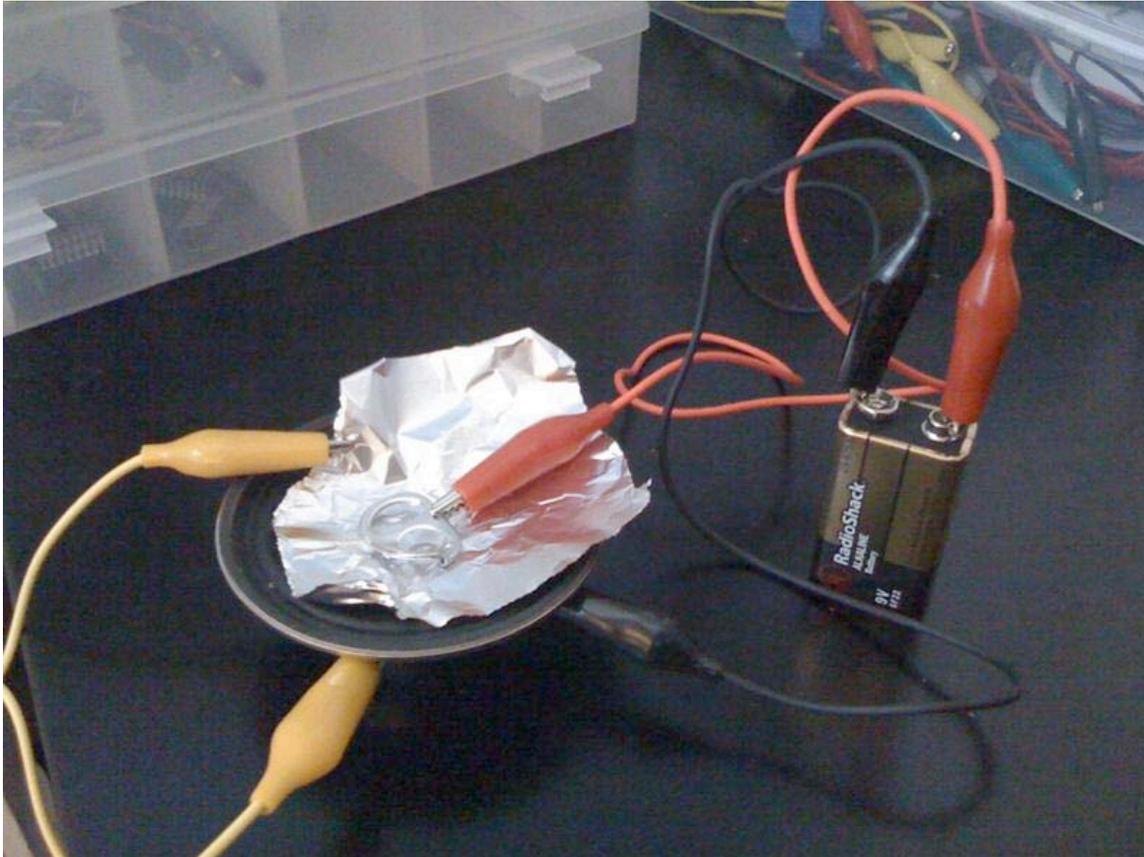
5.27. Hardware Hacking: Speaker as Dynamic Microphone and Feedback Generator

- Simply connect speaker to amp



5.28. Hardware Hacking: The Jumping Speaker and Victorian Oscillator

- Mechanical/electrical feedback loop (Collins 2009, pp. 23-25)



5.29. Hardware Hacking: Tape Heads

- Reading data from cards, tapes (Collins 2009, pp. 59-60)

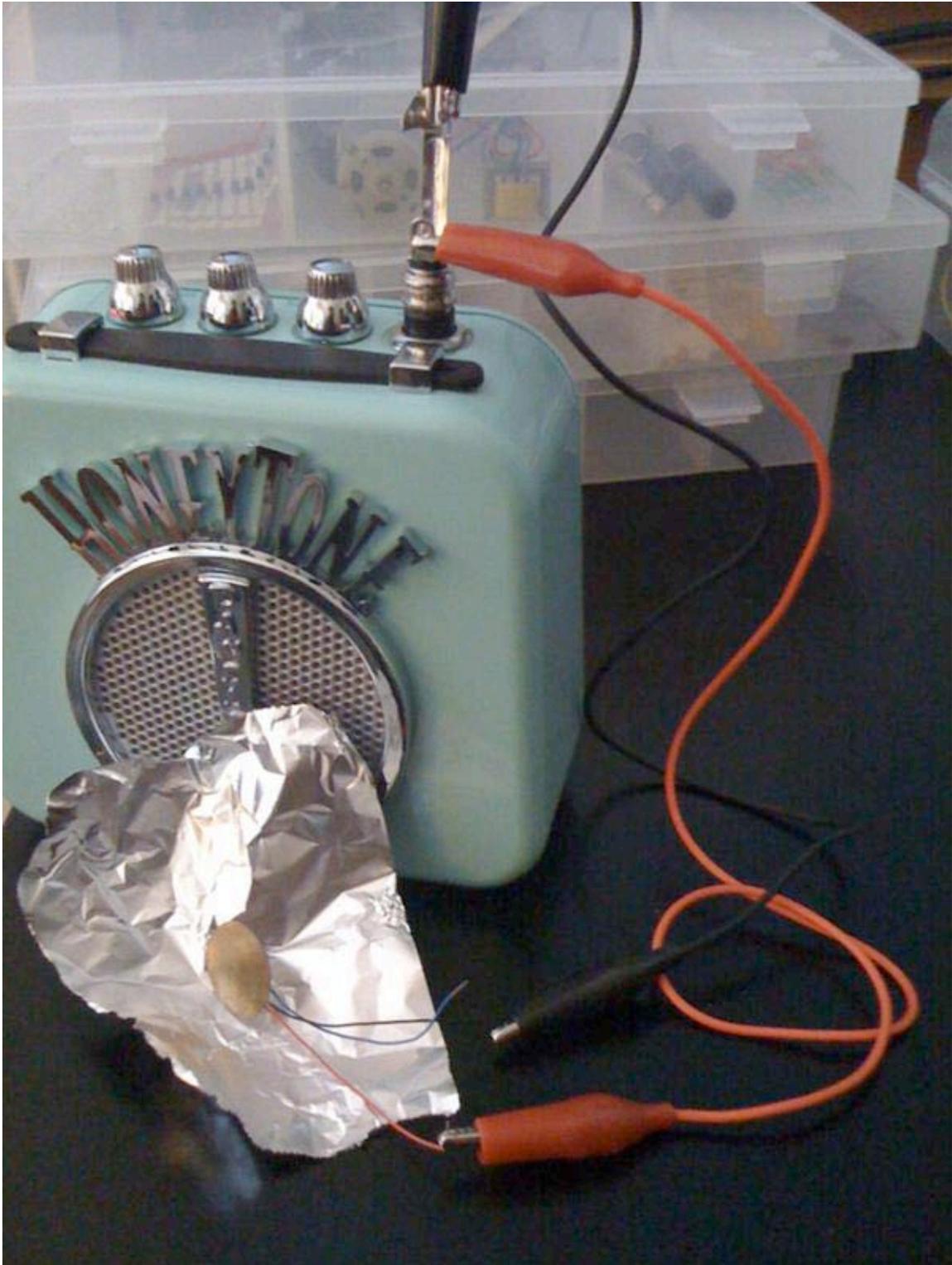






5.30. Hardware Hacking: Piezo Microphones

- Feedback through aluminum foil (Collins 2009, pp. 32-34)



5.31. Hardware Hacking: Condenser Microphone

- The breadboard

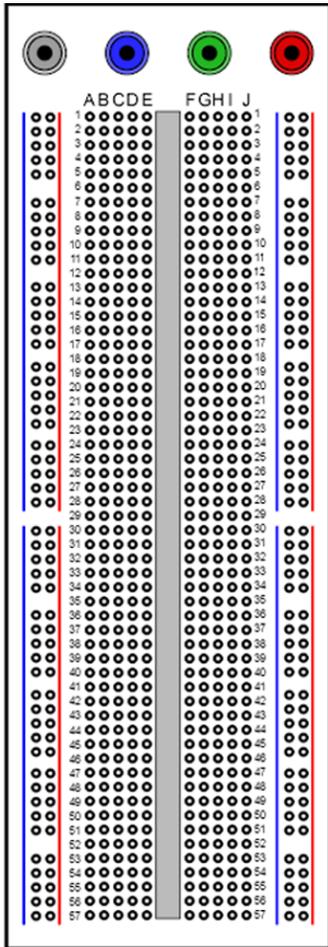
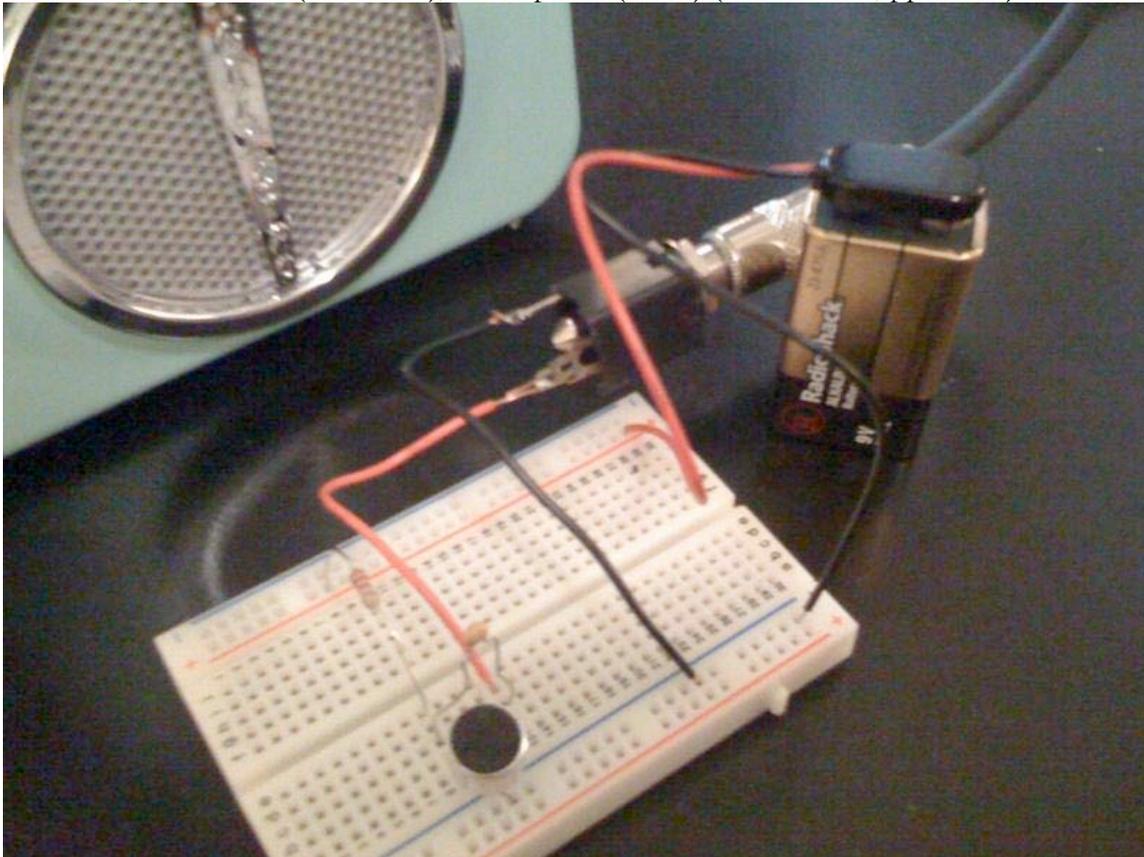


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- 9V source, one resistor (2.2 kOhm), one capictor (0.1 uf) (Collins 2009, pp. 66-67)



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Fall 2009

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