Music & the Internet MUMT301

Gabriel Vigliensoni
Schulich School of Music
McGill University

Plan

- Potential final projects

- Mid-term review

- Intellectual property, copyright, and copyright alternatives

- Music discovery tools

- API and Webservices

- Music APIs

- JavaScript

- Assignment #6

Intellectual property

- Copyright Act: any original literary, dramatic, musical (musical compositions with or without words) or artistic work is automatically protected by copyright the moment it is created

- In the simplest terms, "copyright" means "the right to copy": the right to reproduce a work, or a substantial part of it, in any form

- In the case of music or sound:

  - **a recording consisting of sounds**

  - **a performance of a musical work**

  - **an improvisation of a musical work**

- Copyright in Canada

Intellectual property

- The **work's creator** is usually the **copyright owner**

  - Exceptions: an employer has copyright for works created by employees unless there is an agreement to the contrary

- When you own copyright on a work you can **control how it is used**

  - **Selling the right** to use the work, or **getting a permission** to use it

  - You can **limit its use** to protect the value of the copyrighted work.

- Even though copyright protection is automatic, **registration** gives you evidence of ownership

  - **Certificate of registration of copyright:** evidence that copyright exists and that the person registered is the owner of the copyright

Intellectual property

- Application in Canada for a registration of a copyright in a
  - Work
  - Performer's performance or sound recording

- Copyright generally exists for the life of the author/s plus an amount of time after their death

- This amount of time varies per country

  - Canada: 50 years after the death of the author

  - US: 70 years after the death of the author

- After that, the work becomes part of the public domain and anyone can use it.

Canada and Copyright

- Why there are just a few on-demand music services in Canada?

  - Canada is a party to the **Berne Convention of 1886**

    - aspects of modern copyright law were set

    - copyright exists the moment a work is "fixed"

    - countries recognize copyrights held by the citizens of all other signatory countries.

- Canada **signed but did not ratified** both the WIPO Copyright Treaty of 1996, and the WIPO Performances and Phonograms Treaty of 1996

- File sharing in Canada

- That changed two years ago!

Fair use

- Fair Use
  - copying of copyrighted material done for a **limited and "transformative" purpose**
  - based on the belief that the public is entitled to **freely use portions** of copyrighted materials for purposes of **commentary** and **criticism**
  - such uses can be done **without permission** from the copyright owner
  - if your use qualifies as fair use, then it would not be considered an illegal infringement
- The **Four Factors** are used to measure fair use**:**
  - the **purpose and character** of usage (the transformative factor)
  - the **nature** of copyrighted work
  - the **amount and substantialit**y of the portion taken
  - the **effect of the use** upon the potential market
- What If You Acknowledge the Source Material?
  - **Acknowledgment of the source** material (such as citing a photographer) may be a **consideration** in a fair use determination, but **it will not protect** against a claim of infringement.
- E.g.,
  - Text: limited copying for educational purposes
  - Audio/visual content: limited performance for educational purposed
  - Graphical content: limited display for educational purposes

Fair use

- Fair use music cases

  - A television film crew, covering an Italian festival in Manhattan, recorded a band playing a portion of a copyrighted song "Dove sta Zaza." The music was replayed during a news broadcast.

  - A woman was sued for copyright infringement for downloading 30 songs using peer-to-peer file sharing software. She argued that her activity was a fair use because she was downloading the songs to determine if she wanted to buy them later.

  - Campbell v. Acuff-Rose Music Inc. (AKA 2 Live Crew vs. Roy Orbison)

  - WAY

  - Danger Mouse's The Grey album

    - Jay-Z and Macca reaction

Copyright alternatives
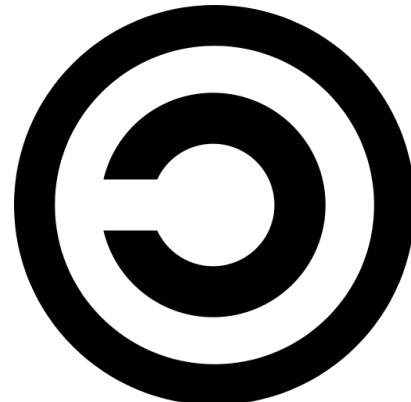
Public Domain

- "Creative materials that are not protected by intellectual property laws such as copyright, trademark, or patent laws."

- **Four common ways** that works arrive in the public domain

  - the copyright has **expired**

  - the owner failed to follow copyright **renewal rules**

  - the owner deliberately **places it in the public domain**

 - copyright law does not protect this type of work

Copyleft
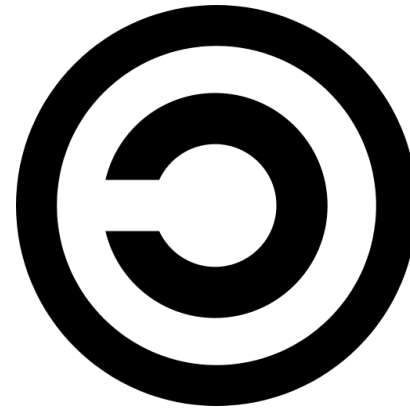
- Practice of using copyright law to offer **the right to distribute copies and modified versions of a work,** requiring that **the same rights be preserved in modified versions of the work**

- Copyleft can be characterized as a copyright licensing scheme in which an **author surrenders some, but not all rights** under copyright law

- **Instead of allowing a work to fall completely into the public domain** (where no ownership of copyright is claimed), **copyleft allows an author to impose some restrictions** on those who want to engage in activities that would more usually be reserved by the copyright holder

- Four **types of freedom**:

  - Freedom 0 – the freedom to use the work

  - Freedom 1 – the freedom to study the work

  - Freedom 2 – the freedom to copy and share the work with others

  - Freedom 3 – the freedom to modify the work, and the freedom to distribute modified and therefore derivative works

- Under copyleft, **derived works may be produced** provided they are released under the compatible copyleft scheme
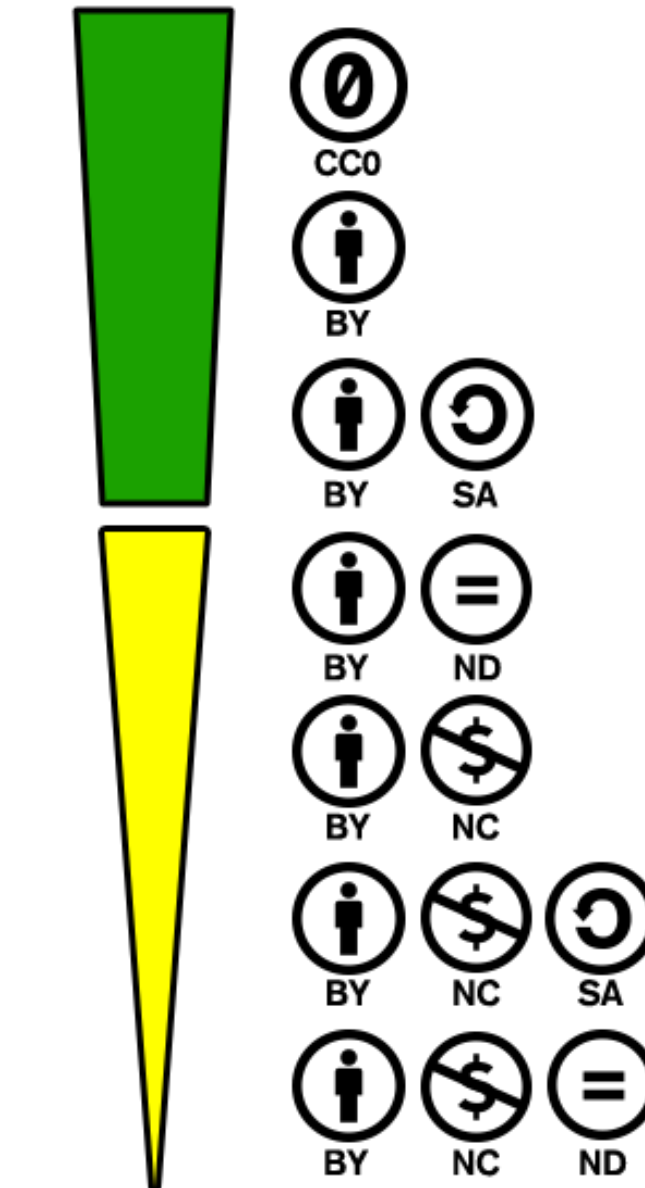
Creative Commons

- "Reasonable, flexible copyright" at www.creativecommons.org
- Copyleft-like licenses for creative work
- Four main variables
  - Attribution
  - Non-commercial
  - No derivative works
  - Share alike
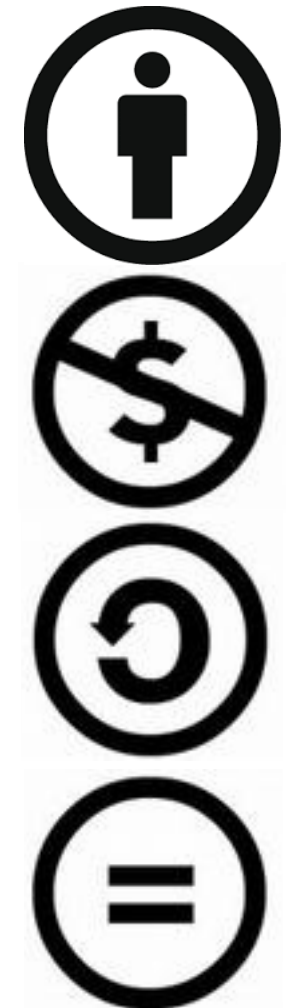
CC licenses

Creative Commons

MOST OPEN

CC0

BY

BY SA

BY ND

BY NC

BY NC SA

BY NC ND

LEAST OPEN

CC0 Public Domain Dedication
Attribution
Attribution-ShareAlike
Attribution-NoDerivs
Attribution-NonCommercial
Attribution-NonCommercial-ShareAlike
Attribution-NonCommercial-NoDerivs

13

CC Music

- [A new public domain score and studio recording of Bach's Goldberg Variations - set the Goldbergs free!](). [The link!]()
- [Chris Zabriskie](), on [CC]()
- [Creative Common Music Communities]()
- [Creative Commons Record Labels]()
- [Freesound]()
- [Kompoz]()
- [iBeat]()
- [Musopen]()
- [InternetArchive]()
- [IMSLP]()

API and Webservices

- **API** (Application Programming Interface)

  - Specifies a software component in terms of:

    - their inputs and outputs

    - the underlying types

    - its operations

  - APIs can come as a specification of remote calls exposed to the API consumers

API and Webservices

- Web service:

  - "...a software system designed to support interoperable **machine-to-machine interaction** over a network." (W3C)

  - **method of data exchange** that **doesn't depend upon a particular programming language**

  - Web services can be **used by other applications**

API and Webservices

- Examples:

  - <u>Weather</u>

  - <u>Exchange rate</u>: <u>ex. 1</u> , <u>ex. 2</u>

  - <u>Stock prices</u>, <u>ex. 2</u>

  - Social data: <u>Instagram</u>, <u>Twitter</u>, <u>Facebook</u>

  - Music APIs!

API and Webservices

- Query formats (protocols to access Web services)

  - **SOAP**: focuses on exposing pieces of operations logic (not data) as services

    - `switchCategory(User, OldCategory, NewCategory)`

  - **REST**: focuses on accessing named resources through a single consistent interface

    - `getUser(userName)`

- Results formats

  - XML (Extensible Markup Language)

  - JSON (JavaScript Object Notation)

  - HTML

SOAP

- Formerly known as Simple Object Access Protocol Used for communication between applications

- Language and platform independent

- Only permits XML as the message format

REST

- REpresentational State Transfer

- Message format can be: XML, JSON, HTML, plain text, etc.

- Language and platform independent

- Uses HTTP

- HTTP-based RESTful APIs are defined with these aspects:

  - base URI, such as `http://example.com/resources/`

  - an Internet media type for the data. This is often XML or JSON but can be any other valid Internet media type

  - standard HTTP methods (e.g., GET, PUT, POST, or DELETE)

REST

- standard HTTP methods (e.g., GET, PUT, POST, or DELETE)

RESTful API HTTP methods

Resource	GET	PUT	POST	DELETE
Collection URI, such as `http://example.com/resources`	**List** the URIs and perhaps other details of the collection's members.	**Replace** the entire collection with another collection.	**Create** a new entry in the collection. The new entry's URI is assigned automatically and is usually returned by the operation.[16]	**Delete** the entire collection.
Element URI, such as `http://example.com/resources/item17`	**Retrieve** a representation of the addressed member of the collection, expressed in an appropriate Internet media type.	**Replace** the addressed member of the collection, or if it doesn't exist, **create** it.	Not generally used. Treat the addressed member as a collection in its own right and **create** a new entry in it.[16]	**Delete** the addressed member of the collection.

Taken from http://en.wikipedia.org/wiki/Representational_state_transfer

JSON

- JSON (JavaScript Object Notation)

    - open-standard format that uses human-readable text to transmit data objects consisting of attribute–value pairs

    - http://json.org/example.html

- Download a JSON viewer for your browser

    - http://jsonview.com/example.json

- XML and JSON example

    - http://musicbrainz.org/ws/2/artist?query=ratatat&fmt=xml

    - http://musicbrainz.org/ws/2/artist?query=ratatat&fmt=json

Music APIs

- MusicBrainz API

- LastFM API

- Echonest API (RIP)

- and many others ...

  - http://musicmachinery.com/music-apis/

MusicBrainz API

- An **interface** to the MusicBrainz Database

  - https://musicbrainz.org/doc/MusicBrainz_Database/Schema

- Aimed at any applications requiring **music metadata**

- The service's architecture follows the **REST design** principles

- Interaction with the web service is done **using HTTP** and all **content is served in XML and JSON**

- https://musicbrainz.org/doc/Development

  - The **web service root URL** is http://musicbrainz.org/ws/2/

- **Lookup:**

  - http://musicbrainz.org/ws/2/artist/f467181e-d5e0-4285-b47e-e853dcc89ee7

- **Search:**

  - http://musicbrainz.org/ws/2/artist?query=ratatat

- **Query:**

  - http://musicbrainz.org/ws/2/release?artist=f467181e-d5e0-4285-b47e-e853dcc89ee7&type=album

  - http://musicbrainz.org/ws/2/release-group?artist=f467181e-d5e0-4285-b47e-e853dcc89ee7&type=album

BREAK

JavaScript

- mumt301.github.io

- In-class assignment: create a small website that asks a user for an artist and returns the Musicbrainz ID for that artist

Potential final projects

- Music recommendation site

- <u>Web-based musical instrument</u> or <u>controller</u>

- Music playlist maker

- History of the recording industry in the age of the Internet

- Statistical / historical analysis of music industry based on web-based data

- Study of international music copyright laws

- Study of fair use and copyright infringement music cases

- Substantial music composition (20-30 min) strictly using web resources with substantial write up (2-3 pages)

- Comprehensive comparison of on-demand music streaming services