

PERCEPTUAL VS. AUTOMATED JUDGEMENTS OF MUSIC COPYRIGHT INFRINGEMENT

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BACKGROUND

❖ Music Copyright Infringement

❖ **Inappropriate music copyright lawsuits** not only inhibit music creativity but also **waste millions** of taxpayer dollars annually.

❖ Perceptual vs. Automated

❖ Recent MIR research has proposed **automated similarity algorithms** which reduce subjectivity in music copyright decisions, but there remains almost **no relevant perceptual data**.

❖ Data on degrees of both computed and perceived similarity can help to determine objective standards for how much copying is required to be considered as substantial similarity.

DATASET PREPARATION

Full-audio

A

B

Melody-only

A

B

Lyrics-only

A sans toi / le jour ressemble à la nuit / la vie ressemble à mort / ce soir écoute-moi.

B Feelings, nothing more than feelings. / Trying to forget my feelings of love.

Since melody, lyrics, and other non-copyrightable musical factors affect people's judgements on music similarity, we designed a controlled experiment where we constructed versions of each disputed musical work to contain either full audio, melody only, or lyrics only.

PERCEPTUAL EXPERIMENT

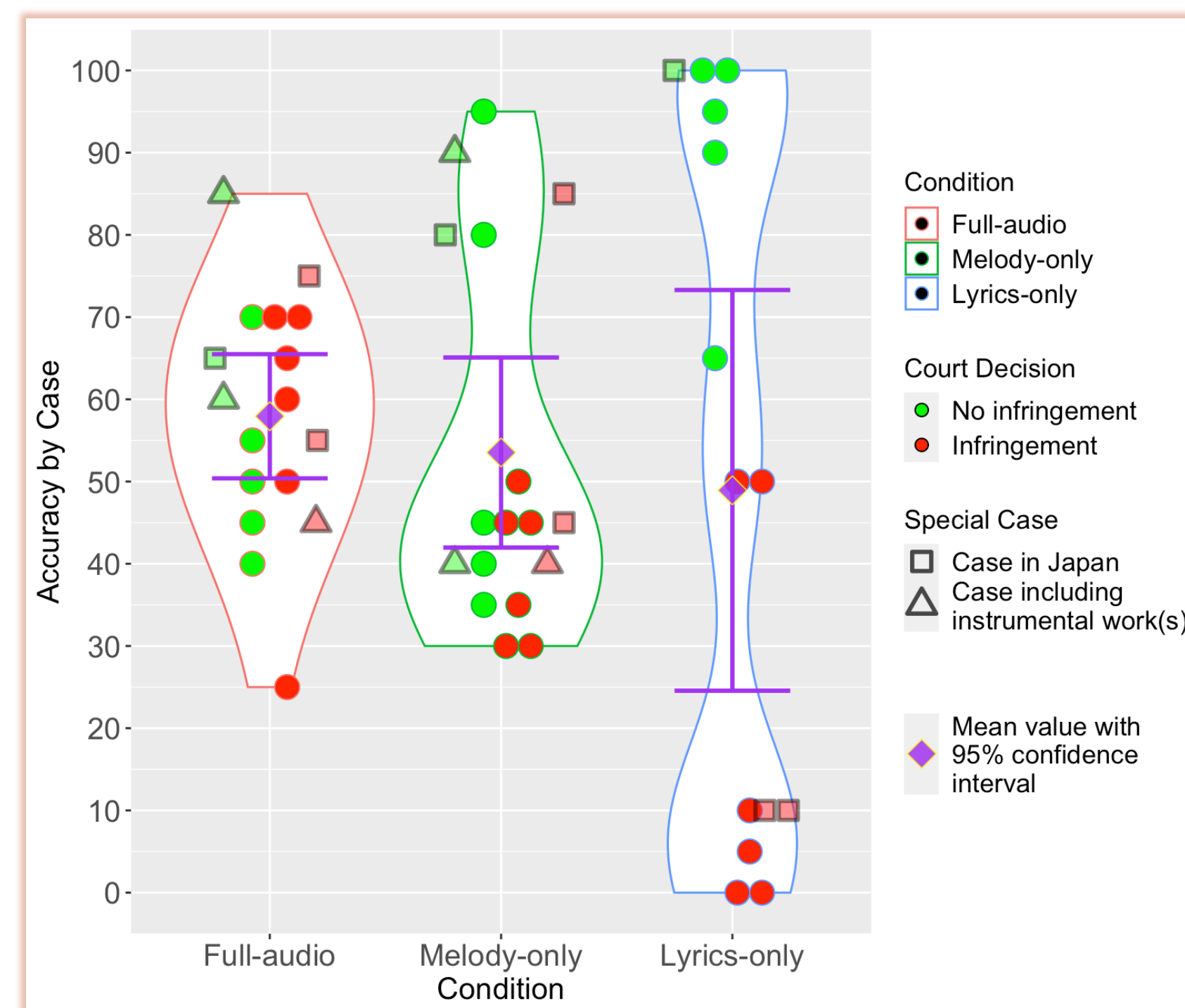


Figure 1. Accuracy of perceptual judgement for each of the 17 court cases, as measured by the percentage of the 20 participants whose judgements of music copyright infringement matched court decisions.

• Prediction: the participants would most accurately match past legal decisions when listening to melody-only versions.

➤ Surprising result: **no significant differences between the three conditions**

➤ Perceptual accuracy:

- ✓ **Full-audio: 58%**
- ✓ **Melody-only: 54%**
- ✓ **Lyrics-only: 49%**

AUTOMATIC ANALYSIS

No.	Country	Case	Complaining Work	Length (seconds)	Defending Work	Length (seconds)	Court Decision	PMI (cutoff = 46.8%)	Musly-calculated Similarity (cutoff = 32.8%)	Perceptual Accuracy - Full audio	Perceptual Accuracy - Melody only	Perceptual Accuracy - Lyrics only	Perceptual Similarity - Full audio	Perceptual Similarity - Melody only	Perceptual Similarity - Lyrics only
1	JP	Harry vs. Suzuki	"Boulevard of Broken Dreams"	33	"ワン・レイニーナイト・イン・トーキョー" (One Rainy Night in Tokyo)	23	0	25%	25%	65%	80%	100%	3.15	2.9	1.4
2	US	Cottrill vs. Spears	"What You See is What You Get"	22	"What U See is What U Get"	24	0	35%	41%	70%	95%	65%	2.75	1.85	3
3	US	Baxter vs. MCA	"Joy"	7	"Theme from 'E.T.'"	19	0	37%	12%	85%	90%	N/A	2.7	2	N/A
4	US	Swirsky vs. Carey	"One of Those Love Songs"	29	"Thank God I Found You"	32	1	45%	76%	60%	35%	0%	3.45	3	1.4
5	US	Repp vs. Lloyd-Webber	"Till You"	27	"Phantom Song"	38	0	45%	15%	50%	35%	100%	3.15	4.35	1.25
6	JP	Kobayashi vs. Hattori	"どこまでも行こう" (Dokomademoiko)	23	"記念樹" (Kinenju)	40	1	47%	10%	55%	45%	10%	3.6	3.2	1.55
7	US	Three Boys Music vs. Michael Bolton	"Love Is A Wonderful Thing"	10	"Love Is A Wonderful Thing"	17	1	47%	63%	70%	30%	50%	3.65	3.25	3.7
8	US	Herald Square Music vs. Living Music	"Day By Day"	32	"Theme N.B.C.'s 'Today Show'"	30	1	51%	5%	45%	40%	N/A	3.6	2.85	N/A
9	US	Grand Upright vs. Warner	"Alone Again (Naturally)"	5	"Alone Again"	6	1	53%	25%	70%	30%	50%	4.2	2.9	4
10	US	Bright Tunes Music vs. Harrisongs Music	"He's So Fine"	27	"My Sweet Lord"	55	1	58%	35%	25%	45%	5%	2.5	3.25	1.3
11	US	Selle vs. Gibb	"Let It End"	21	"How Deep Is Your Love"	19	0	63%	11%	55%	40%	95%	3.25	3.65	1.65
12	US	Louis Gaste vs. Morris Kaiserman	"Pour Toi"	17	"Feelings"	21	1	65%	33%	50%	50%	0%	3.4	3.8	1.35
13	US	Granite Music vs. United Artists	"Tiny Bubbles"	18	"Hiding The Wine"	11	0	67%	4%	60%	40%	N/A	3.3	3.8	N/A
14	US	Fantasy vs. Fogerty	"Run Through The Jungle"	21	"The Old Man Down The Road"	21	0	67%	62%	40%	45%	100%	3.45	3.3	1.4
15	US	Jean et al. vs. Bug Music	"Hand Clapping Song"	3	"My Love Is Your Love"	4	0	71%	20%	45%	80%	90%	3.75	2.6	2.8
16	US	Levine vs. McDonald's	"Life Is A Rock (But The Radio Rolled Me)"	22	"McDonald's Menu Song"	26	1	80%	63%	65%	45%	10%	4	3.6	1.8
17	JP	HarumakiGohan vs. Mori	"八月のレイニー" (Hachigatsu no reint)	21	"M.A.K.E"	22	1	100%	54%	75%	85%	10%	4.25	4.35	2

Italic: PMI failed; Bold: Musly failed; Orange: Instrumental

- Melodic Similarity (Percent Melodic Identity [PMI])
- Audio Similarity (Musly)
- Accuracy: **71% (12/17 cases)** for both algorithms

CONCLUSION & FUTURE DIRECTIONS

- **Allowing juries to hear full audio** recordings without restricting them to sheet music depositions could help improve accuracy in legal cases.
- **Perceptual experiments may provide better ground truth data** than court decisions, which are subject to selection bias.
- We plan to **expand our database** by including larger and more diverse samples of cases.