Visualization of Music Plagiarism: Analysis and Evaluation

The objective of this study is to evaluate whether visualization can assist people in understanding similarities among music composition in order to discover plagiarism. We are mainly interested in gaining perceptions about your overall experience when testing four different types of visualization.

We do not collect personal data and all submitted information will remain confidential. Our study is performed complying with ethical principles, and also according with academic, national, international and EU legislation:

- "Regolamento di attuazione delle norme in materia di trattamento dei dati personali"
  http://www.unisa.it/uploads/2890/reg._privacy.pdf

- "Data Protection Code - Decreto Legislativo n. 196/2003"
  http://www.garanteprivacy.it/web/guest/home_en/italian-legislation

- "EU's Data Protection Directive" http://ec.europa.eu/justice/data-protection/.

Thanks for your time and for your cooperation.

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Preliminary Survey

Demographic Information

1. Age:

_____

2. Gender:

☐ Female
☐ Male

3. Highest educational level:

☐ Primary
☐ High School
☐ Bachelor degree
☐ Master degree
☐ Conservatory
☐ Other: _____

4. Educational/academic field study:

☐ Computer Science
☐ Engineering
☐ Mathematics
☐ Chemistry
☐ Physics
☐ Economics
☐ Law
☐ Literature
☐ Other: _____

Music experience

5. **How do you consider your experience with music?**

Inexpert	Beginner	Competent	Advanced	Expert
☐	☐	☐	☐	☐

6. **How often do you listen to music?**

Never	Rarely	Sometimes	Often	Always
☐	☐	☐	☐	☐

7. **How do you rate your ability in identifying music songs simply listening to it?**

Very poor	Poor	Fair	Good	Very good
☐	☐	☐	☐	☐

8. **Do you play a musical instrument?**

   ☐ Yes
   ☐ No

9. **If you selected *Yes* to the previous question, can you please specify which instrument do you play?**

   _____

   _____

   _____

   _____

10. **Are you enrolled in a Music Conservatory?**

    ☐ Yes
    ☐ No

General Information

11. Do you have familiarity with software tools that visualize music similarity?

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐
1	2	3	4	5

12. Have you ever used tools visualize music similarity?

    ☐   Yes
    ☐   No

**13. If you selected *Yes* to the previous question, can you please specify which tools do you used?**

_____

_____

_____

_____

14. Have you ever used tools visualize music plagiarism?

    ☐   Yes
    ☐   No

15. If you selected *Yes* to the previous question, can you please specify which tools do you used?

_____

_____

_____

_____

16. How do you consider your experience with graph theory?

Inexpert	Beginner	Competent	Advanced	Expert
☐	☐	☐	☐	☐

Summary Survey

17. Overall, how much do you *like* these visualizations?

a) *Viz1*
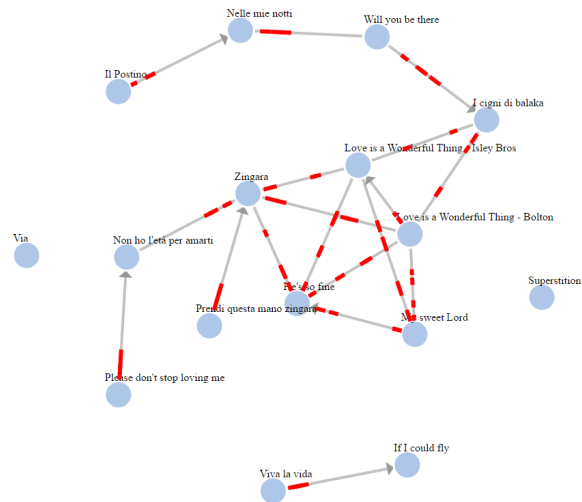
Not at all	Slightly	Moderately	Very	Extremely
☐	☐	☐	☐	☐

b) *Viz2*
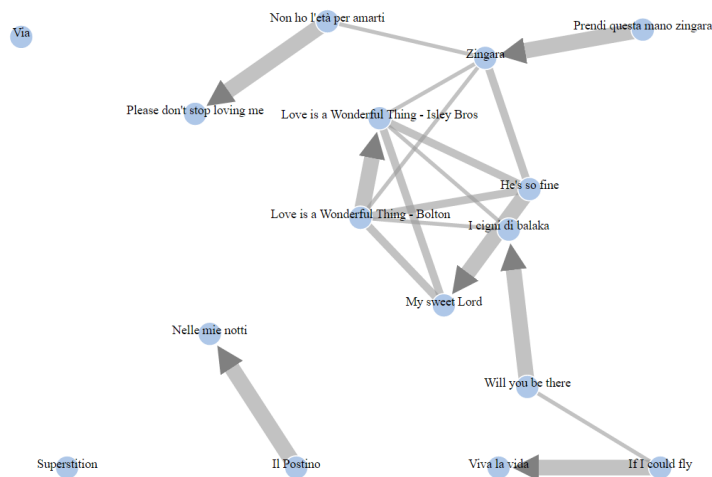
Not at all	Slightly	Moderately	Very	Extremely
☐	☐	☐	☐	☐

c) *Viz3*
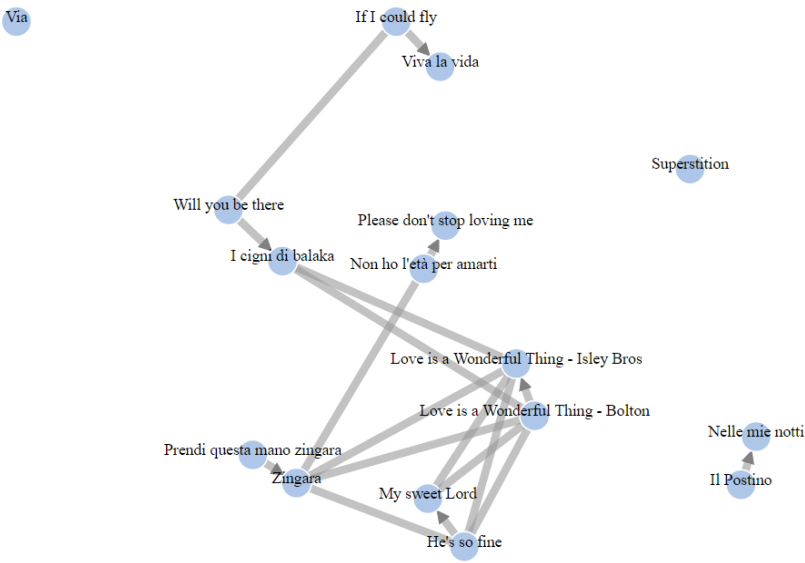
Not at all	Slightly	Moderately	Very	Extremely
☐	☐	☐	☐	☐

c) *Viz4*
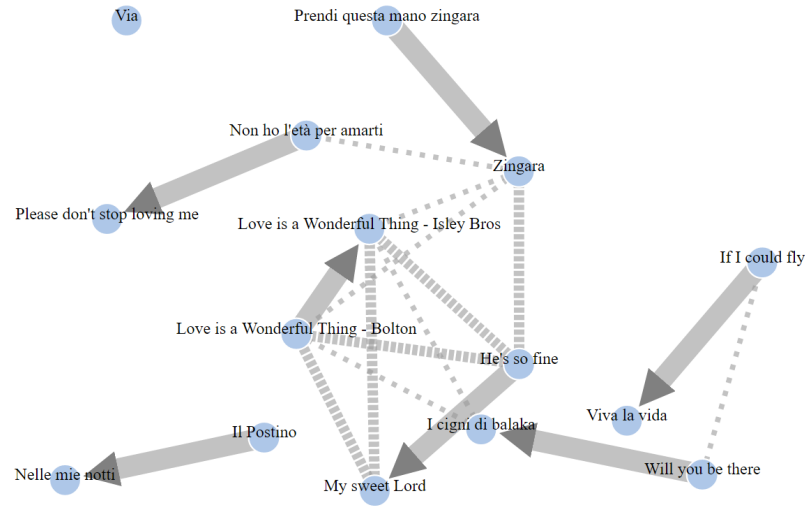
Not at all	Slightly	Moderately	Very	Extremely
☐	☐	☐	☐	☐

18. **Overall, how much *useful* do you consider these visualizations in understanding plagiarism?**

a) *Viz1*

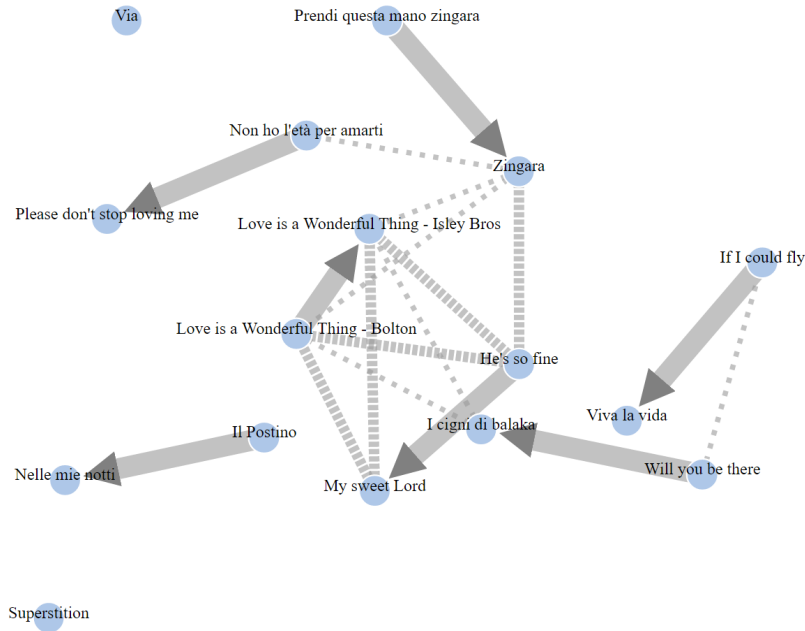| Not useful at all	Slightly useful	Moderately useful	Very useful	Extremely useful
☐	☐	☐	☐	☐

b) *Viz2*
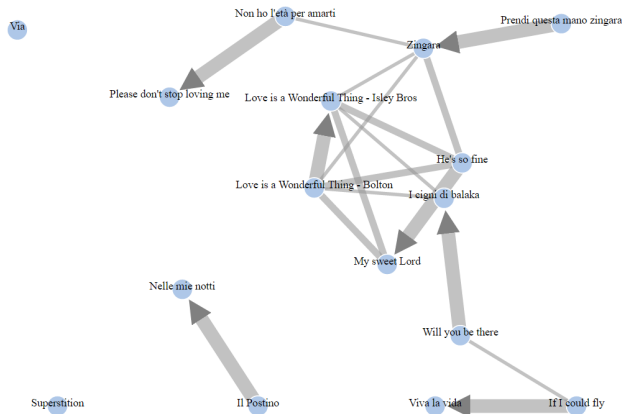
Not useful at all	Slightly useful	Moderately useful	Very useful	Extremely useful
☐	☐	☐	☐	☐

c) *Viz3*
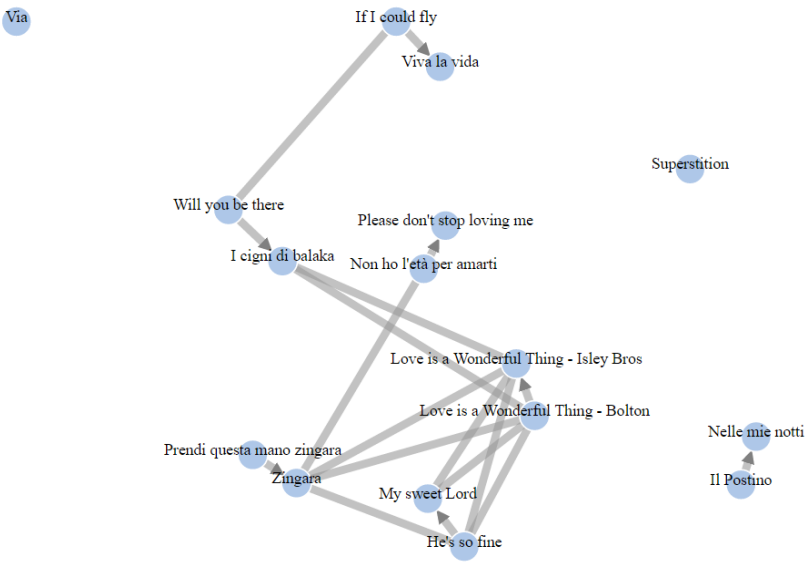
Not useful at all	Slightly useful	Moderately useful	Very useful	Extremely useful
☐	☐	☐	☐	☐

c) *Viz4*

Not at all	Slightly	Moderately	Very	Extremely
☐	☐	☐	☐	☐

19. Overall, how much *intuitive* do you consider these visualizations?
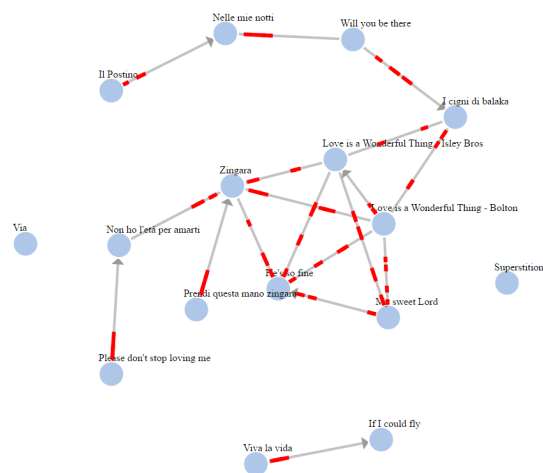
a) *Viz1*

Not intuitive at all	Slightly intuitive	Moderately intuitive	Very intuitive	Extremely intuitive
☐	☐	☐	☐	☐

b) *Viz2*
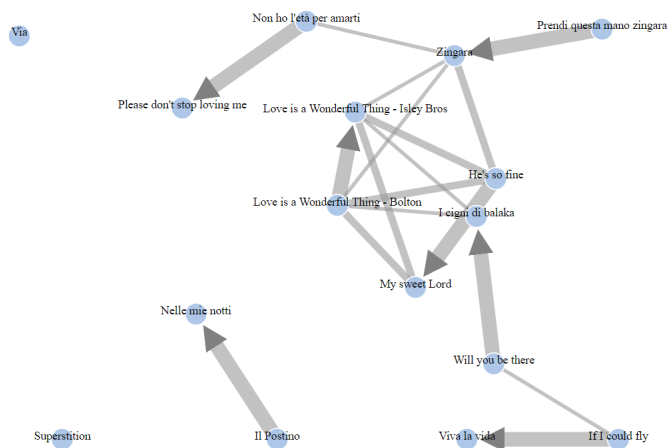
Not intuitive at all	Slightly intuitive	Moderately intuitive	Very intuitive	Extremely intuitive
☐	☐	☐	☐	☐

c) *Viz3*
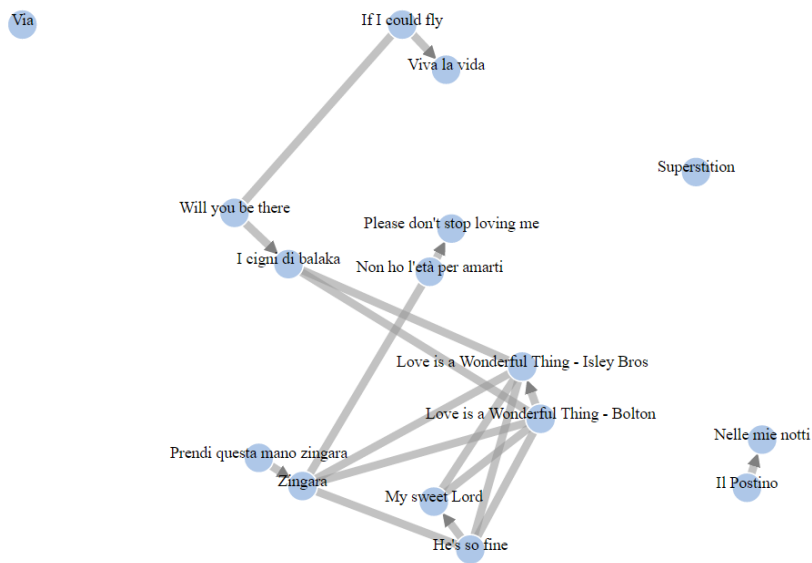
Not intuitive at all	Slightly intuitive	Moderately intuitive	Very intuitive	Extremely intuitive
☐	☐	☐	☐	☐

c) *Viz4*
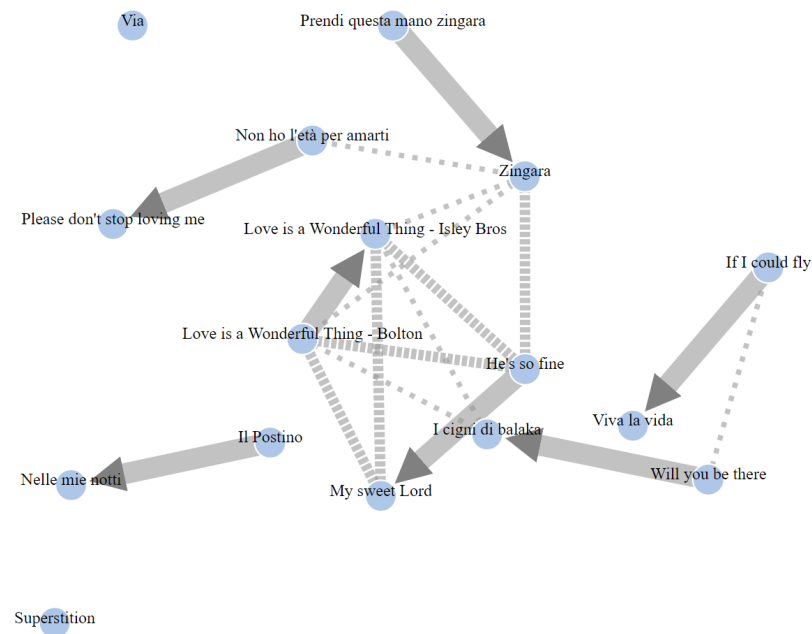
Not at all	Slightly	Moderately	Very	Extremely
☐	☐	☐	☐	☐

20. Given the following visualization (*Viz1*):

List the most positive aspects:

_____

_____

_____

_____

_____

_____

_____

_____
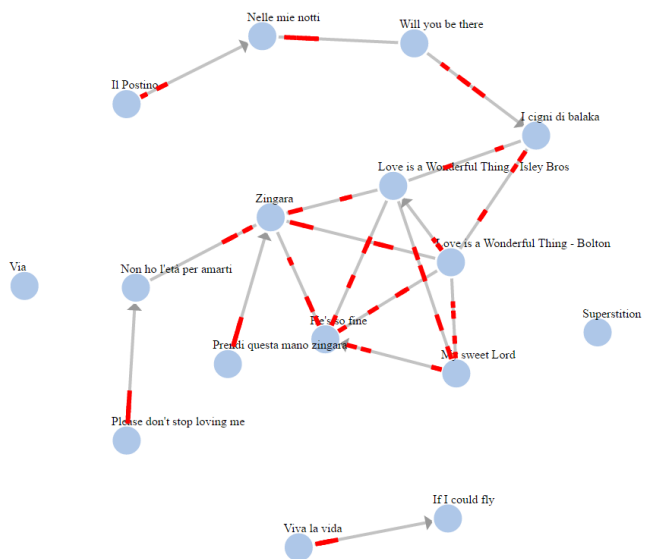
List the most negative aspects:

_____

_____

_____

_____

21. Given the following visualization (*Viz2*):

List the most positive aspects:

_____

_____

_____

_____

_____

_____

_____
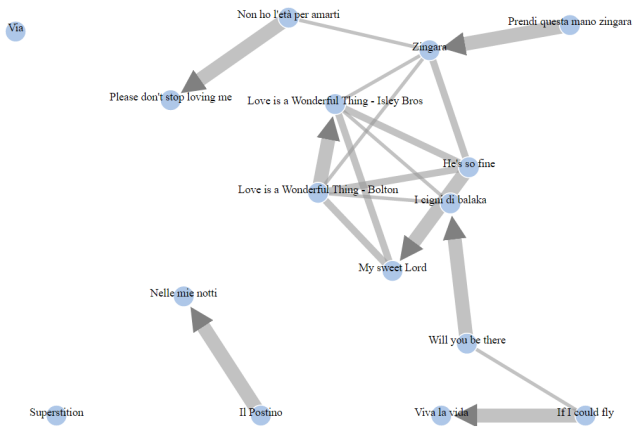
List the most negative aspects:

_____

_____

_____

_____

22. Given the following visualization (*Viz3*):

List the most positive aspects:

_____

_____

_____

_____

_____

_____

_____

_____
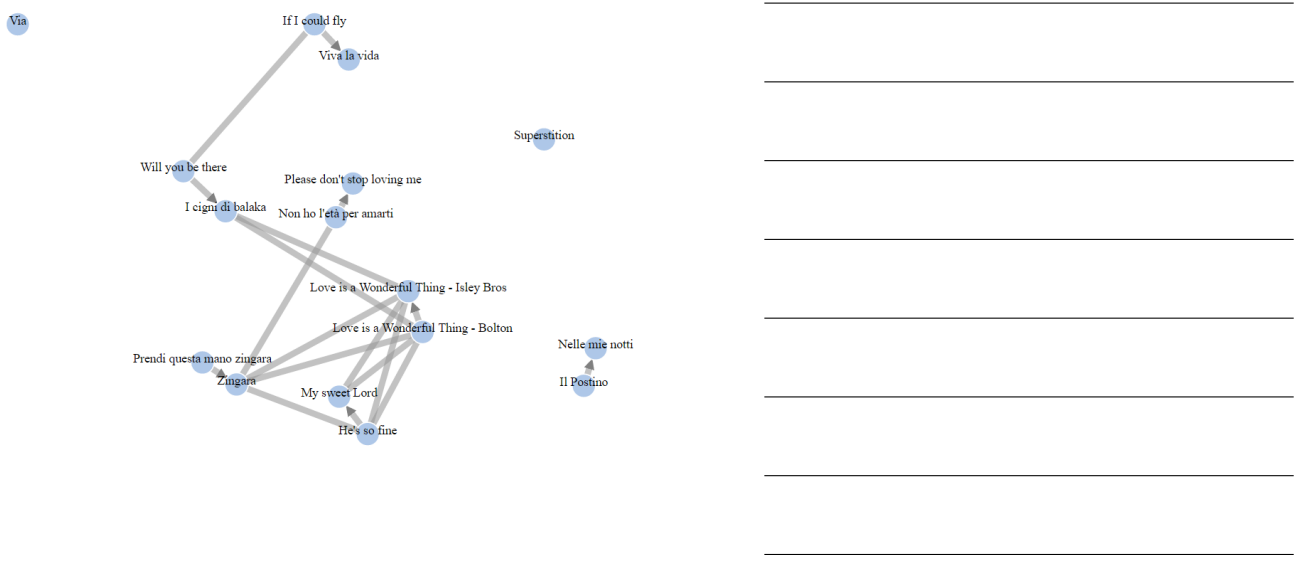
List the most negative aspects:

_____

_____

_____

_____

23. Given the following visualization (*Viz4*):

List the most positive aspects:

_____

_____

_____

_____

_____

_____

_____
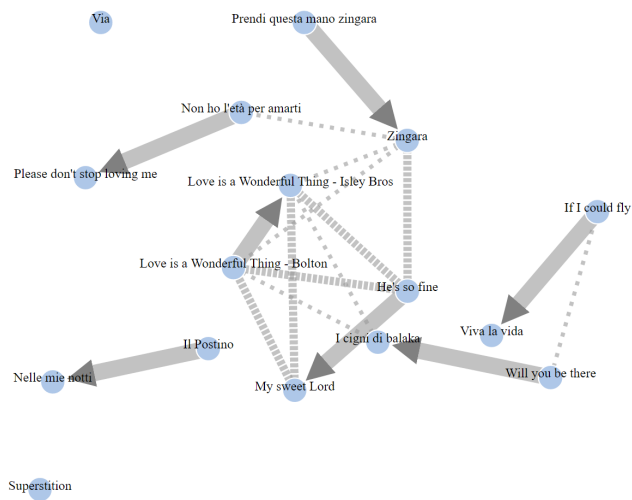
List the most negative aspects:

_____

_____

_____

_____

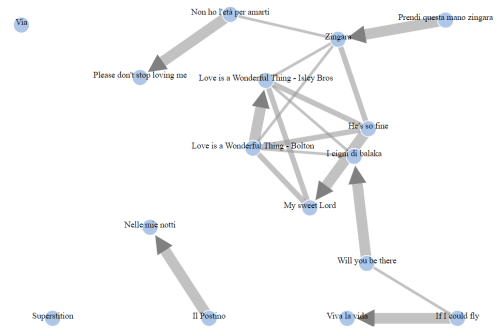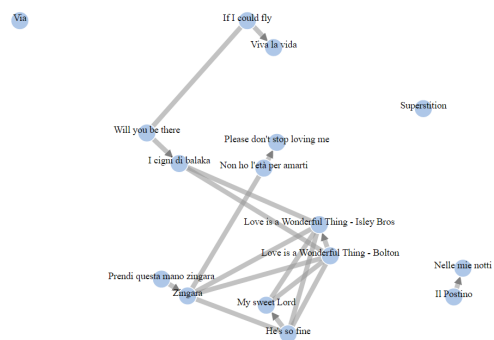**24. Given the following visualizations:**

a) Which element mostly helped you in identifying a similarity between two songs?
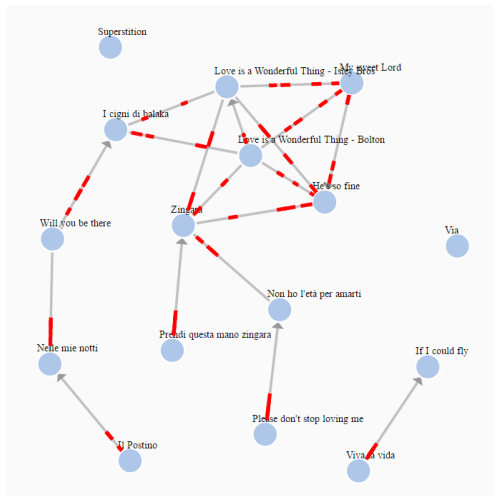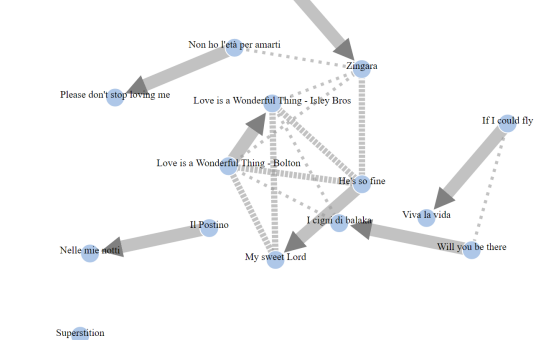

Viz1

Viz2

Viz3

Viz4

☐   The existence of an edge between the two nodes
☐   The existence of fragments on the edges connecting nodes
☐   The thickness of the edges connecting nodes
☐   The distance between two nodes
☐   The dashed lines of the edges connecting nodes
☐   Other: _____

b) It is evident that for *Viz1* colored fragments exactly correspond to the equal musical parts?

Not clear at all	Slightly clear	Moderately clear	Very clear	Extremely clear
☐	☐	☐	☐	☐

c) It is evident that for *Viz2* the thickness of the edges connecting two nodes suggests a similarity between the two corresponding songs?

Not clear at all	Slightly clear	Moderately clear	Very clear	Extremely clear
☐	☐	☐	☐	☐

d) It is evident that for *Viz3* the distance between two nodes suggests a similarity between the two corresponding songs?

Not clear at all	Slightly clear	Moderately clear	Very clear	Extremely clear
☐	☐	☐	☐	☐

d) It is evident that for *Viz4* the dashed lines (from dashed lines to point lines) between two nodes suggests a similarity between the two corresponding songs?

Not clear at all	Slightly clear	Moderately clear	Very clear	Extremely clear
☐	☐	☐	☐	☐