



Kwantitatieve stijlanalyse van muziek

Peter van Kranenburg



Inleiding

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- Empirische Muziekwetenschap
- Patroonherkenning
- Muzikale stijl
- Kwantisatie
- Auteurschapskwesties
- Toekomstig werk



Empirische Muziekwetenschap

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Nicolas Cook:

"**Empirical Musicology** can be thought of as musicology that embodies a principled awareness of both the potential to engage with **large bodies of relevant data**, and the appropriate methods for achieving this."

Van 'data-poor' naar 'data-rich'.



Patroonherkenning

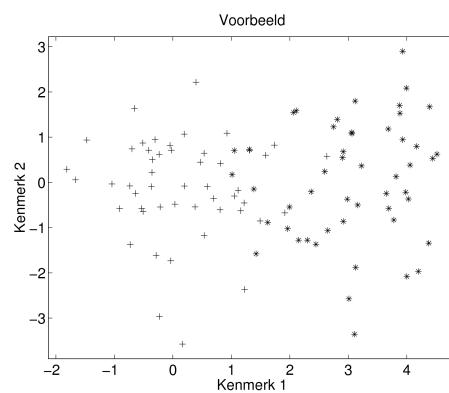
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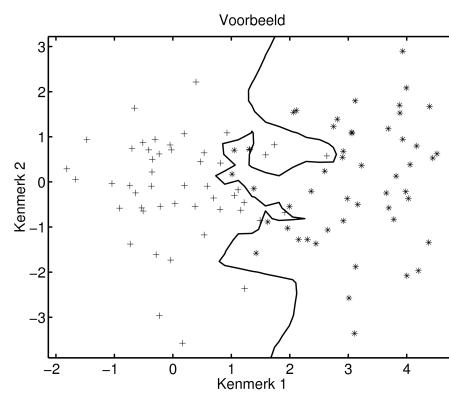
Patroonherkenning

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Patroonherkenning

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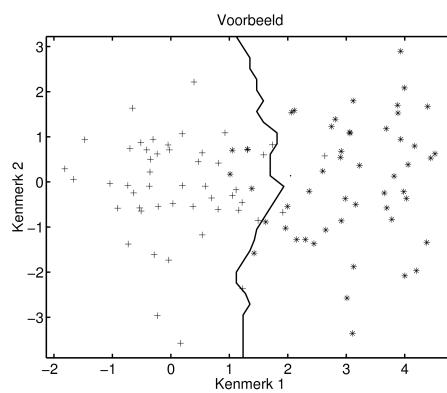


1 naaste nabuur klassificator



Patroonherkenning

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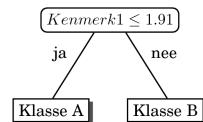
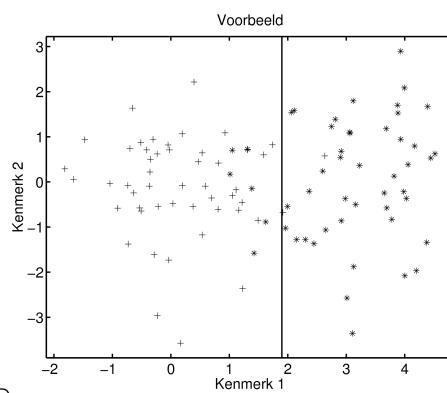


9 naaste nabuur klassificator



Patroonherkenning

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Beslisboom



Muzikale stijl

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Definitie L.B. Meyer:

“Style is a **replication of patterning**, whether in **human behavior** or in the **artifacts** produced by human behavior, that results from a series of **choices** made within some set of **constraints**.“

Style and Music, Chicago, 1989.



Muzikale stijl

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Drie niveau's:

- Laws
- Rules
- Strategies ← Auteurschap

Kwantisatie

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allegro moderato

The musical score consists of four staves: violin 1, violin 2, viola, and cello. The first measure shows intervals between notes highlighted in red. The intervals are labeled: 1 6 7 3 1, 4 2 5 7 5 4, 5 3 6 4 2 1, and etc. The score is in common time, with a key signature of one flat.

Intervallen

TNTL2007 - Peter van Kranenburg - Kwantitatieve stijlanalyse van muziek

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Kwantisatie

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allegro moderato

The musical score consists of four staves: violin 1, violin 2, viola, and cello. Several intervals and patterns are circled in various colors (blue, red, green) to highlight specific features or parallels in the music. The score is in common time, with a key signature of one flat.

Parallelen

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allegro moderato

Dissonantie

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allegro moderato

Variatie in ritme

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Kenmerken

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- | | |
|-------------------|---------------------|
| 1. PartSeconds | 11. ParFourths |
| 2. PartThirds | 12. ParSixths |
| 3. PartFourths | 13. StepSuspension |
| 4. PartAugFourths | 14. VoiceDensity |
| 5. PartDimFifths | 15. DissPart |
| 6. PartFifths | 16. BeginBarDiss |
| 7. PartSixths | 17. HarmonyEntropy |
| 8. PartSevenths | 18. PitchEntropy |
| 9. PartOctaves | 19. SonorityEntropy |
| 10. ParThirds | 20. StabTimeSlice |

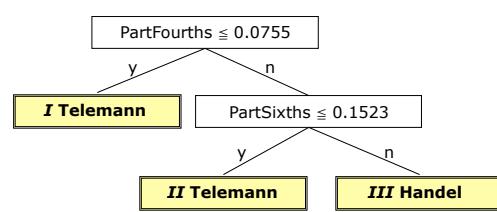


Handel vs Telemann

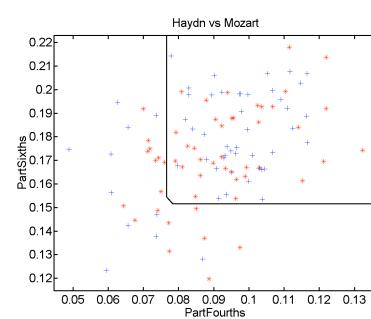
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G.F. Handel vs. G.Ph. Telemann

C4.5 Decision Tree



apparent error: 0.12





Orgelfuga's van Bach?

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J.S. Bach

- Fuga G minor (BWV 535a)
- Fuga G minor (BWV 535)
- Fuga D minor (BWV 538)
- Fuga F major (BWV 540)
- Fuga G major (BWV 541)
- Fuga G minor (BWV 542)
- Fuga A minor (BWV 543)
- Fuga C major (BWV 545)
- Fuga C major (BWV 547)



J.S. Bach

J.L. Krebs

- Fuga C minor (I, 2)
- Fuga E major (I, 5)
- Fuga F minor (I, 6)
- Fuga G major (I, 8)
- Fuga F major (II, 13)
- Fuga F minor (II, 14)
- Fuga F minor (II, 15)
- Fuga B^b major (II, 19; B-A-C-H)



W.F. Bach

W.F. Bach

- Fuga F major (fk 33)
- Fuga F major (fk 36)
- Fuga G minor (fk 37)
- Fuga C minor (fk-Add. 211/1)
- Fuga B^b major (fk-Add. 211/2)

J.P. Kellner

- Fuga 008:01
- Fuga 008:06
- Fuga 008:07
- Fuga 008:[C]
- Fuga 008:[F]
- Fuga 010:02

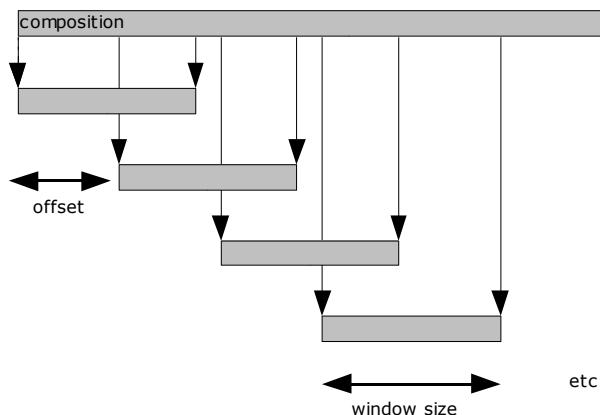


J.P. Kellner



Orgelfuga's van Bach?

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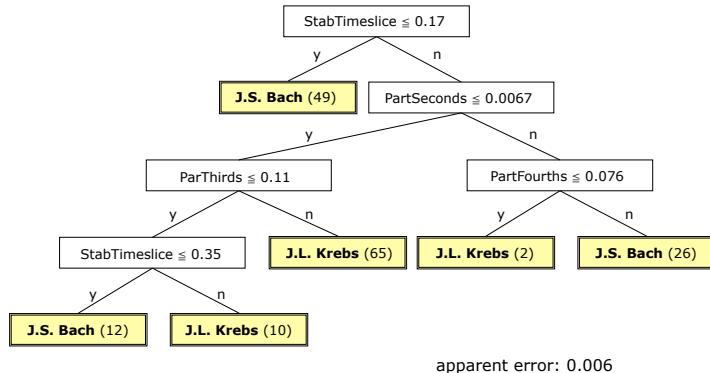




Orgelfuga's van Bach?

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J.S. Bach vs. J.L. Krebs



BWV 534

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Preludium en Fuga in f (BWV 534)

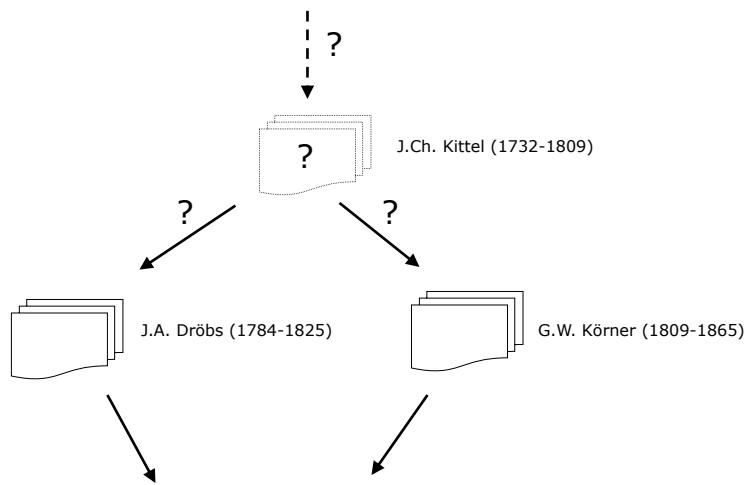
Preludium et Fuga ex F major pedaliter di J.S. Bach.

The musical score consists of two parts: 'Preludium' and 'Fuga'. The Preludium section starts with a treble clef, common time, and a key signature of F major. It features a single melodic line with various note heads and rests. The Fuga section begins with a bass clef, common time, and a key signature of F major. It features multiple voices (pedal bass and upper voices) with complex harmonic progressions and rhythmic patterns. Two small blue circular icons, one with a speaker symbol and one with a play button, are positioned on the right side of the score.



BWV 534 Bronnen

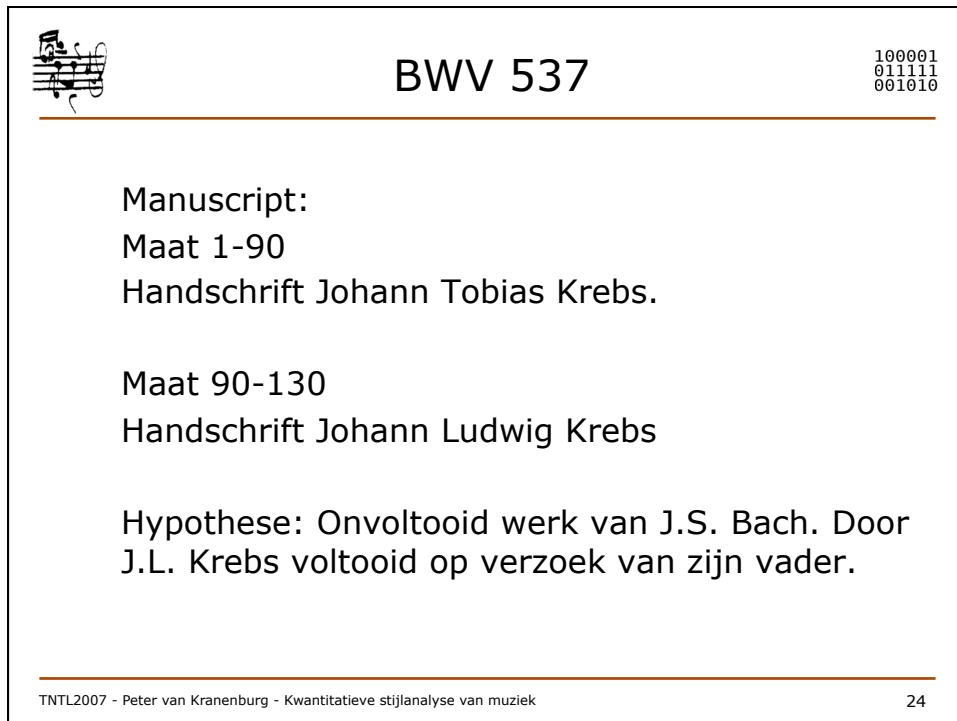
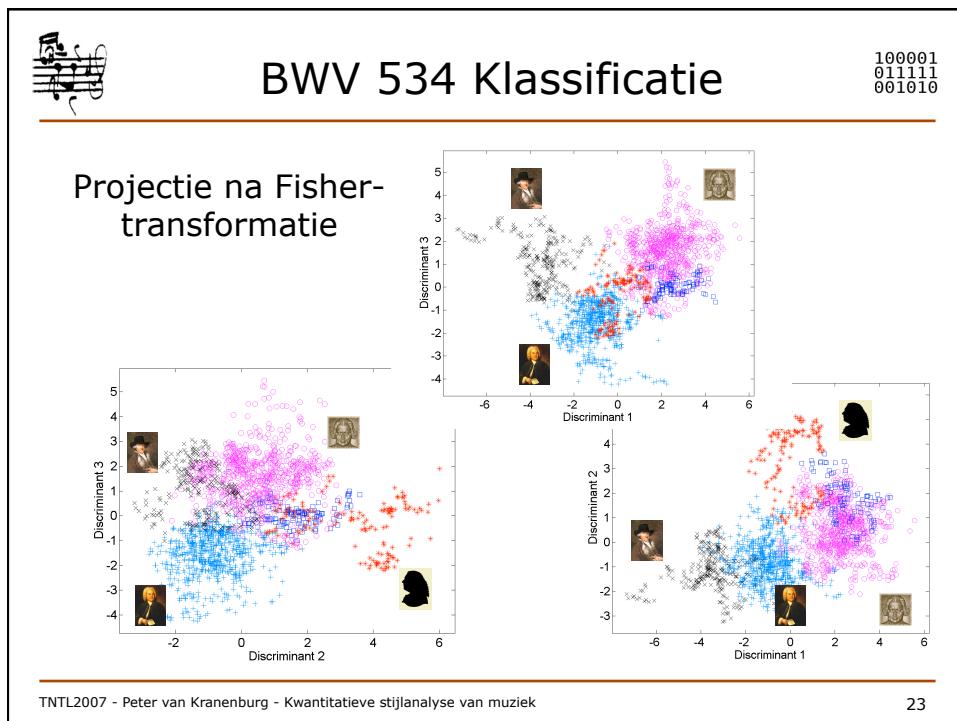
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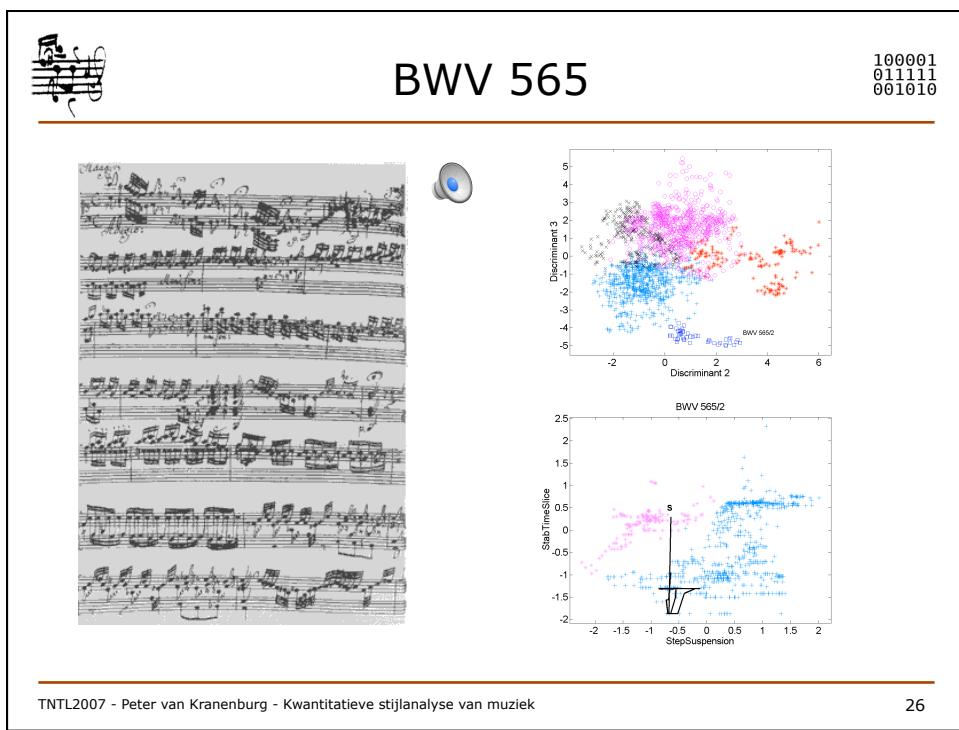
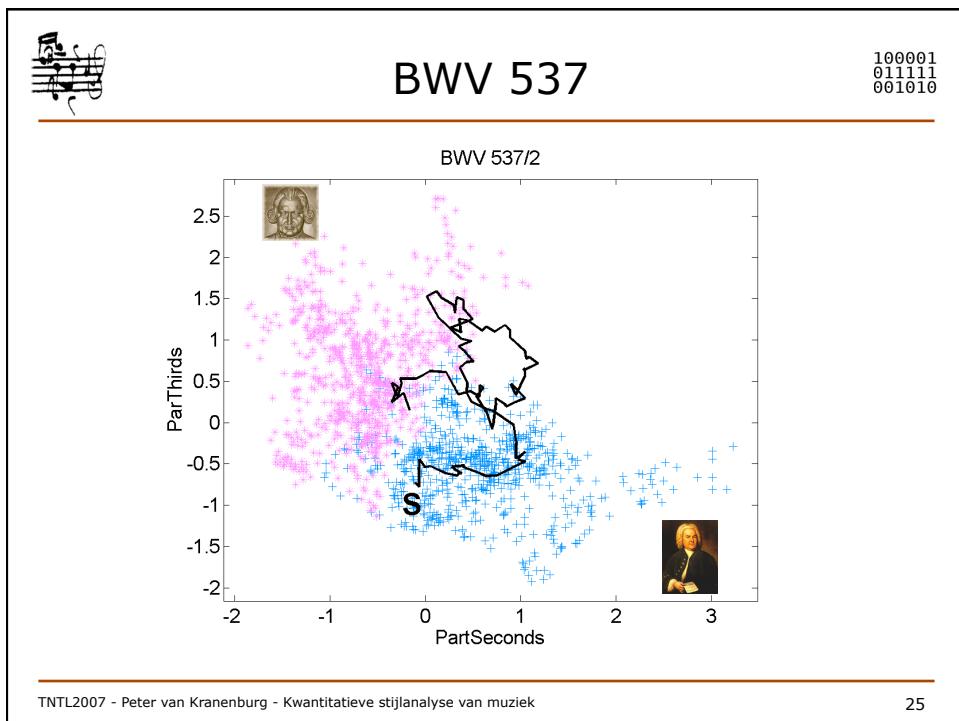


BWV 534 in literatuur

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- J.N.Forkel: geen vermelding.
- F.K.Griepenkerl: in editie.
- Ph.Spitta: "ein etwas ungeordnetes Wesen".
- A.Schweitzer: "gewaltiger Tragik".
- H.Keller: geen twijfel
- A.Dickinson: "forced counterpoint".
- P.Williams: onvolkomenheden door kopiist.
- D.Humphreys: niet van Bach. Van Kittel?
- P.Dirksen: Van Wilhelm Friedemann?







Toekomstmuziek

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- Meer data. Aandacht voor invoer!
- Terugkoppeling resultaten naar muziekwetenschap / muziek cognitie



<http://www.musical-style-recognition.net>
petervk@cs.uu.nl

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