This paper presents the preliminary results of my investigation into gender issues relating to voice sounds in computer music.

Introduction:

The sound of the human voice is an important element in a great deal of computer music. In most cases these sounds - whether human, manipulated or synthetic - have a sex: they are, or seem, to originate from a woman or a man. Do female and male voices have different roles in computer music?

Research into voice and gender in film and in opera indicates that in these genres, male and female voices have different roles but does this also apply to computer music?

Through the examination of a body of computer compositions, certain gender patterns do become apparent and the most prominent will be discussed in this paper. These gender patterns can then be used as a frame of reference for interpreting individual compositions.

The paper concludes with an examination of selected compositions by women composers which are markedly different from the generally-identified gender patterns.

1. Male and female voices in film and opera

Joke Dams discerned a similarity in the way the female voice is used in opera and in film. She based this on research by Kaja Silverman and Michel Poizat, amongst others.

Silverman found in classic Hollywood cinema a link between the female voice, the body and impotence, while the male voice was more frequently disembodied and powerful. The impotence of female film characters plays on different levels. Firstly it appears in the story, where women are often "confined", shut up in small rooms or threatened with death. This weak position is coupled with the non-verbal expression of impotence -- the female cry, the scream of fear or death. Silverman states that, thanks to synchronization, the female voice in Hollywood film is always attached to a female body. The "voice-over", a voice that speaks without having a physical person in the film, is reserved for the male voice. The voice-over has a special status, which can be compared to the voice of God: the voice-over speaks from a superior position and knows more than the characters in the film. Discursive impotence, says Silverman, is projected onto the woman because the man could not tolerate it in himself. "The male subject "proves" his symbolic potency through the repeated demonstration of the female subject's symbolic impotence" (Silverman: 24). Silverman wants "to read the loss and difference associated with the female subject as a symptom of the male condition" (24).

Dams notes that Poizat found a similar pattern in 19th century opera. According to him in opera the scream of the female character is central to the jouissance vocale. This scream, often a scream of death, is formed by the soprano's high, non-linguistic singing. Indeed, Dams points out how, according to Chéreau, the female protagonists in libretti from well-known 19th century opera's usually die (151-153). Throughout the history of opera sopranos' arias have become steadily higher, and at high tones the words of the singer become unintelligible. In addition, through melismatic singing in collocations the word is fragmented into sound. For male roles, however, there has been a steady increase in spoken language. "In this evolution, the [female singer] is tending to disappear as a subject and become purely a voice, simply an objet-voix" (Dams:153).
2. Male and female voices in computer music.

The linkage of the male voice to language and the female voice to wordless sounds is, therefore, a pattern that can be discerned in different areas, such as film and opera. Dare and Silverman's research lead me to ask if similar gender patterns can be found in computer music (and other electro-vocal music).

To find out, all the compositions from the CD series Computer Music Currents (1989-1992) from Wergo, were studied. The CMC series comprises 11 CDs with a total of 52 compositions by different composers. In 19 of these compositions there are vocal sounds, or sounds which are strongly reminiscent of the voice. The various voices used in these compositions were listened to and from this, a list of different identifying factors was drawn up relating to: sex, length, text, comprehensibility, type of voice (singing, speaking, other), live or electronically manipulated, what type of manipulation, and the role of the voice within the composition.

The most obvious gender patterns in computer music using the voice is the absence of pieces for male singer and tape, as opposed to the frequency of pieces for female singer and tape. This female singing is mainly associated with the classical voice type and is often non-linguistic. A second pattern is that male voices have more spoken text than female. (I perceived these patterns also in a lot of other electroacoustic compositions.)

2.1. Female singing

In the CMC series there are three compositions for female singer and tape: Il Nome by Richard Karpen (Soprano: Judith Bettina), L'autre face by Jean-Claude Risset (Soprano: Iris Jansky) and Animu by Lars-Gunnar Bolin (Mezzosoprano: Kersten Stohl).

The voice parts of these compositions are predominantly vocals with many high tones which are sung by a classically-trained voice. In Animu the vocal part consists entirely of textless vocalise, sung in a classically-schooled voice. In the singing part of L'autre face, there is a poem as text, but the impression is more of wordless song than a poem. The text is not given in the sleeve notes, only the title of the poem. Along with occasional spoken, whispered or sung words, the soprano part is predominantly vocalise with many notes, wide intervals in pitch and high tones. The style of singing is classical, with occasional unconventional vocal sound such as vocal fry. Only in Il Nome does text play a meaningful role. The lyrics are, as stated in the notes, about the death of a woman in a neo-fascist bomb attack on Bologna in 1980. But in this composition too the vocal part is for the most part comprised of melismatic vocalises of great range and high notes.

2.2. Live performance

Silveman described the linkage of the voice and (the image of) the female body with impotence in Hollywood film. How is the position of the female singer in the live performance of computer music? With performances of compositions for female singer and tape, there is not only the combination of voice and image of a woman: the singer herself is present.

On the one hand a female singer performing live often makes a powerful impression with the sound of her voice, her vocal virtuosity and her physical presence, as Dane and Abbate also note. In addition, she is not only performing the composers' work, but is interpreting and creating, becoming jointly responsible for the music.

On the other hand live performances of compositions of singer and tape sometimes give the impression that the singer is 'imprisoned' by the tape's rigidity and has to work very hard to produce the right notes in the right time. The freedom in timing that a singer often has when performing with piano or orchestra is gone. In addition, the electronically created sounds can sometimes swamp the voice of the female singer, diminishing her power and role.

In the performance of compositions for female singer and tape, both options are possible. Janice Jackson's performance of L'autre face at De Ijshoek in Amsterdam on December 15, 1994, differed
markedly from her earlier performance of the work at De Kikker in Utrecht on October 19, 1994. In Amsterdam she introduced her performance by saying what the work meant for her, rather than by outlining what the composer of the piece had in mind. Her performance was not lyrical and expressive (as Risset indicated in the sleeve notes to the CD and in the performance programme) but introverted and concentrated, with varying timbre and often soft. Instead of a vocalise with lot of notes (which was my impression of her earlier performance, and also of the recording of the performance by Irina Jansky on the CMC cd), Janice Jackson seemed to sing a "soundpainting". Now the tape acted as a source of inspiration rather than a confining structure.

2.3. Spoken Text

Male voices in computer compositions are predominantly used for presenting spoken text (eg. *The Vanity of words* by Roger Reynolds, *A Study in White* by Joji Yusa and Don Quijotter Corporation by Alain Savouret). An important exception to this is the composition *Any Resemblance Is Purely Coincidental* by Charles Dodge, in which a classically *schooled* male voice takes a prominent position.

The male singing voice in *Any Resemblance Is Purely Coincidental* is that of Enrico Caruso singing "Vesti la giubba" from Ruggiero Leoncavallo's opera "I Pagliacci", a recording from 1907 that had been abstracted from its original accompaniment with the help of a computer. Caruso's singing, which sometimes sounds as if it did in the original recording and sometimes has been significantly manipulated, is accompanied by a live pianist. This male singing is not only of beautiful tone, but is an object trouvé, a musical quote from our common musical heritage, that for a large part is used for its symbolic function.

There are also computer compositions with female speaking voices, but these voices are less when compared to song for female voices and speech for male voices (eg. *Interphone* by Michel Decouass, *Ogni pensiero* by Francis White and *A Study In White* by Joji Yusa).

As it grew dark by Paul Lansky, takes a special place in compositions for female speaking voice.

The voice can be heard through almost the entire composition. The text (from *Jane Eyre* by Charlotte Brontë) is difficult to understand because the spoken text has been electronically manipulated and fragmented. According to the composer's notes, the aim of the piece is to put the listener in the position of overhearing, through which not everything can be understood. This implies that the electronic manipulation is not affecting the voice, but listener's hearing. Silverman states that discursive impotence is projected on the woman because it could not be accepted by the "normal" male subject. Lansky suggests that the discursive impotence of the wordless female voice can be reflected back on the listener.

3. Different female voices

The above described gender patterns can function as a frame of reference for the interpretation of individual compositions. The ways female voices are used in some compositions by women composers become particularly meaningful when related to the gender patterns. I will briefly discuss two computer-vocal compositions by Wende Bartley, based on listening to recordings on CD and reading the accompanying texts.

*Ellipsis* is for female singer (Fiko Krucke) and tape (FMD-914-CD); the singing part has no text.

Therefore, it follows the first gender pattern; but there are also remarkable differences. The singing part of *Ellipsis* consists of extended vocal techniques such as a rapid repetitive series of glottal attacks, multiphonics and vocal fry. The singer uses her chest voice a lot. The vocal phrases and the voice sounds are based on the breathing of the singer and contain glissando's, long sustained pitches and repetitions of pitches and motives, with changing timbre. The tape does not seem to be a creative structure and the singing appears to come from within the singer herself. In the way the singing evolves throughout the piece (descending vocal lines in the beginning; becoming more and more varied, articulated and energetic; ending with long resonating tones, full of overtones) a story about femininity is symbolised. *Ellipsis* is, according to the programme notes, based on lunar mythology, with the unfolding of the lunar cycle, with its three stages of waxing, full and waning moon, traditional[ly] [...] associated with three images of woman: virgin, mother, and crone. *Ellipsis [...]* creates another three-fold story of woman, [...] the spiritual and psychological
empowerment of woman's collective consciousness as it evolved through time: The Age of Darkness, Creating a New Space, and The Age of Resonance.

Rising Tides of Generations Lost (IMED-9414-CD) is 'one attempt to unveil a small portion of the story of woman'. In this composition words and sentences gradually come to the fore out of unintelligible fragments of voice sounds. The non-linguistic sounds in the piece are not really "lost" and the intelligible and semi-intelligible fragments of sentences and words and non-verbal voice sounds are combined. The unintelligible voice sounds are not "pure tone" but have a meaning in the context of the composition, in combination with intelligible words. These words (such as 'ain't sacred life', 'no one would speak', 'we were daughters of evil', 'I compel you to see and feel', 'to have the courage and consciousness to act for your own ...', 'though you may face the scorn and contempt of the world for doing so', 'I remember crying', 'I was scared to death') and sounds seem to sketch, as well as a history of woman (as the composer suggests), a history of the musical representation of the female voice from a female perspective.

4. Conclusion
Like in film and in opera, there is a tendency in computer music to use male and female voices in different ways: the female voice is associated with (traditionally trained) singing, often without words and often live, and the male voice is more often associated with spoken language.

This gender pattern seems to be a useful frame of reference to interpret individual compositions. For instance, the ways female voices are used in some compositions by women composers become particularly meaningful when related to the gender patterns. Various ways of singing, speaking, non-linguistic and linguistic female voice sounds, written text and electronic sound manipulations are often combined by women composers to create different stories about femininity in words and sounds.

Bibliography: