Aural poetics

Aristotle's *Poetics*

When speaking of poetics, it is common to go back to Aristotle. His treatise on the topic has informed all subsequent discussion of poetics in the Western literary tradition. But it's important to understand that Aristotle's concept of poetics was not primarily concerned with verse forms, figurative language, or sonority, as we might think of poetry today. For Aristotle, the plot was the almighty thing. Poetry in his culture was largely narrative in function, not expressive as it is for contemporary Western poets. So Aristotle's poetics was more akin to what today might be called narratology. Hazard Adams, in his introduction to Aristotle's *Poetics*, provides a phrase that ties in beautifully with some of the other readings for this week:

> "Reality, for Aristotle, is the process by which a form manifests itself through the concrete and by which the concrete takes on meaning working in accordance with ordered principles. The poet's imitation is an analogue of this process; he takes a form from nature and reshapes it in a different matter or medium" (47).

My task, then is to discuss the formal and concrete properties of music, its ordering principles, its narratology of beginnings, middles, and ends, its relation to nature, its analogism and digitality, and its matter or media.

Physics of sound and music

Sound is a perceptual construct – we perceive sound when waves of differential air pressure strike our ear drums, triggering vibrations of tiny bones inside our skulls, which send analogue electrical pulses to our brains. The frequencies of these waves as they strike our ears are perceived as pitch. Higher frequency waves are perceived as higher pitches.

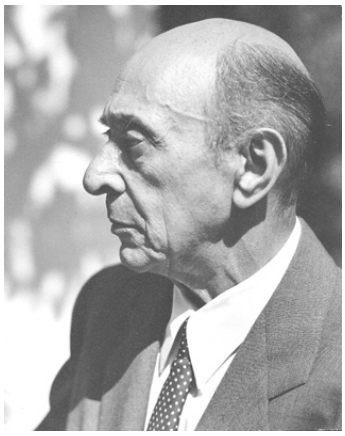
The octave is the interval at which frequencies are perceived as starting the pitch cycle anew, at which a high frequency tone is regarded as being in some respects the same as a lower pitch. The relationship between their frequencies is 2x. The A above middle C is conventionally determined at 440 Hz (cycles per second). One octave down is 220 Hz. One octave up is 880 Hz.

In the Western mainstream musical tradition we arbitrarily partition the octave into 12 tones of even distribution. There is nothing natural about this assignment of note value to pitches; in fact the span of an octave is truly a continuum, not a discrete set of steps. And while most musical traditions partition the octave, several use other divisions. And while we are conditioned to respond to the apparent rationality and inevitability of the musical system in which we are immersed, in fact this mapping of notes is slightly off – its fractional values for the pitches differs slightly from where the divisions should lie based on the actual frequencies. So we tune our instruments slightly out of pitch to interpolate the deviations so that all notes sound slightly out of key and none sounds more out of key than others. This system is called "equal temperament," and Bach's harpsichord composition "The Well-Tempered Clavier" was penned as a demonstration of this concept.

When we hear a single tone played on any acoustic instrument, we're actually not just hearing that single tone – called the fundamental. We're hearing it and its overtone series. Every vibrating string, membrane, or column of air sends of a complex of tones. The one our ear picks out as the loudest comes to dominate the others. This one is called the fundamental tone, but the others are also present to varying degrees. The relative presence of those higher overtones is what gives a tone its distinct character or texture. Now synthesizers are theoretically able to produce pure tones without those higher harmonics, but by the time they pass through the vibrating membrane of the loudspeaker, the air, and your ear drum, they become slightly cluttered with harmonics. A piano gives a

relatively simple tone, which is to say it's heavy on the fundamental tone. A brass bell, on the other hand is so cluttered with prominent overtones that it is difficult to discern which is the fundamental.

Western harmony and melody



The basic commonplace expression of poetics is that a piece must have a beginning, middle, and end. In Western music that is accomplished largely through harmony and melody. We're going to watch a video now that explains how Western musical poetics evolved from the Romantic era to the mid-20th century.

[Show video on serial music]
http://video.on.nytimes.com/?fr_story=ebe9717facb0e75b01625cd40790d194640f584c

I'll be playing you some avant-garde music samples a little later in the presentation. None of it is Schoenbergian 12-tone music, but we can probably say that most of it profited from the structural liberation that Schoenberg introduced.

Media utopianism and the producer/consumer divide

20th-century media have frequently produced utopian visions of enhancement of democracy and other social values. Radio, for example, produced a rhetorical field in the US whereby it was possible in the 1930s for David Sarnoff to testify before the FCC that

> The importance of broadcasting cannot be measured in dollars and cents. It must be appraised by the effect it has upon the daily lives of the people of America – not only the masses who constitute a listening audience numbered in the tens of millions, but the sick, the isolated, and the underprivileged, to whom radio is boon beyond price (Spinelli 7).

Sarnoff, by the way, was at that time the president of RCA, the largest manufacturer of radios in the world, and chairman of NBC, the first and largest radio network. And he was testifying to dissuade anti-trust action. The utopian visions for radio should sound familiar to you, as they are the same myths that have been sold to us regarding the internet (Spinelli 1).

Broadcasters like Sarnoff conceived of radio as a purely consumption-oriented medium, even though, as Hans Magnus Enzensberger pointed out,

> Electronic techniques recognize no contradiction in principle between transmitter and receiver. Every transistor radio is, by the nature of its construction, at the same time a potential transmitter; it can interact with other receivers by circuit reversal. The development from a mere distribution medium to a communications medium is technically not a problem. It is consciously prevented for understandable political reasons. The technical distinction between receivers and transmitters reflects the social division of labor into producers and consumers, which in the consciousness industry becomes of particular political importance (Enzensberger 2).

As we know, dialogic radio hasn't fared well. People who try to transmit radio signals are deemed pirates by the FCC, who actively patrols the airwaves to enforce a strict monologic regime.

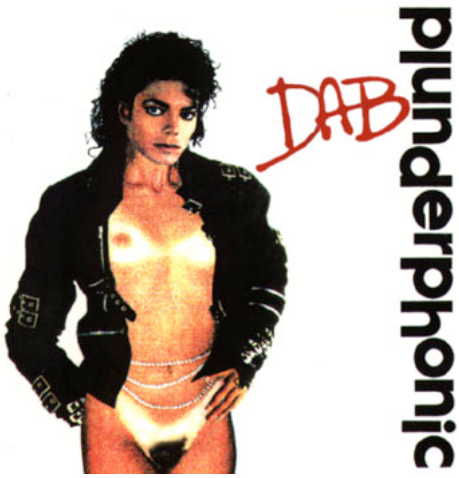
Bertolt Brecht in his essay, "Radio as an Apparatus of Communication" called for a realignment of radio to achieve this dialogism.

> The increasing concentration of mechanical means and the increasingly specialized training – tendencies that should be accelerated – call for a kind of resistance by the listener, and for his mobilization and redrafting as a producer. This exercise is an aid to discipline, which is the basis of freedom (31).

Interestingly, Brecht seems to favor the consolidation and professionalization of the technical means, while also favoring popular resistance and empowerment through disciplined media literacy. This is a rather nuanced position for a Marxist to take, and seems to mirror his aesthetic commitment to the productive value of competing interests held permanently in tension.

Plunderphonics

The producer/consumer problem is manifested on many fronts today, but most especially in sampling culture. Chris Cutler traces this phenomenon back as an inevitable outgrowth of recorded sound:



> Until 1877, when the first sound recording was made, sound was a thing predicated on its own immediate disappearance; today it is increasingly an object that will outlast its makers and consumers. It declines to disappear, causing a great weight of dead music to press upon the living. What to do with it? An organic response has been to recycle, an answer strenuously resisted by traditional musical thinking. Yet plagiarism, once rejected as insupportable, has today emerged both as a standard procedure and as a consciously self-reflexive activity, raising vexed debates about ownership, originality, copyright, skill, and cultural exhaustion (138)
>
> [P]lunderphonics as a practice radically undermines three of the central pillars of the art music paradigm: originality (it deals only with copies), individuality (it speaks only with the voice of others), and copyright (the breaching of which is a condition of its very existence) (143).

Cutler notes that recording technology, like radio, began as a medium of production as well as consumption, but that powerful interests and market forces reconstructed it as a consumer medium.

> Interestingly all Edison's early cylinders were recording devices as well as reproducing devices, but he quickly lost the initiative to the mass reproducible flat Berliner disc, which was only a reproductive medium. Its mass production however fed the growing consumer market for music recordings…. The breakthrough for the record as a producing (as opposed to reproducing) medium didn't come until 1948, in the studios of French Radio, with the birth of musique concrète. (143)

Plunderphonics came into its own at the moment when the digital revolution made it cheap, easy, and mass-producible by amateurs. It also so threatened to desubstantiate the media of music that vinyl was on the verge of disappearing. Perhaps because of this threat a reactionary return to the physical record, and the sounds it carried, re-invigorated vinyl.

> It is almost as if sampling had created the gramophone record as a craft instrument, an analogue, expressive voice, made authentic by nostalgia. Obsolescence empowers a new mythology for the old phonograph, completing the circle from passive repeater to creative producer, from dead mechanism to expressive voice, from the death of performance to its guarantee (151).

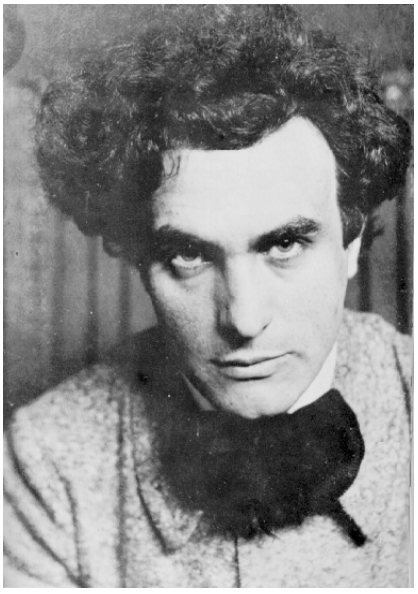
Cutler defines 5 degrees of plunderphonia

1. **There it is:** … where materials are all derived directly from records or radio and subjected to various manipulations.
2. **Partial importation:** … recordings … are used as important voices, the rest of the material be constructed around them.
3. **Total importation:** … existing records are not randomly or instrumentally incorporated so much as they become the simultaneous subject and object of a creative work.
4. **Sources irrelevant:** This is where recognition of parts plundered is not necessary or important. There si no self-reflexivity involved; sound may be drawn as if "out of nothing," bent to new purposes or simply used as raw material. Also within this category falls the whole mundane universe of sampling or stealing "sounds": drum sounds (not parts), guitar chords, riffs, vocal interjections etc., sometimes creative used but more often simply a way of saving time and money.
5. **Sources untraceable:** … manipulations which take the sounds plundered and stretch and treat them so radically that it is impossible to divine their source at all (154-5).

Cutler also observes 3 motives for plunder:

1. positive exploration of new worlds of sound and new possibilities of aestheticisation
2. the idea that there is no need to originate any more, since what is already there offers such endless possibilities
3. the expression of an implied helplessness in the face of contemporary conditions, namely that everything that can be done has been done and we can only rearrange the pieces (155).

Edgard Varèse: Music futurist



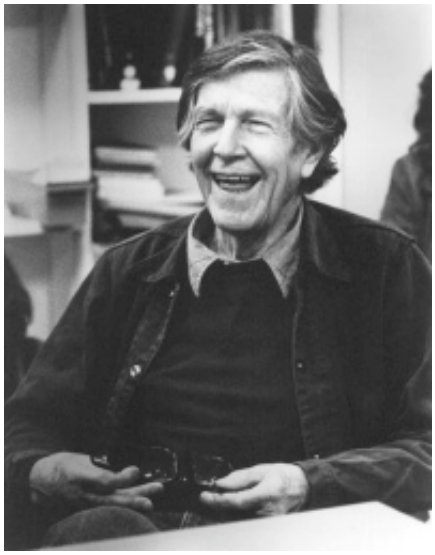
In "The Liberation of Sound" (culled from essays published form 1936 to 1962), Varèse enacts the archetypal futurist gesture: calling for a new technology that will enable him to realize his already well-formed vision for his future work.

> When new instruments will allow me to write music as I conceive it, the movement of sound-masses, of shifting planes, will be clearly perceived in my work, taking the place of the linear counterpoint. When these sound-masses collide, the phenomena of penetration or repulsion will seem to occur. Certain transmutations taking place on certain planes will seem to be projected onto other planes, moving at different speeds and at different angles. There will no

> longer be the old notion of melody or interplay of melodies. The entire work will be a melodic totality (17-18).
>
> Moreover, such an acoustical arrangement would permit the delimitation of what I call "zones of intensities." These zones would be differentiated by various timbres or colors and different loudnesses. Through such a physical process these zones would appear of different colors and of different magnitude, in different perspectives for our perception. The role of color or timbre would be completely changed from being incidental, anecdotal, sensual, or picturesque; it would become an agent of delineation, like the different colors on a map separating different areas, and an integral part of form (18).

If you've done any reading about music at all, you're probably quite accustomed to seeing musicians resort to loosely employed visuo-spatial metaphors to describe their music. It's a frequently maddening adaptation to the fact that our visualist culture has no proper metalanguage for music, no way of understanding it outside of its internal semiosis. But somehow with Varèse I get the impression he's not speaking metaphorically. I can't picture what he means, but I suspect he can. This pioneering piece of musique concrète was first performed in 1958 via 450 speakers in a temporary architectural space designed by Le Corbusier (Hinant 26), so it seems likely that some of his spatial ideas, at least, found their best possible realization.

John Cage: Ambassador of noise



Cage's essay, "Future of Music: Credo" was written in 1937 – one year after the preceding selections from Varèse. But where Varèse was looking to future instruments for his 'present' vision, Cage is imagining the future with currently available instruments.

> Wherever we are, what we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it fascinating. The sound of a truck at fifty miles per hour. Static between the stations. Rain. We want to capture and control these sounds, to use them not as sound effects but as musical instruments (25-6).
>
> It is now possible (with electronic instruments) for composers to make music directly, without the assistance of intermediary performers (27).
>
> Percussion music is a contemporary transition from keyboard-influenced music to the all-sound music of the future. Any sound is acceptable to the composer of percussion music; he explores the academically forbidden "non-musical" field of sound insofar as is manually possible (27).

Cage's "Imaginary Landscapes" are recordings that use multiple simultaneous pre-recorded or broadcast sounds as their sources. Tonight we effect recursion by performing a similar non-deterministic process on some blindly selected music from his catalogue.

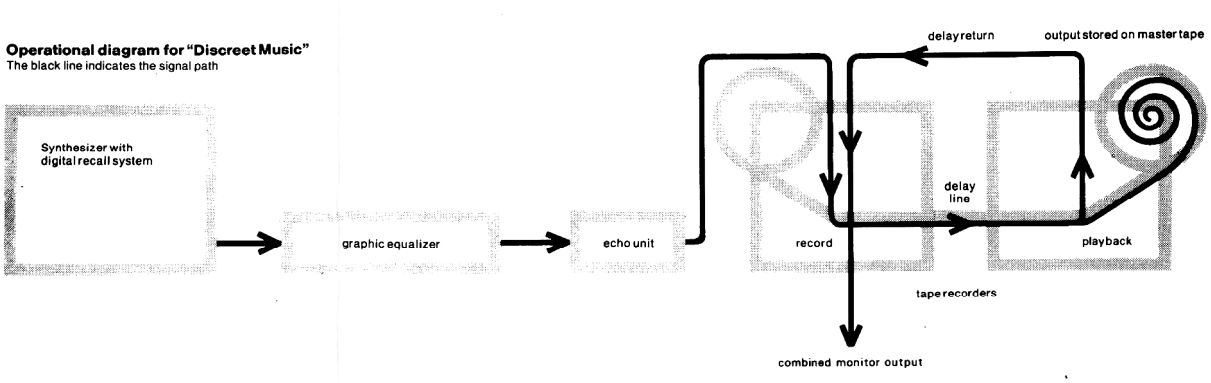
Steve Reich: Ghost in the machine

Reich is best known for his early musique concrète experiments – simple in concept and execution, but profound and hypnotic in their results. "Piano Phase" takes two identical tape recordings of a single, mechanistically simple piano figure and slows one of them down slightly so that as they repeat the two gradually go out of phase.

This introduces surprisingly complex but prevailingly intelligible rhythms and harmonies. About once every minute the piece appears to be lapsing into utter chaos and then abruptly resolves to the next phase of order, speaking volumes about the integrative pattern-finding capacities of our listening minds. "Come Out" and "It's Gonna Rain" perform similar processes on speech recordings.

One significant aspect of these pieces is that their complex rhythms cannot be performed by humans – precisely because of that integrative capacity, we can't lapse into and out of synchronization the way this tape apparatus does. But hearing a piece like "Music for 18 Musicians" makes you wonder if that's a premature conclusion. Here a chamber ensemble performs on acoustic instruments rhythms similarly fluid to those produced by the tape loops. Here we have a case where the electronic influences the organic.

Brian Eno: Building a machine to create for him.



Eno pioneered ambient music literally by accident. In 1975 he was immobilized in a hospital bed following an accident when a friend visited and brought him a record of 17th-century harp music. She put it on to play as she left, but the volume was turned down low and one of the speakers was dead. He was unable to get up and adjust the volume, so he was forced to listen through heavy rainfall to a record that played mostly below the threshold of hearing. He was "gradually … seduced by this listening experience" and dedicated himself to reproducing it compositionally. Much of his subsequent career has centered around creating music production systems that are able to surprise him, making aesthetic decisions for him.

> I would love to have a box onto which I could offload choice making. A thing that makes choices about its outputs, and says to itself, This is a good output, reinforce that, or replay it, or feed it back in. I would love to have this machine stand for me. I could program this box to be my particular taste and interest in things ("Gossip is Philosophy")

This piece from *Discreet Music* is one of 3 adaptations of Pachelbel's Canon in D.

> In this case the "system" is a group of performers with a set of instructions—and the "input" is the fragment of Pachelbel. Each variation takes a small section of the score (two or four bars) as its starting point, and permutates the players' parts such that they overlay each other in ways not suggested by the original score. In "Brutal Ardour" each player has a sequence of notes related to those of the other players, but the sequences are of different lengths so that the original relationships quickly break down *(Discreet Music)*.

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