

Linguistic semantics as a vehicle for a semantics of music

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Background in linguistic semantics

Meaning has been the most difficult issue to tackle in linguistics. Approaches have been many, their success minimal. Modern semantic theories are largely mind-oriented, in that they postulate specific mental representations responsible for meaning generation. The most promising approaches to semantics include cognitive semantics, which predominantly studies the conceptual building of metaphors, and generative semantics, which deals with truth-conditional acceptability of linguistic utterances. An interesting approach to semantics, though more socially-oriented, is also that of memetics, which proposes that meaning propagates through social groups by imitation.

Background in music theory

The approach to music theory based on a linguistic epistemological framework has been present in cognitive science at least in the last twenty years. However, the study of musical meaning backed by the findings of modern linguistic semantics has been rather scarce in the literature. Reasons are obvious, since the research in music cognition has still not resolved the issue of whether there is such a thing as musical meaning at all. Most discussion still seems to cluster around the ancient cleft between formal and contentual aesthetics of music. Even when the latter position is accepted, its psychological research usually sticks to emotion-related phenomena, such as the notorious 'happiness' of majors or 'sadness' of minors, and therefore provides little grounds for a broader theory to describe the extramusical impact of music.

Aims

We take a moderately contentual view of musical meaning in order to point to some approaches of modern linguistic semantics which might prove valuable to the research of musical content. These include: (1) a revised attempt of approaching musical denotations and connotations, along the lines of Popperian memetics and social propagation theory; (2) a revised approach to the study of musical metaphor, in accordance with the findings of cognitive semantics; (3) an attempt to draw parallels between generative semantic theories and possible studies of suitability of music in particular non-musical contexts.

Main contribution

(1) Within the framework of memetics we propose that musical phrases spreading in society can function as memes, bits of information causally influencing the behaviour of individuals. This is where musical denotations, if at all, should be sought. (2) In the cognitive domain, we propose a distinction between *intrinsic* and *extrinsic* musical metaphors, the former to be studied in music theory only, and the latter to be the subject of a grand metaphor theory based on cognitive linguistics. (3) As for more formal issues, we propose parallels between generative semantics and the study of musical content. Although music certainly has no truth-conditions, we believe 'native listeners' (parsers) do have intuitions about the acceptability of music in certain extramusical contexts.

Implications

Even though the two systems vastly differ, linguistic semantic methodology can give insights into the study of music experience. We postulate a possible identical coverage of linguistic and musical denotations and connotations, a neo-Fodorian 'module' for metaphor, irrespective of the symbolical form of its realization, and a substantive role of intuition in musical meaning generation, comparable to some aspects of native speaker's intuition. We believe these connections are a good starting point for a grand semantic theory to cover at least these two cognitive abilities.

The relationship between language and music has been of interest to thinkers for centuries – since at least the times of ancient Greece and Plutarch's discussions on music and poetry, all the way to modern neuropsychological research, such as the

study of Besson and Schon (2001). The most important turning point which joined the efforts of modern linguistic science and music theory is certainly the influential Generative Theory of Tonal Music (further: GTTM, Lerdahl and Jackendoff, 1983), which, within a

broader attempt to postulate a common theory to cover all human cognitive capacities, vouched for a mental grammar of music: it showed some aspects of music cognition, such as the perception of metrical and tonal hierarchies and preferential choices of parsers in the temporal domain, functioned along the same abstract principles governing mental grammars of natural languages. Such phenomena were thus explicable in terms of theories based firmly on a Chomskian epistemological framework.

However, though pointing to striking similarities at the levels of what linguists would call phonology, the study of (speech) sounds, and to a lesser extent syntax, the study of the arrangement of units into complex distinguishable wholes, neither GTTM nor other theories have really succeeded in finding a common framework in language and music for semantics, the study of meaning.¹ Up to a point, this tendency is easy to understand, since meaning is a very complex mental phenomenon, difficult to formally describe even in linguistics, not to mention music theory. For these reasons, even such influential theories as GTTM shunned the description of musical meaning, claiming it was either 'only on the surface of musical understanding' or 'too personal, associative and context-dependent to seriously discuss'²

We believe there are at least two good reasons to try to incorporate music theory into some kind of semantics, one quite well worn, and the other more contemporary. First, it is exactly the issue of presence or absence of meaning in music that has been causing rifts between theoreticians for

¹ Although 'musical syntax' is a highly utilized term in music theory, GTTM has proved with some success that relationships between linguistics and music theory are the most conspicuous in the domain of phonology. The latest research, such as the one of optimality theory (OT) seems to prove such findings (see Gilbers and Schreuder, 2002). Apart from some rather general assumptions, and the abundance of common expressions for (seemingly) equivalent structures, there are few real psychological connections between the syntax of music and natural languages.

² Today, with recurring interest in semantics, even the authors of GTTM seem to have revised their position. Professor Jackendoff (personal correspondence) today claims there certainly is musical semantics. The only problem is no one has been able even to define its subject matter in any theoretically or empirically viable way.

centuries. The main gap in the aesthetics of music is still centred around this old methodological preference: to be a formalist, and deny music any meaning, or to be a more or less rigorous contentualist, and allow for the extramusical in musical understanding. The former group comprises most 20th century composers and such thinkers as Hanslick, Dahlhaus or Focht, today Dempster, the latter includes most High Romantic composers, and more psychologically-oriented researchers such as Langer, Cooke, and today Raffmann or Sloboda³. Our second justification for a musical semantics is much more contemporary: in the nineties, there was a genuine recentring of linguistic research: the formerly syntaxocentric Chomskian linguistics shifted its interest towards the issues of meaning, and today we have a number of mutually competitive semantic schools struggling for some room in generative linguistics, whereas syntax is largely neglected, and taken to the levels of extreme abstraction. Any contemporary comparison between language and music can hence hardly avoid the issue modern language theories struggle with the most – meaning generation.

Our choice in this paper is thus to try to restore interest in what Bernstein (1976) called *musico-linguistics* and show that comparisons between music theories and cognitive / generative⁴ linguistic schools were not a mere transient fashion of the seventies and early eighties. We shall hence take a moderately contentual view, that of music carrying at least some kind of meaning, and try to discuss this phenomenon from the standpoint of three modern-day approaches to semantics: memetic, cognitive, and truth-

³ The names are just given as illustration and not classification. Most people mentioned differ widely in their views of musical meaning.

⁴ There is serious dispute between the two in linguistic research, especially in semantics and it causes some terminological trouble. In the broader sense, all three theories we are about to shortly discuss in this paper are cognitive, for they view all linguistics as a mind-oriented science, a branch of cognitive psychology. In the narrower sense, however, 'cognitive linguistics' is just one of the schools, gathered around professor George Lakoff. It is in many respects opposed to the 'generative' (truth-conditional) stream, also known as the MIT school. The non-linguist reader may freely overlook these differences, for they will have no substantial importance to our further discussion.

conditional. We shall give a short account of these three linguistic semantic theories, and then go on to discuss how they can contribute to our understanding of the extramusical in music.

1. Modern Linguistic Semantics

All linguistics is notorious for its abundance of theories. Semantics is no exception. We clearly cannot offer even a shortest collection in the paper this size, and will therefore resort to three theories which we believe have some importance to the study of music: memetic, cognitive and truth-conditional.

1.1 Memetics and meaning

We start with memetics as it is the least recognized of the three, but its rapid expansion in many domains of social science promises some rewarding results. We also point out that memetics is not really a linguistic theory, but has some serious implications both to linguistic semantics and, we hope, the semantics of music.

Memetics is a social theory that views all human behaviour as a result of imitation. According to the pioneer work of Richard Dawkins (1978), the same way genes propagate through the body and influence the traits of the human being, a corresponding entity propagates through the social group – *memes*, bits of information operating in the third world⁵, causally influencing both the physical and the mental environment. In this view, any idea spreading through society can partly influence the mental world (and behaviour) of other human beings. Pretty much the way the local neighbourhood ends up buying new sport cars only to copy a wealthy neighbour who has done it before them.

The propagation of memes is the consequence of communication: not necessarily linguistic. Any fashion-related behaviour is a meme. The spread of patched-

up jeans, closely-cropped hair, or any garment of clothing coloured red, is certainly a good example of the propagation of memes, something memeticists call *memetic evolution*. A set of memes operating during this evolution is a *meme pool*.

Memes can also mutate, and cause originally undesired effects, but even in such an unforeseen development, they still largely influence human behaviour. Any ideology is a meme. For instance, though communist ideology was among other issues based on the idea of equality, what it turned into in the 20th century had little or nothing to do with equality at all. In such cases, memeticists say the meme has mutated during the propagation.

Examples are numerous and come from all branches of social activity. How much it is empirically warranted to compare the local neighbourhood, fashion TV and communist ideologists in a single theory remains an open issue. Hence serious objections to the memetic enterprise, a 'simplified social genetics', from many branches of social science.

However, even with such serious objections at hand, memetics has given some new life to the old semantic theory of 'denotation' and 'connotation'. For a memeticist, meaning is primarily a mental phenomenon, as it stems from the mental world of the speaker. This is why memetic semantics is still largely a cognitive theory. However, according to this view, meaning solidifies during propagation. If this linguistic unit, now physically realized, a single word, a phrase, or a sentence, has propagated enough and if there is a social consensus on its extralinguistic impact, the unit is said to have a denotation. We all certainly agree what a 'chair' is – namely a four legged object used for sitting, and we can all probably point to one once we see it. This is a consequence of a social consensus once reached on that kind of object being 'a chair'. All chairs of this world comprise the denotation of this object. Yet, during the propagation of this meme (the idea of the 'chair'), there is always some mutation. Many things in this world resemble chairs in one way or the other, and are still not the original chairs with four legs used for sitting.

⁵ According to Karl Popper, there are at least three worlds: the first world, that of physical entities, the second world, that of mental entities, and the third world, the world of ideas. All three are in part independent, but can causally influence one another. This especially applies to the third world.

Someone can be a chair of a meeting, we have chairs in our universities, and there are chairs in the orchestra, which are not real chairs but positions for particular musicians. In these three examples the chair meme has mutated, it used the personal associations some people related to the original idea of 'the chair' (linguists call this 'connotation'), and created new, original meanings, new denotations. Over time, these new denotations create newer connotations, and so on.

No matter how theoretically (un)warranted, the memetic view of meaning represents a major breakthrough in the old theory of denotations and connotations. It abandons the view of denotations as universal, God-given conceptual properties and connotations as mere personal and emotional associations inexplicable scientifically. Rather, memetics views the denotation-connotation relationship as dynamic, liable to change during the propagation of memes, and thus highly creative. This gives room for a new theory of musical denotations and connotations which we will discuss in 2.1.

1.2 Cognitive Semantics

This has been one of the most dominant theories in linguistic thought ever since Lakoff and Johnson (1980). As the name suggests, it also searches for meaning in the mind only, but this time social issues are skipped and the inner workings of the mind are explored.

The subject matter of cognitive semantics is human cognition, i.e. what happens in our mental system (ultimately, some parts of the brain) while we generate concepts. The highlight of this theory is its peculiar account of the mental phenomenon known as *metaphor*, which will have some implications upon our discussion of musical meaning (see 2.2).

Metaphor is today not seen as a mere stylistic device from literature classes ("Oh Hamlet, thou hast cleft my heart in twain"). Rather, it is considered a primary conceptual mechanism, a mental phenomenon responsible for many aspects of our world view. It is usually defined as a cross domain mapping in the conceptual system. This

means that our concepts (such as 'the chair' from the previous chapter) are not kernel entities, indivisible into smaller segments. Quite the contrary, they seem to be built up of smaller blocks of meaning, known as *prototypes*. Whether the chair in my mind is a bare-bone half-dilapidated wooden chair, and in the reader's mind a posh baroque armchair is of no significance to our understanding one another. This is so because both these chairs share a number of indispensable characteristics, the essence of their 'chairness', namely the fact they are used for sitting, have legs, a seat and a back. These common traits of individual concepts that stand for otherwise immensely different physical or abstract objects (do find two identical chairs if you can!) are very close to the cognitive idea of the prototype.

When corresponding prototypes of different concepts overlap, one gets a metaphor. If we, for instance, say that '*The prices are going up*', we unconsciously relate a physical property (say, a man going up, climbing some stairs), and an abstract relation (the prices are not really going anywhere, but there is no other way we can explain what is going on. We can say they are *rising*, but this is a metaphor, too.) Furthermore, in a similar fashion we say that '*Things are looking up*', where we go even further: this is no longer just transcendence from the physical to the mental. It is also a value judgment, for it implies something good (the metaphor formula is, thus, *up is good, down is bad*).

We can list examples practically ad infinitum. The point of a good metaphor theory is first to raise the awareness of the audience on how important and inescapable metaphor is in any linguistic communication transcending the categories of *the here* and *the now*. Its second purpose is to account for the exact mechanism of how prototypes overlap, and whether this mechanism is fully arbitrary or has some universal explanation. In this respect, *up is good and down is bad* not because English speakers just so decided, but because the notion of being up as something positive has dominated their conceptual system for centuries. Think of sexual or religious connotations as prime candidates for the origin of this metaphor. Similarly, Hamlet does not really cleave his mother's heart, but

merely 'breaks' it. The latter we will find more natural, but it is also a metaphor, and has a clear historical and religious origin.

In short, cognitive semantics and its key venture, metaphor theory, are trying to explain how our conceptual system manages to tackle objects and ideas which are spatially or temporally unavailable to our senses. In language, metaphor is very common, but can still sometimes be avoided, at least in the most simple propositions. As we shall see, in music, metaphor is the only way we have to approach the system, a fact that can give us some insights into the way we view this world around us (2.2)

1.3 Truth-conditional semantics

This is the second dominant school in modern semantics. It stems directly from the teachings of Noam Chomsky and early generative semanticists, and is widely practised all over the United States, especially by the proponents of the so-called MIT semantic school.

The theory, sometimes inaccurately termed only *formal semantics* (it is just one of a number of formal schools), skips the study of denotations, connotations, concepts, or metaphors. It is disinterested in the meaning of individual words claiming such a meaning is 'internalized', a matter of native speaker's intuition, and not a subject matter of semantic analysis. The goal of a good semantic theory is to interpret the deepest intrinsic meaning of a sentence, called 'logical form' after Ludwig Wittgenstein.⁶ The theory is fully formalized and it uses the rules of formal logic and set theory to account for the logical relations between sentential elements. The ultimate goal of a semantic analysis of a sentence is to reach a tautology. Strange as it sounds, if one proves, in a number of steps, that the meaning of '*John likes trees*' is true if and only if it holds that '*John likes trees*' (!), under certain provisions, called truth-conditions, then it is believed that the semantic interpretation of the sentence has been given, and the task of a semantician has

⁶ This term was misused by Susan Langer in her aesthetics of music in the sixties and caused a lot of terminological trouble. It has nothing to do with the equivalent expression in formal semantics.

ended. Going further than this would for generativists become an excursion outside 'legitimate' semantics.

As music certainly has no truth conditions (it may be good or bad for me, and perhaps we can all reach a consensus on its quality, but it certainly cannot be factually right or wrong), this theory can give little grounds for a semantics of music. Such grounds we will look for in the basic assumption of all generative semantics: the fact that native speakers of a language have 'intuitions'⁷ about the semantic properties of terms they use. Analogically, we will postulate what could happen to 'native listeners' (musical parsers, after Lerdahl and Jackendoff) if their musical intuitions were experimentally set against differing extramusical contexts. This could be the grounds for our new formal semantics of music, methodologically based on a formal linguistic semantic theory.

With this we end our shortest description of the three modern approaches to modern linguistic semantics hoping we have pointed out their very basic ideas. We now move on to their tentative links with music theory.

2. The Semantics of Music

We will now discuss the possible study of musical semantics in the methodological framework of the three approaches to linguistic semantics previously described. Our main aim will be to draw the reader's attention to the potential solution to some old problems of musical meaning offered by some aspects of these three theories.

2.1 Memetics and musical meaning

The main argument against there being a meaning in music is in its alleged absence of denotation. When confronted with a musical phrase they have never heard before, and asked "What does this mean?", parsers will rarely offer the same interpretation, even if they belong to the same age, gender, culture,

⁷ For a linguist, the term 'intuition' has no metaphysical value. It simply means 'unconscious knowledge' and relates to cognitive tasks an experienced adult performs with little or no conscious effort.

social class, type of taste. The beginning of *Eroica* is majestic for some, shallow for others. Happy for one group, sad for another.⁸ Stern formalists thus refuse to discuss the issue of the content of music at all, claiming after Schenker that 'musical tones mean themselves and nothing else'. Even proponents of musical content theories find it hard to account for denotation in music. They usually allow only for connotations, more or less individual associations one relates to the music one is listening to, which may or may not be direct human emotions. However, apart from clichés in music, the roaring of thunder, the gurgle of water, the thud of horses' hooves, there are no real denotations in music. And even these clichés originated once in the history of music. Before they became clichés, they meant nothing at all. Hence, music is not denotative, and it cannot carry a meaning, at least not such as we discuss in the language science.

There is nothing wrong with the reasoning above, except for the fact it takes for granted a very old-fashioned and doubtful view of the denotation-connotation relationship. True, in terms of denotation, a musical phrase we have never heard before cannot compare with a linguistic phrase such as *a plénitude of redundancies*⁹. Here language and music cannot compete meaningwise, since music simply has no truth conditions to resort to. It cannot be true or false, and hence its meaning is never compositional, at least not in such a way as to be expressible in formal logic and set theory.

⁸ Or, usually, none of the above. Traditionally, the issue of musical meaning boiled down to the problem of emotions evoked by music. We believe however that the traditional interpretation, that of 'majors being happy, minors being sad' and the like does not really apply. We agree with Jackendoff (1992) that music is much more about the change of affect in time, and that emotions in music are triggered by fully unconscious processors faced with unfulfilled expectations. Our view of musical meaning discusses issues of higher level, see further.

⁹ Linguists adore doing this. We all know what the three words mean, but their combination is so strange that we have probably never heard it before. Still, we understand the meaning of the phrase, since we know the meaning of individual words and the way they are combined. The fact we understand their combination is the key tenet of truth-conditional semantics.

However, when we compare individual concepts (remember *the chair*) in language and musical themes we get some more interesting results. Recall the discussion of memetics above. There is no inherent denotation labelling a word. We know what a chair is only because there is a social consensus on its meaning. Once we let this concept loose, and start using it in public, we get a meme that mutates. Thus chairs are found in our apartments, but also in meetings, universities, and concert halls, no longer denoting only wooden objects for sitting. If we accept that the denotation of a word originated from a social consensus on its use, and what once were the connotations associated with the word can become new denotations, and so forth, we will have a better grounds for a music semantic theory.

We take it that musical motives can function as memes and spread through social groups causing a change in the behaviour of social group members. This is nothing new, of course. *Idée fixe* or *Leitmotif* speculations have abounded in music theory ever since early Romanticism. What is new is the way memetics can handle this problem using almost the same methodology it applies to linguistic meaning. To retain the spirit of the new era, let us leave Berlioz or Wagner alone a little bit, and discuss something more modern. Here is the Darth Vader theme, one of the highlights of Star Wars, composed by John Williams:



This is one of the most famous themes in the history of film music. Anyone who has ever seen *Star Wars* has no doubt as to its meaning – the half-robot fallen hero with a Nazi-like mask¹⁰. For informed listeners, the

¹⁰ True, the one who has never seen *Star Wars* will have no idea about the 'meaning' of this musical excerpt – this leaves a large vacuum for decontextualized, non-program music, to which this discussion cannot apply. Remember, however, that memetic denotation depends on social consensus. A hypothetical adult individual who has never seen a chair in their life will not be able to grasp the concept of 'the chair' either. This has nothing to do with the symbolical form in question (language, music, or any other). In language decontextualization is extremely rare,

meaning of this theme is certainly 'Darth Vader', or 'The Empire'. The composer has been crafty enough to skillfully vary the theme in the six movies, and use it to depict the rise of the hero Anakin Skywalker and his fall into the alter-ego of the evil Sith Lord Vader. The theme has been used always and aggressively in the same extramusical context – whenever Vader himself or the talk of him appeared on the screen. The musical phrase was linked to the extramusical. The mass media did the rest, and people from all over the world became familiar with this theme. A meme originated, and its denotation has been created.

Now comes memetic evolution. We associate a number of connotations with Darth Vader: evil, terrifying, devoted to the 'dark side', obedient and loyal to his evil emperor, etc. Since the musical theme now denotes the character, the connotations we associate with the character become the connotations of the theme, as well. (Some of its inherent properties may play some role in the whole process – the minor tonality, the metrical flow, the pace of the theme, etc. – we will discuss the role of our intuitions of tonal European music in musical meaning in 2.3). These connotations opened up the way for the theme to be used in previously unexpected contexts: in Serbia in 1999, the melody was used in regime propaganda to accompany the sights of NATO planes with stylized swastikas bombing Serbian civilian targets. The new denotation of the theme, to the dread of Mr. Williams, a known peacemaker, was 'unjustified aggression against an independent country' (or the like). The meme had mutated, it changed its original denotation, and secured for itself new connotations (aggression, crime, unjust war, etc.) Two years after this, the new denotation was once again challenged, as it was now used with its possible meaning of 'crime' and 'aggression', but in a new social context: in June 2001 it was used on a Serbian television to announce the arrest of Slobodan Milosevic, who now became the object, rather than inspirer, of the music. The denotation was once again changed, and it made some room for new connotations. And so on, ad infinitum.

due to the system's strong communicative function. But this does not hinder the analogy, which in this theory we believe to be complete.

The Vader theme is certainly not the only one. Consider all film, cartoon and video game industry – Tom and Jerry who play Strauss or Liszt mock-ups, Elmer Fudd who 'kills the vabbit' to Wagner's Valkyre, Grieg's Peer Gynt in Muppet Show, Lawrence of Arabia in a James Bond movie¹¹, James Bond in numerous satirical cartoons, the Terminator theme when a video game character says 'I'll be back', and the hilarious Simpsons. In this series, the composers Danny Elfman and Alf Clausen masterfully use numerous musical contexts known to the American audience to create stunning satire: from horror themes, over the American anthem, to the Simpsons theme itself, which has built its own denotation in the fifteen years of the series on the air, and has been used to create a meta-satire in more than one episode.

Examples of memetic evolution at hand are numerous, and we can only expect more in the era of mass communications. Beethoven could not care less if his Fifth dealt with 'fate' or anything else. His audience did probably give the symphony the name, but the impact of their 'denotation' choice was rather limited in the 18th century. Today, the meaning of music so taken gets propagated in no time. This provides a lot of room for the spread of ideology by means of musical meme propagation – a fact all of us from some branch of the social science world must be fully aware of.

We naturally admit serious structural differences between language and music. We however believe that within the subject matter of memetic semantics, the analogy between the two systems is almost complete. Further research could focus on the type of musical material liable to quick memetic propagation. We sense that the simpler the material, the quicker the process. This thesis awaits further research.

¹¹ For those interested: The Spy Who Loved Me (1976), music by John Barry.

2.2 Theory of Metaphor and Musical Meaning

Most content-prone music theorists agree that music is highly metaphorical. However, there is a lot of methodological chaos in their treatment of the phenomenon, which we hope to settle in this chapter.

The critique goes to Bernstein (1976) and the revocations of his thesis of musical metaphor found, for instance, in Swain (1997). Though his music theory was highly influenced by linguistics, Bernstein was a strict formalist. He loathed the discussion of happy, sad or 'descriptive' music. For him, musical meaning stemmed from the inner structure of a piece. Hence, metaphor in music was a formal phenomenon, a kind of motive work, where one part of the theme resembles the other in all but one or two musical elements (say, harmony and meter). So, when Bach leads his theme through 3 tonalities he is actually applying a musical metaphor: it is the same theme, yet it is a bit changed – enough to notice the difference, but not enough to lose the sense of 'sameness'.

This 'intrinsic musical metaphor' is no metaphor at all. It lacks conceptual content, the reference to the extrasystemic (extramusical), essential for mental prototype mapping. It is a 'metaphor of metaphor', something resembling conceptual metaphor, but considerably different from it. This 'metaphor', actually motive work and variation technique, should be discussed in music theory only, and has no relation whatsoever (except metaphorical, sic!) to semantic metaphor theory.

The real musical metaphor is of necessity *extrinsic* – it somehow relates music to the external world. More precisely, it uses the experience of the external world to describe musical phenomena. We have showed that in language metaphor is a common phenomenon, whenever the here and the now are transcended. In music, however, metaphor is the only way to describe the system. Paradoxically, even the most rigorous formalists need metaphors to describe music. There seems to be no other way.

Thus, music is seen as a *vertical system* – voices are higher or lower, intonations rise and fall; as a *horizontal space* – musical space, musical flow, with its closer and more remote points; it is also a *teleological system* – with flats and sharps that 'tend' to be resolved, some that are tense and need to become lax; music is also a *language* (yes, this one too – the composer is a poet, his music is poetry), and sometimes a *formal system* (with syntax, rules, and representations), perhaps even a *structure made up of building blocks* (the structure of this piece is rather chaotic), it is a *substance with a texture* (this passage is really rough!), or a *landscape for a figure to travel* (The composer guides us through the musical flow). Finally, *music with an expressive force which contains emotions* is also a metaphor (*Appassionata* is a desperate piece) (For details, see Treitler, 1997; Kuczenski, 2000)

Musical metaphors are so overwhelming that we do not view them as metaphors anymore. Their omnipresence disables us from strictly distinguishing between the intramusical and the extramusical, a non-problem in presentational arts. Indeed, how to formally distinguish between the former (*scale, high register, remote position in the musical flow*) and the latter (*dark melody, male major, funeral march, fantasy*). The intra-/extramusical distinction is fully arbitrary, and anyone who wants to describe music, no matter how much a formalist, needs metaphor. After all, why 'scale' and not 'ladder' (the corresponding Serbian word). Our whole experience of music seems to be but a grand metaphor.

The problem with metaphor is that many believe it is fully haphazard. After modern cognitive semantics, we take a position that musical metaphors are not fully arbitrary. To the contrary, there must be an *inherent* link between the physical stimulus and the resulting conceptual metaphor, if the expression is to persist in the language. For instance, the middle C is not *below* the middle D for no reason. There is a link between this conception and the physical properties of the two tones: frequencies, wavelengths and the resulting shortening of strings on an instrument necessary to produce the two. A good metaphor theory needs to explore these

relations and hopefully show most are universal. This is the task of modern cognitive linguistics, and it can also become a task of a theory of musical metaphor.

This points that any metaphor, regardless of the symbolical form of its origin, functions along the same abstract principles. If this is true, the zones of the human cortex active during metaphor generation can be equivalent in language and music. We are currently preparing such an experiment, in order to postulate a neo-Fodorian module specialized for metaphor¹².

2.3 Formal Semantics of Music

There are few real connections to be drawn between truth-conditional semantics and music theory. No wonder, when the former deals with truth-conditional acceptability of natural language sentences, i.e. the conditions a sentence needs to fulfill in order to be labelled true or false. A typical formal semantic analysis utilizes set theory and operations of formal logic, and ultimately looks as formidable as this:

'All that glitters is not gold'.

a. $\sim \mathbf{Ax}[G(x) \rightarrow A(x)]$ **OR,**

b. $\mathbf{Ax}[G(x) \rightarrow \sim A(x)]$

$G(x) = x$ glitters

$A(x) = x$ is gold

The sentence is ambiguous.

In music analysis this is of course not possible since, as stated, music certainly has no truth conditions. A formal semantics of music is possible due to a much more basic assumption: in generative semantics, we postulate native speakers' intuitions about the meaning of words. Correspondingly, in music, the basis of formal semantics would be the intuition native listeners, musical parsers, have about the applicability of music in certain extramusical contexts.

¹² Jerry Fodor, the originator of the modular theory of the mind, a view that higher cognitive capacities are largely independent and stored in differentiated areas of the brain. (see Fodor, 1983)

We all feel there is some link between the music and the extramusical, even though it is to a large extent culturally determined. The thesis of such intuitions can be tested empirically: if the interpretation of the same extramusical context differs to different music played in the background, then it is the music itself which influences the interpretation of the parser the most, and the parser can be said to have native musical intuition about what kind of music is acceptable with what non-musical environment.

The experiment would be as simple as playing strikingly disparate musical tunes to subjects while they watch a short extramusical context, say a 10-second cartoon in which the storyline is not quite clear, but needs to be in part autonomously constructed by the viewer (e.g. something that *looks* like a car is running over something that *looks* like a dog. But, other interpretations are certainly possible). This projection technique can keep the viewers busy consciously thinking about the animation, not paying any attention to the music they are listening to. And yet, the music can prove to influence their interpretation the most. Since the cartoon really has no independent content, but needs to be fully projected into, background music becomes the best source for the subject's interpretation of the extramusical. An experiment like this is currently being prepared at the author's university on the sample of 50 student nonmusicians. We hope it will point to some inherent properties of western parser's music intuitions too, for instance, why the minor tonality and march-like pace of Vader's theme are so suitable for dark and ominous moods, even without any previously known contexts, such as galactic epics, allied bombings, or arrests of authoritarian rulers.¹³

Naturally, such a research cannot offer too much. It can prove that musical intuitions about the extramusical unequivocally exist, at least in the present-day western minds. The classification of such intuitions, and their formal expression in a 'generative' music semantics theory, however, seems rather

¹³ For the idea of this experiment, I am indebted again to prof. Jackendoff who made a passing mention to a similar attempt he 'once saw on TV' in our correspondence.

unlikely with the present knowledge about the mind.

Conclusion?

No one knows if there is real, full-fledged musical meaning, and this paper has of course not resolved this ancient problem. For those who say that music carries nothing but itself we reply that we agree. Music *per se* is without content at least as much as language *per se* is. In the 'world out there' tones live their own life, quite independent from what they 'mean' to us. In language, too, strings of noise (speech) or rays of light with different wavelengths (writing) can also nicely function for themselves, as independent entities insensitive to what they mean for us. It is our mental manipulation of the two forms, however, that makes the extrasystemic references possible – the experience of chairs and the dread of Darth Vader's theme alike. In our discussion of this mental manipulation we naturally conceded that language and music are vastly different systems. Our comparison was much more based on methodology than on substantial equality. In this respect, we do hope that we have proved linguistic semantics can give some insights into the study of music – it can redefine the notion of denotation and connotation, clarify the confusion some music theorists made by easily (ab)using terms such as metaphor and logical form, and warn that intuition, unconscious knowledge, is not the exclusive property of linguistic competence. This is not much, but perhaps enough for a basis of a future 'grand semantic theory' a new semiotics with regained authority, a study of

meaning that will transcend the discussion of just one cognitive capacity, or just one symbolical form. Perhaps language and music are not the only candidates for such a venture.

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