

TROUBLES with TONAL TERMINOLOGY

Text submitted as contribution to Festschrift for
CORIÚN AHARONIÁN AND GRACIELA PARASKEVAÍDIS,
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by
Philip Tagg

Preliminaries

Formal conventions in this text

- All types of reference are included in one single 'References' appendix.
- The following typeface conventions are used:
 - [1] **Courier Bold** for note names, e.g. **bñ**, **c**, **db**;
 - [2] **Tahoma** for chord names, e.g. E7→Am (perfect cadence in A minor);
 - [3] roman numerals for non-key-specific tertial chords based on equivalent scale degree in monomodal heptatonic music, e.g. bVII→IV→I (mixolydian cadence formula);
 - [4] arabic numerals for non-key-specific scale degrees, e.g. 1 2 b3 4 5 b6 #7 1 (ascending harmonic minor scale).

Acknowledgements

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Background

I am very pleased to be part of this volume dedicated to Coriún and Graciela because Coriún was one of those whose ideas encouraged my efforts to reform and democratise the study of music. I see this text as part of those efforts in that it addresses fundamental problems of logic and democracy in the denotation of musical structure. My own awareness of those problems stems from forty years of work as a 'musicologist of the popular'. Back in the 1970s I was certainly aware of incongruities when trying to apply the terminology of conventional music theory to popular music, but it was not until the 1990s that I started to fully realise the extent to which that terminology can be both inadequate and deceptive. It was a gradual process of awakening that, summarised in the following six stages, will hopefully make for instructive historical reading for anyone interested in music theory or the epistemology of music.

Six stages

[1] When I was very young, my mother used to sing the minor hexatonic tune *The Tailor and the Mouse*. I also remember her humming ionian mini-chromatic music-hall numbers like *If You Were The Only Girl In The World*. My father, a self-taught amateur pianist, could muddle through easy arrangements of minuets from Mozart symphonies and accompany traditional tunes like the dorian *What Shall We Do With The Drunken Sailor?*, as well as ionian nursery rhymes like *Hickory Dickory Dock*.¹ He could also occasionally be heard 'doodle-doo-ing' a Glenn Miller or Jack Hylton horn riff. Then, as a teenager, my piano and organ teacher, Ken Naylor, not only introduced me to bebop and Bartók but also taught me to play jazz standards and to do close-harmony arrangements. With that musical background, which I later discovered was considered 'unusually eclectic' by others, I became a music student at Cambridge University in the early 1960s and was confronted by a rather exclusively euroclassical world. During my three years at that august institution (1962-65) I had to actively seek out musical

1. Tunes listed in Reference appendix: [1] *The Tailor and the Mouse* (Eng. trad., Tagg 2009c); [2] *If You Were The Only Girl* (© Como 1946); [3] *What Shall We Do With The Drunken Sailor?* (Eng. trad.); [4] *Hickory Dickory Dock* (Eng. nursery rhyme).

opportunities *outside* the academy, not so much for prosaic financial reasons as in order to preserve my own psycho-socio-musical sanity. I became a member of a Scottish country dance band and a soul/R&B combo while trying to find the time and motivation to ‘complete this motet in the style of Palestrina’.² Before studying at Cambridge I had not met many who heard one sort of music as intrinsically superior to another, but during my time in that privileged Disneyland of the English Renaissance I found myself repeatedly trying to convince those who held such one-sided views of aesthetic excellence that they were missing something. Therein, I suppose, lie the origins of my subsequent career as musicologist of the popular. The first coherent writing I produced on that subject was my doctoral thesis (Tagg 1979).

[2] One of the main points in the explanation of popular music analysis method presented in the thesis just mentioned was that the hierarchy of ‘primary’ (scribal) and ‘secondary’ (non-scribal) parameters of expression was inapplicable to music whose mediation rarely relied on notation and whose expressive dynamic resided in bouts of the extended present (*intensional* aesthetic) rather than in long-term harmonic and melodic narrative (*extensional*).³ Another critical point was insistence on a semiotic approach to music analysis and on the notion that thoughts about musical structuration should include discussion of its meanings.

[3] Invited in 1984 by Coriún to run popular music analysis seminars at the *Cursos latino-americanos de música contemporânea* in Tatuí, Brazil, I was salutarily obliged to confront my Euro-North-American cultural limitations and to listen with open ears to previously unfamiliar types of music. With help from other teachers and from course participants, I gained insights into how the actual sounds of popular musics in Latin America, like those of many popular styles from my own part of the world, could not be adequately described using the terminology of conventional music theory. Coriún also brought to my attention the work of Carlos Vega whose writings on popular music I later found very useful in explaining the functions of harmony in chord shuttles and loops.⁴

[4] When attempting to question reductionist and ethnocentric assumptions about the structural traits of ‘black’ and ‘white’ in music (Tagg 1989), I stumbled on strange contradictions in terminology descriptive of rhythm and metre. Firstly, the 1958 *Harvard Dictionary of Music* entry on ‘Dotted Notes’ referred to the ‘Scotch snap’ as ‘the *reverse* of the *ordinary* dotted rhythm... *Inverted dotting*’, continues the entry, ‘is... very frequent in Oriental and in primitive

2. ‘Complete this motet in the style of Palestrina’, ‘this invention in the style of Bach’, ‘this piano quartet in the style of Brahms’ etc. were typical end-of-year composition exam questions.

3. See ‘Extended present’ in Chapter 8 of Tagg (2012). According to Hall (1992: 209), ‘[b]asic to [Leonard B] Meyer’s argument are the differences between primary and secondary parameters... The primary parameters—melody, rhythm, harmony—are syntactic because they can define closure... The secondary parameters—tempo, dynamics, texture, timbre—are statistical rather than syntactic because they change only in quantity and therefore cannot create closure... A central theme [of Meyer (1989), under review] is that secondary parameters... gain increasing dominance over primary parameters and syntactic processes through the nineteenth century and into the twentieth. This trend leads... to the increasing structural importance of statistical plans as opposed to syntactic scripts, and to the overwhelming statistical climaxes by which “unrealized implications... [and] unresolved tensions... are absorbed and ‘absolved’” (p. 268).’ Since Meyer himself seems well aware of the incongruity (the ‘increasing dominance’ of secondary ‘over primary parameters’, etc.), it is not his historical observations that are the problem but the actual terms ‘primary’ and ‘secondary’. The *Concise Oxford Dictionary* (1995) presents the first meanings of *primary* as ‘of the first importance, chief; fundamental’ while *secondary* is primarily (*sic*) defined as ‘coming after or next below what is primary; derived from or depending on or supplementing what is primary’. If what seemed once to be primary and secondary can, in the light of musical evidence, no longer be usefully conceptualised in such clearly hierarchical terms, more accurate, non-hierarchical concepts become a necessity. Perhaps we should be talking about ‘scribal’ and ‘non-scribal’, or ‘notatable’ (*transcriptible* in French) and ‘non-notatable’ (*non-transcriptible*) parameters.

4. See Chapters 10-12 in Tagg (2009a). ‘Shuttle’ = *lanzadera*, *vaivén* (repeated to-and-fro between two chords); ‘loop’ = *lazo*, *vuelta* (short, repeated ‘circle’ of usually three or four chords). Vega’s concept of bimodality was particularly useful in explaining harmony in many different types of popular music.

[sic] music, where the *normal* dotted rhythm is rather *rare*.⁵ Obviously, if *ordinary* and *normal* are 'rare' and if the *reverse* or *inverse* is 'very frequent', linguistic logic has broken down, unless the oxymoron is intended as a humorous rhetorical device.⁵ Secondly, if *syncopation* is, according to the same *Harvard Dictionary*, 'any deliberate upsetting of the *normal* pulse of metre, accent and rhythm', and if '[o]ur system of musical rhythm rests upon the grouping of equal beats into groups of two and three, with a regularly recurring accent on the first beat of each group', then '[a]ny deviation from this scheme is felt as a disturbance or contradiction between the underlying (*normal*) pulse and the actual (*abnormal*) rhythm'. The problem is of course that, according to this reasonable definition, syncopation can only occur in monometric music because, as soon as two metres co-occur, metric 'disturbance' in one ('abnormal') is more often than not the norm in the other. It is therefore misleading to consider as syncopation what those of us from a monometric background probably hear as the fluctuating to-and-fro patterns of downbeat placement in styles like *candombe*, *danzón*, *merengue*, *rumba* or *son montuno* because what sounds like metric 'disturbance' in our ears is clearly an intrinsic part of the ongoing *norm*.⁶

[5] During the 1990s an increasing number of students in my popular music analysis seminars came from disciplines other than music[ology]. I soon discovered that these students were highly competent members of the music culture[s] to which they belonged. They could identify significant aspects of musical structure in terms like 'the chord at 1 minute 37 seconds', 'what the drummer does just before the chorus' and so on. They were also often better than music students at identifying the expressive qualities of the structures they identified in this sort of way — 'the princess voice', 'the detective chord', 'the sexy saxophone', 'the tiptoe bass', for example. It became clear that there was a sharp divide between structural descriptors deriving chiefly from the *production* of music — *poïetic descriptors* like 'head voice tessitura' and 'minor major nine chord' — and those based on *perception* — *aesthetic descriptors* like the 'princess voice' and the 'detective chord'. It became increasingly obvious that music theory's structural descriptors, unlike those used in, say, the visual arts, were almost exclusively poïetic and total gobbledegook to those with no formal training in conventional music theory. The most disturbing symptoms of this contradiction are of course: [1] that musical analysis is more often than not absent in media education; [2] that film directors and film composers often have difficulties understanding each other; and [3] that vernacular musical competence — the 'sexy sax' and the 'tiptoe bass', for example — is trivialised and academically disqualified. We musicologists have, I fear, largely failed to recognise, let alone systematise, this ubiquitous type of cultural competence. The need for a democratic reform of structural terminology in music is critical in this age of digital media, smartphones, gaming, cable TV, audio and video streaming or downloading, etc.⁷

[6] The final stage in the process of awareness under review here started in the late 1990s when I had to write substantial entries on melody, harmony, polyphony and modes for vol-

5. All italics and underlinings are mine. For a thorough discussion of the Scotch snap, see Tagg (2011a).

6. Moreover, medieval, baroque and Tudor music performance practice, with its use of *tactus* instead of metric conducting, shows that the fixation on symmetric monorhythm, graphically represented in later types of notation by the omnipresent bar line, is foreign to the music of that time. The term 'syncopation', applied to consistent hemiola shifts (as in the Galliard or in Elizabethan madrigals and anthems), is in other words highly questionable, especially in contrapuntal sections where different metres occur in different voices and can be experienced simultaneously by both listener and performer. It should also be noted that the term *polyrhythm* (literally = more than one *rhythm* at the same time) is often used confusingly in conventional music studies to denote *polymetricity* (more than one *metre* at the same time).

7. For more on poïetic and aesthetic descriptors, see under 'Musical knowledges' in chapter 3 and under 'Aesthetic focus' in chapter 6 of Tagg (2012).

ume 2 of EPMOW (2003), the *Continuum Encyclopedia of Popular Music of the World*. This task forced me to directly confront the sort of problems I had experienced earlier. It became impossible to even pretend thinking that the terminology of conventional music theory might somehow ‘sort itself out’. I felt obliged to raise some sort of alarm. My subsequent efforts to bring at least some semblance of logic to very basic terms of structural denotation started with a small but significant anomaly — what to call chords based on stacked thirds if those based on stacked fourths are called ‘quartal’.⁸ I agonised for weeks when writing the article on harmony before realising that I had no alternative but to propose the neologism ‘tertial’, as explained in the next section. Then, when asked by Franco Fabbri in 2006 to use those encyclopaedia articles as the basis for a handbook in music theory (Tagg 2009a, 2011b) and by Coriún to contribute to the conference *Muscologia y colonialismo* (Tagg 2009b), I finally managed to connect the dots. It was not only a matter of scholarly logic but also, as both Franco and Coriún were well aware, of coming up with alternatives to an ethnocentric and class-centric terminology that is also colonialist (Aharonián 1992). The rest of this article concentrates on a few of the problems of tonal terminology just alluded to.

Triads and tertial harmony

Ex. 1. *Four tertial and five quartal chords*

Example 1 shows nine chords, the first four based on stacked thirds ([1] *c e g*, [2] *c e g* inverted as *e g c*, [3] *c e g bb* and [4] *f a c* inverted), the last five on stacked fourths ([5] *g c f* inverted as *c f g*, [6] *bb eb ab* as *eb ab bb*, [7] *f bb eb* as *eb f bb*, [8] *g c f bb* as *c f g bb*, and [9] *d g c f bb* arranged *c d f g bb*). Chord numbers 1, 2, 4, 5, 6 and 7 are all triads because they each contain three differently named tones, chord numbers 3 and 8 are tetrads (four differently named tones) and number 9 is a pentad (five). So far, so good: chords 5, 6 and 7 are quartal triads, chord 8 a quartal tetrad and chord 9 a quartal pentad. The trouble starts when you try to be equally precise about chords 1-4 because many music theorists insist on calling them ‘triadic’ even though chords 5-7 are no less triadic than chords 1, 2 and 4. It is, I suppose, understandable that the stacking of thirds seemed to need no qualification as long as it was considered the single norm from which all other tonalities were assumed to diverge, but that assumption is clearly untenable as soon as a *variety* of tonal idioms needs to be described using the same terminology. Therefore, if harmony based on stacked *fourths* is called *quartal*, harmony characterised by the stacking of *thirds* has to be called *TERTIAL*.⁹ The supposed binary triadic/quartal is false because it confuses two distinct criteria for chord denotation — the *number of notes in a chord* (triadic, tetradic) and the *principle of interval stacking in a chord* (tertial for thirds, quartal for fourths). It is worth noting that whereas quartal harmony, the ‘abnormal’ idiom in euroclassical ears, was assigned an adequate qualifier (quartal) the ‘normal’ idiom (tertial) seems to have required no such qualification.

Euroclassical tertial harmony is also sometimes referred to as *functional*, as if other types of tonal polyphony had no function. The fact that the chord loops, shuttles, matrices and turna-

8. Other serious conceptual problems were with *polyphony* and *counterpoint* (Tagg 2009a: 81-82, 86-89).

9. It goes without saying that chords consisting of stacked fifths are also quartal, not ‘quintal’, because the fifth is the octave complement of the fourth, just as no-one refers to ‘sextal’ harmony when a sixth, the octave complement of a third, is featured in a tertial chord.

rounds of popular music styles so often function as tonal-motoric gesture (part of ‘groove’), or as markers of periodicity, and that change from one pattern to another can be instrumental in establishing a sense of narrative (‘form’) seems to make no difference to dyed-in-the-wool Schenkerians for whom such functions just don’t seem to count. I’ve even heard ‘diatonic’ used as a label for tertial harmony as if no quartal polyphony ever visited all notes in a diatonic heptatonic mode: it’s as if Paul Hindemith, Béla Bartók, Freddie Hubbard, Miles Davis and McCoy Tyner had never made music. Euroclassical tertial harmony is simply one particular (and in terms of narrative construction particularly interesting) idiom of tonal polyphony. There are many others but their denotation can, like that of euroclassical tertiality, often be problematic, sometimes to the point of absurdity. Particularly confusing in this context are the two binaries TONAL V. ATONAL and TONAL V. MODAL.

Problematic concepts

Basic tonal terms

Before disentangling the contradictory binaries just mentioned I need to posit six axiomatic working definitions.

[1] *NOTE*: [i] any single, discrete sound of finite duration in a piece of music (MIDI definition); [ii] any such sound with audible fundamental pitch (for example c_1 , a low e_b_3 , a 440 Hz, a high $f\sharp_5$); [iii] the duration, relative to the music’s underlying pulse, of any note according to definition [i] or [ii] (e.g. quarter-note, *Viertel*). The first definition of NOTE will be used in this text: *any single, discrete sound of finite duration in a piece of music*.

[2] *TONE*: *note with audible fundamental pitch* (definition [ii] of NOTE). *TONAL* simply means exhibiting the characteristics of a tone or of tones.

[3] *TONIC* (n.): *reference tone, keynote or tone of central importance* in a piece or extract of music.

[4] *TONALITY*: *system, codified or not, according to which tones are configured* in a musical culture.

[5] *MODE*: *tonal vocabulary, often abstracted and arranged in scalar form for theoretical purposes, of a piece or extract of music*.

[6] *POLYPHONY*: [i] music in which at least two sounds of clearly differing pitch, timbre or mode of articulation occur at the same time (MIDI definition); [ii] music in which at least two sounds of audible fundamental pitch occur simultaneously (tonal polyphony); [iii] a particular type of contrapuntal tonal polyphony used by certain European composers between c.1400 and c.1650 (restrictive euroclassical meaning). In this article POLYPHONY will refer to *music in which at least two sounds of clearly differing pitch, timbre or mode of articulation occur at the same time* and POLYPHONIC will qualify music exhibiting those traits. Drumkit patterns (non-tonal polyphony), melodies with drone or any other form of tonal or non-tonal accompaniment, four-part homophonic hymn singing, rock recordings, etc., as well as a Byrd Kyrie or Bach fugue (all tonal polyphony), are in other words, unlike, say, an accompanied monophonic melody or clave pattern sounding on its own, all considered polyphonic.

Tonal and tonical

The most obvious anomaly of tonal terminology is probably that between ‘tonal’ and ‘atonal’ music. Schönberg objected to the label ‘atonal’ because, he rightly argued, his music consisted almost exclusively of tones, in fact all twelve of the equal-tempered Western chromatic scale’s twelve available tones: indeed, hence the qualifier ‘twelve-tone’ for such music. Moreover, neither he, nor Berg, nor Webern were celebrated for their use of non-tonal instruments like hi-

hat, snare drum or maracas. It is indeed bizarre that euroclassical music theorists managed to confuse the notion of *music with no intended tonic*, as in the work of twelve-tone composers or in Herrmann's music for the shower scene in *Psycho* (1960), with music containing no tones, 'atonal' in the logical sense of the word, as in *taiko* drumming (e.g. Kodō 1985). Using appropriate linguistic derivatives, there are two conceivable solutions to the problem: the '-al, -ality, -alist' and the '-ic, -ical' patterns shown in Table 1.

Table 1. Linguistically conceivable solutions to the terminological confusion between tone and tonic

[1] -, -al, -ality, -alist[ic]				[2] -ic, -ical			
root noun	adj. 1	abstr. noun	adj. 2	noun	adj.	noun	adj.
centre	central	centrality	centralist	comic	comical	clinic	clinical
form	formal	formality	formalist	ethic[s]	ethical	magic	magical
crime	criminal	criminality	criminalistic	music	musical	rhetoric	rhetorical
sense	sensual	sensuality	sensualist	polemic	polemical	tropic[s]	tropical
tone	tonal	tonality	¿tonalist[ic]?	statis- tic[s]	statistical	tonic	tonical

TONE, TONAL and TONALITY follow the linguistic logic of CENTRE - CENTRAL - CENTRALITY and FORM - FORMAL - FORMALITY but, unlike those examples of the pattern, TONE has no adjective deriving from the abstract noun TONALITY: unlike CENTRALIST or FORMALIST, TONALIST or TONALISTIC just doesn't exist. If it did it might be used to qualify tonal music with a tonic, while 'non-tonalist' might be used to denote tonal music with none. However, apart from sounding like the name of a political movement — 'we tonalists will introduce free mobile phone ringtones for pensioners after the next election' — NON-TONALIST would erroneously imply that tonal music without a keynote had no tonality in the sense defined earlier, no system according to which tones were configured. Since that is patently untrue, the only logical solution is to use the second pattern of derivation to create an adjective ending in *-al* on the basis of a noun ending in *-ic*. So, just as CLINICAL things happen in CLINICS, just as the weather is TROPICAL in the TROPICS, and just as RHETORICAL devices (like the 'just as' anaphora of this sentence) are used in RHETORIC, tonal music that uses a TONIC ought logically to be TONICAL and tonal music that does not should be called either ATONICAL or NON-TONICAL. That would at least rid us of the nonsense about 'atonicity'. The next item of widespread terminological disorder is less obviously absurd but it is, I believe, more insidious.

'Tonal' and 'modal'

Let me start with an analogy. I once overheard a French student on exchange at the Université de Montréal saying to one of her classmates '*Mais vous avez tous un accent ici*'. I was struck by the chauvinism of her observation, not least because she was attending the oldest francophone university in the francophone world's second largest city. It is probably less of a surprise to learn that, here in the class-conscious UK, it was only quite recently that 'talking with an accent' — by which was meant in any other way than that considered correct at 'public' (i.e. private) schools or at Oxbridge ('received pronunciation') — was considered acceptable for BBC announcers and newsreaders.

The analogy between the chauvinist notion of 'speaking with an accent' and 'making modal music' should be clear: it matters not, so to speak, if more people 'speak with an accent' than use 'received pronunciation', or if they make music using tonal vocabularies (modes) differing from those of the euroclassical repertoire. In both cases the former, usually practised by a

majority, is given a label implying divergence or deviation from an assumed norm usually established by a minority.¹⁰ Indeed, ‘modal music’ in conventional music theory came to mean music in any other mode than those used in the euroclassical repertoire of the eighteenth and nineteenth centuries. Those two modes are of course the heptatonic *major scale* (ionian) and the heptatonic *minor scale* with its ionianised mixture of dorian and aeolian that produces three variants, two of which contain major sevenths — [1] the *ascending melodic* 1 2 ♭3 4 5 #6 #7; [2] the *harmonic* 1 2 ♭3 4 5 ♭6 #7 — and only one of which — [3] the *descending melodic* 8 ♭7 ♭6 5 4 ♭3 2 1 — corresponds to any of the other European heptatonic modes (aeolian). In conventional music theory tonal vocabularies using the euroclassical major and minor modes is often qualified as ‘tonal’, as if modes other than the ionian and the ionianised minor-key variants just mentioned were somehow not tonal, as if their distinctive traits were not defined by the way their tones are configured in relation to a tonic. That obviously makes no sense because all modes are by definition tonal in that they both contain tones and are defined by how those tones are configured.

Conversely, the ionian mode, the most common tonal vocabulary in the euroclassical repertoire, is rarely, if ever, considered as a mode ‘because it’s tonal, not modal!’ This terminological travesty not only ethnocentrically relegates ‘modality’ to a state of alterity divergent from a unilaterally assumed ‘tonal’ norm; also, by excluding the ionian from the realm of modality, it prevents us from understanding what particular characteristics of the mode may have led to its general adoption and popularity in eighteenth-century Europe. Only two of the European heptatonic modes — ionian and lydian — contain raised subtonics (‘leading notes’) and, in terms of harmony, only the ionian mode features tertial major triads on the prime, the perfect fourth and the perfect fifth. Did the semitonal pull towards the tonic triad of notes inside the other two tertial major triads, one descending (4-3 in IV-I) and the other ascending (#7-8 in V-I), make for a stronger type of tonal directionality than those found in other European heptatonic modes? Did the popularity of the ionian mode, with its #7, lead to alteration of the subtonic in two of the euroclassical tradition’s three minor-mode variants? Did the ionian mode’s two leading notes, one rising and the other falling, make it more conducive to modulation than other available modes? Could any of those other modes have ever led to the development of extensional harmonic narrative, as in the sonata form of the first movement of a Beethoven symphony? I cannot answer any of these questions but I also fail to see how any light can be shed on such issues if the ionian is not considered as one mode among several.

The terminological appropriation of ‘tonal’ to refer to just one set of tonal practices during a brief period in the history of the world’s smallest continent is, to say the least, problematic. The false dichotomy ‘tonal v. modal’ is one example of the confusion, the terms ‘pre-tonal’ and ‘post-tonal’ another, since they both patently imply that medieval and early Renaissance music (‘pre-’) is as devoid of tones as twelve-tone music (‘post-tonal’, ‘atonal’, etc.). And what should we make of, for example, anhemitonic pentatonicism in widespread use all over this planet before, during and after the so-called ‘tonal’ period, or of the widespread use of tertial ionian harmony in today’s supposedly ‘post-tonal’ era? This unilateral confiscation of ‘tonal’ has obvious repercussions on the notion of TONALITY.

Tonality, Grammaticality, Tonart, Tonalité

‘TONALITY’ is still used by some scholars of music to denote the practices they consider tonal in the restrictive sense just criticised. Used in that way, ‘tonality’ refers to one system, and one

10. Modes were often named after the regions or nations of which they were considered typical — the Ionian and Dorian modes, for example, or the Hijjaz and Kurd *ajnas*, or, in vernacular European parlance, a ‘Gypsy scale’.

only, according to which tones are configured. Just imagine if GRAMMATICALITY could only refer to the grammatical rules of just one language or group of languages, for example to English or to Neo-Latin and Germanic languages, in which correct use of definite and indefinite articles is a central element of grammaticality. Such restrictive use of the term would mean that Chinese, Farsi, Hindi, Indonesian, Japanese, Russian and hundreds of other widely spoken languages in which articles are absent were not grammatical. Such an implication would no doubt cause considerable uproar among comparative linguists but I have yet to experience much uproar among musicologists against an equally restrictive use of the word TONALITY. That's why I have proposed that TONALITY should mean *the system or set of norms according to which tones are configured in any musical culture*. However, even if that much more inclusive definition solves one important problem, it raises another.

The broader definition just presented works well in English and in Germanic languages where TONALITY/TONALITÄT is distinguished from the concept of KEY/TONART. In Neo-Latin languages, however, TONALITÉ, TONALITÀ, TONALITATE, TONALIDAD and TONALIDADE tend to mean KEY/TONART rather than TONALITY/TONALITÄT which, consequently, requires another expression to clarify the distinction. As a native anglophone I am hardly in a position to advise speakers of French, Italian, Spanish, Portuguese and Romanian how TONALITY/TONALITÄT should be translated but I would have suggested to students at the francophone Université de Montréal who were uncomfortable using TONALITÉ in both senses that they might consider, at least as a stop-gap solution, an expression like *IDIOME TONAL* or *SYSTÈME TONAL* to cover the concept TONALITY/TONALITÄT and stick to the more common use of TONALITÉ as equivalent to the Anglo-Germanic concept of KEY/TONART. I fully realise how unsatisfactory this suggestion may be and would be grateful to hear suggestions from colleagues in Iberia, Italy, Latin America (especially from Coriún and Graciela!), Romania and the francophone world as to how this conceptual problem might be resolved.¹¹

More 'norms'

The confusion and culturally restrictive character of central concepts referring to tonality in conventional music theory runs deep in the details of structural description. I've already mentioned the problems of TONAL, ATONAL and TONICAL, as well of TERTIAL and QUARTAL. I will end this central part of my text with a very brief account of two interrelated problems: harmonic cadence nomenclature and monomodality.

Cadence nomenclature

There are four main cadence types in classical harmony, two of which take one step flatwards, the other two one step sharpwards round the circle of fifths. The centrality of the flatwards V→I PERFECT or FINAL CADENCE in euroclassical tonality needs no introduction but the three others warrant some discussion that can shed light on conceptual problems with the nomenclature of all four types. The two cadences which proceed clockwise round the circle of fifths are the HALF or IMPERFECT CADENCE and the PLAGAL CADENCE. The second anticlockwise type is usually called an INTERRUPTED CADENCE.

The HALF CADENCE is so called because it marks the harmonic change from I to V in extremely common harmonic schemes like I V V I over a period of, say, four, eight or sixteen bars in which V is obviously the halfway house (ex.2).

11. Many thanks to Luana Stan (Montréal) who informed me by email (11-12-04) that *sistem tonal* is used in Romanian music theory circles to denote solely euroclassical ionian tonality in contradistinction to other tonalities such as *sistem atonal*, as in twelve-tone music (!), and *sistem modal* (all those 'non-tonal' modes!). If similarly muddle-headed notions exist in other Neo-Latin languages this problem will not be easily solved.

Ex. 2. *Half/imperfect cadence halfway*: E viva España (Vrethammar, 1973: chorus).

Det här, det är min ny mu-sik E vi - va Esp-añ-a! Det här, ni, det är romantik. E vi - va Esp-añ-a!

A typical half cadence, like that in bars 3-4 of example 2, which proceeds clockwise from I to V is a *cadence* because it harmonically marks a resting point on a different chord to the preceding one; and it is *half* because it marks that change halfway through a longer harmonic scheme or process, such as the eight-bar period of ex.2. It is an *imperfect* cadence because in this context of ionian tertial tonality it has no finality. By marking the end of a phrase or smaller part of a larger unit, at least half of which is still to come, it has the opposite effect of the perfect cadence V→I. Put simply, half or imperfect cadences (I→V) serve rather to open up harmonic processes and perfect cadences (V→I) to close them.¹²

PLAGAL CADENCES also run clockwise, but not from I to V: they take instead the single sharpwards step IV→I. Since they end on the tonic, plagal cadences are associated with harmonic closure, as is evident in their use as the ‘Amen’ chord formula par excellence. That said, it is significant that medieval music theorists chose the Latin word for ‘oblique’ (*plagijs*, from Greek πλάγιος meaning sideways, slanting, askance, misleading) to distinguish certain modes, not chords, from their ‘authentic’ variants and it’s interesting to note how the same adjective connoting falsity came to qualify the chordal ‘Amen ending’ IV→I. Plagal cadences may in other words be endings but European music theory clearly does not consider them true, authentic, direct, complete, full, final or perfect. Those adjectives are of course reserved for the *perfect cadence* leading V→I.

INTERRUPTED CADENCES in euroclassical tonality do exactly what their name suggests: they interrupt a V→I cadence by substituting I with a closely related chord, usually the common triad on degree 6 of the relevant key, V→vi, or sometimes V→VI, or, less commonly, V→*b*VI. Proceeding from V to vi (or VI) is of course an efficient way of interrupting the inevitable because vi or VI leads anticlockwise round the circle of fifths via ii or II to V which of course leads, with the FINAL/FULL/PERFECT CADENCE, back to I. It is worth noting that the interrupted cadence is also referred to as ‘deceptive’ (*trompeuse*), ‘avoided’ (*évitée*), ‘false closure’ (*Trugschluss*) and a ‘trick’ (*inganno*).

If anything demonstrates the assumed normality of V→I closure in euroclassical notions of harmony it must surely be the distinction between qualifiers like, on the one hand, HALF, INCOMPLETE, PLAGAL/OBLIQUE, INTERRUPTED, DECEPTIVE and FALSE and, on the other, PERFECT/FINAL/FULL (V-I). I’ve included example 3 as evidence that there need be nothing remotely interrupted, oblique, deceptive, false, unauthentic, incomplete, or imperfect about a final cadence landing on vi (F#m), the relative minor triad of the song’s previous tonal centre (I in A major). There’s even a *ritenuto* and change of rhythmic articulation to underline finality — ♩. | ♩ | instead of the usual ♩ ♩ ♩ ♩.¹³ In short, euroclassical cadence categories and assumptions about harmonic direction may be fine for the musical-cultural practices on which such conceptualisation is based but it is absurd to assume that those categories and concepts apply to *all* types of music.

12. These observations are borne out by the French and Italian names for half cadence: *cadence suspendue* and *cadenza sospesa* literally mean that harmonic completion has been suspended, left hanging in the air.

13. *Um Um Um Um Um* was written by Curtis Mayfield and first recorded by Major Lance (1963). The verses are resoundingly in A major as, indeed, is the first half of each chorus. The Lance original ends with a fade-out but the Fontana cover leaves not a shadow of doubt about the identity of the tune’s final chord.

Ex. 3. *Uninterrupted final cadence on vi: Um Um Um Um Um* (Wayne Fontana and the Mindbenders, 1964: final chorus and ending).

To make this point quite clear, here's a decidedly *uninterrupted* melodic cadence from 'pre-tonal' times (ex. 4) plus two equally *uninterrupted* 'interrupted' cadences from 'post-tonal' times (exx. 5 and 6).¹⁴

Ex. 4. *Psalm tone 2 (end of final 'Gloria patri'..., simplified)*

Ex. 5. *Beatles: Not A Second Time* (1963c: *uninterrupted aeolian cadence*)

Ex. 6. *Los Calchakis: Quiquenita* (Argentinian trad.; *La flûte indienne*, 1968)

Monomodality

To be honest, while examples 3 and 4 illustrate final 'uninterrupted' cadences, examples 5 and 6 do not: they are simply 'uninterrupted' and carry no definite sense of finality. The Beatles tune (ex. 5) fades out over a shuttle between G and E minor and although the actual *Flûte indienne* recording ends on E minor it could go on repeating the loop $\parallel: C G B Em :||$ *in aeternam*. Now, students of conventional music theory are expected to identify the key of any tonical music they are asked to analyse. One obvious clue in euroclassical music is of course the final chord of the piece but in example 3 that clue would be quite misleading because the recording spends more time in A major than F# minor even if it cadences each verse and the whole performance on the latter. With the fade-out over a $G \leftrightarrow Em$ shuttle in example 5 and with the constant loop of example 6 the notion of a single tonic becomes even more dubious. As Carlos Vega noted (1944: 160) with reference to *criollo* song:

'No hay melodias en mayor y melodias en minor: hay simplemente melodias bimodales'.

Bimodality is common in many popular styles from Latin America and the British Isles. Apart from the $I \leftrightarrow vi$ or $bIII \leftrightarrow i$ shuttle of examples 5 and 6, another variant of harmonic bimodality in Latin America is the familiar harmonic minor loop $\parallel: i iv V V :||$ (the 'minor La Bamba matrix') or $\parallel: i ii V V :||$ which, when the direction is reversed from ascending to descending between i and V can become a phrygian sequence, as shown in example 7.¹⁵

14. The contradictory expression 'uninterrupted "interrupted" cadence' is intended to highlight the absurdity of applying euroclassical cadence nomenclature to non-euroclassical musics. 'Pre-' and 'post-tonal' are included here as jokes on those nonsensical terms.

15. For more about the reversibility of aeolian and phrygian, see Tagg (2009a: 227-234).

Ex. 7. *Carlos Puebla: Comandante Che Guevara: aeolian and phrygian.*

F#m Bm C#₃ F#m Bm C#₃ F#m C#

A-pren-di - mos quererte desde la hist - orica al - tu - ra don-de el sol de tu bra-vur-ra

F#m Bm C#₃ F#m C#₃ F#m C#₃

le puso un cer - co a la muerte. A - qui se qued - da la cla - ra, la en-trañ-a-ble trans-par-

C# F#m₁₃ E D C#

-en - cia de tu que-ri-da pre - senc-ia, Com-and-ant - e Che Gue - var - a.

An example closer to my home provides a different slant on the question of bimodality.

Ex. 8. *The Female Drummer (Yorkshire Trad. via The Watsons and Steeleye Span (1971))*

♩. = 120

voc. lead gtr. voc. lead gtr. voc. lead gtr.

1 3 4 8 12 16

What is the tonality of this tune? What key or mode is it in? Well, if the start and ending plus the recurrence of open-fifth C dyads (C⁵) in the guitar part (bars 1, 3, 7, 11, 15, 16) are anything to go by, it's 'in C'. A few of my music students have on first listening heard the tune as C dorian but then I have to point out that no third, neither **e♭** nor **e♮**, occurs anywhere in the recording, and that it might just as well be mixolydian with a missing major third as dorian with a missing minor third. In short, no-one in the classroom, including myself, is really sure how the piece's tonality should be described. Apparently hexatonic (**c d f g a b♭**) and neither 'major' nor 'minor', it defies description using the sort of euroclassical music theory that most of us have learnt. One way out of this conceptual impasse is to consider the tune as having *two* modes, each based on its own tonal centre: [1] as an anhemitonic pentatonic scale based on the tonic (**c**) and including heptatonic scale degrees 1, 2, 4, 5 and **b7** (**c d f g b♭**); [2] as a pentatonic major mode based on the first mode's subtonic (**b♭**) and including the same five notes (**b♭ c d f g**) in relation to that **b♭** as (heptatonic) scale degrees 1, 2, **#3**, 5 and **#6** plus the additional hexatonic **#7** (**a♯**).¹⁶

Table 2. Schematic configuration of tonal poles in *The Female Drummer* (ex. 8)

bar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
c	■		■			g	■	g			■			g	■	■
b♭		■		■	■				f	■		■	■			

16. The secondary mode might theoretically be lydian, but I am unaware of any traditional melody from the British Isles being in that mode.

As shown in Table 2, the first mode, based on **c**, occupies bars 1, 3, 7, 11, 15 and 16, while the second mode, with its tonal centre **bb**, is heard in bars 2, 4 (including the final **ab** in bar 3), 5, 10, 12 (including the **ab** upbeat) and 13. That leaves bars 6, 8, 9 and 14 which the guitarist marks with either the fifth above **c** (**g** in bars 6, 8 and 14) or the fifth above **bb** (**f** in bar 9). This sort of fluctuation between two tonal poles that I call the (MAIN) TONIC and the COUNTERPOISE (**c** and **bb** in example 8) is typical for many tunes from pre-industrial Britain and Ireland. It can be configured in a large variety of ways to generate interesting patterns of tonal movement and of periodicity — regular or irregular, equal or unequal — that, judging from the obvious difficulty I’m having in describing the phenomenon, seems to have no ready structural descriptors.

Moreover, while the **bb** mode (**bb c d f g** without the additional **ab**) has two relatively familiar names — anhemitonic MAJOR PENTATONIC or, to use Kodály’s terminology, DO-PENTATONIC —, the pentatonic mode on **c** in example 8 — **c d f g bb** — is less well-known. Containing scale degrees 1, 2, 4, 5 and $b7$, it’s neither major nor minor but, as shown in Table 3 and continuing with Kodály’s naming system, RÉ-PENTATONIC (ré mi sol la do). It covers **ab** to **ab** on the black notes of a piano keyboard or **d** to **d** (**d e g a c**) on the white notes.

Table 3 *Heptatonic scale degrees in five anhemitonic pentatonic modes*

pentatonic mode on black or white keys only ↓	1	2	$b3$	$\#3$	4	5	$b6$	$\#6$	$b7$
1. DOH (black keys)	Gb	ab		bb		db		eb	
1. DOH (white keys)	C	d		e		g		a	
2. RÉ (black)	Ab	bb			db	eb			gb
2. RÉ (white)	D	e			g	a			c
3. MI (black)	Bb		db		eb		gb		ab
3. MI (white)	E		g		a		c		d
4. SOL (black)	Db	eb			gb	ab		bb	
4. SOL (white)	G	a			c	d		e	
5. LA (black)	Eb		gb		ab			bb	
5. LA (white)	A		c		d	e			g
heptatonic intervals →	1	2	$b3$	$\#3$	4	5	$b6$	$\#6$	$b7$

And what about the melody in bars 6, 8, 9 and 14, none of which can be unequivocally assigned to *either* ré-pentatonic mode 1 *or* to hexatonically extended do-pentatonic mode 2 even if the tune in those bars theoretically fits both? Are we perhaps hearing part of a G minor pentatonic mode (la-pentatonic on **g**) in bars 6, 8 and 14, and an F major pentatonic mode (do-pentatonic on **f**) in bar 9? The guitarist clearly seems to be hearing things that way in those bars. The question is how these variants of the two underlying pentatonic modes and the shifts in tonal nuance they produce should be denoted. I don’t know. Does anybody?

Numerous other questions of structural designation arise from the problems presented above. For example, how do the two *thirdless anhemitonic pentatonic modes on sol and ré* (**db-db** and **ab-ab** respectively on the piano’s black notes) relate to principles of *quartal harmony*? How can different *quartal chords* be denoted, ideally in abbreviated form, instead of being mistakenly identified in tertial terms like **sus4** when harmonic suspension is neither intended nor heard? Why do *hexatonic modes* seem to lack labels when each of the seven diatonic heptatonic modes has its own name? Could the Guidonian *hexachord* be of any use in the systematisation of hexatonic modes and, if so, how? Or should we be thinking in terms of Arabic, Persian or European medieval *tetrachords*? How useful might Glarean’s *hypomodes* be in understanding the

different types of bimodality of examples 3-8? Could the concepts of *vadi* and *samvadi* in the theory of classical music from Northern India be applied in any useful way to the dynamic between what I earlier called *main tonic* and *counterpoise*? What do we call (tertial) ionian tonality in the euroclassical tradition and how do we distinguish it from the (also tertial) ionian tonality of tunes like *La Bamba* or *Guantanamera*? I don't know how to answer any of these questions either.

'I don't know' and 'so what?'

I don't know how many I DON'T KNOWS I've uttered or implied so far, nor how many problems of structural designation I've described. In fact it's worth mentioning one more to make the picture as clear as possible. How can we reasonably be expected to use terms like dominant, subdominant, perfect cadence, half cadence and interrupted cadence when describing tonality in the countless pieces of widely heard music in mixolydian, dorian, aeolian or phrygian modes, where 'half cadences' and 'interrupted cadences' are often final, and where major tertial triads on scale degree 5 (V) are either altered from mode-specific minor triads or non-existent? In mixolydian, dorian and aeolian rock harmony, for example, a 'dominant' tertial triad is most likely based on the fourth (IV, the 'subdominant' in euroclassical music theory) and a 'subdominant' chord on the unaltered subtonic (bVII) which, according to the music theory I was taught, apparently either has 'no function' or is a 'subdominant to the subdominant' which cannot exist because there is no dominant to which it can reasonably be 'sub-'. In short, difficulties in the structural designation of non-euroclassical tonality can be crippling.

'But do these problems really matter?', objects my populist muso alter ego. 'After all', he argues, 'we're talking about music that is played, heard and enjoyed. And besides,' he says, 'if you start to codify it you'll just end up with another set of fixed rules that can be taught year after year in the academy. That'll be no better than the system you're currently criticising'.

My musician devil's advocate is both right and wrong. He's right to point out the dangers of institutionalised codification but wrong to single out codification rather than its institutionalisation as the problem. Obviously, codified 'rules' extrapolated from existing practices easily become 'fixed' and normative if they are used to maintain a status quo of power established after their introduction into the institution. Among mechanisms conducive to such entrenchment are: [1] managerial inertia and short-term cost-cutting (the same courses with the same teacher is cheaper and less hassle); [2] not giving teachers enough time for research and innovation (it's more profitable to teach more students with fewer teachers); [3] discouraging or marginalising teachers who might upset the apple cart; [4] involvement in league-table scams that force institutions to conform to a relatively homogenous set of activities so as to facilitate comparison on a unidimensional scale of quantifiable 'excellence' (the intrinsically conservative contribution to inertia in the magic market's credo of competition). In addition to those four points it should also be remembered that teachers and researchers have to earn a living by working in such institutions, that they need to pay their rent or mortgage, send their children to school, etc., and that a few colleagues may have personal problems relating to careerism, self-aggrandisement, financial gain, positions of power, etc. All these factors mean that the risk of epistemic entrenchment and inertia is high. Indeed, my alter ego is right to the extent that such mechanisms of institutionalisation are prerequisites for the terminological chaos criticised in this article. However, as I try to explain next, none of this means that necessary terminological reform is either dangerous or pointless.

If the tonal practices of other types of music than the euroclassical and its offshoots remain uncodified, the terminology of conventional euroclassical music theory will stay unchal-

lenged and continue to marginalise, trivialise and falsify all types of tonality exhibiting important traits for which it has either flawed concepts or no concept at all. Not only would that prolong the undemocratic disrespect and embarrassingly ethnocentric ignorance it seems to show towards tonality in many musics used by a majority of the world's population; it would also, as I argued earlier, obstruct efforts to understand what made the musical tradition on which it based that same terminology so interesting and so influential. Moreover, even though no-one can ever possibly understand every musical tradition existing at any time anywhere in the world, less inadequate concepts of musical structuration can at least give us a better chance of understanding how different types of music actually work. For example, theoretical as well as practical insight into the workings of phrygian tertial harmony, as played by virtuoso flamenquistas like Sábicas (n.d.), or by Carlos Puebla and his *son* musicians (ex. 7), or by Chilean 'good-time' band Los Trukeros (2007), could have prevented one technically brilliant young online flamenco guitarist from finishing his *malagueña* performance with a 'perfect cadence' add-on in A minor (E7→Am) instead of hearing the phrygian cadence completing the *malagueña*, $\flat\text{II}\rightarrow\text{I}$ (F→E), with its three simultaneously descending semitones (c→b, a→g#, f#→e). That final progression is, in a phrygian context, resoundingly final.¹⁷

Final reflexions

This article has dealt with only a very small number of conceptual problems in conventional euroclassical music theory. Despite difficulty in presenting some structural points because I could find no vocabulary with which to designate them, I chose to limit the discussion to a few aspects of tonality for two interrelated reasons. The first is purely logistic in the sense that tonal parameters are much easier to put into the scribal form intrinsic to the medium of this article than are parameters of timbre and spatiality. The other reason is that conventional music theory has developed numerous terms to denote tonal structures specific to the euroclassical repertoire, fewer to denote structures relating to time, speed, rhythm, metre, periodicity, etc., and far, far fewer to denote aspects of timbre and spatiality. Tonality is in other words an area of study in which music theorists are supposed to think and act as experts. I can in other words reasonably assume that they will fully understand what I write or say on the topic. But will they? That is a very good question. Having just recently given the first public presentations of ideas contained in this text, I can give the following simplified report on reactions I received on three occasions: [1] the seventh European Music Analysis Conference in Rome; graduate seminars in music departments at the universities of [2] Glasgow and [3] Aarhus (Denmark).¹⁸

[1] Except for genuine interest and concern from one fellow keynote speaker and from one or two scholars, young and old, with whom I spoke individually in the corridor, I received no questions, no critique, no comments, neither in conjunction with my presentation nor informally afterwards.¹⁹ Having previously had to either bite my tongue or leave the room at the Rome conference as I suffered hearing repeated abuse of concepts like 'tonality' and 'modality', not to mention all the unsubstantiated admiration uttered about 'originality', 'innovation' and 'artistry' in 'masterworks', I cannot say I was surprised by the compact silence and lack of interest that met me. These people were clearly living on another intellectual and sociomusical planet and I expect they saw me reciprocally as some sort of extraterrestrial troublemaker.

17. This bizarre add-on can be seen and heard at the end of Goryachev (2007).

18. The three events took place on 11-10-02 (Rome), 11-10-12 (Glasgow) and 11-11-18 (Aarhus). I have since delivered similar presentations at the universities of Durham, Newcastle, Lancaster and Nottingham: see tour blog at www.tagg.org/articles/TonalTermTour.html (12-04-05).

19. Thanks to Richard Parncutt (University of Graz), Serena Facci (Università di Roma 'La Sapienza') and a couple of others, whose names I regret not having noted, for expressing genuine interest.

All they wanted, it seemed, was for me to go away so that they could ignore or forget whatever it was I had to say and go back to 'business as usual' in their ivory towers.

[2 & 3] It was very different in both Glasgow and Aarhus. The seminar rooms were packed with students and staff. Extra chairs had to be brought in, some people had to sit on the floor, questions went on for a good half hour after the presentation and everybody stayed until the very end. One of the Glasgow professors told me: 'Of course you're right and what you say is perfectly logical but there's not a hope in hell that anything will come of it!' He had obviously had similar experience of the sort of people with whom I'd unsuccessfully tried to communicate in Rome. Some younger members of the audience went straight to the heart of the matter and raised questions about how to refer to particular structural features of tonality. In fact the discussion of example 8 in this text is largely the result of a question asked at the Glasgow seminar and of subsequent email correspondence I had with David McGuinness, the young member of staff who asked it.²⁰

At both Glasgow, with its strengths in composition and performance, as well as at the Aarhus music department with its attachment to the university's School of Media, several teachers and students were interested in discussing other ways in which music theory might be reformed. Of particular importance, they thought, was the development of concepts denoting aspects of timbre, kinetics, tactility and spatiality, a vocabulary acknowledging the vernacular competence of the listening majority who are exposed to an average daily dose of music lasting more than two hours.²¹ I agree with them and have elsewhere suggested ways in which musicology can contribute to that sort of development.²² Nevertheless, there can be no doubt that the tonal terminology of music theory, as it is still widely taught, is in dire need of a reform that opens up to all sorts of music and that such reform goes hand in hand with the interdisciplinary and democratising process requested by members of the audience in Glasgow and Aarhus.

And yet I still have to emit sighs of despair and disbelief because I still have to read or hear 'tonal' opposed to 'modal', or 'atonal' used to mean 'atonical', or 'triadic' instead of 'tertial', etc. In all fairness, though, I must admit that I am just as frustrated with myself as with those who still perpetuate such conceptual falsehoods because, with my 'unusually eclectic' musical background,²³ I was better placed much earlier in life than those with a more exclusively euroclassical upbringing to register the problems and to try and solve them. The fact that it took me nearly thirty years to do so to any significant extent is deeply regrettable and I can offer no valid excuse for my sluggishness. However, now that basic problems are finally out in the open with this article, I would urge everyone in music education and research to think at least twice before applying any concept of tonality to any type of music if those concepts derive from conventional euroclassical music theory. After all, whereas I may have had an 'unusually eclectic' musical background in 1971, I am in 2011, if the students I meet are anything to go by, no longer the exception but the rule. It would simply be embarrassing, if nothing else, for music studies to carry on as if that were not so.

20. Thanks to Dave McGuinness for this fruitful exchange of ideas (gla.ac.uk/schools/cca/staff/davidmcguinness/ and davidmcguinness.com/ [11-12-05]).

21. See Chapter 1 in Tagg (2012) for statistical details.

22. See Chapters 6 ('Intersubjectivity'), 10 ('Notes on Vocal Persona') and 12 ('Analysing Film Music') in Tagg (2012). See also stage 5 near the start of this article.

23. See stage 1 at the start of this article.

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This appendix contains *all* types of reference. To save space, the following symbols are used:

☰ bibliographical source (written word). 📺 audiovisual source. 🎧 audio source. 📺 YouTube file. The initial <http://www> string is removed from all internet references.

Please note that 📺 replaces the string <http://www.youtube.com/watch?v=> so that, for example, '📺 rWlt9Is1nms' means the complete URL <http://www.youtube.com/watch?v=rWlt9Is1nms>. Dates of access to materials on the internet, including YouTube files, are expressed in the format *yy-mm-dd* so that, for example, [11-11-11] means 11 November 2011, [10-05-21] 21 May 21010, etc.

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