UNDERSTANDING RHYTHM
By Terry Dwyer

PART 1 TIME SIGNATURES

Introduction

Books for would-be composers usually focus on harmony, counterpoint and orchestration. Probably composition in some of its aspects too - chiefly such things as motivic development and formal structure. However, few chapters, if any, are devoted to the mastery of rhythm, and the student is left to pick up what he can, or rely on his own creativity and observation of existing models. I would like to examine the features of rhythmic structure in some detail, hopefully with the result of helping people better to control the rhythmic aspects of their compositions.

What is the Time?

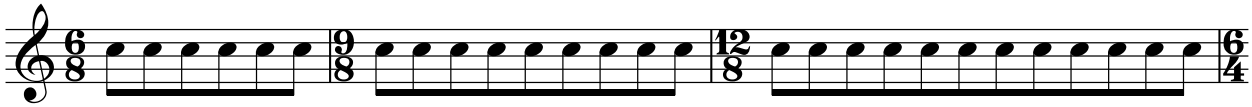
Time signatures arise out of the natural human tendency to group successions of equally-spaced pulses into twos and threes. No other numbers seem as natural. Four is considered possible but is really two twos in succession. "Four in a bar" is usually explained as "Strong weak Medium weak", i.e. two groups of two in which the second group is a little weaker than the first. But "Two in a bar" comes to a similar result because again we will feel every second bar to be a little weaker than the first. So the distinction between two and four is very blurred, ambiguous, and open to argument. More in a little while.

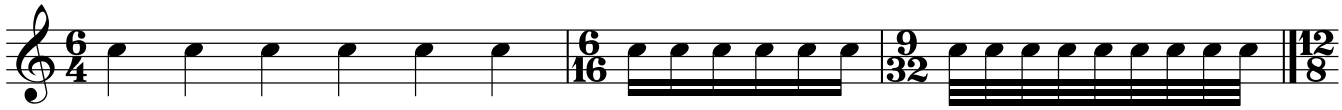
How time signatures work

Most musicians will feel that they understand time signatures.
"It is not a fraction. The top number tells you how many beats there are in a measure, and the bottom number how many beats in a semibreve (whole note)."
Partly true. For example 3:4 time says there are three beats in a bar, and four beats to a whole note, i.e. this latter defines the length of one beat as crotchet (quarter note). Indeed, it almost is a fraction now, the way we can say "3:4 time is three quarters to the bar (measure)". And similarly for 2:4 and 4:4. Yes, and 5:4, 7:4 etc.

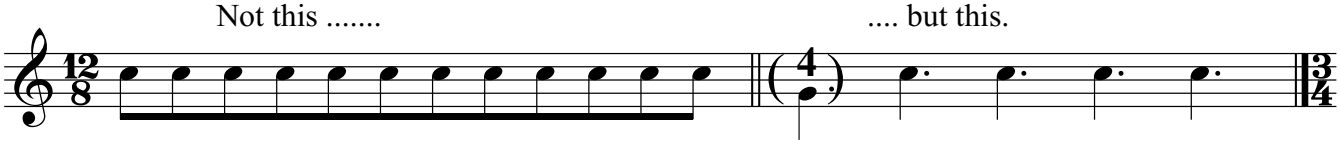
OK. But what about 2:2, 4:8, or even 4:16? Clearly the composer is adopting different values for the single beat, and we may well wonder what influenced his decision, since there need be no difference between 4:2, 4:4, 4:8 and 4:16. If they are all marked Allegro then it is surely four quick beats in the bar, either way? Well, originally the longer note values (4:2) would imply a slower tempo, and the shorter (4:16) a faster tempo. However, 20c composers have ignored this, and used short values (even 4:32) without implying a fast tempo. So no clue there then.

However, all these are examples of Simple Time.
Now we come to Compound Time: 6:8, 9:8 or 12:8. (Or 15:8 etc.).
And again the bottom number can be any power of 2.

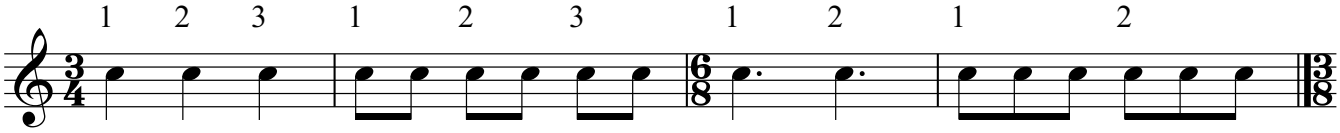




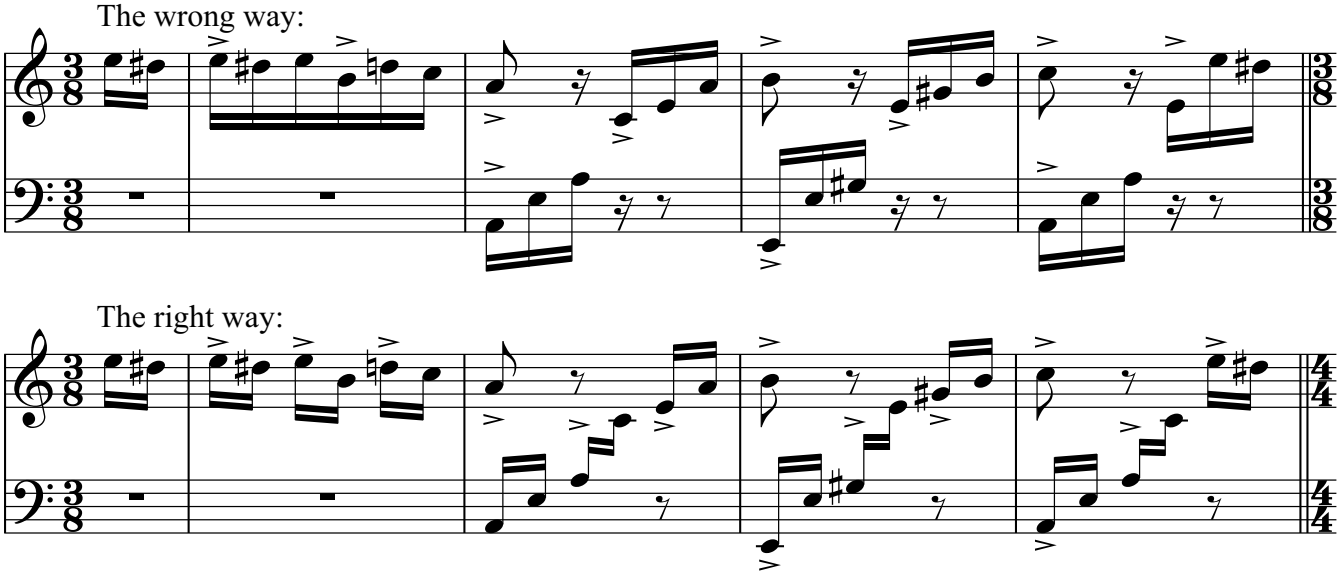
But the top number does not now give the number of beats in the bar, and the bottom number does not signify the beat unit. What is signified is the sub-beats, because Compound Time means that each beat is further divided into three sub-beats, not two as in Simple Time. The rule for Compound Time signatures (those whose top number is a multiple of three) is "To get the number of beats in the bar, divide the top number by three: to identify the beat, multiply by three the note value suggested by the bottom number." Sounds a bit complicated, but an example should make it clear: 12:8 *says* "Twelve quavers in each measure" but it *means* Four (12 ÷ 3) dotted crotchets (quaver x 3) in a measure."



Compare 3:4 with 6:8. Although both have six quavers in a bar, the sub-accents are quite different. The three crotchet beats of 3:4 are subdivided into two quavers per beat: "ONE and Two and Three and". The two dotted crotchets of 6:8 are subdivided into three quavers per beat: "ONE and a Two and a".



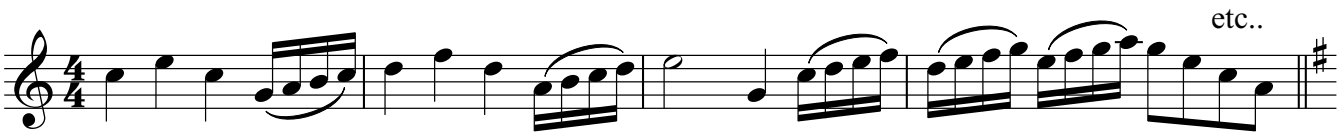
Many a learner has struggled with Beethoven's "Für Elise", making a 6:16 rhythm whereas it should be a 3:8 rhythm. It doesn't help that the printed page groups the notes in threes (LH, RH) actually suggesting Compound Duple Time:



N.B. In all cases the above accent marks are to be slight, conveying a flowing feel rather than an emphatic battle.

Ideally in all pieces of music the sub-beats on the page should be beamed together in twos or threes to make things clear, but often they are grouped in sixes, which offers no clue. (See bar 1, above)

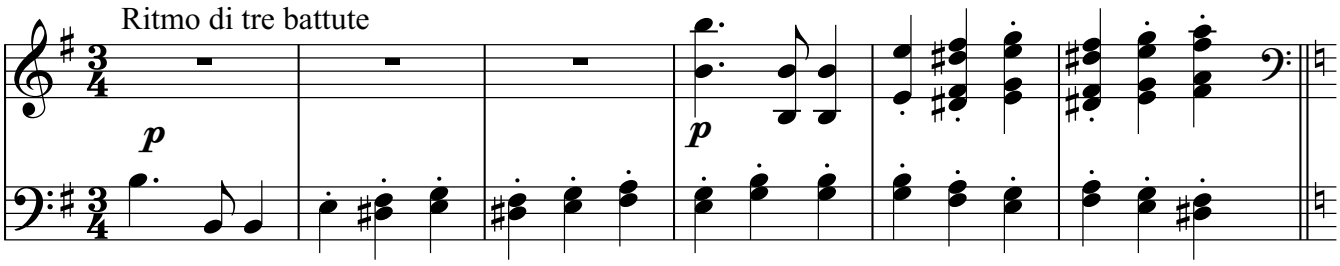
Can we trust the time signature?
Let's go back to Simple Time, where so many errors, anomalies, and confusions can arise. Imagine a piece of music with time signature 4:4 which contains mixed note-lengths but nothing shorter than semiquavers (sixteenths).



All depends on the tempo. If it is *Allegro* or *Allegro Assai* the sixteenths will whirl by and we will no doubt feel that the beats are probably the crotchets (quarters). But not necessarily. If the tempo is fast enough we may well feel that there are but two beats in the bar (individuals differ; we won't all feel that). In other words the time signature could really be 2:2. Slow it down to *Andante* or *Adagio non troppo* and we have four beats in the bar - or perhaps eight. Make it really slow and there will certainly be eight, with the previously whirling sixteenths now feeling like half-beats. In other words the quaver is the beat, and the time signature should be 8:8 (not very feasible) or more likely 4:8, and there should be twice as many barlines.

Classical music is full of such anomalies; for example the early composers had an inexplicable aversion to writing the signature 4:8 and put 2:4 instead, even though the quaver was the undoubted beat. Bach's 4:4 was often really two bars of 4:8. (See later part 2 of this series.). The classical Scherzo evolved out of the Minuet which undoubtedly has 3 beats to the bar. But before long (say by the time of the Eroica) the tempo of the Scherzo was so fast that it was one in the bar. Now we know that we cannot have one in the bar, our minds will start grouping these into twos or threes. In the Eroica it is twos, or, if you like, fours. I mean four bars of written 3:4 time aurally making one bar of 12:4 time. In his ninth symphony Beethoven actually marked his Scherzo at one point "Three-beat rhythm" (meaning three-bar rhythm), i.e. really 9:4 time; and later "Four-bar rhythm" i.e. back to normal 12:4. All this within an apparent but misleading 3:4 signature.

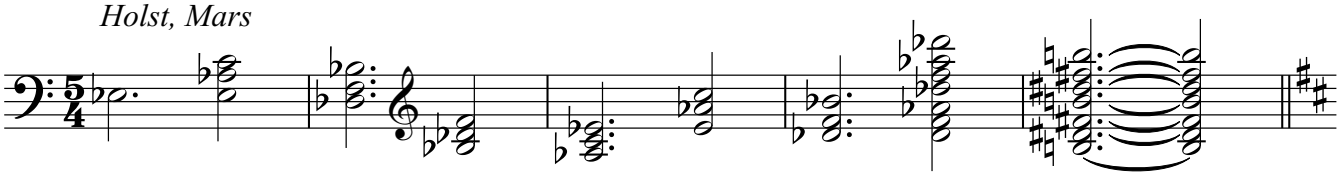
Beethoven. 9th symphony, Scherzo
(Molto Vivace)



So what composers write at the beginning of their music does not necessarily reflect the actual rhythmic effect in sound. The important message of this series is *The music decides what time it is in.* The time signature may or may not be a helpful clue.

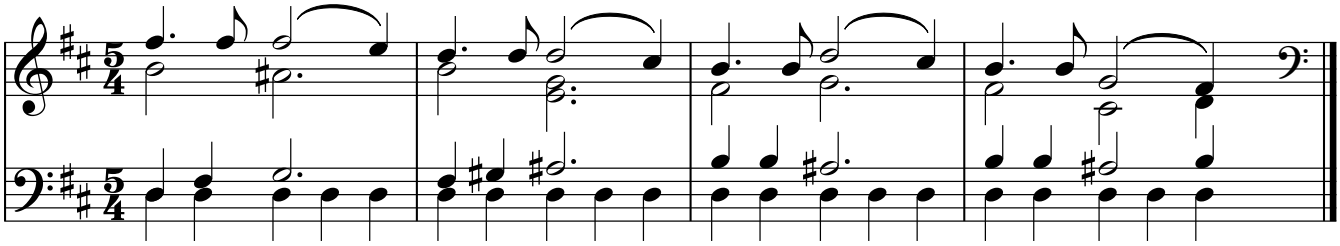
Unusual signatures
We frequently come across irregular time signatures like 5:4 or 7:4. The usual explanation of 5:4 is that it is 3 + 2, or 2 + 3. I don't like that choice, I think it should always be 3 + 2, because the group of 3, being longer than the group of 2, carries more weight.
Mars from Holst's Planets Suite is correctly barred, because each bar is indeed 3 followed by 2,

Holst, Mars



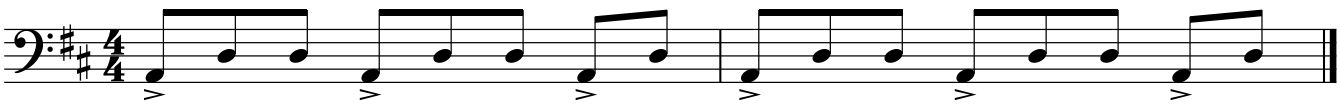
And you only have to listen to Dave Brubeck's *Take Five* to know that it is correctly barred, but some other pieces in 5 time (e.g. the Tchaikovsky example below) go 2 followed by 3. In other words the barlines are in the wrong place, and the piece should begin on the fourth beat of the bar so that the weaker two-group leads up to the more accented three group.

Tchaikovsky, Pathetique Symphony



Likewise 7:4 is explained as 2 + 2 + 3, alternatively as 3 + 2 + 2. Again it matters which! The group of 3, being more accented than the 2's, should be at the beginning of the bar. However, composers don't always think about it.

Other oddities include unusual groupings within 4:4 time, such as the typical rumba rhythm:



which is clearly 3 + 3 + 2. When such irregularities are repeated bar after bar, there is no confusion in the listener's mind; the irregularity becomes a regularity.

Part 2 of this series will deal with Accent and Metre in more detail.

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