Rhythmic paradigms in the *Cantigas de Santa Maria:* French versus Arabic precedent

MANUEL PEDRO FERREIRA

Plainsong and Medieval Music / Volume 24 / Issue 01 / April 2015, pp 1 - 24
DOI: 10.1017/S0961137115000017, Published online: 16 April 2015

Plainsong and Medieval Music, **24**, 1, 1–24 © Cambridge University Press, 2015
doi: 10.1017/S0961137115000017

Rhythmic paradigms in the Cantigas de Santa Maria: *French versus Arabic precedent*

MANUEL PEDRO FERREIRA*

ABSTRACT. *This article argues that the rhythmic meaning of the notation in the* Cantigas de Santa Maria *can be only understood by confronting it with different theoretical paradigms. Julián Ribera in 1922 defended an Arabic paradigm, to the exclusion of any other, but his access to Arabic historical writings was severely limited. Higinio Anglés in 1943 and most modern musicologists have since adopted French mensural theory, but recognised that it does not fit many songs. The author has demonstrated elsewhere that songs that do not fit the French paradigm often fit the Arabic one. The applicability of both paradigms, including their superimposition, is systematically compared here. After comparison of general concepts (*ordo *and period), of even-time composition (modes V–VI or conjunctive rhythm), of long–short opposition in ternary time (modes I–II or* Ramal*) and more complex patterns, the author provisionally concludes that very few patterns point unequivocally to French models, while in most cases (first and second mode and potential forms of the third mode) both French and Arabic paradigms could apply. In many other cases, encompassing both binary and ternary metre, the Arabic rhythmic paradigm is clearly either more fitting than the Parisian one, or the only one to apply.*

The collection of Marian songs known as the *Cantigas de Santa Maria* and composed on the initiative of the Castilian King Alfonso X, the Learned, is justly famous. As a musical corpus, it exceeds the number of surviving troubadour melodies in *langue d'oc* by roughly 50 per cent. Yet its riches have barely been explored from a musicological point of view. One of the reasons for this apparent lack of interest is the language of the songs, medieval Galician-Portuguese, which is alien to most Romanists and lies outside the mainstream of Spanish literature as promoted by the historical heirs of the Castilian-Leonese Kingdom. Another equally powerful reason is the fact that this repertory does not easily fit the current historical narrative concerning medieval European music.[1]

In brief, this narrative tells us that in the thirteenth century everyone followed in the footsteps of France. Paris was the undisputed centre of cultural activity and

*mpferreira@fcsh.unl.pt.

An earlier version of this article was presented at the 15. Symposium des Mediävistenverbands, 'Abrahams Erbe' (Heidelberg, 3–6 March 2013).

[1] Manuel Pedro Ferreira, 'The Periphery Effaced: The Musicological Fate of the *Cantigas*', in '*Estes Sons, esta Linguagem*'. *Essays on Music, Meaning and Society in Honour of Mário Vieira de Carvalho*, ed. Gilbert Stöck, Paulo Ferreira de Castro and Katrin Stöck (Leipzig, in press).

the sole origin of musical novelty and fashion. The monumental *organa* of Notre Dame cathedral were circulated as unsurpassable compositional models for richly ornamented liturgy. The motet, a late Parisian by-product, created an intellectual rage among university-educated clerics, and gained the admiration of close urban laymen; the corresponding notational techniques were expounded and discussed, from the mid-century onwards, in various treatises authored by Europeans whose origins could lie as far from Paris as Scotland or Germany. Young graduates of Castilian, Leonese or Galician origin were certainly not isolated from these fashionable trends.

One could also say that the *Cantigas de Santa Maria* followed the precedent of French devotional song, as illustrated by the collection of miracles by Gautier de Coinci. The stories told by the *Cantigas* are mainly of international stock, translated from Latin. The manuscripts use layout conventions and musical notation akin to those experimented with beforehand in France. The collection seems therefore to confirm general historical expectations, notwithstanding its exceptional scope and impressive iconography.

Yet, problems arise in this neat narrative when the repertory is examined more closely. These songs, devised during the last two decades of King Alfonso's life (from *c*.1264 to 1284), exhibit musical forms that either never crossed the Pyrenees (the Andalusian *rondeau*) or became popular in Paris only a generation later (the *virelai*).[2] Moreover, the musical notation has strange features allowing it to record rhythms that would not be written in France until the early fourteenth century.[3] Yet, to paraphrase Jacques Handschin, the fact that Castile was, in the perspective of 'linear' historiography, always 'behind' the French evolution does not forbid that she could take initiatives of her own: we ought not to force the *Cantigas* into an evolutionary order that is not its own by maintaining that binary rhythm, for instance, could not possibly appear before it was duly recognised by (French) theorists.[4]

Alfonso's biographer, Johannes Aegidius de Zamora, placed measured control of proportions (probably including rhythm, formal balance, or both) among the king's accomplishments in the composition of devotional song: 'in the manner of [King]

[2] Manuel Pedro Ferreira, 'Rondeau and Virelai: The Music of Andalus and the *Cantigas de Santa Maria*', *Plainsong & Medieval Music*, 13/2 (2004), 127–40; reprinted in *Poets and Singers: On Latin and Vernacular Monophonic Song*, ed. Elizabeth Aubrey (Farnham and Burlington, VT, 2009), 267–80. For an updated table of musical forms used in the *Cantigas de Santa Maria* (hereinafter abbreviated as CSM), see *idem*, 'Jograis, *contrafacta*, formas musicais: cultura urbana nas Cantigas de Santa Maria', *Alcanate. Revista de Estudios Alfonsíes*, 8 (2012–13), 43–53.

[3] Higinio Anglés, *La música de las Cantigas de Santa María del rey Alfonso el Sabio*, 3 vols. (Barcelona, 1943–64), 2 (1943):47–50; 3/1 (1958):156–87. Vol. 2 is now available at: https://botiga.bnc.cat/publicacions/2511_Angles.%20Cantigas%20Transcripcion.pdf. Manuel Pedro Ferreira, 'Bases for Transcription: Gregorian Chant and the Notation of the Cantigas de Santa Maria', in *Los instrumentos del Pórtico de la Gloria: Su reconstrucción y la música de su tiempo*, coord. José López-Calo (La Coruña, 1993), 2:595–621; and *idem*, 'Andalusian Music and the *Cantigas de Santa Maria*', in *Cobras e Som. Papers from a Colloquium on the Text, Music and Manuscripts of the Cantigas de Santa Maria*, ed. Stephen Parkinson (Oxford, 2000), 7–19; reprinted in *Poets and Singers*, 253–65. It must be said that, contrary to what I suggested in 'Bases for Transcription', I now regard the binary *cum proprietate/sine perfectione* ligatures in the Escorial codices as acknowledged mensural figures, as Anglés had proposed, with no need to attribute their *brevis-brevis* meaning to the influence of Franco.

[4] Jacques Handschin, 'The Summer Canon and Its Background', *Musica disciplina*, 3 (1949), 55–94, at 73, 79. Where I wrote 'Castile' and '*Cantigas*', Handschin had 'England' and 'the Summer canon'.

David, for the praise of the glorious Virgin, [Alfonso X] composed many beautiful songs measured with accordant sounds and musical proportions'.[5] The rhythm of the *Cantigas*, however, has been a matter of dispute.[6] In the 1920s, the Spanish Arabist, Julián Ribera (1858–1934), proposed that everything in the music of the *Cantigas* was Arabic, including the rhythmic patterning.[7] Higinio Anglés (1888–1969), a Spanish priest was one of the many Christian nationalists to be shocked by this thesis. Anglés was a disciple of Felipe Pedrell (1841–1922), a composer and folklorist who denied any influence whatsoever of Arabic music on popular Spanish song, and also studied in Germany in 1923–1924 with Wilibald Gurlitt (1891–1963) and Friedrich Ludwig (1872–1930), the latter being the leading expert on Notre Dame polyphony.[8] He reacted in 1927 to Ribera's assertion by transcribing a number of *cantigas* into pure Parisian modal rhythm.[9] At the time this was a modern performing solution for troubadour songs, developed and heatedly defended by Pierre Aubry and Jean Beck in the early twentieth century, and supported by Ludwig, who claimed the idea's paternity.[10]

[5] *More quoque Davitico etiam [ad] preconium Virginis gloriose multas et perpulchras composuit cantinelas, sonis convenientibus et proportionibus musicis modulatas*. Cited in Joseph F. O'Callaghan, *Alfonso X and the* 'Cantigas de Santa Maria.' *A Poetic Biography* (London, Boston and Cologne, 1998), 7. On Alfonso's claims to musical authorship, see Manuel Pedro Ferreira, 'Alfonso X, compositor', *Alcanate. Revista de Estudios Alfonsíes*, 5 (2006–07), 117–37; reprinted in *idem*, *Aspectos da Música Medieval no Ocidente Peninsular*, vol. 1: *Música palaciana* (Lisbon, 2009), 282–302. On Juan Gil de Zamora, see note 24.

[6] On the scholarly debate concerning the rhythm of the *Cantigas*, see Martin G. Cunningham, *Afonso X, o Sábio. Cantigas de Loor* (Dublin, 2000), 26–30. Alison Campbell, 'Words and Music in the *Cantigas de Santa Maria*: The *Cantigas* as Song', MLitt thesis, University of Glasgow (2011), 82–5, 91, http://theses.gla.ac.uk/2809/ (accessed 06 April 2013). Manuel Pedro Ferreira, 'Understanding the *Cantigas*: Preliminary Steps', in *Analizar, interpretar, hacer música: de las* Cantigas de Santa María *a la organología. Escritos* in memoriam *Gerardo V. Huseby*, ed. Melanie Plesch (Buenos Aires, 2013), 127–52.

[7] Julián Ribera y Tarragó, *La música de las Cantigas. Estudio sobre su origen y naturaleza con reproducciones fotográficas del texto y transcripción moderna* (Madrid, 1922). Ribera's knowledge of medieval Arabic rhythm was based on only a handful of published passages, especially the passage in the late tenth-century scientific dictionary by al-Khwārizmī, the *Mafātīh*; Ribera seems to have been the first to translate its chapter on rhythmic cycles into a Western language. The translation (p. 44) is reliable, but, in the absence of other information, its musical interpretation is understandably faulty when viewed from the standpoint of modern scholarship, which benefits from a much wider and more detailed array of sources. Alexis Chottin, *Tableau de la musique marocaine* (Paris, 1939; rept 1999), 81–3, also largely misunderstood the chapter. An English translation and commentary was published by Henry George Farmer, 'The Science of Music in the Mafātīh al-'Ulūm', *Transactions of the Glasgow University Oriental Society*, 17 (1957–58), 1–9. Ribera's translation is not listed in Eckhard Neubauer, 'Arabic Writings on Music: Eight to Nineteenth Centuries', in *The Garland Encyclopedia of World Music*, vol. 6 (New York and London, 2002), 363–86.

[8] Robert Stevenson, 'Tributo a Higinio Anglés', *Revista Musical Chilena*, 24/112 (1970), 6–13; and José López-Calo, 'Las Cantigas de Santa María y Monseñor Higinio Anglés', *Ritmo*, 550 (1984–85), 54–9.

[9] Friedrich Ludwig criticised Ribera's disregard for the rhythmic design mirrored in the sources, which he followed in transcribing the incipits of five *cantigas* (nrs. 124, 189, 10, 32 and 100) in his contribution to Guido Adler's *Handbuch der Musikgeschichte* (Frankfurt am Main, 1924), 180–1. He allowed for mixed rhythmic modes and even binary metre (in CSM 100). Only later (from 1937 onwards) would Anglés follow Ludwig in this path, see Anglés, *La música de las Cantigas*, 2:8–12. See also José María Llorens Cisteró, 'El ritmo musical de las Cantigas de Santa María: Estado de la cuestión', in *Studies on the Cantigas de Santa Maria: Art, Music and Poetry. Proceedings of the International Symposium on The Cantigas de Santa Maria of Alfonso X, el Sabio (1221–1284)*, ed. Israel J. Katz and John E. Keller (Madison, WI, 1987), 203–21.

[10] John Haines, 'The Footnote Quarrels of the Modal Theory: A Remarkable Episode in the Reception of Medieval Music', *Early Music History*, 20 (2001), 87–120.

Though Ribera's exaggerated attribution of the *Cantigas* entirely to Arabic influence was mistaken, nonetheless the subsequent dismissals of any Arabic paradigms in the repertory similarly miss a critical element in their musicality and history. Instead, the interaction and melding of different traditions lend these songs much of their fascination and singularity, and without it Anglés's initial transcription fell flat. To understand why, let us first examine the Parisian rhythmic modes, and see how the *Cantigas* go beyond their purview.

Rhythmic modes

In Parisian motets written around 1260–80, mensural *cum littera* notation (adapted to syllabic text underlay) represented a short sound by a square *punctum* and a long one by a *virga*. Six rhythmic patterns, devised for superposition, were generally admitted:[11]

- Two (modes V and VI) proceeding by equally spaced time units, divisible by three if slow, or grouped in threes if quick (a slow pulse would correspond to three beats). Attacks either coincide with the pulse (mode V) or subdivide it (mode VI).

mode V					...		rest
beats	3			3		3	3
mode VI				...	...		rest
beats	1	1	1			1	2

- Two (modes I and II) proceeding by regular alternation of short and long sounds standing in a proportion of one to two. The pulse coincides either with the attack of the long (mode I) or with the short (mode II).

mode I				...		rest
beats	2	1	2	1	2	1
mode II				...		rest
beats	1	2	1	2	1	2

[11] The schematic description offered below assumes modal *ordines* with 'perfect' endings. No signs for pauses are used here, since in early mensural sources the notation of rests could be imprecise, to be read according to context, and different systems were later in use: cf. Mary Elisabeth Wolinski, 'The Montpellier Codex: Its Compilation, Notation, and Implications for the Chronology of the Thirteenth-Century Motet', Ph.D. diss., Brandeis University (1989), 109–11; Sean Paul Curran, 'Vernacular Book Production, Vernacular Polyphony, and the Motets of the "La Clayette" Manuscript (Paris, Bibliothèque nationale de France, nouvelles acquisitions françaises 13521)', Ph.D. diss., University of California at Berkeley (2013), 66–7.

- Two (modes III and IV) in which a ternary short–long group alternates with a three-beat long. The pattern begins either with the three-beat long (mode III) or with the short (mode IV). Standard theory takes the larger value as a measuring-stick; hence the two-beat long is conceptualised by comparison as a particular kind of short (*brevis altera*). It is written accordingly as a short note; its position (the second of two *breves* meant to fill a ternary pulse) marks it for extension by an extra beat.[12]

mode III	⌐■	■	■	. . .	⌐■	rest	rest
beats	3	1	2		3	1	2
mode IV	■	■	⌐■	. . .	■	■	rest
beats	1	2	3		1	2	3

The use of these patterns could be flexible, and the subdivision of the breve, or short, into semibreves (♦ ♦) would add extra variety.[13] 'Any given modal pattern may occur within the musical context of another or other patterns', Gordon Anderson observed, while urging musicologists to be 'more flexible in definition of mode within the theoretical framework as illustrated by the whole range of theoretical writings as well as by the musical monuments themselves'.[14] As far as the mensural notation of rhythm had become independent of the early *sine littera* system for denoting modal patterns, practitioners of mensural polyphony begun to experiment with new combinations and eventually test the limits of the system. Modal mixture or mutation became a distinct possibility.[15] Consideration of both central polyphonic repertory before *c*.1280 and statements by contemporary theorists[16] reveals the use

[12] See, however, Rudolf von Ficker, 'Probleme der modalen Notation (Zur kritischen Gesamtausgabe der drei- und vierstimmigen Organa)', *Acta musicologica*, 18/19 (1946–47), 2–16: the author proposes that the third mode may have originally been found in Parisian organal singing at a quick tempo, corresponding to 6/8, and only later enlarged to 6/4 in polyphonic discant. According to this narrative, two unequal breves would have been conceptualised as such from the start.

[13] The division of the breve was initially free. Inspired by the breve-long relationship, theorists tried to impose rules on how a pair of semibreves would proportionally relate to the breve, but failed to produce a consensus. See Peter M. Lefferts, *The Motet in England in the Fourteenth Century* (Ann Arbor, 1986), 111–24.

[14] Gordon A. Anderson, 'Magister Lambertus and Nine Rhythmic Modes', *Acta Musicologica*, 45 (1973), 57–73, at 66.

[15] Wolinski, 'The Montpellier Codex', 149–51.

[16] The irregular modes reported by Anonymous IV (*c*.1280 or later) in a passage that poses severe problems of interpretation, and fascicles 7–8 of the Montpellier Codex H 196, the repertory of which is believed to date from the late thirteenth century, will not be taken into account here. In fact, an extreme case of mensural experimentation is found in fascicle 8, fol. 378v: the motet *Amor potest/Ad amorem*, built on a binary dactylic pattern (diplomatic and modern transcription in Johannes Wolf, *Handbuch der Notationskunde*, vol. 1 (Leipzig, 1913), 272–6; commentary and analytical transcription in Wolinski, 'The Montpellier Codex', 151–5). The re-assessment of the latter manuscript by Mary Wolinski, who proposed that fascicles 1–7 were copied before 1290 and possibly as early as *c*.1270, has not been generally accepted. See Mary E. Wolinski, 'The Compilation of the Montpellier Codex', *Early Music*

of the following variants, arrived at by conflation or division of durational values (*extensio* or *fractio modi*):[17]

- mode Ia – 3–2–1 . . . beats (extended first mode or alternate third mode)[18]
- mode IIa – 1–2–<1–2–> 1–2–3 . . . beats (Lambertus: fifth mode)
- mode IIIa – 6–1–1–2–2 . . . semibreves (Lambertus: sixth mode)

Among the 'secondary modes' to which Walter Odington referred *c*.1300, we find variant IIa above and also a mixture of first and second modes, notated L B B L (with a dot for *divisio modi* put between the breves, though practice did not necessarily follow theoretical prescription).[19] The Paris version of Anonymous VII additionally allows the mixture of third mode with either the second (L B B + B L) or the fifth (L B B + L).[20]

Thus, before the Parisian system of rhythmic modes began to crumble in the final years of the thirteenth century, we can consider that at least twelve patterns, all based on ternary metre, were in use. The Castilian adoption of Notre Dame polyphony as attested by several manuscripts,[21] as well as intense diplomatic, feudal and family ties

History, 11 (1992), 263–301; and Mark Everist, 'Motets, French Tenors, and the Polyphonic Chanson ca. 1300', *The Journal of Musicology*, 24 (2007), 365–406, at 370–1, note 18. On the identity and cultural background of the English theorist known as Anonymous IV, see John Haines, 'Anonymous IV as an Informant on the Craft of Music Writing', *The Journal of Musicology*, 23 (2006), 375–425.

[17] Ernest H. Sanders, 'Duple Rhythm and Alternate Third Mode in the 13th Century', *Journal of the American Musicological Society*, 15/3 (1962), 249–91. Anderson, 'Magister Lambertus'; Jeremy Yudkin, *The Music Treatise of Anonymous IV – A New Translation* (Neihausen-Stuttgart, 1985), 14, 48; and Marie Louise Göllner, 'The Third Rhythmic Mode in the Thirteenth and Fourteenth Centuries', *Revista de Musicología*, 16/4 (1993), 2395–409.

[18] Edward H. Roesner (ed.), *Le Magnus Liber Organi de Notre-Dame de Paris* (Monaco, 1993), 1:xli–xliv. According to Anonymous IV, extended first mode (or alternate third mode) was used in England and elsewhere, written as long–long–short, presumably understood as *longa ultra mensuram-longa-brevis*; the Las Huelgas codex represents the same rhythm as long–short–short, or *longa ultra mensuram-brevis altera-brevis*. Cf. Sanders, 'Duple Rhythm and Alternate Third Mode', 270, 278.

[19] *Walteri Odington Summa de speculatione musicae*, ed. Frederick Hammond, Corpus Scriptorum de Musica 14, ([Rome], 1970), 131 (VI.6), www.chmtl.indiana.edu/tml/14th/ODISUM_TEXT.html (accessed 17 June 2013): *Sunt et alii modi secundarii, scilicet cum cantus procedit per longam et brevem et brevem et longam cum divisione modi inter breves, sic:* [Clef C2, L, B, pt, B, L on staff2]. *Sed hic modus constat ex primo et secundo et ad alterum eorum reducitur. Similiter cum cantus procedit ex brevi et longa duabus brevibus et longa, sic*: [Clef C2, B, L, B, B, L on staff2], *constat ex secundo et quarto, et sic de aliis diversis dis positionibus. Sic autem se habent modi in ordine secundum quod prius et posterius fuerunt in usu et in inventione.*

[20] *De musica libellus*, in *Scriptorum de musica medii aevi nova series a Gerbertina altera*, 4 vols., ed. Edmond de Coussemaker (Paris, 1864–76; rept, Hildesheim, 1963), 1:378–83, www.chmtl.indiana.edu/tml/13th/ANO7DEM_TEXT.html (accessed 7 August 2014): *Secundus modus convenientiam habet cum tertio, quia post unam longam in tertio modo sive post duas breves potest sequi immediate una brevis et altera longa. Et sic de tertio modo et de secundo potest fieri unus modus per equipollentiam et per convenientiam talem. Similiter tertius modus et quintus conveniunt in hoc quod post unam longam in quinto modo possunt sequi due breves de tertio; et e converso, post duas breves de tertio potest sequi una longa de quinto, et sic per equipollentiam et in convenientiam talem, de tertio modo et quinto potest fieri unus modus.* On the Bruges and Paris versions of Anonymous 7, see Sandra Pinegar, 'Exploring the Margins: A Second Source for Anonymous 7', *Journal of Musicological Research*, 12 (1992), 213–43.

[21] *Historia de la Música en España e Hispanoamérica, I: De los orígenes hasta c. 1470*, ed. Maricarmen Gómez Muntané (Madrid, 2009), 209–15, 226.

to northern France,[22] the long stay of King Alfonso himself in southern France in 1275 where he went to meet the Pope and his encounter with the French king, Philippe III, at Bayonne at the end of 1280,[23] make it very probable that these rhythmic practices were known in the king's entourage.[24]

Rhythmic variety

In the course of his research on the music of the *Cantigas*, Anglés eventually realised that a transcription using exclusively modal rhythm not only amounted to oversimplification, contrasting with the rhythmic variety found in popular song, but also often meant ignoring the shapes and implied meaning of the original notation. As a consequence he largely abandoned the Parisian model but, unlike Ribera, did not seek an alternative historical paradigm: in keeping with his roots in musical nationalism and his contemporary ideological context, he assumed that the rhythm recorded by the manuscripts testified to the originality and musical genius of the Spanish people.[25]

More than twenty years passed between the publication of a complete musical transcription by Anglés in 1943 and the corresponding third volume of his edition, the facsimile of the Escorial codex, called 'de los músicos' (siglum *E*), in 1964. The scholarly community could finally compare the results of Anglés's labour, the circulation of which had been postponed by the war, with his main source. Two problems were evident: first, he had chosen to interpret the notation as a fully fledged mensural system, unsupported by any French theorist and relying upon a debatable belief in spontaneous popular creativity; second, some transcriptions sounded somewhat contrived when followed strictly – for instance, when a single two-beat element interrupts a ternary flow, or vice versa.

To complicate matters, young musicologists had begun to cast doubts on rhythmic transcriptions of medieval song: troubadour manuscripts normally lacked rhythmic cues, and smart polyphonic writing required a special kind of intellectual training

[22] Francisco J. Hernández, 'Relaciones de Alfonso X con Inglaterra y Francia', *Alcanate. Revista de Estudios Alfonsíes*, 4 (2004–05), 167–242.

[23] H. Salvador Martínez, *Alfonso X, El Sabio: una biografía* (Madrid, 2003), 217–31, 454–9; Manuel González Jiménez, *Alfonso X el Sabio* (Barcelona, 2004), 280–6.

[24] This conclusion is reinforced by the presence at Alfonso's court of Johannes Aegidius Zamorensis, or Juan Gil de Zamora, a Franciscan friar and author of an *Ars Musica*, who is believed to have attended the university in Paris (chronology uncertain). See Robert Stevenson, 'Spanish Musical Impact Beyond the Pyrenees (1250–1500)', in *Actas del Congreso Internacional 'España en la música de Occidente'* (Madrid, 1987), 1:115–64, at 119–24; Cándida Ferrero Hernández, *Juan Gil, Doctor y Maestro del Convento Franciscano de Zamora (ca. 1241–1318)* (Zamora, 2006), www.porticozamora.es/Juan_Gil.pdf (accessed 2 September 2014); Martín Páez Martínez et al., *Ars Musica de Juan Gil de Zamora* (Murcia, 2009); and Peter V. Loewen, *Music in Early Franciscan Thought* (Leiden, 2013), 197–232.

[25] Anglés, *La música de las Cantigas*, 2:11 (excerpts from conferences given in 1937): 'El elemento popular que encontramos en todas las formas musicales de la Historia de España aparece ya en la música mozárabe, y principalmente en las secuencias españolas y, con mayor intensidad, en las Cantigas de Alfonso el Sabio [. . .] Sus melodías no guardan relación alguna con la música oriental de los árabes [. . .] presentan una variedad rítmica y una riqueza melódica que no admiten comparación con los otros repertorios europeos. En ellas domina el elemento rítmico de la canción popular.'

and musical literacy, a world apart from the social context and function of courtly song.[26] Concern with the rhythmical aspects of medieval song became intellectually suspect, and, hence, a dubious thesis argued in Spanish was decidedly not going to change their minds. The work of Anglés was accordingly put in the margins of historical discourse. Nevertheless, the editors of musical anthologies, when perplexed by the notation of the sources, found it handy, and, eventually, early music performers found it irresistible to play from in spite of its occasional oddity.[27] This was so because Anglés followed his favourite source closely and the *Cantigas* as originally written contain more rhythmically shaped, easily graspable melodies than any other medieval monophonic repertory.

All three manuscript sources for the music carry rhythmic information, albeit to different degrees. The first (Madrid, BNE MS 10 069) was once in Toledo, hence its siglum, *To*. It includes 128 songs, and represents the first stage attained by the compilation: one hundred songs, plus prologue, epilogue and appendices. The remaining codices originated in Seville and are found in the Royal Monastery of El Escorial, north of Madrid. The lavishly illustrated MS. T. I. 1 is generally referred to as *códice rico*, or by the siglum, *T*. It contains 193 *cantigas* and was meant to be the first volume of a two-volume luxury set. The other, MS. b. I. 2 (siglum *E*) is called *códice de los músicos*, because every tenth song is headed by an illumination representing one or more musicians. It contains 407 *cantigas* (apparently 416, but nine are given twice) and represents therefore the final stage of the collection. The Toledo codex was copied no later than 1275; and the Escorial codices written (or at least initiated) towards the end of King Alfonso's reign, around 1280–4.[28]

The notation in the manuscripts of the *Cantigas de Santa Maria* belongs to two different types. One (in *To*) was locally devised; the other (in *E* and *T*) is a pragmatic adaptation of pre-Franconian French models. The basic note-shapes are, in *To*, the square and the oblique *punctum* (■, ♦); in *T* and *E*, the *virga* and the square *punctum* (▛, ■). The musical reality represented is normally the same. The notation in *To* is best described as semi-mensural, for there are, among the basic neumes, only five or six with a mensural meaning. The Escorial notation includes up to fourteen mensural signs. There are in addition slight but sometimes crucial differences between the *T*

[26] Manuel Pedro Ferreira, 'L'identité du motet parisien', *Ariane* 16 (1999–2000), 83–92, reprinted in *idem*, *Revisiting the Music of Medieval France: From Gallican Chant to Dufay* (Farnham and Burlington, VT, 2012), ch. 7. Although motet composition required a learned milieu, certain hints suggest a socially mixed audience and appreciation. See Christopher Page, *The Owl & the Nightingale: Musical Life and Ideas in France 1100–1300* (London, 1989), 144–54; and *idem*, *Discarding Images: Reflections on Music and Culture in Medieval France* (Oxford, 1993), 65–111.

[27] Most modern anthologies of early European music illustrate the *Cantigas* with transcriptions by Anglés. An exception is *The Oxford Anthology of Music: Medieval Music*, ed. Thomas Marrocco and Nicholas Sandon (London and New York, 1977) (CSM 29 and 290). The standard scholarly numbering of the CSM is now based on the critical edition by Walter Mettmann, *Afonso X, o Sábio: Cantigas de Santa Maria*, 4 vols. (Coimbra, 1959–72). It mostly coincides with the numbering adopted by Anglés, since both editors base their work on MS. *E*.

[28] Manuel Pedro Ferreira, 'The Stemma of the Marian Cantigas: Philological and Musical Evidence', *Cantigueiros*, 6 (1994), 58–98; translated with corrections and a postscript in *idem*, *Aspectos da Música Medieval*, 196–229.

and the *E* notation: the former is sometimes more informative or consistent in its distinction of two kinds of ligatures ( as opposed to ), and more reliable (or less original) in its use of the *cum opposita proprietate* stem ( ,  ,  , etc.).[29]

In Anglés's edition and in reproductions of the manuscripts, we can easily observe that the rhythm of the *Cantigas de Santa Maria* is generally of the simple modal type, with frequent *extensio modi* or modal mixture (e.g. CSM 4, 8, 21, 23, 29, 45, 67, 77, 82, 83, etc.).[30] Additionally there are special patterns like the sixth mode of Lambertus (CSM 288), and also cases of florid isosyllabic rhythm combined with rhapsodic prefixes, as in Galician-Portuguese troubadour song (CSM 190, 230). One can even find many examples of quadruple metre recalling Arabic musical precedent (e.g. CSM 109). It should be observed in passing that Alfonso X had a close personal acquaintance with, and interest in, Arabic culture, and that during the last decades of his reign his court was centred in Seville, where Andalusian traditions, heavily influenced by centuries-long exchanges with the Middle East, were still alive among Jews, Mozarabs and converted Muslims.[31]

I proposed long ago that the rhythmic variety in the *Cantigas* is due to the confluence of diverse musical practices and that one of these, possibly the most important, has its origin in Arabic culture, as Ribera first suspected.[32] The Arabic rhythmic tradition has some similarities with the French modal system, but it includes a few unusual, characteristic features: the large scale of some rhythmic cycles and periods, the use of syncopation, dotted rhythm and quinary metre, and the importance given to quaternary metre. Here I will revisit the topic in a more systematic way, adding some new observations.

Parisian versus Arabic paradigms

Shai Burstyn remarked that a pre-condition of musical influence is cultural compatibility: 'Europe was oblivious to origin and context of those items whose aesthetic flavor it found compatible with its own. [. . .] The overriding importance of pattern over detail [. . .] provides a bridge with the compatible attitudes towards the composition, performance, and transmission of Eastern music.'[33] In pervasive

[29] On the notation of the CSM, see Ferreira, 'Bases for Transcription'; *idem*, 'The Stemma of the Marian *Cantigas*'; *idem*, 'A música no *códice rico*: formas e notação', in *Alfonso X El Sabio (1221–1284), Las* Cantigas de Santa María*: Códice Rico, Ms. T-I-1, Real Biblioteca del Monasterio de San Lorenzo de El Escorial. Estudios*, vol. 2, coord. Laura Fernández Fernández and Juan Carlos Ruiz Souza (Madrid, 2011), 189–204; and *idem*, 'Editing the *Cantigas de Santa Maria:* Notational Decisions', *Revista Portuguesa de Musicologia*, new series, 1/1 (2014), 33–52, available at http://rpm-ns.pt/index.php/rpm.

[30] The facsimile of codex *E* published by Anglés is now available online at: https://botiga.bnc.cat/publicacions/2510_Angles.%20Cantigas%20Facsimil.pdf. On the numbering of the CSM, see note 27.

[31] Jiménez, *Alfonso X el Sabio*; and Ana Echevarría Arsuaga, *La minoría islámica de los reinos cristianos medievales. Moros, sarracenos, mudéjares* (Malaga, 2004), 36–7.

[32] Manuel Pedro Ferreira, 'Some Remarks on the *Cantigas*', *Revista de Musicología*, 10 (1987), 115–6. *idem*, 'Iberian Monophony', in *A Performer's Guide to Medieval Music*, ed. Ross W. Duffin (Bloomington, IN, 2000), 144–57; and *idem*, 'Andalusian Music'.

[33] Shai Burstyn, 'The "Arabian Influence" Thesis Revisited', *Current Musicology*, 45–7 [Festschrift for E. H. Sanders] (1990), 119–46, at 128, 133.

rhythmic patterning, both European and Eastern music found a common ground. However, contrary to thirteenth-century French mensurally notated polyphony in which we can find a limited number of rhythmic modes in ternary metre, from the tenth century onwards Arabic rhythmic theory encompassed different kinds of metre, and, starting from a limited number of patterns, allowed them to be infinitely varied.[34]

In Arab-Islamic culture, instrumental music was inseparable from song, and the identity of a song and its learning process were primarily based on its rhythmic patterning. The names and definitions of rhythmic patterns underwent changes, but the general principles of Arabic rhythmic theory, rooted in the Baghdadi tradition, were clearly shared by different authors at different times and places between the tenth and twelfth centuries. Neither the theory nor the corresponding practice need be confined to the Near East: both travelling musicians and copies of encyclopedias and treatises dealing with music found their way into the Iberian Peninsula, where Islam dominated from the year 711.[35] A commentary by al-Bataliawsī of Badajoz, who lived mostly in Valencia around the year 1100, testifies to the assimilation in the Andalus of the Arabic rhythmic paradigm.[36]

I will now engage the Parisian and the Arabic paradigms with one another, and also with the *Cantigas*, in order to ascertain their differences and respective pertinence in this repertory.

Ordo and period

A useful concept in Arabic musical theory, deriving from the writings of al-Fārābī, is the distinction between (simple) cycle and compound cycle or period. A rhythmic cycle (*dawr*) is a short repeatable scheme, normally ending with a rest or protraction.[37]

[34] My debt to modern scholarship on medieval Arabic theory must be acknowledged here. The following translations were used in addition to those cited in note 7: Rodolphe d'Erlanger, *La musique arabe*, 6 vols. (1935; reprint, Paris, 2001); Emilio García Gomez, *Todo Ben Quzmán*, 3 vols. (Madrid, 1972), 3:305–8, al-Tīfāshī, *Mut'at al-asma'* . . . , ch. 37 (not listed in Neubauer, 'Arabic Writings'); and George Dimitri Sawa, *Rhythmic Theories and Practices in Arabic Writings to 339 AH/950 CE. Annotated Translations and Commentaries* (Ottawa, 2009).

[35] There are more traces of the presence of oriental musicians in Cordoba than had been recognised until recently: the discovery of some eighteen biographies of Andalusi singers, some of them active in the late eighth century and in the court of al-Hakam I (r. 806–22), implies that the professional musical connection to the East precedes the arrival in 822 of the famous singer and lutenist Zyriab, educated in Baghdad. On the subject, see Dwight F. Reynolds, 'Music', in ed. M. R. Menocal et al., *The Literature of Al-Andalus* (Cambridge, 2000), 60–82, at 63–4; *idem*, 'Music in Medieval Iberia: Contact, Influence and Hybridization', *Medieval Encounters*, 15 (2009), 236–55, at 241–2; and *idem*, 'New Directions in the Study of Medieval Andalusi Music', *Journal of Medieval Iberian Studies*, 1 (2009), 37–51, at 40. On the presence of Arabic musical theory in the Andalus, see Manuela Cortés, 'Fuentes escritas para el estudio de la música en Al-Andalus (siglos XIII-XVI)', in *Fuentes Musicales en la Península Ibérica. Actas del Coloquio Internacional, Lleida, 1–3 abril 1996*, ed. Maricarmen Gómez and Màrius Bernadó (Lleida, 2002), 289–304; and George Dimitri Sawa, 'Baghdadi Rhythmic Theories and Practices in Twelfth-Century Andalusia', in *Music and Medieval Manuscripts. Paleography and Performance. Essays dedicated to Andrew Hughes*, ed. John Haines and Randall Rosenfeld (Aldershot, 2004), 151–81.

[36] For an English translation, see Sawa, *Rhythmic Theories*, 62–9.

[37] The psychological foundations and musical implications of protracted endings are dealt with in Manuel Pedro Ferreira, *O Som de Martin Codax/The Sound of Martin Codax* (Lisbon, 1986), 38–47.

A rhythmic period (*īqā'*) is the combination of two identical or diverse cycles; this combination is meant to offer a higher level of rhythmic replication. The relationship between cycle and period is inspired by the role of the hemistich in a single line of poetry.[38]

In medieval Latin theoretical vocabulary, a period would be called an *ordo*; it can have as many repeated components as is deemed suitable. Western musical theory distinguishes the abstract modal pattern from its methodical arrangement in a regular series or *ordo*, a distinction similar to that used in prosody between foot and poetic metre. Modal patterns appear in *ordines* that normally replicate a single pattern and are delimited by a final rest. Occasionally, as in the third irregular mode of Anonymous IV, a standard pattern may be combined with a variant pattern, arrived at by the subdivision of a beat.[39] But all *ordines* must normally fit ternary metre and internal variety is uncommon. In Arabic theory, on the contrary, all metres are possible, internal variety is expected and cycles of different character and length can be combined into a single, repeatable period. Different periods can, in turn, be combined in the same song.

Let us assume a cycle of three equally spaced percussions, with a disjunction at the end, using the slash to signal the percussion or attack, occupying one beat, and the dot the signal non-percussed beats:

/. /. /. . .

(a total of four pulsations or eight beats); then the same, but filling-in the second pulsation with an extra stroke:

/. / / /. . .

Combining both cycles, we will get a typical rhythmic period:

/. /. /. . . /. / / /. . .

A slowly paced period, formed of two closely related cycles, can be the basis for creative composition or performance through subdivision and filling of the disjunction time and other variation techniques.[40]

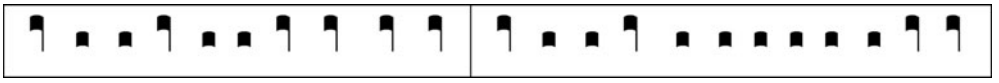
If we take the two above heavy cycles, combine them in reverse order and fill the first disjunction with a single attack, we get the following period:

/. / / /. /. /. /. /. . .

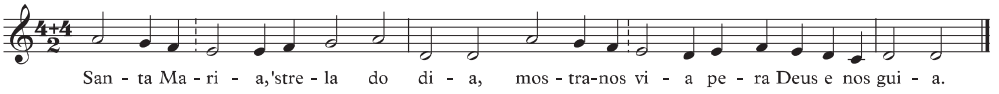
[38] George Dimitri Sawa, *Music Performance Practice in the Early Abbasid Era 132–320 AH/750–932 AD* (Toronto, 1989), 38–71; *idem*, 'Theories of Rhythm and Metre in the Medieval Middle East', *The Garland Encyclopedia of World Music* (New York and London, 2002), 6:387–93; and *idem*, *Rhythmic Theories*, 241, 325.

[39] Edward Roesner, 'The Performance of Parisian Organum', *Early Music*, 7 (1979), 174–89; Yudkin, *The Music Treatise of Anonymous IV*, 76; and the review by E. Roesner, *Historical Performance: Journal of Early Music America*, 1 (1988), 21–3.

[40] The 'toom-toom' scene in the 2011 film by Edgar Pêra, *O Barão*, is based on the rhythmic period referred to above (ch. 7, 46'57–49'12). This passage is a vivid contemporary illustration of the procedures at work in both medieval Arabic music and the *Cantigas de Santa Maria*, and even beyond (as in the romance *Sospirastes, Baldovinos*).



Ex. 1a. CSM 100 (refrain): notational figures in codex *T.*



Ex. 1b. CSM 100 (refrain): transcription.

which is found in CSM 25, 194, 246 and 424 (and in the popular tradition as well).[41] They also use a version of the period with the last disjunction filled in with unaccented rhyming syllables. If the fourth pulsation is then subdivided, the result is found in the initial phrase of *cantiga* 100: *Santa Maria, 'strela do dia*. If further subdivision is allowed, we get its second phrase: *mostra-nos via pera Deus e nos guia* (Ex. 1).

The combination of cycles within a period may also involve change of metre: the first phrase of CSM 107, for instance, juxtaposes two eight-beat cycles, but while the first divides them into four two-beat longs (ornamented, with an exception), the second groups the beats as 3+3+2. This metrical scheme, accounted for by al-Fārābī, would be long-lived in Iberian music.[42] The second phrase juxtaposes two heterogeneous six-beat cycles, both described by al-Fārābī;[43] it displays syncopation at the cadence, recalling many later Spanish examples (Ex. 2).

Quickly paced related periods include (in CSM 269, for instance):

/. / / /. / / /. /.

Al-Fārābī mentions a similar one, only with the cycles reversed, and a song by Juan del Encina uses the same pattern as CSM 269, but displacing the first long to the end.[44] The range of possibilities opened by adding extra attacks and subtracting them is large. I have elsewhere explored the issues of syncopated and dotted rhythms in the *Cantigas* and their obvious relation to Arabic models; the continuation of CSM 100 features one of these dotted rhythms (Ex. 3).[45]

That similar rhythms penetrated the Hispanic popular tradition is attested by the romance *Enfermo estava Antioco* as presented in the sixteenth century by Estevan

[41] See Marius Schneider, 'Studien zur Rhythmik im "Cancionero de Palacio"', in *Miscelánea en homenage a monseñor Higinio Anglés*, 2 vols. (Barcelona, 1958–61), 2:833–41, at 836, ex. 3 (from Extremadura). A shortened, six-beat variant, the *Hafif* rhythm of the Tunisian Andalusian tradition, is part of the identity of a thirteenth-century song authored by the famous Jewish-born poet Ibrāhīm ibn Sahl from Seville. See d'Erlanger, *La musique arabe*, 6:152, 592 ff., 624 ff.

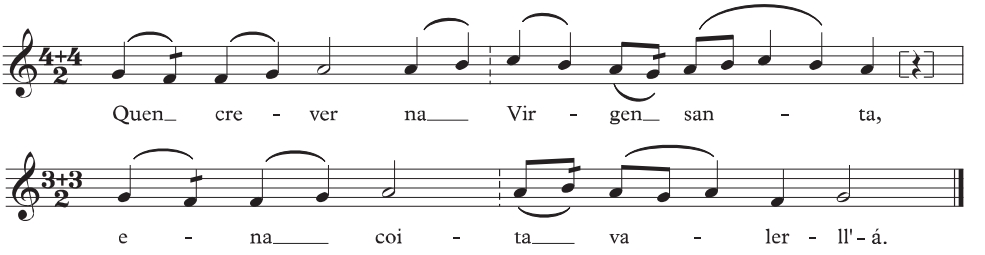
[42] Sawa, *Rhythmic Theories*, 402; and Willi Apel, 'Drei plus Drei plus Zwei = Vier plus Vier', *Acta musicologica*, 32 (1960), 29–33.

[43] Sawa, *Rhythmic Theories*, 391, 393. The poetic structure of CSM 107 has a secular Galician-Portuguese parallel in the *cantiga d'amor* by Pero da Ponte, *Senhor do corpo delgado*.

[44] Sawa, *Rhythmic Theories*, 271. Juan del Encina, *Poesía Lírica y Cancionero Musical*, ed. R. O. Jones and Carolyn R. Lee (Madrid, 1972), 357 (no. 61, *Todos los bienes del mundo*).

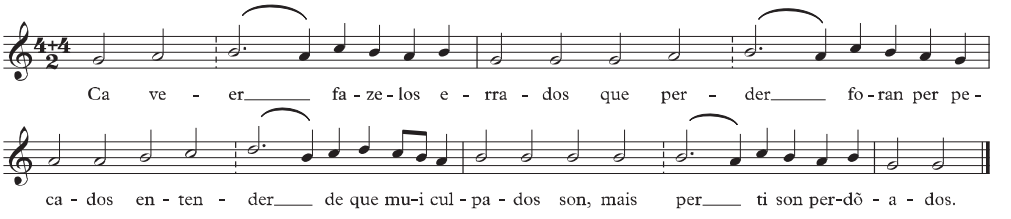
[45] Ferreira, 'Andalusian Music'.

Ex. 2a. CSM 107 (refrain): notational figures in codex *E.*



Ex. 2b. CSM 107 (refrain): transcription.

Ex. 3a. CSM 100, initial lines of the first stanza in codex *T.*



Ex. 3b. CSM 100, beginning of the first stanza.

Daza. Dotted rhythms in the midst of slow, equal notes are also typical of the melodies associated with the romance *Paseavase el rey moro*, and are additionally found in *Quién ubiesse tal ventura*, published by Diego Pisador.[46]

Rhythmic modes V and VI

In Arabic theory, regularly spaced beats are considered the basis of any patterned rhythm. This idea, already present in Ishāq al-Mawsilī, was taken over by al-Fārābī and reappears in the late tenth-century dictionary of scientific terms, the *Mafātīh*.[47] Avicenna claims that all of the ancient songs of Persia and Khorāsān were composed of notes of equal duration, and Ibn Haldūn implies that this same simplicity was characteristic of the light, primitive songs of the nomads, including the Arabs, who

[46] Thomas Binkley and Margit Frenk, *Spanish Romances of the Sixteenth Century* (Bloomington, 1995), 12, 31, 33, 63, 75 and 77.

[47] Sawa, *Rhythmic Theories*, 158–9, 208–9, 443–5. See also note 7.

called it *Hazaj*.[48] Even if this designation came to encompass some rhythmic variations as well, the theorists acknowledge compositions made up entirely of regularly spaced attacks (conjunctive rhythm), the only difference being their tempo: either relatively slow ('heavy' or 'light-heavy') or quick ('light'). These correspond to the Parisian fifth and sixth modes, except that the metre is not predetermined.

In Parisian as well as in Arabic theory, the end of a phrase is marked by a pause. In Arabic writings, this is also called a disjunction, or separator, and often involves the prolongation of the last sound. Thus, in effect, besides the basic time-unit (the durational value maintained between percussions, attacks or articulations), a second rhythmic value is created. The corresponding duration can double or triple the basic time-unit. This allows a performance in double or triple time, or their combination.

The theory applies to poetry as well as song and instrumental music, with due adaptation. Avicenna explains that some patterns sound fine in instrumental music, but not in poetry.[49] Similar adjustments were required if applied to another linguistic context. Unlike Arabic, the Galician-Portuguese used by Alfonso X in his poetry is a non-quantitative language. Such poetry is based on syllable-count and rhyme, but text-accent can play a structuring role both in and before the rhyme, which is not normally true of other Romance languages.[50] This is worth keeping in mind when the music is analysed. Rhythmic patterning could be adjusted to crucial accents in the overlaid text; or these be aligned with resounding attacks, expected in unwritten percussive dynamics.[51]

In the *Cantigas de Santa Maria*, a slow, even-spaced rhythm is found in several melodies, notated mostly with longs; these are sometimes subdivided, that is, replaced by short melismas expressed in ligatures – a form of ornamentation that leaves syllabic articulation unaffected. Anglés, inspired by the notation, chose to call this style just *ex omnibus longis*.[52] *Cantigas* 106, 111, 322, 327, 335, 341 and 358 consist, schematically, of musical phrases of seven or eight long notes each (depending on the position of the rhyming accent, which always falls on the seventh long: 7 or 7′). These longs can be grouped by twos or threes; the ornamental subdivision of the long is, however, clearly marked as binary by the use of *cum proprietate/sine perfectione* ligatures, as

[48] Ibn Sīnā (Avicenna), *Kitāb al-shifā'*, chapter 12 (on music), translated in d'Erlanger, *La musique arabe*, 2:105–245, at 185. See also Amnon Shiloah, 'Réflexions sur la danse artistique musulmane au moyen âge', *Cahiers de civilisation médiévale*, 5/20 (1962), 463–74.

[49] d'Erlanger, *La musique arabe*, 2:178.

[50] Stephen Parkinson, 'Concurrent Patterns of Verse Design in the Galician-Portuguese Lyric', in *Proceedings of the Thirteenth Colloquium*, ed. J. Whetnall and A. Deyermond, PMHRS 51 (London, 2006), 19–38.

[51] Cf. Sawa, *Music Performance Practice,* 40; and *idem*, *Rhythmic Theories*, 471–3.

[52] Anglés, *La música de las Cantigas*, 3/1:163, 185n. Anglés correctly interpreted this style as implying binary metre, thus differentiating it from notation formed *ex omnibus longis et perfectis*. Unlike the *Cantigas,* the notation in troubadour and trouvère melodies consisting almost entirely of *virgae* is metrically neutral; a binary interpretation is a possibility among others. See, for instance, *Coustume est bien quant on tient un prison* (Thibaut of Navarre) as copied in the Chansonnier Clairambaut (MS X), fol. 35v, or the songs of Moniot de Paris commented upon by Mary O'Neill, *Courtly Love Songs of Medieval France* (Oxford, 2006), 150–2.

already observed by Anglés. The underlying pattern is not therefore a Parisian fifth mode. Rather, the Arabian paradigm applies instead.

The quick manner of conjunctive rhythm, which Anglés called *ex omnibus brevibus*, is found in several *cantigas*: 249, 266, 302, 334 and 361, all of them with lines of seven or eight syllables, with the accent falling on the seventh (7 or 7′). The label notwithstanding, there are cases of subdivision or conflation of breve-units. It can be argued that if the underlying scheme were a strict Parisian sixth mode, we would see only short notes, and phrases would preferably end with an accented breve. However, the *ordines* are imperfect: phrases end with either an unaccented short, following an accent, or a long note. The latter serves to mark a final accented rhyming syllable. It assumes the function of a separator by prolongation, as in the Arabic paradigm. The corresponding pattern B B B B B B L (B stands for breve, L for long) is not unknown to French music, but it also coincides with the first variation of the First Light-Heavy compound cycle (with a final two-beat long) according to al-Fārābī.[53] The distribution of internal accents in the overlaid text or the presence of modified binary ligatures (CSM 266) may suggest binary grouping throughout, which would exclude modal rhythm. An underlying ternary pulse is nonetheless sometimes suggested by a stroke following a final *virga*, and under these circumstances it is possible to alternate between three binary and two ternary groupings in accordance with the text; for example, *méus amígos vós diréi [. . .] cá por así o achéi* (CSM 361). In short, both paradigms, with due adaptation, may apply, as the larger metrical framework is not clearly given and may change from *cantiga* to *cantiga*.

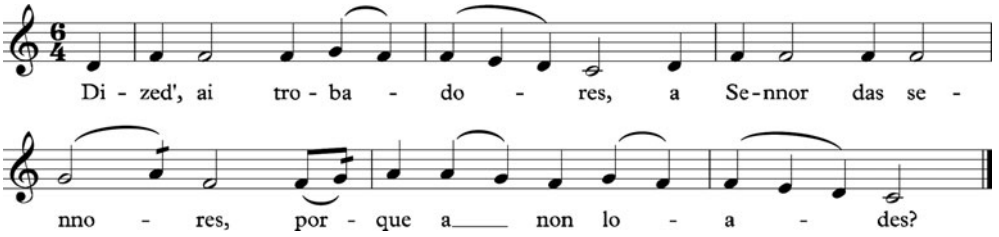
Other *cantigas* are even less predictable. The rhythm can be conjunctive at the start, but prolongation can be attributed, in masculine-rhyming lines, to both rhyming syllables, thereby producing a disjunctive pattern, that is, one mixing short and long sounds. This may or may not coincide with a standard musical pattern. A binary example can be found in CSM 79: B B B B L L (four single beats and two double). It corresponds to one of the variations of a conjunctive rhythmic cycle, expounded by al-Fārābī.[54] Other cases are *cantigas* 323 and 378, in which musical variety takes precedence over strict textual correspondence: the cycle, also binary, is composed of four shorts and three or four longs (depending again on the terminal or penultimate position of the rhyming accent).

We can conclude that the Arabic paradigm is generally more fitting than the Parisian one to explain series of longs, or their juxtaposition with series of breves. Although the Arabic theoretical framework was also flexible enough to absorb any practical use of undifferentiated note series, namely imperfect sixth-mode *ordines*,

[53] Sawa, *Rhythmic Theories*, 360, 481. The anonymous prologue to Garlandia's tract in MS. Paris, BNF, fonds latin 16663 conceptualises the corresponding variant saying that the sixth mode is converted to the first when it adopts a first-mode ending: 'sextus modus [. . .] quando reducitur ad primum, terminatur in longam et habet pausationem unius temporis', in Erich Reimer (ed.), *Johannes de Garlandia: De mensurabili musica*, (Wiesbaden, 1972), 1:93. This terminal assimilation of the first mode can be illustrated by the tenor's last phrase in the motet *Je ne puis / Flor de lis / Douce dame* (Montpellier Codex, fasc. 5, no. 164).

[54] Sawa, *Rhythmic Theories*, 400, 401n.

Ex. 4a. CSM 260 (beginning): notational figures in codex *E*.

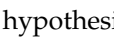


Ex. 4b. CSM 260 (beginning). Interpretation of rhythmic values according to Anglés (grouped in 6/4 bars instead of 3/4 in his edition).

which could apply by analogy to some cases of notation *ex omnibus brevibus*, it was not necessarily adhered to in these cases.

Rhythmic modes I and II

The French model can be invoked to explain what can be easily recognised as second-mode patterning (B L . . .), seen in *cantigas* 85, 164, 332 and others; but it must be said that most Arab authors acknowledge exactly the same pattern, under different names (*Ramal* or Light *Ramal* being the most usual). Al-Bataliawsī of Badajoz explicitly states that his contemporaries used it in the Andalus: '[the Light *Ramal*] uses two attacks and two attacks [and] between [each set of two attacks] there is a separation'.[55]

Since the Parisian second mode and the basic form of the *Ramal* coincide, only slightly unusual, related patterns may indicate that one of these paradigms prevails. Yet notational evidence is often ambiguous. King Alfonso's personal invective in *cantiga* 260 was transcribed by Anglés under the second rhythmic mode, with an anacrusis and elongation of both rhyming syllables (Ex. 4).[56] His solution is justified, since in the passage  occurring several times in codex *E*, the fourth-mode hypothesis (1+2+3, 1+2+3 beats) fails to account for the alternation of *punctum* and *virga* to represent the same kind of breve.[57] The result departs, however, quite clearly from second-mode patterning; the closest Parisian pattern is variant IIa above (Lambertus's fifth mode, described previously), but this would also suppose an atypical anacrusis and *extensio modi* over the penultimate syllable. This song could

[55] *Ibid*., 68.

[56] The hypothesis of a direct relationship with rhythmic modes is somewhat strained in Ex. 4. If every accented rhyming syllable (starting bars 2, 4 and 6) took just two beats instead of three, the result would coincide with a rhythmic pattern acknowledged by al-Fārābī (the stroke entered in the MS after each instance of the pattern may stand for a rest).

[57] A fourth-mode transcription can be found together with a 'modo arabico' alternative in Cunningham, *Alfonso X, o Sábio*, 193–7. The second mode upbeat is unmistakable in CSM 149, the incipit of which coincides almost exactly with CSM 260.

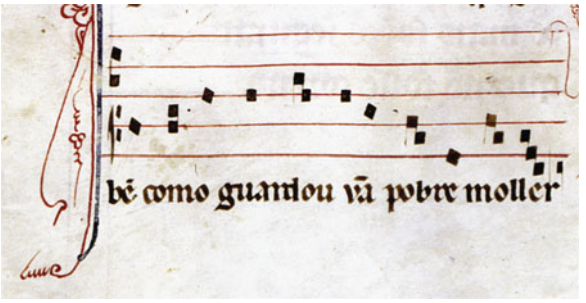
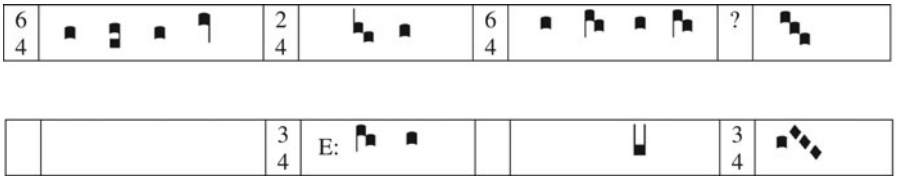


Fig. 1. (Colour online) The return of the initial melodic phrase of CSM 86 in the middle of the stanza in codex *To*. (Here, only the single-note figures ◆ and ■ have mensural meaning, respectively short and long.)



Ex. 5. Rhythmic interpretation of CSM 86 (incipit) in codex *T*, with notational variants in *E*.

have been inspired instead by the *Ramal* paradigm, with due adaptation; but assuming that no long exceeds two beats (the notation allows it), its exact form can be arrived at, according to al-Fārābī, by juxtaposing a cycle of the Second Light and a cycle of the Fifth Light.[58]

Some rhythmic hesitation, or change of mind, can sometimes be discerned in the sources, e.g. in *cantiga* 86, copied in all three extant musical manuscripts, *To*, *T* and *E*. The first melodic phrase, which juxtaposes two rhythmic cycles, will suffice as an illustration. In codex *To*, both cycles can be interpreted (in the stanza) as instances of the *Ramal* or (imperfect) second rhythmic mode (see Fig. 1). On the contrary, in codex *T*, the first segment apparently corresponds to a pattern documented in many theoretical sources including al-Fārābī in the tenth century and Safī al-Dīn in the thirteenth, and still widespread in many Arab countries: 1+2+1+2+2 beats, only with double attack (1+1) at the disjunction.[59] The second segment amounts to the same pattern with an elongated final instead (see Ex. 5). The notation in codex *E* adds a beat to the fifth syllable so that a smooth ternary pulse is reinstated; the result corresponds to Lambertus's fifth rhythmic mode (variant IIa above), with *fractio modi* at the end of the first segment.

While the standard *Ramal* is evidently part of the basic building blocks of Arabic rhythm, the first mode (L B . . .) is, on the contrary, more prominent in French than

[58] Sawa, *Rhythmic Theories*, 386, 397 (Variation Five), 404–5 (*mudāri'* = Fifth Light). The resulting period would be equivalent to (1+1+2) + (1+2+2+2) beats, or Tananann Tanann Tann Tann.

[59] *Ibid.*, 403; and Mohammad Reza Azadehfar, *Rhythmic Structure in Iranian Music*, 2nd edn (Tehran, 2011), 112–13.

in Arabic theory. Yet, as far as practice is concerned, this may be illusory. Theory has its own constraints. Contrary to Latin authors and their modern commentators who have mensural polyphony as their horizon, those writing in Arabic did not include coordination between a metrical pulse and the elements of a durational pattern in the definition of a rhythmic cycle. The concept of *Ramal* therefore encompasses the first rhythmic mode: the pulse may indifferently fall on the first beat or on the second. The initial short note in B L B L etc. may become an upbeat, as in *cantiga* 61, or disappear.[60] The first-mode version could not be presented as the basic form of the cycle or resulting period because this must end with a long note, implying dropping out the last attack. Therefore it is regarded as a modified pattern, and is featured in treatises as a result of variation techniques and under different guises. Al-Fārābī describes it either as long–short–long–short (a variation of the Light *Ramal*) or as long–short–long–short–long, the long being worth two shorts (Sixth Light, seventh variation);[61] but Avicenna allows a longer disjunction, making it compatible with ternary metre.[62]

Theoretical ambiguity is paralleled in the *Cantigas* by notational ambiguity concerning the beat-value of the final long in a L B L B L sequence; for instance, in CSM 213, where the pattern is used with a prefix (two shorts or a short–long group). The phrases, however, often end with two longs, followed by an upbeat of two shorts, suggesting a juxtaposition of 3+3 and 2+2+(1+1) beats, alternating with the standard ternary metre (Ex. 6a). Dionisio Preciado has assigned *Cantiga* 166 to this category, although two final longs are only found in codex *T* (Ex. 6b). He has interpreted this as an instance of the popular *petenera* rhythm, which left its mark in several Spanish sources from the Renaissance.[63]

This rhythmic profile is used, for instance, in the sixteenth-century Romances *Por Antequera suspira*, *Retrayda está la infanta* and *Rosafresca*, transcribed from popular tradition exclusively with two-*tempora* longs, which imply, in modern notation, regular alternation between 6/4 and 3/2 metre (Ex. 6c).[64] The alternation also occurs in several popular-inspired polyphonic *villancicos* by Juan del Encina, which have been associated with what Anglés called a 'mixed modal rhythm'.[65]

[60] Songs notated in first mode with an upbeat are plentiful among the lyric insertions in Jacquemart Gielée's *Renart le nouvel*, as found in Paris, BNF, fonds français 25566 (MS W), fols. 121v, 'Jamais amours n'oublierai'; 128v, 'Vous n'ales mie'; 130r, 'Souspris sui'; 165r, 'A mes dames'; 165v, 'E diex'; 166r 'A ma dame'; 166v 'Dont vient'. A Latin counterpart is London, BL, Harley MS 978, fol. 13r, 'Ante thronum regentis omnia', discussed in Helen Deeming (ed.), *Songs in British Sources, c. 1150–1300*, Musica Britannica vol. 95 (London, 2013), facs. 3, lii–liii, 131, 208. See also the discussion of iambic sequences in Nicolas Bell, *The Las Huelgas Music Codex: A Companion Study to the Facsimile* (Madrid, 2003), 123–4, 137–8.

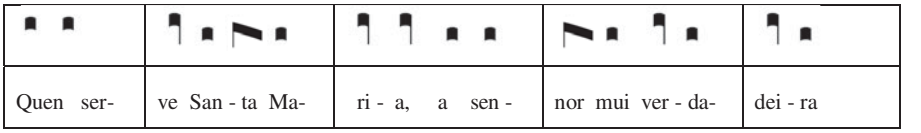
[61] Sawa, *Rhythmic Theories*, 293, 402, 483. These patterns relate to a form of the *Hazaj* reported by Al-Bataliawsī (*ibid.*, 68): 'the *Hazaj* is one heavy attack, then one light'. The editor adds: [then one heavy], and defends in a footnote the addition as a plausible alternative reading; the length of the final attack (two or three beats) remains open.

[62] d'Erlanger, *La musique arabe*, 2:189, 193.

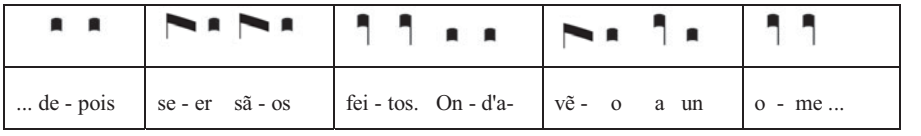
[63] Dionisio Preciado, 'Veteranía de algunos ritmos "Aksak" en la música antigua española', *Anuario musical*, 39–40 (1984–5), 189–215 (206–9, 214–15).

[64] Binkley and Frenk, *Spanish Romances*, 14–5, 26, 80–1.

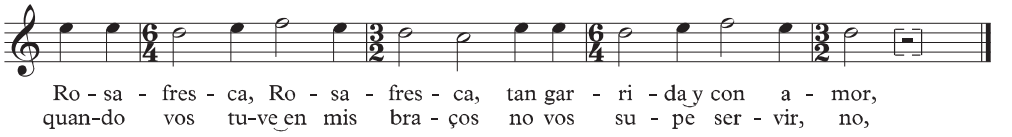
[65] Encina, *Poesía Lírica y Cancionero Musical*, 307, 325, 337; Anglés, *La música de las Cantigas*, 3/1:178–84.



Ex. 6a. CSM 213, codex *E*: incipit.



Ex 6b. CSM 166, codex *T*: last phrase of refrain and first phrase of initial stanza.



Ex. 6c. The Romance *Rosafresca*, according to Francisco Salinas.

By this expression he meant, in the wake of Ludwig, a systematic mixture of Parisian modal patterns, especially of the first and second modes, which results in new rhythmic patterns of the type

/ /. /. / (B L L B)

or the reverse

/. / / /. (L B B L).

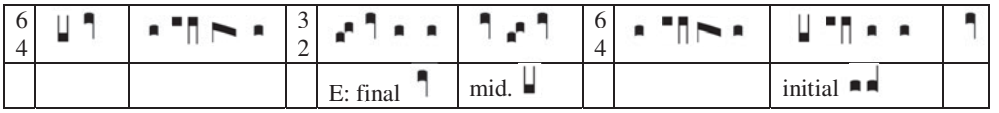
Anglés claimed that this mixture of first and second mode was applied to as many as 86 *cantigas*.[66] He was not aware of the fact that these 'secondary' patterns, acknowledged by Odington but apparently of limited used in France,[67] were in fact current in Arabic music. According to al-Fārābī, both patterns can be arrived at by juxtaposition of variant cycles of the Light *Ramal*.[68]

The *cantigas* clearly exemplifying the first pattern (B L L B) are CSM 43, 108 and 331, although it can also be found in many others (among them CSM 55, 57, 199, 234,

[66] Anglés, *La música de las Cantigas*, 3/1:183. David Wulstan, however, distinguishes the systematic use of L B B L or B L L B (which he called 'mode 7'), acknowledged in no more than seventeen songs, from the incidental mixture of first and second modes in many others. See David Wulstan, *The Emperor's Old Clothes: The Rhythm of Mediaeval Song* (Ottawa, 2001), 49–52, 309.

[67] In Paris, BNF, fonds français 25566 (MS W), two second-mode lyric insertions are given first-mode endings for the sake of accentual conformity: fol. 164v, 'Avoec tele conpagnie'; 165v, 'Honnis soit'.

[68] Sawa, *Rhythmic Theories*, 291–3. A period formed of two cycles L B B L, implying, however, binary subdivision (3/4 instead of 6/8) was reported by al-Fārābī either as a variation of the conjunctive *Hazaj* by dropping out the second attack (Fourth Light, Variation one) or as Variation Six of the Heavy *Ramal* (Sawa, *Rhythmic Theories*, 269, 343). This pattern was long-lived in Iran. See Azadehfar, *Rhythmic Structure in Iranian Music*, 116–17.



Ex. 7. Rhythmic interpretation of CSM 76 (refrain) in codex *T*, with notational variants in *E*.

310 and 369).[69] Al-Fārābī also describes this pattern with a two-beat long added at the end.[70] Avicenna combines it with one to three longs (of two-*tempora*).[71] *Cantiga* 76 suggests that the last long of three could be converted into a double upbeat: in codex *T*, the refrain has the same pattern with a second-mode prefix (B L, B L L B) and is followed by figures equivalent to L L B B or L L L, resulting in what may be interpreted as a combination of 6/4 and 3/2 bars; the copyist of codex *E* attempted to postpone the mixture to the end of the phrase (Ex. 7).

From the many *cantigas* exemplifying the second pattern (L B B L) – some of them only in the first half of a rhythmic period (CSM 92, 96) – I examined seventeen, though I have excluded nine (CSM 34, 46, 104, 199, 232, 300, 328, 345 and 398) that have a first-mode prefix and one (CSM 114) with a second-mode suffix. Five out of the remaining seven (CSM 9, 183, 234, 236, 286, 295 = 388, 354) have a double upbeat. No less than twelve polyphonic compositions by Encina also use this pattern: six of them (Lee numbers 22 = 29, 24, 34, 35, 36, V) with a first-mode prefix, another (41) with a first-mode suffix.[72]

Similarity with the *Cantigas* is reinforced by the presence of a double upbeat in three songs (20, 24, 41) and four (20, 24, 36, 46) which use 3/2 metre at the end of at least one phrase.[73] One can surmise that the tradition that inspired Alfonso X and Juan del Encina retained some continuity between the thirteenth and sixteenth centuries. A phrase consistently ending in 6/4 metre is clear in two *cantigas* (354, 398); three others (234, 236, 295 = 388) may have used either 3/2 or 6/4, or both, or even a 2/2 bar at the end. The patterns used in CSM 9 (e.g.) could well be regarded as corresponding to a combination of the latter two bars.[74]

[69] The rhythm of CSM 293 (B B L L or 1+1+2+2 beats, twice in a row) could be placed in this category if the first short note is regarded as an upbeat; but it is simpler to consider it a straightforward case of a variation of the conjunctive *Hazaj* described by al-Fārābī as a result of dropping out the fourth attack (Fourth Light, Variation two). Sawa, *Rhythmic Theories*, 390.

[70] Sawa, *Rhythmic Theories*, 403.

[71] See d'Erlanger, *La musique arabe*, 2:195, 204, 211, 218. The pattern 1+2+2+1+2+2, called *Hazaj* the first, was considered very old in early Iranian musical theory. See Azadehfar, *Rhythmic Structure in Iranian Music*, 122–3. Willi Apel remarked on the popularity of the 3+3+2 beat pattern in Iberian song and keyboard music in the Renaissance (see note 42).

[72] Encina, *Poesía Lírica y Cancionero Musical*, 309, 311, 317, 322–5, 367.

[73] *Ibid*., 307, 311, 325, 330, 337.

[74] Iranian theorists of the thirteenth to fifteenth centuries, as well as the fifteenth-century Arabic tradition and the Andalusian tradition of Tetuan in Morocco, all share a rhythmic cycle implying a succession of bars corresponding, in augmented values, to 3/2, 6/4 (or vice versa) and 2/2. Azadehfar, *Rhythmic Structure in Iranian Music*, 110–11; d'Erlanger, *La musique arabe*, 6:87 (comment to no. 68); and Chottin, *Tableau de la musique marocaine*, 182, ex. 3a.

In short, regular Parisian first and second modes correspond to *Ramal* rhythm; their combination, resulting in coherent patterns, frequently used in the *Cantigas*, was widespread in the Islamic world; hemiolic changes of metre, documented in a few *cantigas*, also fall outside the Parisian paradigm. Although the influence of the latter is hard to disentangle from instances of *Ramal*, notational revisions may betray its mark.

Rhythmic modes III and IV

In French *Ars antiqua* theory, the clear qualitative distinction between long and short notes accompanies a puzzling ambiguity concerning their actual value: the notation does not distinguish between two-beat and three-beat longs, and a breve was just a short note, either quick/regular (one beat) or extended/altered (two beats). Eventually this ambiguity transferred to the concept of *semibrevis*, which applies to any subdivision of the breve.

Anglés observed that the Escorial codices of the *Cantigas* use either a *virga* and two *puncta*, or a *virga*, a *punctum* and a *virga*, to represent the third rhythmic mode (conceptually: long, short, extended short, corresponding to 3+1+2 beats).[75] The latter notational version is at odds with the French model, yet it can be understood as deriving from the identification of the *brevis altera* with the *longa recta*, since both occupy two beats.

In the trouvère repertoire the notation sometimes suggests the third rhythmic mode,[76] but mode four is normally seen more as a theoretical construct for the sake of symmetry than as a practical alternative.[77] In song it is notated as two *puncta*, followed by a *virga* (conceptually: short, extended short, long, corresponding to 1+2+3 beats). Anglés, in the last volume of his edition, published in 1958, acknowledged the presence in the *Cantigas* of the fourth mode occurring in conjunction with the third or other modes, but never by itself;[78] the notation of the few passages that he associated

[75] Anglés, *La música de las Cantigas*, 2:54–5.

[76] Cf. *Les Chansonniers des troubadours et des trouvères, T. 1: Reproduction phototypique du chansonnier Cangé, Paris, Bibliothèque nationale, Ms. français, n° 846* (MS O) (Strasbourg, Paris, Philadelphia, 1927), fols. 13v, 14v, 25r, 29r and 86v; Carl Parrish, *The Notation of Medieval Music* (New York, 1957), 47–8 and Plate XV; Hendrik van der Werf, *The Chansons of the Troubadours and Trouvères* (Utrecht, 1972), 36, 40–3, 105, 122–5. A useful overview of the musical notation found in the trouvère chansonniers can be found in O'Neill, *Courtly Love Songs*, 27–52.

[77] Parrish, *The Notation of Medieval Music*, 76–7, writes that in thirteenth-century music 'the fourth mode is almost never seen'. This is confirmed in Bryan Guillingham, *Modal Rhythm* (Ottawa, 1986), 66–70: among the early motets only two examples are found. *Devers Chastelvilain*, a song attributed to Colin Muset, as written on fols. 44v–45 of the *Chansonnier Cangé*, is a notable exception. See Wolf, *Handbuch der Notationskunde*, 211–12. See also Theodore Karp, 'Three Trouvère Chansons in Mensural Notation', *Gordon Athol Anderson, 1929–1981: In Memoriam von seinen Studenten, Freunden und Kollegen*, 2 vols., Musicological Studies 39 (Henryville, PA, 1984), 2:474–94; Karp identifies a strophe notated in a mixture of second and fourth modes (as in Lambertus's fifth mode). Hans Tischler, 'The Performance of Medieval Songs', *Revue Belge de Musicologie*, 43 (1989), 225–42, at 241, observes that in trouvère songs the fourth rhythmic mode is rare.

[78] Anglés, *La música de las Cantigas*, 3/1:181, 184–5, 276–7. For a different opinion, see Cunningham, *Alfonso X, o Sábio*, 54, who considers the fourth mode 'well represented' in the *Cantigas*, adding: 'The presence of

with the fourth mode is the standard one, although a *virga* might hypothetically have been used to represent the extended breve. The fourth mode seems to have been regarded simply as one possible aspect of either the second or the third mode.

A comparable conceptual ambivalence existed in Arab musical theory; in fact, one could describe cycles of 2+2+1 or 2+1+2 beats (Second-Heavy and Heavy *Ramal*) counting respectively two heavy attacks and a light one (without any disjunctive beat) or one heavy attack and two light attacks (the second of which followed by a disjunctive beat). The Second-Heavy cycle was, nevertheless, usually described as two light attacks and a heavy one (1+2+2 beats): the second short would be extended, exactly as a Parisian *brevis altera*. Al-Fārābī, in his later writings, singles out in this category a subdivided form of 1+1+1+2 beats, which he regards as the original one. The fast version (Second Light-Heavy or *Mākẖūrī*) could just accelerate the movement or differentiate more clearly between shorts and long, implying either only a slight retention of the second short, or a 1+2+3 beat pattern equivalent to the Parisian fourth mode. Al-Fārābī also describes variants of the *Ramal* equivalent to the Parisian third mode (3+1+2) and to an extended form of the first mode akin to the alternate third mode (2+1+3).[79]

This context allows us to understand al-Bataliawsī when he states: 'Singers have disagreed about [the Second-Heavy]. Some tap it as four attacks: three equal and the fourth heavier than them [. . .] Some tap it as four equal attacks, neither light and fast, nor heavy and held back' (both refer to al-Fārābī's subdivided variant: a disjunction beat after the fourth equal attack in medium tempo is implied). 'As for Ishāq ibn Ibrāhīm al-Mawsilī, he used to tap it as three attacks: two equal and held back and one heavy [. . .] The second light heavy is faster than [the second heavy]: two light attacks and one heavy attack. It is called the *Mākẖūrī*, and is the opposite of the *Ramal* [. . .] The *Ramal* is one heavy attack followed by two faster attacks.'[80]

The notation of the *Cantigas* should be approached with all these possibilities in mind: five-beat or six-beat patterns, used in simple or compound cycles; varieties of Parisian rhythmic modes, varieties of Second-Heavy, *Mākẖūrī* and Heavy *Ramal* cycles. The Escorial manuscripts may indicate binary subdivisions of the long by their use of *cum proprietate/sine perfectione* ligatures; in addition, the Madrid codex, when available for comparison, is extremely helpful by its differentiation between two and three-*tempora* longs or different kinds of breve, allowing us to identify third-mode patterns, either defining the metrical framework (CSM 38, 58) or embedded in otherwise regular binary metre (CSM 25). The remaining ambiguities are not to be seen as notational failures; they probably mirror an inherited conceptual framework where beat-long disjunctions or prolongations did not interfere with the basic identity of a rhythmic pattern, defined by the number and resonance quality of its individual articulations. Without a thorough study of all the *cantigas* that may correspond to

this category was not acknowledged by Anglés, and has apparently also been overlooked by Ferreira.' See, however, Ferreira, *O Som de Martin Codax*, Apêndice II (concerning CSM 293); and *idem*, *Aspectos da Música Medieval*, 80–1 (CSM 60), 189n (CSM 97).

[79] Sawa, *Rhythmic Theories*, 148, 150, 344, 364, 368–71.

[80] *Ibid*., 67.

the rhythms discussed above – a group that includes some of the most difficult cases in the entire collection – the underlying paradigms cannot be identified and their respective influence weighted one against another.

Conclusion

Julián Ribera (1922), Higinio Anglés (1958) and David Wulstan (2001) are so far the only scholars to attempt a comprehensive listing of rhythmic profiles in the *Cantigas* and to present the overall results in detail or numerically.[81] Since these authors have different approaches to the repertory, the statistics do not coincide. According to both Ribera and Anglés, simple, recognisable rhythmic patterning occurs in more than half of the melodies: they count 266 or 233 songs, respectively. Ribera puts in the *Ramal* category eighty-three *cantigas*; the corresponding categories in Anglés are the first mode (forty *cantigas*) and the second mode (forty-two *cantigas*). The third mode (possibly in combination with the fourth) applies to fifteen songs in Anglés; the corresponding Arabic pattern in Ribera is applied to twenty-two. He attributes binary metre to as many as 159 melodies. Anglés reckons eighty-six *cantigas* in a combination of first and second modes, and forty-nine to fifty-one in pure binary metre. According to Wulstan, the corresponding categories apply to 331 *cantigas*: fifty-six in first mode, eighty in second mode, eighteen in third (or fourth) mode, 118 in a combination of first and second mode, and fifty-nine in 'duplet rhythm'. The discrepancy has mainly to do with Wulstan's refusal to acknowledge mixture of binary and ternary metre, ubiquitous in Anglés's edition.

In spite of the fact that the notation of the *Cantigas* admits different interpretations, commentators agree that the simple rhythmic patterning discussed in this article applies to, at the very least, half of the collection. There is much more work to be done to establish the exact degree of correspondence between the *Cantigas* and contemporary rhythmic theories, but from the preceding discussion we may conclude that, while a sizable portion of the *Cantigas* can be thought of in terms of rhythmic modes, very few patterns point unequivocally to French models, as these may coincide with established Arabic patterns; in most cases (first and second mode, potential forms of the third mode, notation *ex omnibus brevibus*) both French and Arabic paradigms could apply. In many other cases, encompassing both binary and ternary metre (notation *ex omnibus longis*, mixed modes, mixed metres, binary and quinary patterns), the Arabic rhythmic paradigm is clearly either more fitting than the Parisian one, or the only one to apply: there are plenty of occasions when rhythmic patterns in the *Cantigas* can only be explained with reference to an Eastern-influenced tradition.

While acknowledging the influence and significance of French models, it has been shown that – owing to a Paris-centred historiographical ideology – this significance has previously been overstated, while the Arabic heritage of the *Cantigas* has been

[81] Ribera, *La música de las Cantigas*, 121n; Anglés, *La música de las Cantigas*, 3/1:179–87; and Wulstan, *The Emperor's Old Clothes*, 48–62, 308–12. See also the (non-quantified) discussion of rhythmic categories in Cunningham, *Alfonso X, o Sábio*, 52–6.

minimised. The fact that rhythm was a central feature in Andalusian musical praxis, a primary characteristic of any song already at the learning stage, may have led Alfonso X and his collaborators to record in the metrically devised *Cantigas* their immense vocabulary of rhythmic shapes. I would venture to propose that in so doing they did not normally choose between alternative paradigms, even if in some cases rhythmic variants may betray interpretative tension. The limited vocabulary of Parisian rhythmic modes was instead filtered and assimilated through the more developed, all-encompassing Arabic rhythmic tradition prevailing in freshly conquered Andalusia.

Allowing that patterned rhythm and its free combinations may have been more often applied to comparable European monophonic repertoires than is currently admitted, at the time the French lacked the willingness or proper context to adapt their mensural notational systems to the diverse realities of monophonic song – exceptions notwithstanding.[82] It fell to the copyists of the Escorial codices at Alfonso's court, under unrelenting pressure from the king, to go beyond the limitations of pre-Franconian notation, meant to be interpreted within the context of the rhythmic modes, in order to cope with these realities. The resulting tension between a Parisian notational technique and a rhythmically varied, foreign musical object remains a source for contention in the musical interpretation of the manuscripts.

However limited the French influence may have been in supplying rhythmic models for the *Cantigas*, it had an essential role in their preservation. It is true that 'in the last decade of his reign King Alfonso had every reason to be annoyed by the overweening power of France',[83] yet in the end, Paris provided him with the notational tools that, once adapted to its new cultural context, would allow the rhythm of the *Cantigas* to survive, in the Escorial codices, with enough precision to be sung to the delight of future audiences.

[82] On the variety of overlooked rhythmic information in trouvère manuscripts, see Manuel Pedro Ferreira, 'Mesure et temporalité: vers l'Ars Nova', in *La rationalisation du temps au XIIIème siècle – Musiques et mentalités (Actes du colloque de Royaumont, 1991)* (Royaumont, 1998), 65–120, at 69–85, 109–10, 114–18; reprinted in *idem*, *Revisiting the Music of Medieval France*, ch. VI.

[83] O'Callaghan, *Alfonso X and the* Cantigas de Santa Maria, 82.