

UNDERSTANDING THE *CANTIGAS*: PRELIMINARY STEPS*

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The performance of the *Cantigas de Santa Maria* requires some knowledge about their musical notation, namely that of the two manuscripts kept at the Monastery of El Escorial (north of Madrid), datable from the 1280s.¹ This may be viewed as an example of a pragmatic system, designed to convey not only the kind of information conveyed by French pre-Franconian notations, but also other possibilities of meter and rhythmic patterning present in the repertory. In this sense, it stands as an early, isolated attempt to solve the notational problems that would emerge in Paris around the turn of the century and were later addressed by the *Ars Nova* theorists. This paper will present the main interpretative problems posed by the manuscripts of the *Cantigas de Santa Maria*, and the work done by the author under a research grant by the Portuguese *Fundação para a Ciência e Tecnologia*, in order to set a secure palaeographical and comparative basis for a future critical edition of the melodies.²

1 – Understanding the sources

It is quite natural for a musician that when a musical source becomes available in whatever form for the purpose of performance, it will be used without much consideration for details of palaeographical or editorial nature. Music is there to be read and enjoyed and there

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¹ The earlier codex is now Madrid, B.N. MS 10 069 and includes 128 songs. The Escorial books, originally from Seville, are MS. T. I. 1, containing 193 *cantigas*, and MS. b. I. 2, which contains 407 melodies.

² Project “Cultural Confluences in the Music of Alfonso X”, POCTI/EAT/38623/2001 (2005-2008).

is no question that for modern audiences, one of the most enjoyable, and enjoyed, musical repertoires of the Middle Ages is that of the *Cantigas de Santa Maria*. That their language is not easily understood, and that their musical notation has some perplexing peculiarities, has posed no obstacle to popularity.

The *Cantigas de Santa Maria* are impressive not only on account of sheer number — more melodies survive for them than for the entire southern troubadour lyrics — but also because of their variety and vitality. Musicologists, however, have paid surprisingly little attention to this repertoire (Higinio Anglés in the earlier decades of the 20th century, and Gerardo Huseby two generations later, were notable exceptions). There are reasons for this. In the Iberian Peninsula, musicology as a modern academic discipline started barely a generation ago, and research on medieval sources has attracted so far only a handful of scholars. Elsewhere, Galician-Portuguese is not widely read; this, and the fact that this repertoire does not easily fit French theoretical models caused a certain musicological estrangement.

The first complete musical edition was published by Higinio Anglés in 1943, with an introduction of more than one hundred pages, followed in 1958 by two substantial commentary volumes; he wrote in Spanish, or Castilian, language, which most musicologists worldwide do not read. This was not only a formidable, but also an original and enduring musicological achievement.³ The monumental presentation of the edition certainly led many to believe that most musicological issues had been satisfactorily confronted and resolved. I have assessed elsewhere the main qualities and also the main deficiencies of Anglés' edition, and therefore I feel no need to talk about it at length here.⁴

One of the musicological issues confronted by Anglés was the evaluation of the sources. There are only three manuscript sources for the music. The first (Madrid, B.N. MS

³ Higinio ANGLÉS, *La Música de las Cantigas de Santa María del Rey Alfonso El Sabio*, Barcelona, Biblioteca Central, vols. II-III, 1943-1958.

⁴ Manuel Pedro FERREIRA, “Bases for Transcription: Gregorian Chant and the Notation of the *Cantigas de Santa Maria*”, in José LÓPEZ-CALO (ed.), *Los instrumentos del Pórtico de la Gloria: Su reconstrucción y la música de su tiempo*, La Coruña, Fundación Pedro Barrié de la Maza, Conde de Fenosa, 1993, Vol. 2, pp. 595-621; now at: http://www.academia.edu/1214994/Bases_for_Transcription_Gregorian_Chant_and_the_Notation_of_the_Cantigas_de_Santa_Maria. Id., “Afinidades musicais: as cantigas de loor e a lírica profana galego-portuguesa”, in *Memória dos Afectos — Homenagem da Cultura Portuguesa a Giuseppe Tavani*, Lisboa, Colibri, 2001, 187-205. The author's most significant papers concerning the *Cantigas*, written before 2007, were updated and published together (in Portuguese) in Manuel Pedro FERREIRA, *Aspectos da música medieval no Ocidente peninsular*, vol. I: *Música palaciana*, Lisboa, Imprensa Nacional - Casa da Moeda /Fundação C. Gulbenkian, 2009.

10 069) comes from 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 second codex is found in the Escorial Monastery, north of Madrid (MS. T. I. 1), and, being lavishly illustrated, is generally referred to as *códice rico*, or through the *siglum* *T (or E², or e); it contains 193 *cantigas* and was meant to be the first volume of a two-volume luxury set, the second volume of which remained largely incomplete. The third codex is the so-called *códice de los músicos*, because every tenth song is headed by an illumination representing one or more musicians. Its *siglum* *E (or E¹) mirrors the fact that it is also kept in the Escorial (MS. b. I. 2). It contains 407 *cantigas* (apparently 416, but nine are given twice) and represents therefore the final stage of the collection.

For long, there were only two published facsimiles, that of the musical portions of the Toledo manuscript, published by Julián Ribera in 1922, and that of the *códice de los músicos*, published by Higinio Anglés in 1964.⁵ A colour facsimile of the *códice rico* appeared in 1979, and that of the Toledo codex in 2003.⁶ Recently, the older black and white reproductions were made available on the internet.⁷ However, these early publications, having been reset or retouched by hand, hardly deserve the name of facsimiles, while the coloured ones do not always reproduce the finer notational details in the original. A new colour facsimile of the *códice rico*, aimed at affluent collectors, was printed in 2011.⁸

These sources have been subject to detailed study only recently. Their nature and date has generated some controversy. This has partially to do with the fact that the Toledo codex and the Escorial codices use different notational systems. I have tried to elucidate this issue in different papers.⁹ In my view, the Toledo manuscript could be a very early copy of an exemplar written *c* 1270 which contained the primitive collection of one hundred *cantigas*, as I proposed long ago, or it could be, in Stephen Parkinson's view (see below), the very

⁵ Julián RIBERA, *La música de las cantigas. Estudio sobre su origen y naturaleza*, Madrid, Real Academia Española, 1922. H. Anglés, *La Música*, cit., vol. I, 1964.

⁶ *El "Códice Rico" de las Cantigas de Alfonso el Sabio: Ms. T.I.1 de la Biblioteca de El Escorial*, Madrid, Edilán, 1979. *Afonso X o Sabio: Cantigas de Santa María. Edición facsímile do código de Toledo (To)*, Biblioteca Nacional de Madrid (Ms. 10.069), Compostela, Consello de Cultura Galega/Ed. Galaxia, 2003.

⁷ Cf. <http://www.pbm.com/~lindahl/cantigas/facsimiles/>, maintained by Greg LINDAHL.

⁸ *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. Edición facsimilar*. The publisher sells this volume for 8.400,00 €. I have not been able to see it.

⁹ Manuel Pedro FERREIRA, "Bases for Transcription", cit; id., "The Stemma of the Marian Cantigas: Philological and Musical Evidence", in *Cantigueiros*, Vol. VI (1994), 58-98, now at: http://www.academia.edu/1220178/The_stemma_of_the_Marian_cantigas_philological_and_musical_evidence

original compilation; however, Higinio Anglés, led by the appearance of the notation, proposed that it was written in the early fourteenth-century, and therefore preferred the Escorial codices, which were probably written (or at least initiated) towards the end of Alphonso X's reign, around 1280-1284. Of the two, Anglés chose the most complete as a basis for his edition.

My impression is that a tentative, interdisciplinary scholarly consensus has been arrived at in recent years, namely during and after the 1994 Oxford Conference *Cobras e Son*, organized by Stephen Parkinson, concerning the relationship between the three codices. The earliest seems to be the Toledo codex, *To; among the Escorial codices, the most authoritative, generally speaking, in both textual and musical content is the luxurious *códice rico*, *T, not the one-volume edition with musical illuminations, *E, chosen by most editors and performers as their main source.¹⁰ Therefore, a new attitude concerning the interpretation and relative weight of the manuscript evidence is needed. But, for several reasons, discussed in the following, this attitude is not easily transferrable to editorial practice.

2 – Understanding the notational context









Besides the different number of songs included in each source, two problems arise when attempting to privilege the Toledo codex over the others. One is the *mouvance* of the repertoire, implying that different states of the same song can be equally valid;¹¹ another is the change in notational system. The notation in the manuscripts of the *Cantigas de Santa Maria* belongs to two different types. The basic note-shapes are, in *To, the square and the oblique *punctum* (Ex.1: *c* and *d*); in *T and *E, the *virga* and the square *punctum* (Ex.1: *a* and *c*). The short-stemmed virga (*b*) is only used in *To, and unfrequently.

¹⁰ Cf. Stephen PARKINSON (ed.), *Cobras e Som. Papers from a Colloquium on the Text, Music and Manuscripts of the Cantigas de Santa Maria*, Oxford, Legenda, 2000, 214-20. See also Martha E. SCHAFFER, "Los códices de las «Cantigas de Santa Maria»: su problemática", in *El Scriptorium Alfonsí: de los libros de Astrología a las «Cantigas de Santa Maria»*, coord. Jesus MONTOYA MARTÍNEZ & Ana DOMÍNGUEZ RODRÍGUEZ, Madrid, Editorial Complutense, 1999, 127-48. The chronological priority of the Escorial codices over *To is still defended, on the basis of notational appearance, by David WULSTAN, "The Compilation of the *Cantigas* of Alfonso el Sabio", *ibid.*, 154-85.

¹¹ The issue is dealt with, from the textual point of view, in S. PARKINSON, *Cobras e Son*, cit., 66-69.

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Ex.1: simple figures *a*, *b*, *c*, *d*.

The musical reality represented is the same (a few exceptions to the rule notwithstanding). Both kinds of notation attempt, to different degrees, to record rhythmic information; that in *To is best described as semi-mensural, while the more developed kind can be regarded as para-mensural. There are in addition slight but sometimes crucial differences between the *T 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.).¹²

Using Parisian notational paradigms, as Anglés and most professionally-trained musicologists did and still do, we will be unable to explain (without recourse to speculative imagination) why the Toledo codex, whose notational vocabulary seems to be based on the opposition between *brevis* and *semibrevis* (a late feature by French standards), is mensurally less developed than the Escorial codices, which use *longa* and *brevis* instead. In Toledo there are, among the basic neumes, only five or six to which a mensural meaning can be attributed, while the Escorial notation includes from ten to fourteen mensural signs. Moreover, the original Toledo notation was sometimes changed to look more like the Escorial notation, which contradicts the apparent priority of the latter. The textual contents, the palaeographical features and the decorative style in the Toledo MS point to an early date. To reconcile these facts within a French paradigm, we would have to suppose that the manuscript was notated thirty or more years after its copy, but this implies that Alfonso did not have the means or the interest to complete it, when everything points to the contrary, and that the musical copyist was mensurally incompetent, which actually means that our interpretative framework fails to explain his work.

¹² Manuel Pedro FERREIRA, “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. II, coord. by Laura FERNÁNDEZ FERNÁNDEZ & Juan Carlos RUIZ SOUZA, Madrid, Testimonio [Colección Scriptorium], 2011, 189-204.

However, within the Christian realm, Paris was not the only, nor the dominant cultural reference in Iberian courtly circles. In fact, before the last quarter of the 13th century, it was probably more influential in Portugal than in Castile. The Portuguese King, D. Afonso III, took the throne as Count of Boulogne, having lived in northern France more than twelve years, up to 1245, surrounded by *trouvères*, amongst them Moniot d'Arras, who referred to him in a song and dedicated another to him. There are some indications that it was through his circle that the idea of notating troubadour songs, rather than trusting the melodies to memory alone, was introduced in the Peninsula.¹³ Alfonso X and troubadours belonging to his circle, like Pero da Ponte, probably did not care about writing down the music of their secular troubadour songs, and when Alfonso decided to have the music of his devotional songs notated, he had either to follow foreign precedent, or find an original solution.

There were several notational systems in use in the Iberian Peninsula for the notation of chant, the most widespread being an evolution of Aquitanian notation, using mostly square and oblique *puncta* around a single line, while square notation preferred *punctum* and *virga*, whose original meaning of “higher note” had been made redundant by the staff. Square notation was used mostly by Cistercian monks (possibly also some of the military orders which adopted Cistercian usages), and Franciscan and Dominican friars. Northern French mensural precedent could have reached the court through clerics who studied in Paris, or attained it through family or diplomatic channels; most importantly, Alfonso X travelled himself with a large retinue to southern France in 1275, and stayed in Beaucaire, midway between Arles and Avignon, for nearly three months, for conversations with the pope; he personally met the French king Philippe III and his retinue at Bayonne shortly after the Christmas of 1280.¹⁴

In this historical context, I believe that *To (which adopts the staff, using the *virga* and both varieties of *puncta*) was notated between c 1270 and 1275 taking as its basis square notation as found in chant books, but aiming at an approximate representation of rhythmic profiles (seen in Andalusian culture as essential to the musical identity of a song) and choosing as basic rhythmic units not the square *punctum* and the *virga*, but the square and oblique note-shapes found in both square notation and the late variety of Aquitanian notation

¹³ Manuel Pedro FERREIRA, “Som mudo no Cancioneiro da Ajuda” in id., *Aspectos*, cit., 120-49.

¹⁴ H. SALVADOR MARTÍNEZ, *Alfonso X, El Sabio: una biografía*, Madrid, Polifemo, 2003, 217-31, 454-59.
Manuel GONZÁLEZ JIMÉNEZ, *Alfonso X el Sabio*, Barcelona, Ariel, 2004, 280-86.

used in Iberian liturgical sources.¹⁵ In contrast, the notational repertoire of *T and *E has its roots in pre-Franconian mensural notation as practised in French circles during the 1270s.

The Toledo notation is generally more ambiguous than the Escorial type, an exception being the representation of third mode patterns, where Toledo provides a distinction between three-*tempora* and two-*tempora* figures (Ex. 1: respectively *b* and *c*) that is missing from French mensural paradigms. The notations are generally equivalent, but may record actual musical variants as well. There is some advantage in taking into account, for edition or performance, both notational types whenever they coexist in the sources.

From a historical viewpoint, it seems that a tentative, local mensural adaptation of chant notational practices was superseded in Seville, after the King's trip to France, by an adaptation of French mensural practices, an alternative which may have been experimented with for a while before it imposed itself at Alfonso's court, possibly not before 1280. We can only speculate as to whether any of these solutions may have taken into account Portuguese precedent, or have been reached in Alfonso's circle; we simply do not have access to their larger framework and we will see in a moment that this narrative, while fitting the historical context, is not without its problems.

3 – Understanding the music

3.1 *Notational evidence*

It is one thing to arrive at a plausible narrative concerning the two notational types used in the *Cantigas*, to study their practical use in the repertory is quite another. Let us imagine that someone wants to look at *cantiga* 30, or more precisely, 30 in the Escorial codices, but 40 in the Toledo manuscript: *Muito valvera mais, se Deus m'ampar*. Although Anglés remarks in the critical apparatus that “los manuscritos escorialenses no siempre van de acuerdo en la notación de esta cantiga”, and although he concedes that the *códice rico*, *T, may record here an older musical version than the *códice de los músicos*, *E, he presents in his musical transcription the reading not of the *códice rico*, but that of the musicians' codex

¹⁵ I no longer subscribe to the suggestion of a direct derivation of the notation in *To from Portuguese late Aquitanian forms, tentatively advanced twenty years ago in Manuel Pedro FERREIRA, “Spania versus Spain in the *Cantigas de Santa Maria*”, in *España en la Música de Occidente. Actas del Congreso Internacional celebrado en Salamanca*, Madrid, Ministerio de Cultura, 1987, vol. I, 109-11.

instead.¹⁶ Above the transcription, he reproduces the original notation; the notation of the other two manuscripts is presented only sparingly, mostly when variants are involved. Anglés adds however a few footnotes recording variants otherwise not indicated.

So far, the problem seems to be only the choice of the basic source to transcribe. Anglés acknowledges in the critical apparatus an additional problem, the ambiguity of the original notation, when he proposes an alternative reading of a short musical passage. More problems arise, however, when we confront the edition with the manuscripts. The original notation of the chosen source is not accurately reproduced: there are two errors. One of them, over *sannudo*, was not taken into account in the transcription and can thus be considered a misprint, although it was eventually introduced into the published facsimile; but the other, on *rogar*, contradicts both original and facsimile, and judging from the transcription, is a real mistake. And this is just the beginning.

We are led to believe that, apart from melodic transposition, the *códice rico* deviates from the musicians' codex only twice. In fact there are two more graphic variants and two additional rhythmic variants. Furthermore, the penultimate phrase in the *códice rico* is not exactly the same as in the other Escorial manuscript, which implies a slightly different formal scheme, ending with “alpha, beta prime” instead of “alpha prime, beta prime”. Thus, we have seven variants instead of two.

When we turn to the Toledo manuscript, things get worse.¹⁷ Instead of five melodic variants and one rhythmic variant relative to the musician's codex, the only ones found or referred to in the edition, we have in fact at least nine melodic variants and nine rhythmic variants. If the second layer of the Toledo notation, that is the notes written over erasure, is taken into account, the number of rhythmic variants rises to twelve.

Clearly, to use Anglés' edition is to stand on shaky ground. The alternatives are not better. Between the years 2000 and 2005, no less than four partial or complete editions of the *Cantigas de Santa Maria* came to light, all of them including Cantiga 30. They are the work of Martin Cunningham (2000), Roberto Pla Sales (2001), Chris Elmes (2004) and Pedro

¹⁶ H. ANGLÉS, *La Música*, vol. III/1, 253; *ibid.*, vol. II: Parte Musical, 38. The single exception, over *sannudo*, is not significant.

¹⁷ The disregard of *To was noticed long ago in a review by Willi APEL in *Speculum*, 22 (1947), 398-400: “Unfortunately, Anglés, for some reason unknown to this writer, fails to give the notation of *To* as completely as he gives that of the two other sources”.

López Elum (2005).¹⁸ Of these four publications, the first three present the notation of codex *E above or below the modern transcription proposed, as did Anglés. All of them correct his error on *rogar*. They follow, nevertheless, the published facsimile in introducing two or three other errors; Pla and Elmes add one additional error each. Cunningham comments on his musical transcription, but only Pla offers a small critical apparatus for the music; he acknowledges seven variant readings in codex *T and a single one in Toledo. The latter is erroneously repeated once. Moreover, of the seven listed variants in *T, only three are real variants, and of these, only one is accurately reproduced in the volume. It is symptomatic of widespread disregard for attentive reading that an article by Ismael Fernández de la Cuesta published the same year and including an alternative edition of *cantiga* 30 seems unaware of variants in the manuscripts.¹⁹ In this context, the need for an accurate reproduction of the notation in the original sources seems evident to me.

A first attempt in this direction was made in April 1991, when I first examined the Toledo codex in Madrid and made an extensive annotation of its contents on a Xerox copy of Ribera's reproductions. In January 1995, I carefully revised these annotations against the original. On the same occasion, I began a detailed examination of the Escorial codices, but did not go very far, mainly due to financial constraints. Using the facsimile published by Anglés freed me from transcribing everything from scratch, but to annotate around six hundred melodic items, at twenty minutes per item, in a library which opens only four hours a day, requires an enormous amount of time; being a foreigner with family and academic duties, it also implies repeated plane trips and a significant hotel bill. This is why I applied for funding again and again, and, having received it after a wait of almost ten years, started a research project that allowed me to complete detailed *in loco* examination of the musical notation. Between October 2005 and April 2006, I went through the Escorial codices up to their last folio, while my research assistant, Rui Araújo, looked at the Toledo manuscript to

¹⁸ Martin G. CUNNINGHAM, *Afonso X, o Sábio. Cantigas de Loor*, Dublin, University College Dublin Press, 2000 (reviewed in *Revista Portuguesa de Musicologia* n° 11 [2001], 203-8). Roberto PLA SALES, *Cantigas de Santa María. Alfonso X el Sabio. Nueva transcripción integral de su música según la métrica latina*, Madrid, Música Didáctica, 2001. Chris ELMES, *Cantigas de Santa María of Alfonso X el Sabio. A Performing Edition*, Vol. I: *Prologo to Cantiga 100*, Edinburgh, Gaïta, 2004. Pedro LÓPEZ ELUM, *Interpretando la música medieval del siglo XIII. Las Cantigas de Santa María*, Valencia, Publicacions Universitat de València, 2005.

¹⁹ Ismael FERNÁNDEZ DE LA CUESTA, "Claves de retórica musical para la interpretación y transcripción del ritmo de las Cantigas de Santa María", in *Literatura y Cristiandad. Homenaje al Prof. Jesús Montoya*, Granada, Universidad de Granada, 2001, 685-718 [709-15]; also in *Música. Revista del Real Conservatorio Superior de Música de Madrid*, 10-11 (2003-2004), 19-54 [44-50].

clarify some doubts. Correcting and supplementing the 1964 facsimile of *E and the colour facsimiles of *To and *T with my annotations, the full palaeographical reading of the notation in the three codices has been transferred to digital support using Medieval, a plug-in of Finale made by Klemm. The results will soon be available to everyone on the internet in the form of e-book or PDF files. This is a necessary preliminary step to any serious attempt to produce a critical edition of the melodies. An illustration of the transcriptions generated by the project is provided as Appendix I: there you can see the printed version of three separate PDF files with the transcription of *cantiga* 30 (40) in *To, *T and *E.

(Some conventions had to be established. Oblique strokes above the staff signal change of staff in the original; round forms on the staff indicate erasures. Notational, vertical strokes cross between half-space and four spaces in the staff, half-space being the measuring unit, by approximation. When representing the Toledo codex, black figures above the staff indicate the notation's original state, before addition or erasure; when the figure in the original admits of two competing interpretations (e.g. a slightly slanted *punctum*, which can mean either an oblique or a regular square *punctum*), a void figure above the staff represents a possible alternative reading. A different method was followed in the Escorial codices: the first staff is usually reserved for the initial refrain, the following for the stanzas. The transcription presents always the odd stanzas, while notational variants in the immediately following, even stanza appear above the staff. In codex *T, this is true also for the refrains; when these are given incomplete, absence of notation is signalled by oblique parenthesis < >. In codex *E, a second presentation of the refrain is signalled with R/. and transcribed after the first stanza, as in the manuscript.)

Devising a full palaeographical transcription also implies an overall evaluation of the codices and the compilation of a complete repertory of notational shapes. In the Toledo codex (Appendix II), this includes attempting to separate notational layers. It just happens that shapes like the long-tailed *virga* and the oblique *punctum* with a descending stroke are mainly found as a second layer, but sometimes their appearance is indistinguishable from shapes entered as a first layer. This may be due to our perceptive incapacity, to the use of exemplars using different notational systems, or both. In the case of the oblique *punctum* with a descending stroke, accepting its belonging to the first layer implies that this method of clarifying or introducing long durational values, is a quarter-century earlier than currently thought.

3.2 Rhythmic paradigms

If philological evaluation and accurate transcription of the sources are necessary preliminary steps for a critical edition, cultural context cannot be ignored either. Anglés reduced this context to the Christian European realm, ignoring the fact that Alfonso established his court mostly at Seville and made a conscious effort to appropriate academic knowledge, professional skills and courtly entertainment from Arabic cultural circles. Most importantly, it is generally agreed that the *Cantigas de Santa Maria* tend to use poetical schemes which had been only recently, and tentatively, introduced in France and Italy, but were similar to those overwhelmingly present in the Spanish Andalus, from where they possibly sprang. I refer respectively to the *virelai*, which would become popular in Paris only *c* 1300, and to the *zajal*, which is well documented in Spain already in the twelfth century and is probably much older.²⁰ Besides, more than a fifth of the *Cantigas* have musical forms of the Andalusian rondeau type, virtually absent from the larger European tradition but common in songs from the Andalusian Diaspora.²¹

Thus, one should take into account that alongside the rhythmic paradigms of isosyllabism, probably known to troubadours like Alfonso, and Parisian modal rhythm, which no doubt had reached the Spanish court, other rhythmic models may have circulated there, namely the highly developed rhythmic cycles used in classical Arabic music.²² We can also imagine that oral tradition preserved rhythmic patterns that are seldom, or never described by theorists, but first we need to be fully aware of their contribution.²³ A variety of rhythmic paradigms allow us to expand the interpretative horizon, against which we are supposed to make sense of the notation. The notation is not the music, but a trace of it. If we are able to imagine only a few musical possibilities, our appreciation of, and respect for a notation meant

²⁰ A recent synthesis on the subject is found in Otto ZWARTJES, *Love Songs from al-Andalus. History, Structure and Meaning of the Kharja*, Leiden, Brill, 1997, 94-124. For the larger Andalusian musical context see Dwight REYNOLDS, "Music", in *The Literature of Al-Andalus*, Cambridge, Cambridge University Press, 2000, 60-82.

²¹ Manuel Pedro FERREIRA, "Rondeau and Virelai: The Music of Andalus and the *Cantigas de Santa Maria*", *Plainsong & Medieval Music*, 13/2 (2004), 127-140. For an updated table of musical forms used in the CSM, see: id., "Jograais, *contrafacta*, formas musicais: cultura urbana nas Cantigas de Santa Maria", *Alcanate. Revista de Estudios Alfonsies*, 8 (2012-2013), 43-53: http://institucional.us.es/revistas/alcanate/8/art_2.pdf

²² Manuel Pedro FERREIRA, "Andalusian music and the *Cantigas de Santa Maria*", in S. PARKINSON (ed.), *Cobras e Som*, cit., 7-19; now at: http://www.academia.edu/1233307/Andalusian_Music_and_the_Cantigas_de_Santa_Maria

²³ Manuel Pedro FERREIRA, "Rhythmic Paradigms in the *Cantigas de Santa Maria*", paper presented at the 15. Symposium des Mediävistenverbands, 'Abrahams Erbe' (Heidelberg, 3-6/3/2013).

to convey a large range of styles will be accordingly limited. A simple change of paradigm may have drastic effects in the transcription.

Two examples may be telling in this respect. Spanish historian Pedro López decided, without much justification, that the Escorial notation of the *Cantigas*, and every single song there contained, should be read according to the mensural precepts of Lambertus, which he deficiently applied anyway, and thus produced a transcription of more than 100 songs which is as lacking in historical sense as it is in musical understanding.²⁴ Roberto Pla chose instead to apply to the whole collection of *Cantigas* the paradigm of classical poetic meter, seen as a key of its rhythmic originality. In so doing, he dismissed the different evidence layers, interpretative levels and competing hypotheses implied in serious hermeneutical work.

Some results are illustrative of Pla's editorial approach. Quintuple meter is well documented in Spanish music from the Renaissance; I suggested, based on Arab precedent, that it found its way into the *Cantigas* but, due to notational ambiguity, its adoption needs to be carefully weighed against other alternatives.²⁵ Chris Elmes, who produced a performing edition largely based on internet resources (namely, the old facsimile editions by Ribera and Anglés and two papers of mine), took up my suggestion of possible quintuple meter in six songs, four of them in the first one hundred *cantigas*, and transcribed three of them accordingly.²⁶ David Wulstan, who sometimes uses Latin terminology to describe persistent rhythmic patterns in oral tradition, read quintuple rhythm in two other *cantigas*, whose notational patterns, in my view, are also compatible with a *fractio modi* version of the third rhythmical mode, discussed by Lambertus.²⁷ Five-beat meter, corresponding to the Cretic, Bachic and Antibachic feet, was independently seen by Pla as legitimate and then applied

²⁴ See Manuel Pedro FERREIRA, "A propósito de una nueva lectura de la música de las *Cantigas de Santa Maria*", *Alcanate: Revista de Estudios Alfonsíes*, vol. 5 [2006-2007], 307-15; reprinted in id., *Aspectos*, cit., 272-81.

²⁵ Dionisio PRECIADO, "Veteranía de algunos ritmos «Aksak» en la música antigua española", *Anuario musical* 39-40 (1984-1985), 189-213. M. P. FERREIRA, "Andalusian music and the *Cantigas de Santa Maria*", cit.

²⁶ Id., *ibid.*: CSM Prologo, 10, 105, 223, and isolated phrases in CSM 38, 41. Chris ELMES, *Cantigas de Santa Maria*, cit.: Prologo, 10, 38.

²⁷ CSM 264, 288. Cf. David WULSTAN, "The Rhythmic Organization of the *Cantigas de Santa Maria*", in *Cobras e Som*, cit., 31-65 [53]. Id., *The Emperor's Old Clothes: The Rhythm of Mediaeval Song*, Ottawa, The Institute of Mediaeval Music, 2001, 77. Manuel Pedro FERREIRA, "Iberian Monophony", in Ross W. DUFFIN (ed.), *A Performer's Guide to Medieval Music*, Bloomington, Indiana University Press, 2000, 144-57 [153]; now at: http://www.academia.edu/1220191/Iberian_Monophony_An_Introduction_

wholesale to nearly forty *cantigas*, even when there is strong palaeographical evidence to the contrary.²⁸

3.3 *Mnemonic, compositional and textual constraints*

Understanding the music is not only a question of seeing it easily fit existing paradigms; it has also to fit mnemonic, compositional and textual constraints. As Gerardo Huseby remarked, from the researcher's point of view there is no single, unmoving frontier between text and context, rather a spiralling, ever-changing interpenetration:

“Podríamos visualizar el documento en el centro de una serie de círculos concéntricos [...] Por ejemplo [...] el documento «cantiga 142» implica de inmediato y simultáneamente un determinado tipo de construcción melódica, una estructura modal (protus auténtico), una retórica musical (ámbitos relativos de las partes, contrastes modales, etc.), un sistema de notación, una determinada manera de musicalizar el texto poético, una estructura musical (virelai), un perfil rítmico sugerido (e hipotético). Y, tal vez alejándonos del centro del círculo, produce en mí una serie de asociaciones con elementos de la teoría musical de la época, con su aplicación en otros repertorios contemporáneos, con rasgos presentes en la canción popular española e hispanoamericana, con paralelos y diferencias en materia notacional con respecto a otras fuentes de la época, con posibles acompañamientos instrumentales, con los datos que se poseen sobre las actividades musicales en la corte de Alfonso el Sabio, con el desarrollo histórico de la música ibérica en la Edad Media, con la posible presencia de elementos árabes, etc., etc.”²⁹

If we take into account the larger historical and cultural context and imagine 13th-century creative constraints at Alfonso's court, it is clear that orality and memory were involved in composition, adaptation and transmission procedures. Mnemonic constraints are

²⁸ R. PLA SALES, *Cantigas*, cit., 95, counts eight Cretic and eight Bachic or Antibachic songs, but he does not identify them. In the edition much more are found with these meters (sometimes combined): Prologo, 5, 10, 17, 20 (strophe), 38 (strophe), 39, 41, 58, 60, 62, 105, 109, 122, 126, 130, 142, 144, 162, 180, 187, 192 (refrain), 240, 250, 255, 259, 260, 261, 279, 299, 300, 315, 339, 367, 380, 415, 427. Five-beat meter is also found in segments of other songs, namely: 34, 125, 129, 150, 165, 190 and 344.

²⁹ Gerardo V. HUSEBY, “La delimitación del texto y el contexto: el caso de las Cantigas de Santa Maria”, in *Texto y Contexto en la Investigación Musicológica. Actas de las VIII Jornadas Argentinas de Musicología y VII Conferencia Anual de la AAM*, ed. Irma RUIZ & Miguel A. GARCÍA, Buenos Aires, Instituto Nacional de Musicología «Carlos Vega», 1995, 103-8 [104-5].

likely to have played a key role in melodic design and in its written fixation.³⁰ By mnemonic constraints, I mean those created by the repeated use of formulas of a melodic, rhythmic or melo-rhythmic nature.

The degree of stability and flexibility in a given musical tradition is changeable, and therefore is a question in itself; the *Cantigas de Santa Maria*, created in probably no more than twenty years by, or under the authority of, a single powerful editor, present a relatively homogeneous repertoire, whose large dimension allows the identification of standard gestures, repeated phrases, and common formulas. The presence of formulaic constraints should be taken into account in a critical edition when two competing solutions, with equal support in the sources, are possible. This necessitates the use of an electronic research tool.

The Lisbon *Cantigas de Santa Maria* database is such a tool. It was developed at the Universidade Nova de Lisboa (CESEM/FCSH) since 2005 under the same research project referred to above, with the assistance of Rui Araújo, but became fully operational only in 2011. It is meant to allow electronic searches of strings of notes, intervals and notational figures in the sources. The initial intention was to use a software application combining user-friendly music transcriptions and the search capability of a database. Unfortunately, this was possible only for music after 1600 with MusicXML, but not for a 13th-century music notation. So the alternative was to use a FileMaker Developer database structure.

The Lisbon CSM database complements the Oxford *Cantigas de Santa Maria* database created by Stephen Parkinson (<http://csm.mml.ox.ac.uk/>), which was designed to give online access to a vast range of information relevant to the processes of collection, composition and compilation of the *Cantigas de Santa Maria*. Whereas the latter is concerned with the textual contents, providing the critical material for a new edition of the *Cantigas de Santa Maria*, the Lisbon CSM database is strictly concerned with the corresponding musical contents. Due to technical limitations, it is installed in one of CESEM's computers and research is done locally by request.

For this database it was necessary to gather, list and sort the musical notation of the *Cantigas*, differentiating the Toledo notation from the two other sources. Therefore two

³⁰ On melodic design, see the masterly synthesis by Gerardo V. HUSEBY, “El parámetro melódico en las *Cantigas de Santa María*: Sistemas, estructuras, fórmulas y técnicas compositivas”, in *El Scriptorium Alfonsí*, cit., 215-70. On possible traces of an author's melodic style, see Manuel Pedro FERREIRA, “Alfonso X, compositor”, *Alcanate. Revista de Estudios Alfonsíes*, nº 5 (2006-2007), 117-37; now at: http://www.academia.edu/2380714/Alfonso_X_compositor.

different notation tables were constructed; together they form the notational vocabulary of the database. Some careful simplification was necessary, especially concerning the size of the stems. Every figure has its alphanumeric code, with three fields (Ex. 2). The first indicates the number of elements, the second a number indicating a serial position (not relevant for the search) and the third a two-value field (1 or 0) for the existence (or not) of a plica. The vocabulary in each table was separated into two major groups, one with plicas, and another without them.

| | | | | | |
|---------------------------------------|------------|------------|------------|------------|------------|
| Ligaduras e conjunturas quinquenárias | 5_01_0 | 5_02_0 | 5_03_0 | 5_04_0 | 5_05_0 |
| | 5_06_0 | 5_07_0 | 5_08_0 | 5_09_0 | 5_10_0 |
| | 5_11_0 | 5_12_0 | 5_13_0 | 5_14_0 | |

Ex. 2: Codes for five-note figures

Two more tables complete the notational data: one for the notes (a diatonic scale with a b and e flat added, plus an indeterminate note which stands for the presence of a plica); and a second for the intervals. These two tables include a letter (a or d) in the last field that corresponds to the direction of the melodic movement, either upward or downward.

In short, the database encompasses three parameters: the figures that indicate the rhythm, the notes, and the intervals corresponding to the melodic content. For each manuscript version of each song, the notational figures (excepting clefs and bars) and the melody were separately entered based on the digital transcriptions referred to above. Once this was made, the input began to be checked; this is still being done. At the same time we started to test the database, in order both to detect technical problems and to collect raw analytical material to answer musicological questions. The testing revealed that prolonged delays may be incurred when long search strings are involved and that some incongruities still need to be diagnosed and rectified.

CESEM
Centro de Estudos de Sociologia e Estética Musical

Quadro Tabela **Pesquisas** Códigos

SELECIONAR INCIDÊNCIA DE PESQUISA (POR MANUSCRITO OU POR CANTIGA)

FIGURAS Nota importante: Para pesquisar plicas é necessário incluir o código 0_00_1 na posição respectiva

SEQUÊNCIA A PESQUISAR

1 04 0 2 14 0 1 04 0 2 14 0

LIMPAR SEQUÊNCIA PESQUISAR (RESULTADO POR FIGURAS: SEQUÊNCIA LITERAL)

NOTAS Nota importante: Para pesquisar Intervalos+Figuras é necessário 1(n) figura + 1(n) intervalo

SEQUÊNCIA A PESQUISAR INCLUIR NOTAS VARIÁVEIS SUBSTITUIÇÃO >

LIMPAR SEQUÊNCIA PESQUISAR (RESULT. POR NOTAS: NOTAS SEQUÊNCIA LITERAL)

LIMPAR SEQUÊNCIA PESQUISAR (RESULT. POR NOTAS: NOTAS AGREGADAS) A seq. a pesq. não deve incluir repetições.

LIMPAR SEQUÊNCIA PESQUISAR (RESULT. POR FIGURAS: NOTAS SEQUÊNCIA LITERAL) PESQUISAR (NOTAS + FIGURAS)

LIMPAR SEQUÊNCIA PESQUISAR (RESULT. POR FIGURAS: NOTAS AGREGADAS) A seq. a pesq. não deve incluir repetições.

Aqui será incluída a possibilidade de seleccionar código a pesquisar

| FIGURAS | | NOTAS | |
|------------|--------|--------|-----------|
| Código | FIGURA | Código | DESCRIÇÃO |
| 1_01_0 | | A1 | Lá |
| | | B0 | Si bemol |
| INTERVALOS | | | |
| | | Código | DESCRIÇÃO |
| 1_02_0 | | 00_0 | Unísono |
| 1_03_0 | | 01_a | 2ª m asc. |

INTERVALOS INTERNOS / INTERCALARES Nota importante: Para pesquisar Intervalos+Figuras é necessário 1(n) figura + 1(n) intervalo

SEQUÊNCIA A PESQUISAR INCLUIR INTERVALOS INDETERMINADOS >

LIMPAR SEQUÊNCIA PESQUISAR (RESULT. POR NOTAS / INTERVALOS: SEQUÊNCIA LITERAL)

LIMPAR SEQUÊNCIA PESQUISAR (RESULT. POR FIGURAS: SEQUÊNCIA LITERAL)

Ex.3: Search page in the Lisbon CSM database

Even so, for the first time, automated research on the music of the CSM can be done on the basis of the raw data in the manuscripts (adding to 740 songs or song versions), concerning not only melodic features, but also notation and rhythm (Ex. 3). Comparative research with other repertoires will be also possible, allowing us to enrich our perception of stylistic indices, cultural borrowings and influences in the repertoire, and of its eventual historical reach.³¹

Cultural borrowings include the presence of counterfeited melodies, which may imply compositional constraints.³² Let us take as an example the *cantiga* 60, *Entre Ave Eva, gran*

³¹ The first paper almost entirely based on the use of the Lisbon CSM database explores the adoption of northern French melodies at Alfonso's court: Rui ARAÚJO, "Trouvère elements in the *Cantigas de Santa Maria*", in Manuel Pedro FERREIRA (ed.), *Musical Exchanges, 1100-1650*, Kassel: Reichenberger, forthcoming.

³² This issue has been partially investigated by several authors after Anglés, namely: Zoltán FÁLVY, *Mediterranean Culture and Troubadour Music*, Budapest, Akadémiai Kiadó, 1986, 30-43. Francisco J. OROZ, "Melodie provenzali nelle Cantigas de Santa Maria", in *Text-Etymologie. Untersuchungen zu Textkörper und Textinhalt. Festschrift für Heinrich Lausberg zum 75. Geburtstag*, Wiesbaden, Franz Steiner, 1987, 134-47.

departiment' á, in Anglés' first transcription (Ex.4). In fact, Anglés presented us with two different transcriptions, published with a fifteen-year interval in the second and third volumes of his edition. I have proposed an alternative interpretation, based on a Garlandian reading of the notation: in this hypothetical version, the song would follow a pattern of three attacks (syllabic articulations) separated by 1-2-3 beats; this corresponds to a variety of Makhuri in Arabic musical theory, or to the fourth rhythmic mode in Parisian theory.³³ Cunningham's and Wulstan's transcriptions, published meanwhile, are consistent with my imagined solution. Pla's version is, in a way, equivalent, except that he does not perfect the second *longa*, thus assuming a five-beat pattern (1-2-2 beats).³⁴

Ex. 4: Beginning of CSM 60 according to Anglés (1943)

Israel J. KATZ, "Higinio Anglés and the Melodic Origins of the Cantigas de Santa María: a Critical View", in *Alfonso X of Castile the Learned King (1221-1284). An International Symposium*, Cambridge (Mass.), Harvard University Press, 1989, 46-75. David WULSTAN, "Contrafaction and Centonization in the *Cantigas de Santa Maria*", *Cantigueiros*, 10 (1998), 85-109. Manuel Pedro FERREIRA, "The Influence of Chant on the *Cantigas de Santa Maria*", *Cantigueiros*, 11-12 (1999-2000), 29-40. Antoni ROSSELL, "Las *Cantigas de Santa Maria* (CSM) y sus modelos musicales litúrgicos", in *Literatura y Cristiandad*, cit., 403-12. Id., "La composición musical de las *Cantigas de Santa Maria*: modelos e imitaciones", in Helena González Fernández and María Xesús Lama López (coord.), *Actas do VII Congreso Internacional de Estudos Galegos. Mulleres en Galicia. Galicia e os outros pobos da Península. Barcelona, 28-31 de maio de 2003*, Sada, Edición do Castro / AIEG / Filoloxía Galega (Universitat de Barcelona), 2007, 1233-44.

³³ Manuel Pedro FERREIRA, "Afinidades musicais", cit., 198.

³⁴ M. CUNNINGHAM, *Afonso X, o Sábio*, cit., 113-15. D. WULSTAN, *The Emperor's Old Clothes*, cit., 73. R. PLA, *Cantigas*, cit., 183.

All these transcriptions concede that the second, unaccented syllable of the first word in rhyme, *Eva*, carries the musical stress, is sung higher and for as much time or longer than the preceding one. There can be no doubt here that word-accent is overridden by the music. *Cantiga* 60 may however be exceptional. If the anomaly of *Eva* is discounted, its metric scheme, four lines of six syllables each in the strophes and two additional six-syllable lines of refrain, is typical of the secular Galician-Portuguese *cantiga*. This means that this *loor* could be a *contrafactum* based on a regular model, and that the anomaly on *Eva* could be due to the adoption of a well-known melody adapted to a regular text. As a matter of fact, Friedrich Gennrich identified the melodic material as coming from the song by Gautier de Coinci *Las, las, las, par grant delit* (R 1644), whose different poetic form implied some adaptation.³⁵ The anomaly in the rhyme seems to be a side effect of the contrafaction process.

The edition should also take into account textual constraints. First, the text layout may influence the notation itself. David Wulstan has remarked that the small vertical stroke, which he called *lineola*, may assume in the *Cantigas* a variety of non-rhythmic and rhythmic meanings — including *punctum divisionis* and *punctum additionis*.³⁶ I have thought for long that one needs reliable information about the presence of, and relative length of, isolated vertical strokes in the three sources. With the digital transcription referred to above, I hope to provide an approximate representation of all these strokes, which are not easily seen in the facsimiles (practical constraints led us to represent strokes as occupying a half-space or its multiples). Then one can elucidate their function. One thing I am already sure of: notation and text cannot be completely isolated from one another when interpreting either one. For instance, comparison of the sources shows that sometimes a small stroke is added just to clarify syllabic articulation, since the copyist does not usually separate the syllables, namely at the end of a line, when there are several notes over the penultimate syllable and little space to separate them from the following.

This may be of little consequence, but the poetic text conveys the devotional message, is part of the song's sound, and its articulation and accentuation cannot be ignored.

³⁵ Friedrich GENNRICH, *Die Kontrafaktur im Liedschaffen des Mittelalters* [Summa Musicae Medii Aevi, XII] Frankfurt, 1965, 144-46. See also Hans-Herbert RÄKEL, *Die musikalische Erscheinungsform der Trouvèrepoesie*, Bern – Stuttgart, Paul Haupt, 1977, 118-19. Edition in Jacques CHAILLEY, *Les Chansons a la Vierge de Gautier de Coinci (1777[78]-1236). Édition musicale critique avec introduction et commentaires*, Paris, Heugel et Cie, 1959, 157.

³⁶ D. WULSTAN, "The Rhythmic Organization", cit., 40-41.

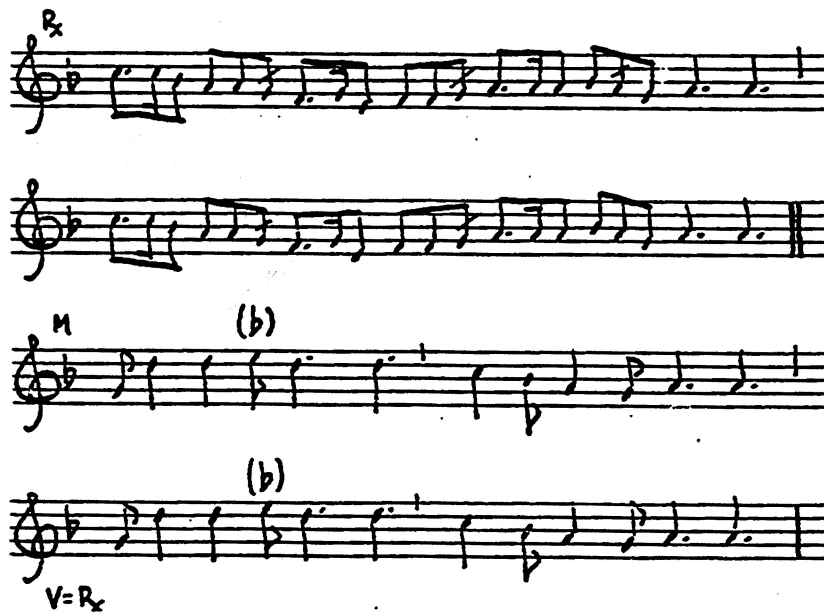
If this is so, agreement between word-accent and musical stress in rhyme position could be taken as a guideline for editorial purposes whenever the ambiguity of the original notation poses transcription problems. This is what Anglés must have thought when transcribing *Cantiga* 20. However, if his intuition may have been right, his transcription is open to criticism. The original notation seems at first sight to imply something like *Virga dé Jessé / quén te souíbessé / lóar...* This is how it appears in the transcriptions by Pla, López and Elmes. Anglés, troubled by the first two lines, gave an extra time-unit to *de* and *sou-*, thus three units in all, so that the musical stress would fall respectively on *Jésse* and *soubésse*. He interpreted the passage as a mixture of first, fifth and second mode patterns.³⁷ But comparison between the notation of the three sources³⁸ allows us to establish that the refrain is best interpreted as indicating second mode with initial *extensio modi*, which gives an extra time-unit to the first note of each line (third rhythmic mode mixed with the second).³⁹ The text would thus sound accentually regular, without any need to force the notation out of its proper rhythmic meaning. This is the solution first proposed by Huseby (Ex. 5) and recently adopted by Cunningham.⁴⁰

³⁷ H. ANGLÉS, *La Música*, III/1, 250.

³⁸ The copyist of *E writes twice the pattern *virga-punctum-punctum* where *T has *virga-punctum-virga*. *To has equivalent patterns, and also a rhythmic variant. The equivalence between *virga-punctum-punctum* and *virga-punctum-virga* in the Alfonsine codices was signaled in Manuel Pedro FERREIRA, *O som de Martin Codax — Sobre a dimensão musical da lírica galego-portuguesa (séculos XII-XIV)*, Lisboa, Imprensa Nacional-Casa da Moeda, 1986, Apêndice II.

³⁹ Manuel Pedro FERREIRA, “Afinidades musicais”, cit., 201-2.

⁴⁰ Gerardo V. HUSEBY, “The Cantigas de Santa Maria and the Medieval Theory of Mode” (Ph. D. dissertation, Stanford University, 1982), 216-17, 251-52. M. CUNNINGHAM, *Afonso X, o Sábio*, cit., 95-99.



Ex. 5: The music of CSM 20 according to Gerardo Huseby (1982)

David Wulstan recently pointed out that poetical schemes, or, more precisely, the corresponding syllable counts, may trigger usual responses in terms of rhythmic schemes. But the very identification of poetical lines in the *Cantigas* sometimes requires difficult interpretative decisions, as I have observed elsewhere when discussing the work of the late Gerardo Huseby, who contributed some of the more valid and far-reaching observations on this repertory.⁴¹ A critical edition of the music should therefore go hand-in-hand with a critical edition of the text. Such interdisciplinary collaboration is, fortunately, already on the horizon.⁴² I am looking forward to it.

⁴¹ Gerardo V. HUSEBY, "Musical Analysis and Poetic Structure in the *Cantigas de Santa Maria*", *Florilegium Hispanicum. Medieval and Golden Age Studies Presented to Dorothy Clotelle Clarke*, ed. John S. GEARY, Madison, 1983, 81-101. M. P. FERREIRA, "Afinidades musicais", cit., 188-90. The relationship between text and music in the CSM attracted only a handful of contributions, amongst them David WULSTAN, "Pero Cantigas...", *Cantigueiros*, vol. VI (1994), 12-29; Alison CAMPBELL, "Words and music in the Cantigas de Santa Maria: The Cantigas as song" (MLitt thesis, University of Glasgow, 2011), <http://theses.gla.ac.uk/2809/>.

⁴² Stephen Parkinson and I have joined forces (time permitting) to publish selected songs. The first results of this collaboration (edition of Cantigas 40, 183, 223; recording of Cantiga 283) appeared in Manuel Pedro FERREIRA, *Antologia de Música em Portugal na Idade Média e no Renascimento*, 2 vols., 2 CDs, Lisboa, Arte das Musas / Cesem, 2008.

APPENDIX I

Cantiga XL (To)

XL



Cantiga XXX (T)

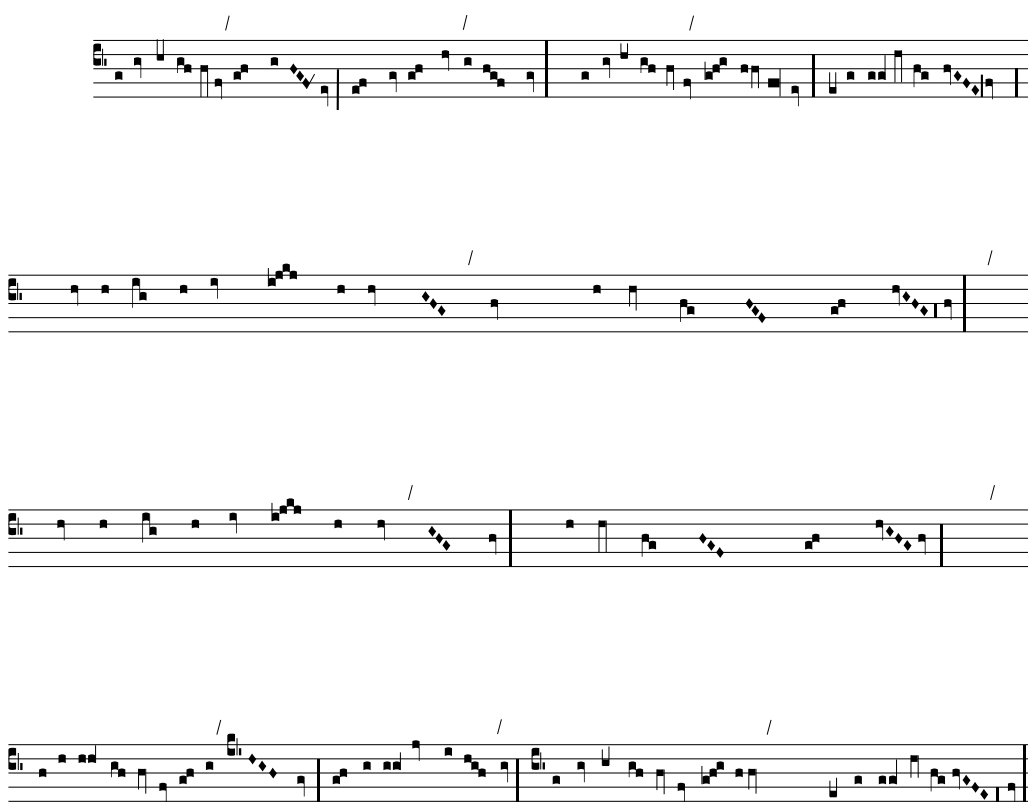
XXX

Sheet music for Cantiga XXX (T), featuring five staves of notation. The notation includes various musical symbols such as notes, rests, and dynamic markings (e.g., <, >, /). The music is written on five-line staves, with some staves containing additional markings above them (e.g., triplets, fermatas).

The sheet music consists of five staves. The first staff has a melodic line with a treble clef and a key signature of one flat. It includes dynamic markings like < and > above the staff. The second staff continues the melody with a treble clef. The third staff also continues the melody with a treble clef. The fourth staff has a more complex arrangement with multiple staves of notation, including a treble clef and a key signature of one flat. The fifth staff continues the melody with a treble clef.







Cantiga XXX (E)







XXX






















APPENDIX II


Quadro Figuras To

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| Figuras simples |  |  |  |  |  |
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|----------------------------------|---|---|---|--|---|
| Ligaduras e conjunturas binárias |  |  |  |  |  |
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|-----------------------------------|---|---|--|---|--|
| Ligaduras e conjunturas ternárias |  |  |  |  |  |
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|--------------------------------------|---|---|---|--|---|
| Ligaduras e conjunturas quaternárias |  |  |  |  |  |
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|---------------------------------------|---|--|
| Ligaduras e conjunturas quinquenárias |  | |
|---------------------------------------|---|--|

| | |
|--|---|
| Ligaduras e conjunturas com seis elementos |  |
|--|---|

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|--------------------------------|---|---|---|---|---|
| Figuras Simples plicadas |  |  |  |  |  |
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| Ligaduras e conjunturas binárias plicadas |  |  |  |  |  |
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| Ligaduras e conjunturas ternárias plicadas |  |  |  |  |  |
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| Ligaduras e conjunturas quaternárias plicadas |  |  |  |
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