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Modeling systems of sentencing in early inquisition trials: Crime, social connectivity, and punishment in the register of Peter Seila (1241–2)

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ABSTRACT

Despite significant research on the techniques of repression employed by medieval inquisitors against religious dissidents, the case-level influences on the penances they meted out are understood only vaguely: the extent to which sentencing “systems” existed is unknown. To overcome this, we apply formal methods – an exploratory analysis supported by crisp-set Qualitative Comparative Analysis, and statistical modeling founded on multiple linear regression – to the large and historically significant register of Peter Seila (1241–2), captured as structured data *via* a statement-based approach entitled “Computer-Assisted Semantic Text Modelling” (CASTEMO). The results show that Peter systematically weighted different types of crimes and dissident interactions when sentencing; they do not suggest, however, that he was influenced by accomplicity or kinship among the sentenced.

KEYWORDS



Medieval heresy; inquisition; penance; computer-assisted semantic text modelling (CASTEMO); qualitative comparative analysis (QCA); multiple linear regression


Introduction

The popular image of trials conducted by inquisitors of heresy is one that often involves dissidents being handed over to lay authorities to be burnt at the stake. The reality was usually less dramatic. While two of the earliest inquisitors, Conrad of Marburg and Robert Le Bougre, burnt many convicts in the 1230s, these examples are exceptional: “release to the secular arm” soon became a penalty only applicable to relapsed or unrepentant heretics (Roach 2001, 414–15; Given 1997, 74–76). For most convicted, the path led from confession and abjuration to some variety of penance as a sentence.

How were these sentences decided upon? Various types of pilgrimages, fines, exiles, imprisonments, and orders to wear distinctive marks were employed in different ways by different inquisitors at different times: there was no singular sentencing policy, just as there was no singular medieval “inquisition” (Given 1997, 66–90; Kelly 1989, 440; Kieckhefer 1995, 36–38). Nevertheless, it is clear that in general, inquisitors were not simply sentencing “off the cuff”. At a regional level, where a degree of institutionalization did occur (Kieckhefer 1995, 53–58), scholars have noted some patterns and trends in the usage of sanctions amidst

their diversity. In Germany, for instance, some investigations show surprising leniency toward Waldensian ministers despite their pivotal importance in dissident networks; the suggestion of leniency toward women is also a commonplace in historiography (Smelyansky 2020, 47–48; Paolini 1975, 14, 32; Sparks 2014, 35, 74–75; McSheffrey 1995, 63). As far as specific punishments are concerned, in Lombardy, there seems to be more evidence for the use of financial fines than elsewhere in the late thirteenth and early fourteenth centuries; while in Languedoc, imprisonment became an increasingly favored sanction, alongside the wearing of yellow sewn crosses for those not jailed (Roach 2001, 425–31; Given 1997, 84–85). The shapes that the various sentencing options took do not appear haphazard. Andrew Roach has suggested a careful penitential design even to early inquisitorial sentences (Roach 2001). James Given, while more skeptical over the penitential content of inquisitorial sanctions in thirteenth and fourteenth century Languedoc (Given 1997, 78–84), also sees them as rationally deployed, both to make a statement to society and to retain control over the convicted. The “flexibility” – the many variations and combinations of sentences – that was “a feature of the inquisitors’ penal system” (Given

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1997, 67) appears to reflect the complexity of factors considered, rather than instinctiveness.

Beneath these general impressions, however, lie many largely unanswered questions concerning that complexity. What circumstances did inquisitors consciously and unconsciously weigh up in deciding an individual's sentence? What weights did they give them? And how consistent were their readings of these factors, even at the level of the individual inquisitor? In short: can we detect any systems of sentencing in the correlation between the transgressions they recorded and penances they imposed? Our lack of knowledge here is unsurprising given the "flexibility" that Given has remarked upon, and the perhaps not unrelated near absence of written "tariffs" among the surviving evidence.¹ If inquisitorial sentences are not generally seen as unrelated to transgressions, researchers have seldom characterized the approach taken by inquisitors as systematic.² In the case of the very early inquisitions of Conrad of Marburg and Robert Le Bougre, we are even left with the impression of a politically-influenced arbitrariness in procedure (Sullivan 2011, 76-77; Haskins 1902, 452, 636). There were also many other extraneous, even unconscious influences that might have affected inquisitors – as indeed they affect modern judges (Guthrie, Rachlinski, and Wistrich 2001; Danziger, Levav, and Avnaim-Pesso 2011) – that will always remain out of view. A systematic comparison of case details against the specific penances that inquisitors employed across a large set of sentences, however, has also simply never been attempted due to the methodological and practical challenges it presents. To proceed beyond the simplest quantification of sentences, it is necessary both to render sources as structured data in a manner that sufficiently respects the complexity of the cases, and to apply analytical techniques capable of making sense of that same complexity.

It is this challenge of systematic comparison, in the aim of uncovering inquisitorial systems, that this paper seeks to address. In doing so, we take in a much fuller range of factors than have previously been considered, looking not only at the correlation of different types and frequencies of crime with sentences, but also at the effect of the social connections that inquisitors often noted, both those derived from criminal interactivity and those of kinship among the accused. If inquisitorial repression was influenced by a need for social control, it is indeed reasonable to ask whether guilt (and thus sentencing) was ever influenced by association, rather than simply being driven by an individual's action. Overall, we seek to

understand not only the relative effects of influences, but, more broadly, how systematic inquisitors could be.

In order to answer these questions, this article applies formal methods to the sentence register of Peter Seila's (also spelled Sellan, Sella, Cellan) inquisition in the Quercy region of Languedoc (1241–2), selected both for its size (over 600 individuals) and historical importance. The first section discusses this text and its background. The second discusses our modeling of the source and categorizations of dependent (penances) and independent (crimes and social connections) variables. The third contains our analyses. Here we deploy multiple analytical techniques to provide different lenses on a complex decision-making process, one which the historical source data, however well captured, represent only incompletely. This section is presented in three complementary parts to provide a rounded perspective: 1) an exploratory data analysis; 2) Qualitative Comparative Analysis (QCA) of the set relationships between influencing conditions and sentencing outcomes; 3) the multiple regression modeling of the influences on sentencing. The first (exploratory data analysis) provides insight into general sentencing trends. The second (QCA) helps bridge the gap between qualitative and quantitative analysis of cases and suggests how key influences might have acted in combination. The third (multiple regression) helps us to take in a wider range of factors and provides some indication of their net impact on punishment in proportional terms.³ Taken together, the results suggest that, even at an early stage of inquisitorial activity, inquisitors could employ a rather systematic approach. More broadly, our investigation shows that it is possible to detect medieval systems of thought and practice from complex textual sources through well-judged formal methods.

The register of Peter Seila, 1241–2 and early inquisitorial sentencing strategy

The sentence register of the Dominican Peter Seila, covering trials held in the Quercy region of Languedoc in 1241–2, provides an ideal case study.⁴ While it only survives in a seventeenth century copy, it preserves, seemingly integrally, the results of a court circuit that covered 650 condemned individuals (391 men, 259 women): for 649 of them we have a record of their faults; for 629, their sentences; for 628, we have both.⁵ The document is organized by the location of the trials, which can be reorganized by date: Montauban and Moissac around Ascension Sunday 1241; Gourdon during Advent 1241; Montcuq, Beaucaire, Sauveterre,

Montpezat, Almont, and Castelnau-Montratier during Lent 1242.⁶

Not least of the register's strengths are its organization and volume. The fact that it records both faults and sentences for almost all tried individuals is critical. The best-known inquisition registers – such as the most famous example bequeathed by Jacques Fournier, bishop of Pamiers, covering his investigations of 1318–1325 (Duvernoy 1965) – tend to be registers of depositions, for which the final adjudications and sentences are mostly unknown; these would be unsuitable for this investigation. While Peter Seila's register provides a far more summarized representation of the activities of alleged dissidents than is typical of deposition registers and even in comparison to certain other sentence registers – Bernard Gui's *Liber sententiarum* (Palès-Gobilliard 2002) offers more extensive deposition summaries – its relatively formulaic appearance also somewhat simplifies the task of cross-case comparison. Overall, its high density of cases and coverage across multiple regional trials within a document of middling length (139 folios of large seventeenth-century handwriting) provides a suitable amount of comparative material which can nevertheless be captured within a relatively short space of time *via* our statement-based approach to data collection (see below). This is not to say that other registers with fewer cases or greater quantities of detail would be unsuitable or too burdensome for the broad methodology we have applied in this article:⁷ we are, in fact, working toward expanding our coverage to multiple registers using similar techniques. Nevertheless, Peter Seila's register represents an excellent balance for an initial case study of inquisitorial sentencing.

The fact that it is the earliest register of inquisitorial sentences with significant coverage enhances its pertinence. Peter, a very early companion of St Dominic and a trusted hand within his young order, was one of its first inquisitors in Languedoc, taking up this office in Toulouse from 1233, working alongside Pons of Saint-Gilles, then prior of the Dominicans in the city, and William Arnold (Feuchter 2007, 257–84; Dossat 1959, 122; Pelhissou 1994, 44). Their efforts had faced significant challenges. Peter first began his investigations in the Quercy region in 1234–5 (Pelhissou 1994, 56–58; Dossat 1959, 126), but the temporary ejection of the inquisitors from Toulouse in 1235, and Gregory IX's suspension of their activities between 1238 and 1241 set their work back years (Feuchter 2007, 292; Dossat 1959, 131–45). The sentences of 1241–2 have been seen as representing the emergence of an increasingly nuanced approach

in light of these setbacks (Roach 2001, 415). The sentences also follow shortly after the inquisitions of Conrad of Marburg (in Germany) and Robert Le Bougre (in Burgundy and Northern France), which, as previously mentioned, have been maligned for their allegedly arbitrary approach. Seila's work thus offers us not only a window into the development of inquisition in Languedoc, but, more broadly, a fitting place to test whether early inquisitors were necessarily so haphazard.

Peter Seila's armory of sanctions consisted of four essential forms, sometimes given in combination with one another: a series of pilgrimages, with Le Puy, Saint-Gilles, Santiago de Compostela, San Salvador de Oviedo, Saint-Denis and the shrine of St Thomas at Canterbury by far the most common destinations; crusade service in support of Latin rule in Constantinople; the wearing of sewn crosses; and the maintenance of a pauper or priest. Andrew Roach founds his argument that early inquisitorial sentences were genuine penitential remedies, designed in part to offer a road to re-inclusion within the orthodox community, on Peter Seila's register. Pilgrimages, crusade service, and almsgiving were common penances, and often undertaken without coercion in other circumstances; even the wearing of crosses, which undoubtedly did become a stigmatizing mark for the sentenced, had more positive penitential associations in other contexts, e.g., their use by crusaders (Roach 2001, 416–25; cf. *Ordo processus Narbonensis* 1967, 74). On the other hand, all of these sentences can be seen from the perspective of social messaging and control. The life durations occasionally given for crosses or maintenance suggest that some sentences were intended as leverage to ensure compliance: the possibility of commutation for those who proved co-operative over the longer term always remained in Peter's hands. Both Jörg Feuchter and Claire Taylor have argued that Peter was indeed open to negotiation concerning penances, both after and even during the trials. There is evidence that at least half of those sentenced in Montauban to go to Constantinople remained in the town; such apparent commutations occurred alongside consular improvements to the church of Saint-Jacques in Montauban in the years after 1241, orchestrated by one of the more prominent individuals to receive a Constantinople sentence, Arnaldus Folcatz, perhaps suggesting a deal (Feuchter 2004, 246–50; Feuchter 2007, 351–61). Guillaume de Gourdon de Salviac's foundation of a Cistercian abbey (Sainte-Marie) near Gourdon in February 1242 likewise came soon after the condemnation of two family members, Bertrandus and Fortanarius de Gordonio (i.e., Gourdon) during Advent

1241; both are without sentences in the register. While Peter showed no obvious social favors in whom he targeted, the well-off were surely in a better position to negotiate (Taylor 2011, 190, 220–221).

While Peter's stated penalties were potentially negotiable, the record he left gives the appearance of a systematic approach in arriving at such a bargaining position. The following represents a typical treatment of an individual:

Gaubertus d'Arcmeia saw six heretics in the house of his father for two or three days, and they ate and drank there with him present. He also said that he heard the preaching of heretics in front of the church, and he sometimes gave bread to a Waldensian. And when Vigoroso de Labacona, heretic, greeted him through a certain messenger, he offered the said Vigoroso through the same messenger his *servicium* of up to 5 *sous*, which he would have sent to the said heretic, as he said, if he had ordered him to.

He will go to Le Puy, Saint-Gilles, Santiago, San Salvador.⁸

The sentence thus appears in close textual relation to the recorded fault. We see actions, which are semi-standardized: “saw”, “heard”, “ate with”, “drank with”, “gave to” are indeed among the most frequent in the source. There is also a focus on connectivity. Most centrally, we have interactions with two different groups: one whose members are simply described as “heretics” (*heretici/heretice*, sg. *hereticus/heretica*) but are depicted in line with the ritual expectations of those fully initiated ascetics who have sometimes been called “Cathar perfects” or “Good Men/Women” (e.g., being “adored” by and “hereticating” their followers); and the other the “Waldensians” (*valdenses*, sg. *valdensis*), named after their founder Valdès, who appear as popular preachers and healers (Duvernoy 2001, 25; Taylor 2011, 7–11). Most of these classified dissidents are unnamed, but this only makes the occasional exception – as seen here in the case of the notorious Vigoroso de Labacona (Dossat 1982) – appear more important: Peter (or his notary) felt it necessary to single out certain connections. We can also see from this example that Peter could highlight familial relationships.

The tight textual association between cause and effect has not passed without comment. While Duvernoy has suggested an “arbitrary” element to the exact weighting of pilgrimages that Peter Seila handed out (Duvernoy 2001, 22), this impressionistic view now appears highly doubtful. Feuchter's work on Montauban suggests that the inquisitor employed a guiding system in that region. In his view, a single local pilgrimage usually resulted from a single crime involving dissident ministers

(“heretics” or Waldensians), with longer local or short beyond-local pilgrimages becoming possible for more complex or multiple contacts. Ritual crimes resulted at least in both local and beyond-local pilgrimages: the most intense crimes (inclusive of ritual) with Waldensians ensured the most extensive combination of local and beyond-local pilgrimages, while the same involving “heretics” led to men being sent to Constantinople, and women being sent for long pilgrimages with the additional requirement to wear crosses (Feuchter 2007, 333). There is no stated quantitative methodology behind these findings, albeit that they derive from a careful reading of the text: as Feuchter notes, exceptions can be found, which he sees as suggestive of Peter's flexibility. Harry Barmby, meanwhile, offers visual overviews of penance combinations for those with different defendant profiles. He shows the spread of sentences for different types of crime – for instance, the rituals of *melioramentum* and *consolamentum*, both associated with the “heretics”, have comparatively high correlation with Constantinople or combined pilgrimage and crosses sentences – and sect involvements: those involved with “heretics” seem to receive harsher sentences than those only involved with Waldensians (Barmby 2017, 70–96). Correlations of a single variable with a particular punishment can be misleading though, since overlapping factors may also drive the result.

While these attempts have shown promise that a system of sorts might be identified within the text, they neither take account of the fullest range of influences nor employ methods capable of measuring consistency of approach. We still lack a systematic view of how multiple factors combined to affect sentencing. Our investigation thus seeks to model formally the impact of both crimes and social connectivity on sentencing.

Data collection and modeling

Our collection of data is founded on the manual transformation of Peter's register into a series of semantic statements that closely reflect the original text. This new method for transforming complex textual sources into structured data is labeled “Computer-Assisted Semantic Text Modelling” (CASTEMO) by its authors. Rather than simply isolating particular features deemed significant for a specific research question, CASTEMO allows for the capture of almost every detail of textual sources, including their discursive features as well as all evidence of their conditions of production (Zbiral et al. 2022). Each sentence or clause is transformed into a “statement” structured as a semantic quadruple (subject, verb, and two object positions). Within these,

entities such as Persons, Groups, Concepts, Objects, Locations, and Events – labeled in the original Latin in the dataset – are related through Actions (predicates), instantiated to hierarchized Concepts (e.g., the goods, *bona*, that someone gave are an Object, which is an instance of a general Concept for *bona*), and annotated. The structured representation of Peter’s register in over 10,000 statements was naturally more time-consuming than less maximalist approaches to data collection: it took the lead author the best part of a year (working three or four hours per weekday) to manually encode the entire source as statements within a large spreadsheet template. The capture of other sources in this manner, however, is now greatly assisted and accelerated by the recent development of the *InkVisitor* web-based application (Mertel, Zbiral, and Shaw 2021), which implements the data model and data collection workflow outlined above. Moreover, the time invested has significant dividends. Capturing the text in this manner, we were able to gain a sense – both qualitatively, through the process of coding, and quantitatively, through preliminary data exploration – of significant textual patterns prior to specifying any analytical categorizations. We were also able to make adaptations to those categorizations without any need to return to the source and collect more data or change what we had already acquired.

The analyses presented here are founded on data projections extracted from the source model which categorize coding patterns.⁹ This work of transformation occurs in line with an analytical model (see Figure 1 for an example transformation concerning crime and social data). It is designed to explain the penance outcomes of those sentenced in relation to 1) their criminal

acts and 2) their social interactions and kinship relationships. Beyond the variables that fall under those categories, which we describe in more detail below, our data projections also contain columns for sex (“m” or “f”), period (“Ascension 1241”, “Advent 1241”, and Lent “1242”), and region (e.g., “Gourdon”, “Montcuq”, etc.).

Penances

The four essential types of sanction employed by Peter Seila are perhaps better understood as five: three given as a primary penance (i.e., those which come first in the textual order: pilgrimages, crusade service in Constantinople, and the wearing of crosses), and two that played an intensifying role alongside a primary penance (crosses, sometimes added to pilgrimage; and maintenance fines, which could be added to any primary penance). Crosses appear in both categories since, as will become clear, they had two very different use cases.

Of primary penances, pilgrimages were the most common variety (516 individuals, excluding three with exceptional sentence features) and entailed a significant journey even in their lightest variations. We do not rule out that destinations and routes had particular social or religious significances, and indeed it seems plausible that there were anti-heretical symbolisms that could be associated with several (Roach 2001, 417–18; Barmby 2017, 65–66). Nevertheless, no clear connection between particular crimes or criminal profiles and particular destinations has emerged either in existing historiography or in the course of our exploration of the data. Rather, a scale related to round-trip distance is the most obvious place to start,

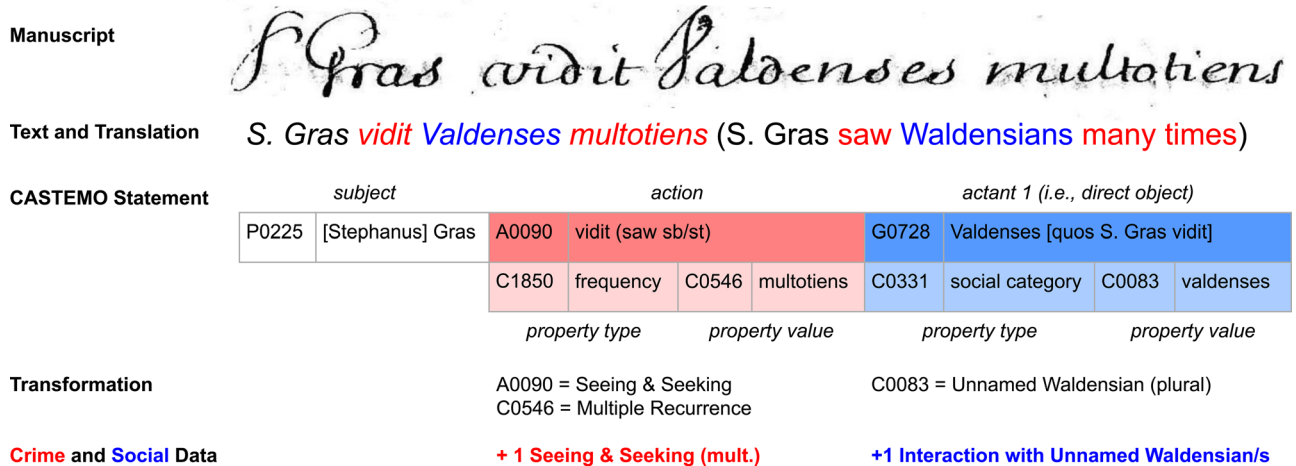


Figure 1. Data collection and modelling workflow. An illustration of how textual features in Peter’s source text are collected as CASTEMO statement data, then analyzed for crime and social content for the data projection. The example CASTEMO statement has been presented in simplified form, with only the pertinent action, actants and their modifiers (“frequency” property applied to action; “social category” property applied to direct object actant).

since, as Feuchter observes, it is certainly clear that those with more extensive crimes were sent on longer journeys (Feuchter 2007, 335). Greater distance in turn meant greater time away from home and livelihood and greater cost, and thus greater social and financial impact. Some destinations would most likely have been combined in the same journey, or certainly so, as in the case of San Salvador in Oviedo, which only appears alongside Compostela pilgrimages and presented a deviation from the more usual route (through Léon) to the shrine of St James (Feuchter 2007, 323). We have thus divided the destinations into “local” (i.e., Southern French destinations, the least onerous), “southern”, “northern”, and “Rome” directional groups, and combine destinations within the same group into routes (see Table 1). Destinations from multiple directional groups are also often present: where Peter demanded more than “local” pilgrimages (which on their own applied to 75 of the 516), the requirement for the former usually still remained, making for “local, southern” (225), “local, northern” (3), “local, southern, northern” (155), and “local, southern, northern, Rome” (1) combinations; there are also some “southern”-only pilgrimages (57). Journey legs in different directions can effectively be envisaged as separate trips from Quercy.¹⁰

Peter Seila’s understanding of distances and efforts was most likely based on perception (founded on his own knowledge and experience) rather than mathematical rigor.¹¹ Thus, while we considered (and continue to consider) the computational modeling of trips based on the geometry and terrain, for this investigation we have employed a simpler, approximate approach reflecting the relative difficulty of journeys: a weighting in accordance with a basic rule of 500 km overland distance from Montcuq (the most central point of Peter’s inquisition in Quercy, within c. 50 km of all trial locations) = 1, with round-trip directional

routes rounded to the nearest 250 km (0.5) interval and two reasoned adjustments (see Table 1). Firstly, we add 0.5 for the additional perceived difficulty of a stop in Oviedo on the way to Compostela, and for a stop at Saint-Denis on the way to Canterbury; Peter clearly thought these were more challenging deviations, but they would not necessarily have added distance or duration. Secondly, we add 0.5 for the organizational challenge of the English Channel crossing to Canterbury. Routes in multiple directions are summed to produce a total score.

The sending of men for crusade service in Constantinople (the sentence was not given to women) was the second most common type of primary penance (92 individuals in our dataset, excluding two whose penance is stated without duration), despite its severity in terms of travel and potential danger. It included the wearing of a form of cross – “of a palm’s length, over the shoulders” – which we do not count separately. The whole sentence was stated in years.¹²

If the wearing of crosses was imposed upon the involuntary crusaders, it was also used in two other roles by Peter Seila: in these latter cases, the crosses were of a larger type, “of two palms in length, and two digits in width” and to be worn “on the front.”¹³ As will be seen, crosses as a primary penance (13 individuals) were given to those with middling criminal records, and for one, two or three years. Crosses in addition to pilgrimage (55), meanwhile, were given only to those with beyond-local routes and extensive crimes: their duration could be longer, even “for life”. We thus separate these two varieties, marking their extent in years or as “indefinite” for life sentences. The maintenance of a pauper (28) or a priest (3) is the final category (31 in total). With one exception, excluded from our penance data, this financial penalty does not occur as a primary penance.¹⁴ Rather it was occasionally added alongside every primary penance type. Its duration was stated in years or as a life term, the latter marked as “indefinite” within our data projection.

The issue of maintenance fines also forces us to consider whether the same punishments had the same weight for different people, given their economic impact. Fines were presumably only practical if people could in some way afford to pay them (Barmby 2017, 178); and, to the extent that they were punishments (rather than simply penances), they were impactful in relation to wealth. The same could be said of the punitive impacts of long journeys away on pilgrimage or to perform crusade service: some were surely better able to bear the losses these entailed than others. Our model cannot take wealth or even broad social status

Table 1. Pilgrimage weight scale.

Route	Destinations	Round-trip distance / other factors	Score
Local	Le Puy	c. 500 km	1
	Saint Gilles – Le Puy	c. 800 km	1.5
	Saint-Gilles – Le Puy	c. 950 km (distance	2
	– Saint-Léonard de Noblat – Saint-Martial de Limoges	calculated from Gourdon, since only given there)	
South	Santiago de Compostela	c. 2000 km	4
	San Salvador de Oviedo	c. 2000 km, extra stop	4.5
	– Santiago de Compostela		
North	Saint-Denis	c. 1150 km	2.5
	Canterbury	c. 1800 km, Channel crossing	4
	Saint-Denis – Canterbury	c. 1800 km, Channel crossing, extra stop	4.5
Rome	Rome	c. 2500 km	5

into account due to the lack of firm evidence regarding the majority of those sentenced. While we acknowledge this deficiency, however, it should not be considered overly debilitating. The most recent historiographical reckoning on this question – taking into account the little we do know of people’s wealth – in fact suggests that Peter Seila did not significantly vary his approach for richer or poorer defendants (Barmby 2017, 128–130, 134). We found nothing in our exploration of the data to alter this view.

Crimes

Our model ascribes all crimes found within a sentenced person’s list of faults to that individual, whether they are directly involved or otherwise implicated and whether the crime was committed or intended.¹⁵ They are defined by verbs (someone *did something*), descriptive nouns (someone *was something*), and event nouns (someone was involved *in something*). While captured with semantic precision in the source model produced *via* CASTEMO, they must be categorized for analysis.

The roughly contemporary inquisitorial opinions of Raymond of Peñafort (1242) and Guy of Foulques (between 1238 and 1243) provide some influence here. Below the rank of dissident ministers, there were “believers in the errors of heretics”, and beneath them there were “supporters” under suspicion of heresy. At the latter rank there were some special statuses related to particular types of action, albeit without clear ranking: for instance, in the opinions of both Raymond and Guy, being a “receiver” of heretics in one’s home or a “defender” who obviated action against them; and, in Raymond’s alone, a “concealer”, who did not report them, a “hider”, who actively helped them avoid detection, or their “benefactor” (Raymond of Peñafort 1967, 51–52, 53; Guy of Foulques 2014, 239–47). But Peter only mentioned two of these (and rarely: “believer”, once and “receiver”, 17 times); the majority of actions he described might render his subjects “supporters” but are only occasionally subsumable within the finer categorizations.

While we have taken these contemporary ideas into account (and will refer back to them), a close reading of the source helps to provide a more apt category structure. The most common crimes, which introduce the vast majority of lists of faults, are those of making contact (Seeing and Seeking in our classification): seeing “heretics” or Waldensians (*vidit*: 859 culpable mentions), coming to them (*venit*: 95), going to them (*ivit*: 21), etc. While the former may not in all instances have been intentional, simply not reporting a dissident minister might still render one a

“supporter” in contemporary guidance (Raymond of Peñafort 11967, 51–52; Guy of Foulques 2014, 242–43).¹⁶ More complex crimes follow these in the lists, which we have categorized by first-order meaning. Information Exchange actions propagated the ideas and social esteem of dissident ministers, e.g., hearing the preaching of “heretics” or Waldensians (*audivit*: 553), speaking with them (*locutus fuit*: 39) or in favor of them and their beliefs (*dixit*: 7), consulting them (*consuluit/consilium quesivit*, especially the Waldensians concerning illness: 51). Resource Exchange/Practical Support actions enabled the practical functioning of dissident networks, e.g., giving and receiving (*dedit*: 287; *recepit*: 42), housing (*recepit*: 113; *tenuit*: 16), guiding (*conduxit*: 57; *duxit*: 35; *adduxit*: 15). While building on aspects of both these categories, Communing crimes stand out for their emphasis on physical closeness, e.g., sharing food and drink (*comedit*: 167; *bibit*: 33), being together (*fuit cum/in*: 51 crimes) or greeting (*salutavit*: 21).

Usually following these crimes in textual order, there are phrases that more directly emphasize religious commitment. Belief statements (Belief crimes in our categorization) are usually socio-moral rather than theological in character: most concern the perceived goodness of dissidents (“he/she believed that heretics were good men/women”). Almost all were introduced with the same verb (*credidit*: 252 culpable mentions). There are also statements detailing ritual involvement (Ritual crimes in our classification). On the side of the “heretics”, many sentenced individuals “adored” them (*adoravit*, i.e., the so-called *melioramentum*: 249 culpable mentions). Assisting or witnessing a “heretication” – referring to the *consolamentum*, a baptismal ritual by laying-on of hands through which followers of the “heretics” became full initiates and promised to abide by ascetic strictures, often just prior to death – was rarer (45), as was attendance of an *apparellamentum*, a form of collective confession of sins with the administration of penance (7).¹⁷ On the Waldensian side, there is just one specific ritual, the Holy Supper, made on Maundy Thursday (*interfuit Cene* or *cenavit*: 55), which is clearly distinguished from simply eating together.¹⁸ Eating and drinking together in any context could also be succeeded by a note of ritual in both Waldensian and “heretic” interactions: e.g., “he/she ate bread *blessed by them*” (27). In the contemporary legal consultations, both belief and ritual have the potential to render one a “believer”, albeit that there was already a certain caution. Raymond of Peñafort stated that merely believing a heretic was a good man, or simpler ritual acts (genuflecting, the kiss of peace) might only make one “vehemently suspect” of being a believer

(Raymond of Peñafort 1967, 53). Guy of Foulques meanwhile called for general caution in determining whether someone was truly a believer “in the errors of heretics”, albeit that, in his view, ritual acts were usually sufficient proof (Guy of Foulques 2014, 239–241). Once beyond this threshold, both were comfortable to say that believers were essentially “heretics” (Raymond of Peñafort 1967, 51; Guy of Foulques 2014, 240). Within Ritual, we thus also include durable commitments to the life of a dissident minister – always involving a strong ritual component –, i.e., someone having been a fully initiated “heretic” (7 mentions) or Waldensian (1 mention) for a period of time.

Criminal acts are often modified by various textual expressions of recurrence. These are most often indefinite: e.g., *vidit hereticos multotiens* (“he/she saw ‘heretics’ many times”); *dabat hereticis* (“he/she was giving to ‘heretics,’” i.e., more than once), *fuit receptor/receptrix hereticorum* (“he/she was a receiver of ‘heretics,’” clearly implying many interactions). Nevertheless, they are important markers: Raymond of Peñafort stated at the Council of Tarragona in 1242 that more frequent acts of support could raise a defendant from “suspect” to “vehemently suspect”, and thence to “most vehemently suspect” (Raymond of Peñafort 1967, 51). We have reduced the various evocations of recurrence captured in our source model to three analytical categories that apply to each mention of crime: Once (stated as once or no frequency expression); Multiple (indefinite or numerical adverb stating multiple actions or imperfect verb); and Being (action so regular that it constituted a social role in the eyes of the inquisitor, e.g., a “receiver”). The few instances of people having been former dissident ministers found in the text are also counted as Ritual crimes of Being recurrence. Finally, our model preserves a textual emphasis that often emerges in Peter Seila’s description of crimes: occurrence in a convict’s home (*in domo sua*). While some crimes (i.e., “receiving” heretics) might seem to imply this, both there and elsewhere, this addition is deployed selectively as if to signal greater personal commitment and support for a fugitive network. So as not to overly multiply categories, we have included a separate “House” score for every individual (the number of crimes explicitly committed in their own homes).

Social interactions and Kinship relations

Interactions emerge within the context of crimes – including beliefs, where they were social in nature (e.g., “he/she believed that heretics were good men/

women”). Nevertheless, a single crime may have multiple interactions present within it: for analytical simplicity, we have thus modeled interactions separately from crime. As with criminal acts, we record only interactions found in an individual’s list of faults (i.e., those presented as directly pertinent to sentencing) against their name. Most interactions are described as occurring with dissident ministers: *heretici/heretice*, “heretics”, and *valdenses*, Waldensian brothers and sisters. The former are generally more common (2612 “heretic” interactions vs. 1228 Waldensian interactions), although in Montauban the numbers are almost even (909 vs. 892). As seen, on occasion these ministers are named and in a manner that seems deliberate: we classify such an interaction as being with a “Named ‘Heretic’” (137 interactions) or “Named Waldensian” (58). The vast majority of dissident ministers are unnamed whether they appear individually or in groups: thus, we have “Unnamed ‘Heretic/s’” (2475), and “Unnamed Waldensian/s” (1170) interactions.¹⁹ Beneath this level, sentenced individuals are at times recorded as interacting criminally with others condemned at the same trials (“Sentenced” category: 301 interactions). How Peter Seila responded to complicity among those he sentenced is a natural object of investigation. We also observed additional interactions with persons outside these categories; we have not analyzed these, however, as a clear hypothesis associating them with sentencing cannot be established.

Only one type of relationship features in our analysis: kinship/household relations with other “Sentenced” individuals, the most numerous type recorded within the text. Our dataset records the number of known relationships that each condemned person had with other condemned people. Crucially, we distinguish between “textual” relationships, i.e., those that the source states, and “inferred”, i.e., those not stated but obvious within the text (e.g., individuals with the same surname next or close by to each other in a regional list) and/or confirmed by historiography (e.g., Feuchter 2007, 193–202, 249–255; Taylor 2011, 154–160). While we cannot be certain that we have captured all such relations, we have modeled them wherever detectable, since Peter would hardly have been oblivious to them.

Analyses and discussions

In approaching analysis, the complexity of legal decision-making processes and the challenges of historical data must again be acknowledged. While the process of data collection and the analytical

categorisations described above have been refined to capture as much of the pertinent detail from the trial record as possible, we inevitably cannot account for all of it. Beyond that, it is certain that there were other influences on Peter Seila, whether it be the kind of negotiations posited by historiography or the more intangible environmental and cognitive factors that might influence any judge in the moment of judgment. Our window on the process is certainly partial at best, and, due to the historical nature of the evidence, no further observations can be added. Any single analytical perspective, inevitably entailing further reduction, could prove even more distorting given these circumstances: multiple complementary analytical approaches are required for the most balanced view.²⁰ Our approach is thus threefold. Firstly, we undertook a simple exploration of the data to identify the most obvious general trends in sentencing and apparent correlations. Secondly, informed by this analysis, we reduced influencing factors and penitential outcomes down to a set of Boolean variables, using crisp-set Qualitative Comparative Analysis (csQCA) to identify combinations of conditions associated with a particular outcome. The resulting simple set relationships help us to approximate the kind of general principles that Peter Seila might have employed, and thus allow us to reflect on qualitative case nuances in a more structured context. Finally, we constructed a multiple regression model, allowing us to take in a greater range of factors – including finer distinctions in social context – than proved possible in our csQCA work, and to gain a better sense of the proportionality between individual influences and punishment outcomes.

Exploratory data analysis

The first step towards understanding Peter Seila's approach to sentencing is to understand the distribution of penances. Tables 2–4 present the primary penances, broken down by sex and trial period. Eight cases with uncommon sentences have been excluded.²¹ Each person appears in just one table, marked by their primary penance (total $n=621$, of which 371 men and 250 women). The male and female distributions for pilgrimage, the most common primary penance, are not vastly different, except that women were much more likely to receive the longest journeys (scores of 10.5 or above) than men (see Table 2). Crosses as a primary penance, used only from Advent 1241 onward, also trend female (3 men, 10 women total: see Table 3).

Table 2. Primary penances – pilgrimages.

Pilgrimage weight	Ascension 1241		Advent 1241		Lent 1242		Total
	Male	Female	Male	Female	Male	Female	
1	4	5	4	5	5	3	26
1.5	9	12	12	8	1	6	48
2	0	0	0	1	0	0	1
4	25	13	0	1	14	4	57
5.5	51	25	19	14	30	22	161
6	24	20	0	2	12	9	67
8	16	13	0	1	0	0	30
8.5	2	3	0	0	0	0	5
9.5	15	11	0	1	0	2	29
10	15	14	0	0	6	10	45
10.5	5	15	0	0	0	2	22
11	0	0	7	17	0	0	24
15.5	0	1	0	0	0	0	1

Table 3. Primary penances – crosses.

Crosses (primary) years	Ascension 1241		Advent 1241		Lent 1242		Total
	Male	Female	Male	Female	Male	Female	
1	0	0	0	1	0	2	3
2	0	0	1	0	2	5	8
3	0	0	0	1	0	1	2

Table 4. Primary penances – Constantinople.

Years	Ascension 1241		Advent 1241		Lent 1242		Total
	Male	Female	Male	Female	Male	Female	
1	16	0	8	0	3	0	27
2	20	0	10	0	1	0	31
3	14	0	11	0	4	0	29
4	1	0	0	0	0	0	1
5	1	0	1	0	0	0	2
7	0	0	0	0	1	0	1
8	0	0	1	0	0	0	1

Women were not sent for crusade service in Constantinople (see Table 4). But in addition to the higher prevalence of the longest pilgrimages for women, beyond-local pilgrimages were also often accompanied by the wearing of crosses for female penitents (see Table 5), a combination rarely applied to men. It has been theorized that this hybrid sanction replaced Constantinople penances for those that Peter felt unsuitable for crusade service, not only women but men deemed unfit (Feuchter 2007, 333; Barmby 2017, 103–106). The higher male number (vs. total source representation) of those who received maintenance fines (see Table 6) is plausibly related to its requirement of independent financial means (Barmby 2017, 178).

There are some changes in sentencing patterns across the periods. In Advent 1241, there were additional “local” pilgrimage destinations (Saint-Martial de Limoges and Saint-Léonard de Noblat), stretching the upper end of the pilgrimage distribution up to 11, from the more typical 10.5 (see Table 2); they

Table 5. Intensifying penances – crosses (alongside beyond-local pilgrimage).

Years	Ascension 1241		Advent 1241		Lent 1242		Total
	Male	Female	Male	Female	Male	Female	
1	0	20	3	11	0	3	37
2	0	5	0	0	0	0	5
3	1	2	0	2	0	1	6
5	0	0	1	0	0	2	3
7	0	1	0	0	0	0	1
Indefinite	0	0	0	1	0	2	3

Table 6. Intensifying penances - maintenance fines (alongside any primary penance).

Years	Ascension 1241		Advent 1241		Lent 1242		Total
	Male	Female	Male	Female	Male	Female	
1	0	0	7	5	1	1	14
2	0	0	1	1	0	0	2
Indefinite	0	0	7	3	5	0	15

were perhaps present only here due to Gourdon, in the north of Quercy, being somewhat closer to these destinations than the other places Peter dealt with. The only score higher than this occurs in the case of Guillelma de Sapiac (Montauban, Ascension 1241), who received an exceptionally long pilgrimage, combining the regular local, southern and northern destinations with Rome.²² Both crosses as a main punishment and the addition of maintenance fines appear only from Advent 1241, suggesting that Peter sought to broaden his options somewhat from this time on. The most significant change, however, is the lower prevalence of Constantinople (for men only), and beyond-local pilgrimages with a command to wear crosses (largely women) in Lent 1242 (see Tables 4 and 5). Whereas 23.1% and 38.9% of individuals with a known, non-outlying sentence received one of these sanctions in Ascension and Advent 1241 respectively, that figure drops to 11.7% in Lent 1242. Barmby, focusing on the decline in crusade sentences, cites Gregory IX's death on 22 August 1241 as reducing pressure on the Dominican order to send men in support of Latin rule in Constantinople (Barmby 2017, 102), but ignores the concomitant fall in crosses sentences given alongside beyond-local pilgrimages in Lent 1242. Taking a broader view, Duvernoy suggests a general shift to greater leniency, or, less plausibly, even the possible "intervention of another inquisitor" (Duvernoy 2001, 117 n. 217). Neither, however, take into account the differences in criminal profiling between the periods: for instance, the prevalence of Ritual crimes, which were surely deemed serious, is much lower in Lent 1242 (mean of 0.24 mentions of Ritual crime per person) than in other periods (Ascension 1241: 0.87; Advent 1241: 0.79).

Qualitative Comparative Analysis (QCA): results and discussion

The comparison of cases through crisp-set Qualitative Comparative Analysis (csQCA) likewise suggests that categorical punishment distinctions were in fact related to principles that ran throughout Peter's activity in Quercy. This social scientific methodology, designed to identify the simplest set of causal conditions that best align (in terms of sufficiency and necessity) with outcome conditions (Ragin 2014; Rihoux and Ragin 2009),²³ provides a convenient and logical way of reducing the complexity of recorded influences and sentences captured within the data to the most essential set relationships.

In order to apply this method, we converted the outcomes and influences within our analytical model to Boolean values for all individuals with both crime and sentencing data, excluding the aforementioned individuals with exceptional penances ($n = 620$).²⁴ For outcomes, we performed analyses on the two severe sentences just discussed, Constantinople crusade service and beyond-local pilgrimages with crosses, as well as beyond-local pilgrimages without crosses, the logical next tier down. CsQCA works best with a relatively small number of theorized causal conditions (Ragin 2014, 104–14), so as to limit the number of condition combinations with no or very low case data (the problem of "limited diversity"). As a result, we

Table 7. QCA conditions and their derivation from the general data projection.

Variable	Boolean Transformation (i.e., =1)	QCA condition: first analyses	QCA condition: second analyses
Sex	"f" (female)	F: Female	F: Female
Seeing and Seeking	>1 Once recurrence or >0 Multiple recurrence	S: Recurrent Seeing and Seeking	N: Non-Ritual Complex/ Recurrent
Information Exch.	>0 (any recurrence cat.)	I: Information Exch.	
Resource Exch./ Practical Support	>0 (any recurrent cat.)	P: Resource Exch./Practical Support	
Communing	>0 (any recurrent cat.)	C: Communing	
Belief	>0 (any recurrence cat.)	B: Belief	
Ritual	>0 (any recurrence cat.)	R: Ritual	R: Ritual
Interaction with Unnamed Heretic/s	All "heretic" interactions >0 AND \geq all Wald. interactions	H: Majority "Heretic" Interactions	H: Majority "Heretic" Interactions
Interaction with Unnamed Waldensian/s			
Interaction with Named Heretic			
Interaction with Named Waldensian			

selected a smaller range of factors from our overall analytical model, informed by our historical insight (see Table 7 for summary), which we then further reduced through amalgamation in a second set of analyses in order to achieve greater focus (see below). In our first set of QCA analyses, we included individual crime conditions for the presence of Information Exchange, Resource Exchange/Practical Support, Communing, Belief, and Ritual crimes, since we expect more complex transgressions to produce harsher punishments. Recurrent Seeing and Seeking (i.e., >1 Seeing and Seeking crime with Once recurrence, or ≥ 1 Seeing and Seeking crime with Multiple recurrence) was also included in these first analyses due to Feuchter's aforementioned theorization that multiple points of contact made a categorical difference to sentencing (Feuchter 2007, 333). In the second set of analyses, these crime conditions were reduced to just two: 1) Ritual and 2) Non-Ritual Complex/Recurrent, the latter combining all the aforementioned crime conditions other than Ritual. A Majority "Heretic" Interactions condition (returning 1 if 50% or more of interactions involved "heretics" rather than Waldensian ministers, and 0 in the inverse case) was included in all analyses for a categorical sense of overall sect alignment, due to the expectation that supporters of the "heretics" were treated more severely. A further condition, sex (Female), was also included for all analyses of the Constantinople and beyond-local pilgrimages with crosses outcomes, since its apparent influence there has already been witnessed.

The two sets of QCA analyses presented here (i.e., those using all crime conditions, and those where they are partially amalgamated) include both necessity tests and truth-table analyses. Necessity tests search for all causal conditions which are near-consistently present in the cases with a particular outcome condition. Given that the notion of necessity implies little deviation at best (Schneider 2019, 1115), we set a high consistency threshold of 0.95 for these tests (i.e., finding conditions with a consistent presence of 95% or higher within the set of cases featuring an outcome) in order to isolate those factors that appear to be near-requirements for particular sentences. Here, we also searched primarily for individual conditions, except where an "either/or" combination stood out as relevant on the basis of very high "coverage" (that is, the part of the cases possessing those conditions that also feature the outcome) and historical plausibility.

To search for causal combinations approaching sufficiency, we performed truth-table analyses, of the sort for which QCA is most renowned. "Truth tables" were constructed for each outcome, sorting cases into

rows for each possible condition combination and calculating the portion of each associated with the result. To these, we applied the Quine-McCluskey minimization algorithm to derive simplified combinations of causal conditions – "solutions" –, which, where present in cases, tend to coincide with the outcome condition; solutions may present more than one such combination of conditions (i.e., an "either/or" set of condition recipes). We present "Complex" solutions (with no assumptions made concerning truth-table rows without case data), "Parsimonious" solutions (where the algorithm makes assumptions concerning truth-table rows without case data as necessary in order to remove all redundancies and produce the simplest possible recipes of conditions), and between them, "Intermediate" solutions. For the "Intermediate" solutions, the algorithm takes into account the expected effects of variables on the outcome to avoid unlikely assumptions concerning truth-table rows without case data, albeit at the cost of potentially preserving redundant conditions (Ragin 2008, 140–175).²⁵ The "consistency" (the part of the cases possessing a condition recipe that also feature the outcome, with 1.0 meaning 100%) and "coverage" (the part of the cases possessing the outcome that also feature a condition recipe) of the solutions here effectively mean the opposite of what they do in the necessity tests. Individual recipes that form part of the overall solution also feature a "unique coverage" score (the part of the outcome cases featuring that recipe but no other identified recipe): the difference between this and the recipe's "raw coverage" indicates how much that recipe overlaps with others in cases featuring the outcome. All our truth-table analyses employ consistency thresholds (above which the algorithm assumes a row's set of conditions to coincide with the outcome) of 0.8, as typically recommended by QCA practitioners for analyses focused on sufficiency (Rubinson et al. 2019). They also use frequency thresholds of 2 (i.e., ignoring the case data of rows with less than 2 cases), a relatively inclusive threshold that nevertheless controls for the tendency of outliers in single-case rows to distort the minimization.

Our first set of analyses sharpened our insight into Peter's sentencing practice, but failed to produce the clearest results. The necessity test results (see Table 8.) reflect that service in Constantinople was never required of women (*f* condition), but also show that interactive alignment toward "heretics" appears almost a necessity for both this punishment and its higher tier counterpart, beyond-local pilgrimages with crosses (*H* condition). For beyond local pilgrimages without crosses, we identified a compelling "either/or" result

Table 8. QCA necessity tests (first analyses including all crime conditions, $n=620$).

Sentence outcome	Necessary Conditions	Consistency	Coverage
Constantinople	f *	1	0.25
	H	0.99	0.23
	Solution	0.99	0.35
Beyond-local pilgrimage with crosses	H	0.96	0.13
	Solution	0.96	0.13
Beyond-local pilgrimage without crosses	r+h	0.97	0.79
	Solution	0.97	0.79

Consistency threshold: 0.95.

Uppercase letters stand for presence of condition; Lowercase letters stand for absence. * stands for AND; + stands for OR.

($r+h$ condition). Those eligible for this punishment compound either: 1) were not aligned primarily toward *heretici* through their interactions, mirroring the reverse condition found in the necessity tests for both higher-tier punishments; or 2) had no Ritual crimes, a category which, as seen, was more prevalent in periods where higher-tier punishments were more common. The truth-tables analyses, however, were impeded by the problem of limited diversity, despite the relatively constrained set of factors used, due to the way in which the case data clusters. Many truth-table table rows were classified as remainders due to containing only 1 or 0 cases – 156 out of 256 for both Constantinople and beyond-local pilgrimages with crosses, 61 out of 128 for beyond-local pilgrimages without crosses. Many of the preserved rows, moreover, coincide quite inconsistently with the outcomes, a feature often relatable to relatively low row case numbers: in such rows, even a small number of divergent outcomes can lead to this result. When algorithmically reduced, these truth tables produce highly overlapping solution recipes which are not clearly interpretable. We thus do not present solutions from these first truth-table analyses.

Close reading of the truth tables from these first analyses, included within our [supplementary materials](#), nevertheless helped refine our approach. For both Constantinople and beyond-local pilgrimages with crosses,²⁶ all truth-table rows where a majority of cases coincide with these outcomes (i.e., consistency >0.5) feature not only the Majority “Heretic” Interactions condition (identified as a near-necessary condition for both outcomes), but also Ritual. In addition to the expected absence of the Female condition from all such rows for Constantinople (since no women received this sentence), it is notable that this same condition is present for all rows tending strongly toward the beyond-local pilgrimages with crosses outcome. No combination of modeled factors tends strongly toward this outcome for men (rows lacking the Female condition only attain a maximum consistency of 0.67, and in a row with only 3 cases), strengthening the theorization that this punishment was only applied to them in exceptional circumstances for which we lack data: for instance, where Peter felt these men unfit for crusade service or some negotiation had taken place. The truth table for beyond-local pilgrimages without crosses²⁷ not only reflects the suggestion of the necessity tests concerning the upper boundary of this punishment – no rows tending toward this outcome (i.e., consistency >0.5) feature the combination of Ritual and Majority “Heretic” Interactions – but also suggests something concerning its minimum requirements. The two rows lacking any of the crime conditions (which equate to cases where only a single Seeing and Seeking crime with Once recurrence was noted) are barely associated with this outcome: just 6 cases out of 27 (0.22 consistency) for those which also possess the Majority “Heretic” Interactions condition, and 0 out of 4 cases (0 consistency) for those without this condition. In all other instances, it can be observed that these cases simply received local pilgrimages.

These observations helped to inspire our second set of analyses. For these we amalgamated all crime

Table 9. QCA truth table (second analyses) – Constantinople ($n=620$).

F	R	N	H	Number	Consistency	Outcome
0	1	1	1	92	0.86	1
0	0	1	1	149	0.08	0
0	0	1	0	69	0.01	0
1	0	1	0	92	0	0
1	0	1	1	71	0	0
1	1	1	1	53	0	0
0	1	1	0	40	0	0
1	1	1	0	21	0	0
0	0	0	1	17	0	0
1	0	0	1	10	0	0
0	0	0	0	3	0	0

Consistency threshold: 0.8.

Rows with fewer than 2 cases have been classified as remainders and are not shown.

Table 10. QCA truth table (second analyses) - beyond-local pilgrimage with crosses ($n = 620$).

F	R	N	H	Number	Consistency	Outcome
1	1	1	1	53	0.87	1
0	1	1	1	92	0.04	0
1	0	1	1	71	0.03	0
1	0	1	0	92	0.01	0
0	0	1	1	149	0.01	0
0	0	1	0	69	0	0
0	1	1	0	40	0	0
1	1	1	0	21	0	0
0	0	0	1	17	0	0
1	0	0	1	10	0	0
0	0	0	0	3	0	0

Consistency threshold: 0.8.
 Rows with fewer than 2 cases have been classified as remainders and are not shown.

Table 11. QCA truth table (second analyses) - beyond-local pilgrimage without crosses ($n = 620$).

R	N	H	Number	Consistency	Outcome
1	1	0	61	0.98	1
0	1	0	161	0.81	1
0	1	1	220	0.8	1
0	0	1	27	0.22	0
1	1	1	145	0.08	0
0	0	0	4	0	0

Consistency threshold: 0.8.
 Rows with fewer than 2 cases have been classified as remainders and are not shown.

conditions other than Ritual into a single condition (Non-Ritual Complex/Recurrent), since, as individual conditions, we were unable to distinguish strongly between their outcome associations in the first set of analyses. Crucially, such an amalgamation produces truth tables (see Tables 9–11) with far fewer rows and fewer remainders (i.e., rows with 1 or 0 cases): there were 5 remainders for both the Constantinople and beyond-local pilgrimages outcomes, leaving 11 preserved rows; and 2 for beyond-local pilgrimages without crosses, leaving 8 preserved rows. The preserved rows typically feature far higher numbers of cases; the impact of cases where Peter may have made an atypical decision based on uncap-turable factors or the more general vagaries of human-decision making is thus greatly minimized.

Using this reduced set of conditions refines the results of the necessity tests and allows the truth-table analyses focused on conditions approaching sufficiency to produce interpretable solutions. For the Constantinople and beyond-local pilgrimages with crosses outcomes (see Tables 12 and 13), the Non-Ritual Complex/Recurrent condition emerges from the necessity tests as being near-consistently present in associated cases. The low coverage score of both this condition and those previously identified (H condition in both cases; f condition for Constantinople), however, show that none of them were individually decisive in promoting these outcomes. The truth-table analyses in fact suggest that, in order to lead to these sentencing outcomes, such factors typically had to operate in conjunction with another, Ritual,

Table 12. QCA necessity test and truth-table analysis - Constantinople (second analyses, $n = 620$).

Necessary Conditions	Consistency	Coverage
$f *$	1	0.25
$N *$	1	0.16
H	0.99	0.23
Solution	0.99	0.38

Sufficient Conditions	Consistency	Raw Coverage	Unique Coverage
<i>Complex Solution</i>			
$f*N*R*H$	0.86	0.86	0.86
Solution	0.86	0.86	N/A
<i>Intermediate solution (assumptions: F to contribute when absent, all others when present)</i>			
$f*N*R*H$	0.86	0.86	0.86
Solution	0.86	0.86	N/A
<i>Parsimonious solution</i>			
$f*R*H$	0.85	0.86	0.86
Solution	0.85	0.86	N/A

Necessity test – consistency threshold: 0.95.
 Truth-table sufficiency analysis – frequency threshold: 2; consistency threshold: 0.8.
 Uppercase letters stand for presence of condition; Lowercase letters stand for absence. * stands for AND; + stands for OR.

Table 13. QCA necessity test and truth-table analysis - beyond-local pilgrimage with crosses (second analyses, $n = 620$).

Necessary Conditions	Consistency	Coverage
$N *$	0.98	0.09
H	0.96	0.13
Solution	0.96	0.15

Sufficient Conditions	Consistency	Raw Coverage	Unique Coverage
<i>Complex Solution</i>			
$F*N*R*H$	0.87	0.84	0.84
Solution	0.87	0.84	N/A
<i>Intermediate solution (assumptions: all factors to contribute when present)</i>			
$F*N*R*H$	0.87	0.84	0.84
Solution	0.87	0.84	N/A
<i>Parsimonious solution</i>			
$F*R*H$	0.87	0.84	0.84
Solution	0.87	0.84	N/A

Necessity test – consistency threshold: 0.95.
 Truth-table sufficiency analysis – frequency threshold: 2; consistency threshold: 0.8.
 Uppercase letters stand for presence of condition; Lowercase letters stand for absence. * stands for AND; + stands for OR.

albeit that this latter condition narrowly fails to meet the consistency threshold required by the necessity tests.²⁸ The Complex and Intermediate solutions for these outcomes ($f^*R^*N^*H$ for Constantinople; $F^*R^*N^*H$ for beyond-local pilgrimages with crosses) show that those cases with a combination of Ritual crimes, Non-Ritual Complex/Recurrent crimes and Majority “Heretic” Interactions tended strongly toward these outcomes; as expected, sex – i.e., the presence of the Female condition (with beyond-local pilgrimages with crosses) or its absence (Constantinople) – distinguishes these solutions. The absence of the Non-Ritual Complex/Recurrent condition from the Parsimonious solution condition recipes (f^*R^*H for Constantinople; F^*R^*H for beyond-local pilgrimages with crosses) leaves open the possibility that this condition was not essential to the combination of conditions that led to this outcome, even if it was almost always present in cases that feature it. The difference reflects the lack of cases (they fall below the frequency threshold) featuring the Ritual and Majority “Heretic” Interactions conditions but without Non-Ritual Complex/Recurrent crimes:²⁹ ritual crimes naturally tend to coincide with other reasonably developed forms of involvement in dissidence in the case narratives. Meanwhile, none of the truth-table rows featuring the Non-Ritual Complex/Recurrent condition without the simultaneous presence of both Ritual and Majority “Heretic” Interactions show any real tendency toward these outcomes (see Tables 9 and 10). At a case level, the combination of Ritual and Majority “Heretic” Interactions also consistently signifies that the rituals in question were conducted with “heretics”: ritual contact with “heretics” thus appears as the preeminent risk factor for receiving a top-tier penance throughout the trials. Looking back to the exploratory data analysis, the obvious association of ritual contact with such punishments also helps to explain the relative paucity of these sentences in Lent 1242 better than any change in inquisitorial strategy, contrary to the suggestions of Duvernoy and Barmby.

The thresholds within which beyond-local pilgrimages without crosses were imposed also appear much more interpretable in these second analyses (see Table 14). As was also the case for Constantinople and beyond-local pilgrimage with crosses, the presence of Non-Ritual Complex/Recurrent crimes (N condition) now appears as a necessary condition alongside what was previously identified ($r+h$ condition), but here it possesses a much higher coverage score than it does for the other two outcomes. That the presence of such crimes appears very relevant to this outcome is borne out in the truth-table analysis. Here, the Parsimonious solution (N^*r+R^*h) appears preferable. Unlike the

Table 14. QCA necessity test and truth-table analysis - beyond-local pilgrimage without crosses (second analyses, $n=620$).

Necessary Conditions	Consistency	Coverage	
$r+h$	0.97	0.79	
N	0.98	0.65	
Solution	0.95	0.83	
Sufficient Conditions	Consistency	Raw Coverage	Unique Coverage
<i>Complex Solution</i>			
N^*h+	0.86	0.49	0.16
N^*r	0.81	0.80	0.46
Solution	0.83	0.95	N/A
<i>Intermediate solution (assumptions: H and R contribute when absent; N contributes when present)</i>			
N^*h+	0.86	0.49	0.16
N^*r	0.81	0.80	0.46
Solution	0.83	0.95	N/A
<i>Parsimonious solution</i>			
N^*r+	0.81	0.80	0.80
R^*h	0.97	0.16	0.16
Solution	0.83	0.95	N/A

Necessity test – consistency threshold: 0.95.

Truth-table sufficiency analysis – frequency threshold: 2; consistency threshold: 0.8.

Uppercase letters stand for presence of condition; Lowercase letters stand for absence. * stands for AND; + stands for OR.

Complex and Intermediate solutions, which are identical (N^*h+N^*r), the two recipes it suggests do not overlap in their coverage of the data (indicated by the unique coverage and raw coverage scores of the recipes being identical). They also intersect most neatly with what we have learned of the higher-tier punishments: they suggest that complex or recurrent crimes in the absence of ritual (N^*r) or ritual contact with Waldensians (effectively signaled by R^*h) caused cases to tend strongly toward this middling outcome.³⁰

Inevitably, the reduction of conditions in these second analyses does also efface some nuance, and here the truth tables from the first set of analyses do offer some food for thought. For instance, it seems that the outcome of beyond-local pilgrimage without crosses was rather inconsistently applied where only the Resource Exchange/Practical Support condition was met: 5 out of 14 cases, 0.36 consistency; in the others, local pilgrimages were applied.³¹ In case terms, this effectively refers to cases where material or practical support been given to the Waldensians, without any other complex or recurrent crimes, suggesting that Peter was somewhat undecided on the gravity of such exchanges in relative isolation. More broadly, the inconsistency of so many truth-table rows in the first set of analyses should remind us that Peter was doubtless affected by many uncapturable influences. Despite such caveats, the overall findings of these second analyses are not dissimilar to what Feuchter has suggested for the 255 individuals with a stated sentence tried at Montauban (Feuchter

2007, 333), but provide more systematic evidence and cover the whole register across all periods and regions, with 620 people included in the analyses.

The strong association of ritual contacts with higher-tier penances suggested by all these analyses deserves further consideration; notably, it seems to have possessed more gravity than the actual beliefs of the sentenced (a crime factor which was subsumable within the Non-Ritual Complex and Recurrent category in the second set of truth-table analyses). This suggests that Peter generally saw greater evidence of religious commitment in rituals, in line with the trust in “deeds in which error is expressed” that Guy of Foulques (2014, 239) spoke of. The particular association of “heretic” (i.e., Cathar) rites – strongly heterodox and alarming from an inquisitorial perspective – with two visually-marking sentence types (Constantinople; beyond-local pilgrimages with crosses) may even signal a concern beyond penitential therapy or pragmatic social control: fear of heresy as a physical contagion imparted by act. Nevertheless, the evidence does not support the common view that early inquisitors were fundamentally less interested in belief than outward deeds (Arnold 2001, 152; Biller 2001, 314; Sackville 2011, 118–19, 152). The pattern may reflect the largely non-theological nature of detected beliefs: Guillelmus [Bernardi] de Narces, who confessed arguably the most heterodox theological beliefs in the register (all seemingly related to Catharism) indeed received a two-year Constantinople sentence, despite having no ritual contacts and few other crimes.³²

We also attempted analyses on crosses as a primary penance and the use of maintenance fines, but the results were largely unconvincing, both from a numerical and historical interpretative point of view. There are some set relationships worth noting, however. All 13 individuals who received crosses as a primary penance had a Non-Ritual Complex/Recurrent crime. This produces a “necessary” condition with plausible theoretical relevance (i.e., the punishment was not given to those with the lightest crimes, such as a single instance of Seeing and Seeking), albeit with very low coverage (consistency: 1; coverage 0.02). All but two individuals had no Ritual crimes, and in the cases that they did, there appears to be potential for mitigation: Alaizais de Lespinassa had just one instance of adoring “heretics”, while Joannes de Rupe ate bread blessed by “heretics” but only “when he was young”.³³ In sum, this suggests that receiving crosses as primary penance effectively replaced beyond-local pilgrimages (without crosses) for some individuals: it is possible they were either

unable to travel (due to age, infirmity or domestic responsibilities, the latter of which might explain the high prevalence of women in this category) or had negotiated this penance in preference to long pilgrimages. For maintenance fines, the lack of strong and interpretable set relationships may well be related to the fact that it required a sufficient income, a condition we cannot easily model. Historiographical suggestions (Barmby 2017, 130–134, 177) that it stood as symbolic recompense for material exchange crimes are not well-supported by the data.³⁴

Regression modeling: results and discussion

The QCA results support the thesis that Peter Seila sentenced according to a rational schema, where crimes and sect involvements deemed more serious led to harsher penances. They should not remain without complement, however. While the QCA analyses suggest how different types of crime and sect interactivity might have led – both individually and in combination – to different punishment outcomes, we also found ourselves limited in the number of conditions we could successfully include due to irresolvable inconsistencies in the Boolean data. In particular, we have yet to take account of the finer distinctions in social connectivity included in our analytical model that might have influenced the inquisitor at some level. Moreover, Peter did not simply express faults and penances in terms of categorical presence or absence: the amount of detail which the source dedicates to the repetition of crimes of similar type and to the careful weighting of particular sentences – nuances largely put aside in the preceding QCA work – demands deeper investigation of their proportionality.

We thus built a multiple linear regression model to analyze the relationship of a wider range of factors and their strength with penance severity: we have focused on 1) the linear dependence between the proportions of criminal acts of different types and penances, and 2) the positive influence of the social context of crimes (i.e., a “guilt by association” hypothesis), considering not only interactions with different sects but also criminal involvement with those dissident ministers named within the source, a feature suggestive of their notoriety, and interactions and kinship relationships with other sentenced people.

In order to provide as broad a picture of Peter’s sentencing practice as possible, we have created a combined scale across all penance types. A single scale might seem counter-intuitive given that the QCA results suggest that different penance types were related to categorical features within criminal profiles. Moreover, insofar as Peter compared the severity of sentence

options, we cannot assume he did so on any simple scale (e.g., duration) applicable across categories. On the other hand, the preceding analyses prove suggestive for the relative weights of penances inside the inquisitor's mind, and thus for a reasonably indicative combined scale.

Our Combined Penance Index (CPI) is founded on the scores for pilgrimage (the most common type of primary penance). As seen in the previous section, crosses as a primary penance align well with beyond-local pilgrimages without crosses. They were given for between one and three years: thus, weighting one year of crosses as a primary penance as equivalent to a score of 4 in our pilgrimage scale, with each additional year of crosses equivalent to +3, places all those with this sentence within a range (4–10) similar to the score distribution of beyond-local pilgrimages without crosses (4–10.5 or 11 in Gourdon. By extension, we have chosen to apply a score of +3 per year for the use of crosses alongside pilgrimages, adding them to the pilgrimage score. Pilgrimage scores of 10.5 or above typically occur alongside crosses and thus, as noted, are rare for men, for whom Constantinople sentences were available; crosses also occur alongside beyond-local pilgrimages of weights as low as 5.5. Noting also the median length of Constantinople sentences (2 years) and of crosses given alongside pilgrimages (1 year), we thus rate one year in Constantinople at 10.5 (similar to a moderate beyond-local pilgrimage with one year of crosses), with +3 added for every additional year: two years in Constantinople is thus weighted similarly (CPI of 13.5) to one year of crosses alongside the longest pilgrimages usually given (CPI of 13.5 or 14 in Gourdon). More conjecturally, we rate one year of maintenance fines as +3, in line with other year-rated sanctions. Indefinite (i.e., “for life”) penances are treated as one year longer than the highest stated value within the category: thus 8 years, +24 CPI, for crosses alongside pilgrimage; 3 years, +9 CPI, for maintenance fines). While these weightings could be criticized as arbitrary in parts and the measure they produce is clearly an abstraction, our close case-by-case checking of the data made clear that CPI achieves its essential goal as a comparative scale: i.e., an individual with obviously harsher penances than someone else consistently receives a higher CPI score.

The independent variables follow the essential structure defined in our analytical model. A series of numerical variables represent the number of evidenced acts recorded by Peter, categorized by the six crime types (Seeing and Seeking, Information Exchange, Resource Exchange/Practical Support, Communing, Belief and Ritual) and three recurrence categories (Once, Multiple,

Being) in so far as they are present in the data (Belief – Being is also excluded due to being only applicable to one individual). The occurrence of in-house crime (House), as well as the social interaction categories (Interactions with Unnamed “Heretic/s”, Interaction with Unnamed Waldensian/s, Interaction with Named “Heretic”, Interaction with Named Waldensian, Interaction with Sentenced) have been expressed as binary categorical variables (“yes/no”) to limit multicollinearity with the crime predictors. We have also included familial relationships by way of binary categorical variables, retaining the split between those explicit in the source and those inferred (Kinship with Sentenced – Textual; Kinship with Sentenced – Inferred). We have also controlled for sex and for trial period through two categorical variables – Sex (“male/female”) and Period (“Ascension 1241”, “Advent 1241”, and “Lent 1242”) –, the latter in order to capture the potential

Table 15. Descriptive statistics ($n=620$) of numerical crime variables.

Crime Category (frequency)	People with crime >0	Mean crimes per person	Standard deviation
Seeing and Seeking – Once	353	1.17	1.81
Seeing and Seeking – Multiple	230	0.43	0.62
Information Exchange – Once	361	0.97	1.27
Information Exchange – Multiple	106	0.2	0.47
Resource Exchange/Practical Support – Once	352	1.1	1.44
Resource Exchange/Practical Support – Multiple	118	0.24	0.55
Resource Exchange/Practical Support – Being	23	0.05	0.26
Communing – Once	184	0.48	0.99
Communing – Multiple	29	0.06	0.33
Belief – Once	199	0.42	0.7
Ritual – Once	179	0.54	1.19
Ritual – Multiple	62	0.14	0.48
Ritual – Being	4	0.01	0.08

Table 16. Descriptive statistics ($n=620$) of categorical variables.

Predictor	Category items	Counts	Mean CPI
House	no / yes	447 / 173	7.16 / 10.65
Interacted with Unnamed “Heretics”	no / yes	192 / 428	5.85 / 9.16
Interacted with Unnamed Waldensians	no / yes	357 / 263	8.81 / 7.22
Interacted with Named “Heretic”	no / yes	594 / 26	7.88 / 14.12
Interacted with Named Waldensian	no / yes	599 / 21	8.23 / 5.52
Interacted with Sentenced	no / yes	556 / 64	8.10 / 8.46
Kinship to Sentenced – Textual	no / yes	508 / 112	7.71 / 10.07
Kinship to Sentenced – Inferred	no / yes	437 / 183	7.87 / 8.77
Sex	f / m	249 / 371	7.84 / 8.33
Period	Ascension 1241 /	350 /	7.89 /
	Advent 1241 /	126 /	9.78 /
	Lent 1242	144	7.31

changes in severity during Peter’s work sometimes claimed in literature. From the resultant thirteen crime variables (see Table 15), eight categorical variables of criminal and social context (see Table 16) and three control variables (see Table 16), we sought to predict penance severity for the 620 people for whom we have both crime and sentencing data (excluding the aforesaid individuals with exceptional penances) as a CPI value ($M=8.14$, $SD = 5.57$).³⁵

While we have fitted several regression model variants, in order to identify global patterns across a dataset in which the distribution of variables is non-normal, we report the results of the robust linear regression model.³⁶ It is designed to be resistant to the distorting effects of outliers (albeit at the expense of consequently downplaying the information they bear), to work without transformations aimed at normalizing distributions, and to withstand the violation of standard OLS regression assumptions. The regression (see Table 17) is as a whole statistically significant ($R^2=0.570$, $F(df\ regression = 24, df\ residual = 595) = 94.444$, $p<0.001$, $AIC = 1073$, $BIC = 1180$).

The model reports a statistically significant intercept ($\beta=3.33$, $p<0.001$). Most of our crime predictors present as statistically significant (except Seeing and Seeking – Once, and Communing – Once) and positively contribute to higher CPI. Two out of the three highest contributing crime predictors are Ritual – Multiple ($\beta=3.08$, $p<0.001$), and Ritual – Being ($\beta=13.15$, $p<0.001$), in line with historical and historiographical expectations concerning intense ritual involvement and

the results of the QCA analyses. That Resource Exchange/ Practical Support – Being ($\beta=4.21$, $p<0.001$) is the second highest contributor reflects the influence primarily of Peter’s occasional categorization of defendants as “receivers” (17 occurrences) or “hosts” (7 occurrences) of dissident ministers. While, in line with the QCA results, the presence of this sort of categorization does not seem to be strongly associated with the upper-tier penances (Constantinople or beyond-local pilgrimages with crosses) without the simultaneous presence of “heretic” ritual contacts, it appears as a powerful intensifier to whatever form of penance was chosen. This perhaps helps to make sense of the aforementioned interest of Peter’s contemporaries Raymond of Peñafort and Guy of Foulques in defining regular housers of dissident ministers (“receivers”) as a key subtype of “supporters”, even if they themselves do not make clear the extent to which this specific categorization entailed harsher penances. Also notable from this perspective is the positive influence of the House variable ($\beta=0.65$, $p<0.05$), suggesting a broader concern over the harboring of fugitive dissident ministers. The Belief – Once result ($\beta=1.08$, $p<0.001$) confirms that Peter’s frequent recording of largely non-theological beliefs (e.g., believing “heretics were good men/women”) was far from incidental, despite the often more obvious effects of ritual crimes.³⁷

The Interaction with Unnamed “Heretic/s” and Interaction with Unnamed Waldensian/s variables, which also serve as general social predictors of sect alignment, are statistically significant, but in opposite directions (“Heretics”, $\beta=0.74$, $p<0.05$; Waldensians,

Table 17. Multiple regression model result ($n=620$) for the dependent variable of combined penance Index (CPI), $R^2=0.570$, $F(df\ regression = 24, df\ residual = 595) = 94.444$, $p<0.001$, $AIC = 1073$, $BIC = 1180$.

Predictor	Coef.	Std. Error	p Value	CI [0.025	0.975]
Intercept***	3.33	0.39	<0.001	2.57	4.1
Seeing and Seeking – Once	0.16	0.08	0.052	0	0.33
Seeing and Seeking – Multiple***	0.96	0.18	<0.001	0.62	1.3
Information Exchange – Once***	0.56	0.11	<0.001	0.34	0.78
Information Exchange – Multiple***	1.19	0.25	<0.001	0.7	1.69
Resource Exchange/Practical Support – Once***	0.79	0.08	<0.001	0.63	0.94
Resource Exchange/Practical Support – Multiple**	0.66	0.21	0.002	0.25	1.08
Resource Exchange/Practical Support – Being***	4.21	0.45	<0.001	3.33	5.09
Communing – Once	0.16	0.12	0.186	-0.08	0.39
Communing – Multiple*	0.74	0.35	0.037	0.04	1.43
Belief – Once***	1.08	0.18	<0.001	0.74	1.43
Ritual – Once***	0.79	0.12	<0.001	0.56	1.02
Ritual – Multiple***	3.08	0.27	<0.001	2.54	3.61
Ritual – Being***	13.15	1.31	<0.001	10.58	15.72
House [yes]*	0.65	0.23	0.014	0.13	1.16
Interacted with Unnamed “Heretics” [yes]*	0.74	0.33	0.024	0.1	1.39
Interacted with Unnamed Waldensians [yes]***	-1.23	0.32	<0.001	-1.85	-0.6
Interacted with Named “Heretic” [yes]*	1.16	0.55	0.033	0.09	2.23
Interacted with Named Waldensian [yes]**	-2.09	0.65	0.001	-3.37	-0.81
Interacted with Sentenced [yes]	-0.17	0.41	0.676	-0.98	0.63
Kinship to Sentenced – Textual [yes]	0.08	0.34	0.804	-0.57	0.74
Kinship to Sentenced – Inferred [yes]	0.24	0.23	0.367	-0.24	0.66
Sex [male]	0.22	0.22	0.324	-0.21	0.64
Period [Advent 1241]*	0.7	0.32	0.031	0.06	1.33
Period [Lent 1242]	0.32	0.27	0.27	-0.21	0.86

The asterisks alongside the predictors indicate their statistical significance: no asterisk = not significant; * = $p \leq 0.05$; ** = $p \leq 0.01$; *** = $p \leq 0.001$

$\beta = -1.23, p < 0.001$), supporting the thesis that crimes involving Waldensians were treated more leniently by Peter than those involving “heretics”. In a similar vein, Interaction with Named “Heretic” is positively associated with harsher sentencing ($\beta = 1.16, p < 0.05$), whereas Interaction with Named Waldensian ($\beta = -2.09, p < 0.01$) relates to more lenient penances. Notably, however, the latter results do not support the suggestion that naming was reserved for contacts that prompted harsher penances (due to being perceived as more dangerous) or otherwise had any pronounced effect on sentencing: the error terms of the “Named” variables overlap with their “Unnamed” equivalents (see Table 17). The clear negative influence of Named Waldensian contacts is particularly striking, although it may find some context in the case narratives. All but one Named Waldensian interactions occurred with Petrus de Vallibus, who appears primarily associated with care for the sick: such may have even stood as an excuse for contact, reaffirming Peter in his general leniency toward Waldensian interactors.

We have not found any statistically significant relationship between CPI and Interaction with Sentenced, nor between CPI and Kinship to Sentenced (either Textual or Inferred). The control variable results do not suggest that sex affected severity of penance (albeit that it was certainly a factor in its form), but that trial period may have. Advent 1241 seems to display a harsher sentencing regime ($\beta = 0.7, p > 0.05$) than Ascension 1241, the baseline for the model: this perhaps reflects Peter Seila’s decision to employ enhanced local pilgrimages in Gourdon (including Saint-Martial de Limoges and nearby Saint-Léonard de Noblat), adding 0.5 to the highest pilgrimage scores. Duvernoy’s suggestion of greater leniency in Lent 1242 is not supported.

Overall, while most of our fitted predictors are statistically significant and the model performs reasonably well by the standards of historical social science (it explains around 50% of the CPI variance, as indicated by an R^2 of 0.570), there are important caveats derived from the overall modeling approach. The QCA solutions remain a necessary point of comparison. While the regression model has attempted to simulate Peter’s sentencing as a global additive system based on stable coefficients, adding a proportional perspective lacking in the QCA results, we already have a sense from those analyses that the presence of certain conditions and combinations of conditions produced step-changes in sentencing outcomes. Thus, even the coefficients of the numerical variables cannot be interpreted in a straightforward additive manner

in relation to the intercept. This issue is fundamentally related to the nature of the CPI scale: while useful for global case comparison, it remains an abstraction. Moreover, robust regression shows more general trends but hides the effects of outliers: the model in fact does not perform well for the extreme – low and high – values on the CPI scale. Our model is also heavily dependent on the chosen pool of predictors, where correlation between factors exists; it changes if we change this pool. Our confidence for the dependence of CPI on criminal acts is strengthened by a variant model that includes only the numerical independent variables, all of which concern crimes ($R^2=0.530, F(df \text{ regression} = 13, df \text{ residual} = 606) = 148.182, p < 0.001, AIC = 1060, BIC = 1119$, all variables statistically significant [$p < 0.05$]). Another variant shows that much of the CPI variance might even be explained with reference to just three crime factors: Ritual – Once, Ritual – Multiple, Resource Exchange/ Practical Support – Once ($R^2=0.444, F(df \text{ regression} = 3, df \text{ residual} = 616) = 450.539, p < 0.001, AIC = 907, BIC = 925$, all variables statistically significant [$p < 0.001$]). Meanwhile, our caveats over the effect of social context on CPI are enhanced by a variant model including just the categorical independent variables ($R^2=0.201, F(df \text{ regression} = 11, df \text{ residual} = 608) = 20.165, p < 0.001, AIC = 757, BIC = 813$; all variables statistically significant except Sex, Kinship to Sentenced – Inferred and Interaction with Unnamed Waldensian/s). While sect interactions seem an important and theoretically valid predictor, this may also reflect different profiles of criminal activity associated with “heretic” and Waldensian involvements: for instance, the two sects were associated with different rituals. Overall, our rendering of social interactions as separate forces from crimes, while a useful simplification, obscures the importance of interactivity between the two. Nevertheless, the results strongly support the thesis that Peter followed a system and provide evidence of the relative weightings he gave to the factors that influenced his work.

Conclusion

We can conclude with confidence that Peter Seila justified his sentences in a strikingly systematic manner. We cannot rule out the possibility that Peter was, at times, more arbitrary or even capricious in practice; but were he so, he took care that this made little mark in his register, leaving an impression quite opposite to the reputation enjoyed by his contemporaries Conrad of Marburg and Robert Le Bougre. While the source clearly does not record every influence on the

inquisitor, the register is a monument to rational decision-marking; the details on the dissidents and their activities can be correlated with the sentences with relative predictability, a fact that we have witnessed from different analytical angles. Specifically, QCA has shown that the presence of certain crimes and sect contexts, including in combination, appear to create categorical changes in penitential outcomes, while the regression model has shown something of the proportionality between such factors and the severity of these penances. Both these sets of results, moreover, are in essential agreement on the factors treated most severely (e.g., ritual crimes; “heretic”, i.e., Cathar, interactions). Meanwhile, as the regression model has shown, the evidence for any “guilt by association” bias (beyond that related to sect alignment) is either absent (in the case of familial relationships to other sentenced people) or difficult to interpret (in the case of named dissident contacts).

Despite our care to analyze Peter’s register from multiple analytical angles to compensate for the deficiencies in the source, there is still room to go further with the information we have. There are subtleties in Peter’s work that, while fully captured within our source model *via* CASTEMO, have not been accounted for in our analysis. For instance, as others have remarked (Feuchter 2007, 333; Barmby 2017, 120–24), Peter Seila appears sensitive to nuance, sometimes citing aggravating (e.g., relapse into support after previous confession) or alleviating (e.g., crimes in youth) circumstances. These have been discussed as evidence that Peter could diverge from systematic behavior, but they could also be part of a more complex system: many indeed repeat in a semi-standardized manner (e.g., “not knowing them to be heretics”). While we found no effective way to include these circumstances within these analyses, acknowledging this issue, as well as our broader caveats concerning our analyses, shines a path forward for future investigations: statistical learning approaches capable of accounting for the complex interactions between a large body of factors active within a decision-making process, e.g., tree-based models, have the potential to generate better fits.

The results of this investigation, however, are already sufficient to show that, even in early heresy trials, inquisitorial sentencing systems can be both detected and formally reconstructed. As such, they stand as proof that the operation of formal medieval rationalities and, through interpretation, the values that underpinned them (D’Avray 2010, 180–235) are susceptible to such analyses. One can go further: while time and labor-intensive in the short-term, the use of systematic computational methods should now be

considered almost indispensable for anyone attempting to detect and analyze the systematicity of historical processes and thought. This is not to deny the continued importance of qualitative research in this context; we have leant on it throughout. Nevertheless, we have been able to go much further than classical studies on Peter Seila’s register in defining the effects of a wide range of factors (e.g., looking at the importance of social connectivity), while also casting serious doubt over notions that were seemingly obvious to the naked eye (e.g., the suggestions of Duvernoy and Barmby that Peter significantly changed his sentencing approach during the trials). Medievalists should thus not only “feel” for the systems of practice and thought embedded within the texts they study, but “test” for them through appropriate modeling techniques wherever possible.

Notes

1. Raymond of Peñafort offered a rare written tariff of public penances in 1242 at Council of Tarragona (Peñafort 1967, 57–59); while the principles of his wider advice were influential, his proposed sentences appear intended specifically for dealing with dissident supporters in the diocese of Barcelona, and are not deployed in surviving sentencing records.
2. There are occasional examples of historians doubting the relationship between between faults and sentences (e.g., Paolini 1975, 32; Paul 1991, 61–62). Some of the strongest suggestions of inquisitorial systematicity concern Peter Seila’s register, under study here: see the section “The register of Peter Seila, 1241–2 and early inquisitorial sentencing strategy”
3. On these respective strengths of QCA and regression modelling and the potential benefits of using both, see Grofman and Schneider 2009, 662, 663.
4. Paris, Bibliothèque nationale de France, MS Doat 21, fols. 185r–324r. This register has been edited by Jean Duvernoy (2001). Feuchter (2007, 453–89) offers a partial edition, covering Montauban.
5. The difference in numbers results primarily from some lists of faults lacking a concluding sentence, perhaps as a result of deaths prior to sentencing (Feuchter 2001, 52) or ongoing negotiations (Taylor 2011, 190, 220–21). There is also one individual, Raimunda de Corn, for whom a sentence is recorded, but no faults: Paris, BnF, Doat 21, fol. 225r (Duvernoy 2001, 112).
6. Beaucaire and Sauveterre are undated, but geographical proximity to Montcuq, which they appear alongside in the manuscript, makes Lent 1242 near certain. The same chronology is accepted by Duvernoy (2001, 20) and Taylor (2011, 124–39).
7. QCA for instance, is specifically designed to enable analysis or relatively small-n datasets; while the new InkVisitor application for CASTEMO data collection (Mertel, Zbiral, and Shaw 2021) significantly increases the speed of capture.

8. Paris, BnF, MS Doat 21, fols. 225v–226r (Duvernoy 2001, 114).
9. Dataset Excel file provided as [supplementary material](#).
10. It is plausible that Peter intended “local, southern” pilgrims to continue on from Le Puy or Saint-Gilles to Compostela, since both were staging posts for pilgrims to the shrine of St James (Webb 2002, 126–127), but this would have taken the penitents close to home in any case.
11. On the more vaguely defined nature of medieval pilgrimage “routes” at this time and the paucity of written guidance to them, see Webb 2002, 124–35.
12. BnF Doat 21, 186r (Duvernoy 2001, 30). Size stated for Stephanus Galterii; for later individuals the text records, “Regarding the cross and the journey, as the others.” The explicit mention of crosses is missing from only 9 individuals; given the possibility of scribal lapses, we have taken it as general for this analysis.
13. BnF Doat 21, 185v (Duvernoy 2001, 30). This concerns the first individual in the register, Huga, sentenced in Gourdon. While subsequent sentences of this type lack this detail, “just as Huga” is often stated.
14. The individual who received maintenance as their only penance is Guillelmus Raimundi de Lespinassa: BnF, Doat 21, fols. 192v, 194r, 207r (Duvernoy 2001, 46, 48, 74).
15. While on occasion a sentenced person will also be involved or implicated in another’s list of faults (and our source model captures this), we focus here on those acts that Peter directly related to an individual’s own sentence.
16. Guy of Foulques (2014, 242–43) caveats that private individuals must have already been under the expectation to report in order to be classified as “supporters”.
17. On Cathar rituals, see especially: Sánchez 2004; Riparelli 2005.
18. A legal opinion of 1235 from Avignon describes the *Cena* as a solemn ritual whose attendees could be called Waldensian “believers” (Consilium peritorum Avinionensium 1973, 52) See also Cameron 2001, 77.
19. Our dataset preserves the distinction between interactions with singular unnamed dissident ministers and those with groups of unnamed dissident ministers, although for analysis they will be treated together.
20. This approach is partly informed by the “many model thinking” of Scott E. Page (2017)
21. The outliers are: Gaubertus Sicart de Coronada; Petrus de Las Oleiras; Guiralda del Riu; Raimundus Pomels; Ramunda de Mazerac; Guillelmus Raimundi de Lespinassa; Arnaldus de Rupe; Arnaldus Bertrandi.
22. Paris, BnF, MS Doat 21, fols. 240v–241r (Duvernoy 2001, 144). Guillelma was also required to wear crosses for seven years.
23. The following analyses were implemented in two software packages: Kirq (Reichert and Rubinson 2014) for the necessity tests; fsqca 4.1 (Ragin and Davey 2023) for the truth-table analyses.
24. QCA input data found in Dataset Excel file provided as [supplementary material](#).
25. For our intermediate solutions, we fed in expectations on what might contribute (or otherwise) to the outcomes based on the necessity tests, the exploratory data analysis, and reasonable historical assumptions. For Constantinople, our directional assumptions are absence for Female (*f*) and presence for all other conditions (*S*, *I*, *P*, *C*, *B*, *R*, *H* in the first analyses; or *N*, *R*, *H* in the second). For beyond-local pilgrimages with crosses, they are presence for all conditions (*F*, *S*, *I*, *P*, *C*, *B*, *R*, *H* in the first analyses; or *F*, *N*, *R*, *H* in the second). For beyond-local pilgrimages without crosses, they are absence for Ritual crimes and Majority “Heretic” Interactions (*r*, *h*), presence for all other conditions (*S*, *I*, *P*, *C*, *B* in the first analyses; *N* in the second.).
26. QCA truth table for Constantinople (first analysis) and QCA truth table for beyond-local pilgrimages with crosses (first analysis) provided as [supplementary material](#).
27. QCA truth table for beyond-local pilgrimages without crosses (first analysis) provided as [supplementary material](#).
28. In necessity test terms, Ritual has a consistency of 0.86 in relation to the Constantinople outcome (0.38 coverage), and 0.93 in relation to beyond-local pilgrimages with crosses (0.25 coverage).
29. Only one case – that of Geraldus de Lautarz – exists and it features a highly unusual mitigating factor: he saw heretics (with no stated recurrence) and adored them two or three times, but only when he was eight years old. This, presumably, accounted more for the fact that he only received a pilgrimage to Santiago de Compostela, than his lack of other crimes.
30. This analysis featured two tied prime implicants, i.e., where multiple paths of minimization are logically possible. These were resolved by comparison with the higher-tier penance solutions. Thus R^*h (Ritual without Majority “Heretic” Interactions) was chosen over N^*h dovetailing with the presence of the R^*H combination in the solutions for both higher tier penances.
31. QCA truth table for beyond-local pilgrimages without crosses (first analysis) provided as [supplementary material](#).
32. Paris, BnF, Doat 21, fol. 223r (Duvernoy 2001, 108).
33. Paris, BnF, Doat 21, fols. 192v, 207r, 226v (Duvernoy 2001, 46, 74, 116).
34. Taking only Advent 1241 and Lent 1242 data (the periods in which maintenance fines are found), while 87.1% of those who received maintenance fines had Resource Exchange/Practical Support crimes, only 15.5% of those with these crimes received this sanction. Cf. the broadly comparable figures for Information Exchange (80.6%, 16%).
35. Regression input data found in Dataset Excel file provided as [supplementary material](#).
36. We have used the Python statsmodels (v0.13.2) statistical toolbox (Seabold and Perktold 2010). We have fitted its default robust regression model with the IRLS algorithm, HuberT M-estimator, mad scale estimator and HC1 covariance matrix. The robust regression algorithm was applied using the patch by Perktold (2014) making available Rsquare and other

regression metrics based on SAS implementation.

37. Cf. Taylor (2013, 254–55) call for attention to be paid to the beliefs in Peter's register.

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Data availability statement

The authors confirm that the data supporting the findings of this study are available in its [supplementary materials](#).

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