

Revisiting the question of *ǧīm* from the perspective of Judaeo-Arabic

Magdalen M. Connolly

University of Cambridge

Abstract

*The contemporary coexistence of fronted and plosive reflexes of *ǧīm* excites much scholarly interest: does the voiced velar stop [g] reflex prevalent in some urban areas of Egypt constitute a continuation of the Proto-Semitic phoneme /g/; or is it a recent phenomenon, the result of a process of ‘de-affrication’ which stabilised in Cairo and its surrounding provinces as late as 1800-1860 CE?*

*Following the influential work of Blanc (1969, 1981) and Hary (1996a), the latter interpretation has become the established consensus among scholars of Judaeo-Arabic. In relation to Judaeo-Arabic, Blanc’s thesis relies on (i) the use of the diacritic with gimel denoting *ǧīm* and (ii) occurrences of assimilation, metathesis and substitute graphemic representations of *ǧīm*.*

*In questioning the assumption of the diacritic’s phonetic significance; demonstrating its unreliability as a source from which to reconstruct the historical phonetic reflexes of *ǧīm*; and re-examining oft-cited instances of assimilation, metathesis and graphemic substitutions in light of new evidence, this paper establishes that Judaeo-Arabic orthography makes a much more limited, albeit valuable, contribution to the field of historical Arabic linguistics in this regard than has previously been suggested.*

1. Introduction

The present-day variation in phonetic realisations of the Arabic *ǧīm* has provoked much debate as to the phoneme’s historical development. In contemporary spoken Cairene Arabic, Lower Egyptian dialects and a few Yemeni and Central Arabian dialects *ǧīm* is realised as a voiced velar stop [g]. In Upper Egypt, rural districts of the Levant, Northern Algeria and Yemen, *ǧīm* has a voiced palato-alveolar affricate [dʒ] variant. A voiced palato-alveolar fricative [ʒ] reflex may be heard in the vast majority of urban areas in Syria and the Maghreb (Zaborski 2007, II: 494). The reflex of *ǧīm* in Sudanese dialects and some Upper Egyptian and South Arabian dialects is a voiced palatalised-velar stop [gʲ ~ dʲ]. A voiced palatal glide [j] is found in the Gulf and Northern Arabian dialects. Maghrebian Judaeo-Arabic dialects exhibit a voiced alveolar fricative [z] reflex for *ǧīm*. In Palmyra a voiceless

palato-alveolar affricate [tʃ] is found, while a voiceless dental alveolar affricate [ts] typifies a small number of rural Syrian dialects (Zaborski 2007, II: 494; Watson 2002: 16; Woidich and Zack 2009: 43).

Such variation demands examination. Thus far, attempts to reconstruct *ǧīm*'s chronological development have produced two main schools of thought. The first, proposed by Haim Blanc (1969, 1981), asserts that the voiced velar stop reflex [g] heard in contemporary Cairene Arabic is a relatively recent phenomenon, resurging as the dominant variant in Cairo (and its surrounding provinces) as late as 1800-1860 CE (1981: 191). Prior to this – certainly between the twelfth–seventeenth centuries CE – the prevailing pronunciation of *ǧīm* in Egypt was a voiced palato-alveolar affricate [dʒ]. The second theory, put forward by Peter Behnstedt and Manfred Woidich (1985), favours the understanding of the voiced velar stop [g] reflex as the established pronunciation of *ǧīm* in Egypt before the early nineteenth century CE: this variant existed in areas of Lower Egypt along the Nile delta since the Arabic conquests to the present-day in a diminishing but ultimately uninterrupted manner (Woidich 1996: 8, 19-20 (accessed online: 11/01/17)); Behnstedt 2006, I: 588-589; Woidich & Zack 2009: 56).

In his paper dealing explicitly with *ǧīm*'s realisation in Egyptian Arabic, Blanc (1981) refers to three Judaeo-Arabic texts¹ – as well as Muslim Middle Arabic sources² and eighteenth–nineteenth century CE European travellers' accounts of Egyptian Arabic vernaculars – in defence of his reading of the present-day Cairene Arabic voiced velar stop [g] as a recent occurrence. Benjamin Hary (1996a) and Heikki Palva (2000, 2007, 2008) also draw heavily on Judaeo-Arabic literary texts in support of Blanc's theory, focusing on the orthographic denotation of *ǧīm* as it appears in these texts. The most common representation of *ǧīm* in extant Judaeo-Arabic manuscripts of all genres is with the Hebrew grapheme *gimel*, which also serves as the Arabic grapheme *ǧayn*. A diacritic is often employed above or beneath *gimel* for *ǧīm* to distinguish it from *ǧayn*.³ The use of the diacritic in conjunction with this Hebrew grapheme when indicating *ǧīm*, however, is thought to have altered over the millennium of documented Judaeo-Arabic writing. These changes in the use of the diacritic have been interpreted by scholars such as Blanc and Hary as significant not just orthographically, but also phonologically.⁴ The prevalent presence of the sublinear diacritic is thought to indicate a voiced palato-alveolar affricate [dʒ] pronunciation, while the consistent omission of a dot is interpreted as a voiced velar stop [g] reflex (Blanc 1981: 189; Hary 1996a: 154).⁵

Blanc (1981) examines Judaeo-Arabic texts for (i) the consistent use or omission of a sublinear diacritic with *gimel* when this grapheme is used to denote *ǧīm* and (ii) evidence of assimilation or metathesis, and the substitution of *gimel* for *ǧīm* with alternative Hebrew graphemes, such as *šin* or *zayin*. On these grounds, the prevailing consensus of *ǧīm*'s affricate pronunciation in twelfth–seventeenth centuries CE Egypt has become an established norm amongst scholars of Judaeo-Arabic.

In order to do justice to this matter, we must first position it within the broader context of the debate surrounding *ǧīm*'s historical development (section 2). I then turn my attention to the specifics of Judaeo-Arabic orthographic representations of *ǧīm* from the ninth–nineteenth centuries CE (section 3). Following the aforementioned methodology pioneered by Blanc, I examine the extent of, and levels of consistency in, the diacritic's appearance with *gimel* denoting *ǧīm* in both literary and documentary texts in order to ascertain whether the assumption that the diacritic was intended to differentiate affricate from plosive pronunciation is well-founded (section 3.1). Attention is then given to occurrences of assimilation, instances of metathesis and alternate graphemic representations of *ǧīm* referred to by Blanc, Hary and Palva, examining them in conjunction with new evidence (section 3.2). This paper questions the phonetic significance attributed to the diacritic; queries the interpretation of an affricate pronunciation drawn from examples of metathesis and assimilation; and offers fresh insight into graphemic representations of *ǧīm* which indicate a more complex and varied phonetic situation than has previously been indicated by scholars of Judaeo-Arabic. This leads to the conclusion that the orthographies of un-vocalised Judaeo-Arabic manuscripts have limited value in the study of Arabic phonology and should be treated with caution.⁶

2. *The origins of fronted ǧīm and its chronological development*

The (Proto-)Semitic phoneme /g/ is thought to have been realised as a voiced velar stop [g] (Watson 2002: 3, 16; Blanc 1969: 2; Cantineau 1960: 287).⁷ In a development that also occurs in Neo-Aramaic,⁸ this phoneme moved forward, forming a voiced palatalised stop [gʲ] thus beginning a process of palatalisation and eventual affrication which resulted in the following allophones that prevail in Classical Arabic, Modern Standard Arabic and many Arabic dialects, today: [dʲ]; [d]; [dʒ]; [ʒ]; [j]; [z], to note but the most prevalent (Zaborski 2007, II: 494; Blanc 1969: 7). The current varied phonetic

situation, however, suggests that this development may not have been universal within the Arabic-speaking world. It raises the question: does the contemporary Cairene Arabic voiced velar stop [g] reflex constitute a continuation of the Semitic /g/, or is it a recent development, a ‘zurückverschoben’ (Bergsträsser 1928: 157 cited in Blanc 1981: 189) or ‘back-shifting’ of the fronted *ǧīm* from a voiced palatalised stop [gʲ] (and its variants) to a voiced velar stop [g] (Woidich & Zack 2009: 41-42; Zaborski 2007, II: 496)? This question cannot be satisfactorily addressed before an examination of the original shift of *ǧīm* from [g] > [gʲ] has been undertaken.

The origin, chronology and extent of the spread of the fronted *ǧīm* have been the source of much scholarly contention. Cantineau (1950, 1960) and Martinet (1959), and Blanc (1969) in their wake, all examine the fronting of *ǧīm* in relation to the voicing⁹ of the phoneme *qāf* > [g]¹⁰ with differing conclusions (Blanc 1969: 7). This connection is made on the basis that Proto-Semitic was characterised by triads of voiced, voiceless and emphatic or glottalised consonants (Watson 2002: 1-3). Thus, in Proto-Semitic a dorsal triad comprising the voiced /g/, voiceless /k/ and emphatic /q/ phonemes is found (Watson 2002: 2). The latter phoneme in this dorsal triad is thought to have been realised as a velar ejective [kʼ] (Bush 2016: 7; 33). In Arabic, however, emphatic or glottalised consonants tended towards pharyngealisation or velarisation. In the case of *qāf*, the resulting product was – through the loss of the glottal feature – a voice neutral uvular stop [q], which, Blanc argues, had both voiced and voiceless allophones determined by their immediate environment. The voiced allophone [G] is thought to have developed into an independent phoneme in some dialects (1969: 28-29). The proximity in the place of articulation between the voiced uvular and voiced velar stops threatened to disrupt the balance of this dorsal triad: *qāf* and *ǧīm* risked becoming phonetically indistinguishable from one another. Thus *ǧīm* moved forward, becoming palatalised, and later affricated, in order to maintain the phonetic distinction between the two consonantal phonemes (Blanc 1969: 28-29).

On the assumption that the voiced reflex of *qāf* ([g]) was the dominant pronunciation in all Arabic dialects, Cantineau proposes that the fronting of *ǧīm* become necessary due to the untenable semantic confusion created by homophones. Cantineau asserts that the voiceless variants of *qāf* ([k], [ʔ], [q]), common in contemporary Arabic dialects, were borrowed as the result of language contact with Aramaic speakers (1960: 175;¹¹ Blanc 1969: 8-9).

Despite Cantineau’s suggestion to the contrary, the voicing of *qāf* neither is

nor was as widespread a phenomenon as the fronting of *ǧīm* in spoken Arabic (Blanc 1969: 8). Indeed, dialects in which the reflex [ǧʲ] (and its variants) coexist with voiceless allophones of *qāf* ([k]; [ʔ]; [q]) abound (Blanc 1969: 7). Martinet acknowledges its limited diffusion when he states that the voicing of *qāf* > [g] occurs only in Bedouin dialects (cf. Zaborski 2007, II: 495). His theory concerning the origins of the fronted *ǧīm* rests on the assumption of the early development of *gāl* dialects; the voiced velar stop reflex of *qāf* predates the fronting of *ǧīm*, which became necessary due to misunderstandings caused by homophonous forms. Once the palatalized and affricated reflexes of *ǧīm* were established among speakers of *gāl* dialects they spread to the predominantly sedentary *qāl* dialect speakers who adopted it without recourse to the voicing of *qāf* (Blanc 1969: 9).

The limitations of Cantineau and Martinet's theories have been aptly stated by Blanc (cf. 1969: 10-11), who favours the explanation of internal phonetic changes mentioned above. Blanc's explanation may, however, be further developed through typological comparisons with contemporary North-Eastern Neo-Aramaic (NENA) dialects.¹²

In NENA dialects, the unvoiced pharyngeal fricative /ħ/ generally merges with the unvoiced velar fricative /x/ (cf. Khan 1999: 35-6; 2002: 40-1; 2004: 33-4; 2008: 53-4, 62; 2009: 26-7; 2016: 118-9; Greenblatt 2011: 40-1). However, in many dialects – such as the Jewish dialects of Qaraqosh, Sanandaj and Amədyā – the unvoiced pharyngeal fricative /ħ/ is retained in words of Aramaic origin which contain an emphatic consonantal phoneme. This phenomenon extends to words which contain *qof* (/q/), suggesting that the latter consonantal phoneme contains a pharyngealised feature which causes the unvoiced pharyngeal fricative /ħ/ to be preserved, e.g. *raħoqa* 'far'; *ħaziqa* 'strong' (examples from Greenblatt 2011: 40; Khan 2016: 115-7). In dialects in which this phenomenon occurs, *gimel* (/g/) is neither palatalised nor affricated (except in loanwords) but retains its original voiced velar stop pronunciation. In a few NENA dialects – such as Christian Urmi and Barwar – in which the movement in place of articulation of /ħ/ > [x] is ubiquitous (except in words of foreign origin), *gimel* is palatalised and occasionally affricated (Khan 2008a: 30, 62; 2016: 101-2).¹³ This would suggest that in these dialects, *qof* has lost its pharyngealised element, which in Barwar has resulted in an unvoiced uvular stop.¹⁴ This, in turn has precipitated the palatalisation of *gimel* > [ǧʲ] for reasons of harmony.

Although the changes evident in the Barwar dialect appear to be incipient, they may enlighten us as to the relationship in Arabic dialects between the

voicing and shift in place of articulation of *qāf* and the fronting of *ǧīm*, providing insight into these phonetic shifts, which occurred in some Arabic dialects more than a millennium ago. Was the palatalisation of *ǧīm* prompted by the loss of *qāf*'s pharyngealised feature in Arabic, rather than its voicing, as suggested by Blanc? Both the voicing and transition in place articulation of *qāf* may then have occurred *after* the palatalisation of *ǧīm*, filling the void left by *ǧīm*'s fronting.

In terms of chronology, Blanc proposes that the fronting of *ǧīm* may have been underway in the pre-Islamic period but that it was certainly established by the time Sībawayhi (d. c. 793/6 CE) composed his famous work *al-Kitāb* (1969: 29-30).¹⁵ In this grammar, we find descriptions of three different pronunciations of *ǧīm*, which are interpreted by Blanc as: a voiced palatalised-velar stop [gʲ], deemed the 'correct' pronunciation by Sībawayhi¹⁶; a voiced velar stop [g]; and a voiced palato-alveolar fricative [ʒ]¹⁷ (1969: 12).¹⁸ This reading of Sībawayhi's account of the acceptable pronunciation of *ǧīm* is shared by Cantineau (1960: 58) and Schaade (1911: 73 cited in Watson 2002: 3) and Zaborski (2007, II: 495). Gairdner (1925: 23); Fischer and Jastrow (1980: 105); and Watson (1992: 73) (cited in Watson 2002: 3), however, favour the interpretation of a voiced palatal stop ([j]). Regardless of the slight dissonance in twentieth-twenty-first century CE readings of this eighth century CE description, it is apparent that the palatalisation of *ǧīm* was not only established but had also gained prestige among the Arab grammarians, at this time.

The prestige of *ǧīm*'s palatalised reflex is later reflected in the eleventh-century CE work of the Persian scholar and physician Ibn Sīna (Avicenna) (d. 1037 CE), who refers to it as the standard pronunciation (Blanc 1969: 23). While the velar stop reflex of *ǧīm* is attributed to a few geographical locations – namely in areas of Southern Yemen, Aden and Iraq – during the tenth–eleventh centuries CE, Blanc reports that no explicit mention is made of its occurrence in Egypt (1969: 23). This omission leads Blanc to assert that the voiced velar stop reflex in Egypt was superseded by the affricated and palatalized variants of *ǧīm*.

Some twelve years after the publication of his influential 1969 paper, Blanc (1981) turns his attention to the specifics of the diachronic pronunciation of *ǧīm* in Egyptian Arabic. This later paper centres its discussion of *ǧīm* on its graphemic representation in the Judaeo-Arabic extracts of *Darxe No'am* (Venice, 1697). With reference to other Judaeo-Arabic literary texts published by Goitein (1972) and Lebedev (1965), contemporaneous Muslim

Middle Arabic literary texts and eighteenth–twentieth century CE European accounts of spoken Egyptian Arabic,¹⁹ Blanc concludes that there is no evidence for the plosive pronunciation of *ǧīm* in Cairene Arabic between the twelfth–seventeenth centuries CE (1981: 192).²⁰ Blanc traces the development of the voiced velar stop reflex backwards from early twentieth century CE sources to its burgeoning in the seventeenth century CE (1981: 191-193), yet omits to offer an explicit linguistic explanation (such as migration, diffusion or language contact) for this phenomenon.

Blanc’s reading of the pronunciation of *ǧīm* in medieval Egypt is further developed by Hary (1996a), who offers the following chronology by way of explanation:

$$g \rightarrow g / g' / \check{g} \rightarrow \check{g} \rightarrow \check{g} / g \rightarrow g^{21}$$

6th-7th cent. 8th-11th cent. 12th-17th cent. 17th-19th cent. 19th-20th [cent.]

(Hary 1996a: 153).

As the above diagram demonstrates, Hary proposes that the variants of *ǧīm* were in a ‘state of fluctuation’ between the eighth–eleventh centuries CE (1996a: 156). This uncertain phonological situation was resolved, according to Hary, by the twelfth century CE when the voiced palato-alveolar affricate [dʒ] allophone triumphed, becoming the universal pronunciation among Egyptian Arabic speakers until the seventeenth century CE. Unlike Blanc, Hary does provide a reason for this phonetic shift, suggesting that a small community of Egyptian Arabic speakers used the velar stop pronunciation in seventeenth-century CE Egypt. The pronunciation gained social value and was gradually, throughout the early to mid-eighteenth century CE, adopted in urban centres such as Cairo, Damietta and, eventually, Alexandria (1996a: 165). Where this community with its singular phonetic reflex may have sprung from is not elucidated.

In 1985, Behnstedt and Woidich produced the most comprehensive maps of Egyptian dialects published to date. Their findings reveal a ‘corridor’, stretching from Banī Swayf to Damietta in which the distinctive Cairene vernacular endures. This ‘corridor’ has been identified as a significant medieval trade route, leading from the capital Cairo to a major commercial hub, the seaport town of Damietta. This dialectal situation was initially interpreted by Behnstedt and Woidich (1985) within the framework of the diffusion model: the Cairene dialect spread from Cairo to Damietta via the commercial stopping places situated in between these two major urban centres. Then, once the distinctive Cairene dialect had become established

in these areas, it was adopted by speakers in the surrounding provinces (Behnstedt 2006, I: 588-589). It has since been suggested that this ‘corridor’ may in fact constitute a ‘relic area’ (Woidich 1996: 20 (accessed online: 11/01/17); Behnstedt 2006, I: 589) in which the pronunciation of *ǧīm* as a voiced velar stop was ubiquitous. This phonetic uniformity was threatened from both the west²² and east²³ by nomadic communities in which the affricate pronunciation of *ǧīm* predominated. Woidich suggests that the pressure of phonological change exerted on both the western and eastern fronts was resisted along this trade route by the social prestige and influence attached to the Cairene dialect (1996: 19 (accessed online: 11/01/17)).

Whether one favours the interpretation of ‘innovation’ in which the Cairene dialect spread to commercially important urban areas, or of the preservation of the ‘original’ dialect brought to the region at the time of the Arab conquests, both explanations testify to the old and influential nature of the Cairene Arabic dialect and the continuous phonetic realisation of *ǧīm* as a voiced velar stop (Woidich 1996: 19-20 (accessed online: 11/01/17)).

Behnstedt and Woidich’s theories constitute a direct repudiation of Blanc and Hary’s reading of *ǧīm*’s historical development in Egypt. The linguistic situation described by Behnstedt and Woidich in Egypt between eighth–eleventh centuries CE (and later) is not that of a ‘state of fluctuation’ brought to resolution with the dominance of the affricate reflex but rather the concurrence of two (or more) different variants in a manner not dissimilar to that which we find, today.

3. *Judaeo-Arabic orthographic representations of ǧīm*

As has already been established, the dominance of the fronted reflexes of *ǧīm* in Egypt between the twelfth–early nineteenth centuries CE in Egypt has been argued for partly on the basis of Judaeo-Arabic orthographic practices during those centuries and their potential phonetic implications.

The approach advocated by Blanc (1981) and Hary (1996a) is applied here across a sample corpus of Judaeo-Arabic letters and folk narratives, spanning a thousand years. Two documentary texts and (where available) two literary texts²⁴ from six chronological categories²⁵ – (i) eighth/ninth century CE, (ii) eleventh century CE, (iii) thirteenth century CE, (iv) fifteenth–sixteenth centuries CE, (v) seventeenth century CE, and (vi) nineteenth century CE – are examined (section 3.1) for the presence or absence of a diacritic below or

above *gimel* denoting *ǧīm*.²⁶ In section 3.2, substitutions of *gimel* for *ǧīm* with other Hebrew graphemes, instances of assimilation, and examples of metathesis are re-analysed in relation to new evidence. The purpose of this approach is twofold: to re-assess the phonetic significance of the diacritic in relation to *ǧīm*; and to redirect scholarly attention to those areas of orthography which may yield more definitive, if limited, phonological data.

3.1. *The diacritic*

As is often remarked, the number of Arabic graphemes (twenty-eight) outnumbers those in the Hebrew graphemic inventory (twenty-two) (Blau 1981: 34-35; Wagner 2010: 27). In Judaeo-Arabic, this deficit is compensated by the addition of a diacritic to six graphemes to indicate their dual function. The Hebrew graphemes *gimel* (ג), *dalet* (ד), *kaf* (כ), *tet* (ט), *tsadeh* (צ) and *tav* (ת) are most commonly chosen for this purpose. The underlying principle governing these choices may be either phonetic²⁷ or graphical.²⁸ The adaptations of the Hebrew script for the purposes of Judaeo-Arabic have produced variant orthographic styles often referred to as phonetic, Arabicized and Hebraized spelling (Hary 1997a: 37), terms which are loosely analogous to the temporal delineation of early, classical and late Judaeo-Arabic, respectively (cf. Khan 2007, II: 526-529; Hary 1997b: 199-203 for discussions regarding the periodisation of Judaeo-Arabic).

Early Judaeo-Arabic orthography is generally termed ‘phonetic’ (cf. Hary 1996b: 731; 1997a: 37-39). This refers to the tendency exhibited in pre-tenth century CE documentary texts²⁹ to denote Arabic phonemes with their phonetic, as opposed to graphemic, cognates using the Hebrew alphabet (Blau and Hopkins 1984: 9-10).³⁰ One of the most commonly cited features of early Judaeo-Arabic orthography is the representation of Arabic *ḍād* with the Hebrew grapheme *dalet*: the voiced retroflex stop /dʳ/ pronunciation of *ḍād* is most closely related to the voiced alveolar stop /d/ of the Hebrew *dalet* (Blau and Hopkins 1984: 19-20; Hary 1996b: 731). The phonetic premise exhibited in the choice of this and other Hebrew graphemes in the adaptation of the Hebrew script for the purposes of Judaeo-Arabic writing during this period is also thought to apply to the representation of *ǧīm*. The use of an unadorned Hebrew *gimel* – the reflex of which is a voiced velar stop [g] (cf. Garbell 1954: 232)³¹ – to denote *ǧīm* in early Judaeo-Arabic documentary papyri is, therefore, often understood to indicate that the voiced velar stop reflex of the Hebrew phoneme was also the reflex of *ǧīm*

during this period. If the phonetic reflex of *ǧīm* was fronted, then a combination of the Hebrew graphemes *dalet* and *šin*, *šin* or *zayin* in place of *gimel* would be expected (Blau and Hopkins 1987: 129). However, Blau and Hopkins, in their extensive analysis of early Judaeo-Arabic representations of *ǧīm* advice caution: the writers of these eighth/ninth century CE letters may have been aware of the shared etymological heritage of the two graphemes *gimel* and *ǧīm*, which would explain their preference for *gimel* (Blau and Hopkins 1987: 130-31). In the choice of *gimel* for *ǧīm* in pre-tenth century CE texts we perhaps witness the burgeoning of graphical representation that came to dominate Judaeo-Arabic writings for centuries to come. In light of the consistent phonetic renderings of other Arabic graphemes, this is undoubtedly speculative. However, the repeated appearance of $\Psi\Psi\daleth$ *dšyš* ‘ground, coarse wheat’ (Classical Arabic: *ǧašīšun*) in one of the early business letters³² sheds some doubt on the interpretation of a single voiced velar stop [g] reflex for *ǧīm* in eighth/ninth century CE Egypt. It suggests that the voiced alveolar stop [d] reflex for *ǧīm* may have been in circulation at the time of writing. While, Blau and Hopkins argue, the [d] is not synchronically incompatible with a voiced velar stop [g], it cannot be understood as evidence of affricated variants of *ǧīm*: it attests to an earlier phonetic shift of [ʒ] > [d] (Blau and Hopkins 1987: 130-31).³³ The denotation of *ǧīm* with *gimel* without a diacritic in pre-tenth century CE Judaeo-Arabic writing cannot be unequivocally understood as indicating voiced velar stop pronunciation.

The representation of *ǧīm* in the two Egyptian business letters Vienna H33 and Vienna H34, dated to the eighth/ninth century CE, conforms to the general trends reported by Blau and Hopkins (1984, 1987): *ǧīm* is represented by *gimel* without a sublinear or supralinear dot and no graphemic substitutions, such as *dalet* as mentioned above, are in evidence. Yet, the ninth century CE corpus is undeniably limited; it seems advisable to heed Blau and Hopkins’ caution in avoiding a definitive conclusion with regard to the phonetic significance of the representation of *ǧīm* as denoted in these texts, especially when one considers the present-day phonetic variation.

Classical Judaeo-Arabic orthography superseded early Judaeo-Arabic spelling during the tenth century CE.³⁴ The adjustment of the Hebrew script, which came to dominant Judaeo-Arabic between the tenth–fifteenth centuries CE is well documented as being founded on graphical principles. The representation of *ḏād* with *dalet*, so characteristic of early Judaeo-Arabic documentary texts, gives way to denotation with its graphic counterpart

tsadeh and a supralinear dot (ֶ). The denotation of *ǧīm* throughout this period and in the majority of genres is generally recorded as a *gimel* with a sublinear dot (ֳ). This constitutes direct graphic imitation of the diacritic exhibited in the Arabic grapheme *ǧīm* (ج). However, the two eleventh-century CE documentary texts CUL T-S 8.18³⁵ and Bodleian MS Heb.d.47/62³⁶ do not conform to this trend: in both letters the *gimel* representing *ǧīm* is always unmarked. The two contemporaneous narratives CUL T-S AS 161.32 ('The Story of Baḥīra')³⁷ and CUL T-S NS 298.55 ('The History of Yešū')³⁸ display more variation in their depictions of *ǧīm*. In the former text, 40 per cent of occurrences of *gimel* for *ǧīm* are written without a dot, while 60 per cent are written with a supralinear dot. In the latter, 90 per cent of the occurrences of *gimel* for *ǧīm* are written without a diacritic, while 10 per cent are marked with a supralinear dot. The marking of *gimel* for *ǧīm* in these four eleventh century CE texts may be regarded as somewhat sporadic. The position of the diacritic above, rather than below the grapheme as is generally suggested, is also worthy of note.

The two thirteenth-century CE letters GW VIII³⁹ and CUL T-S 12.69⁴⁰ vary greatly in their use of the diacritic. In GW VIII, *gimel* for *ǧīm* is never marked. However, in the letter CUL T-S 12.69, 62.5 per cent of occurrences of *gimel* for *ǧīm* are marked with a supralinear dot, while 37.5 per cent remain unmarked.⁴¹

From the fifteenth century CE onwards, Judaeo-Arabic orthography is notable for its admixture of Rabbinic Hebrew and Aramaic spelling; phonetic renderings of Arabic phonemes; and classical Judaeo-Arabic spelling practices. It is often remarked that during this period, the marking of *gimel* with a dot to denote *ǧīm* becomes more sporadic than in the previous period, before ceasing altogether by the early nineteenth century CE.

Two randomly selected Egyptian letters (composed by different hands) from a collection of some twenty-seven Judaeo-Arabic letters written to Mošeh ben Yehūdah⁴² and dated to the late fifteenth century CE display slightly different levels of consistency in the marking of the *gimel* when representing *ǧīm*. In 66.7 per cent of occurrences of *gimel* for *ǧīm* in Bodleian MS Heb.c.72/13⁴³ the grapheme is marked with a sublinear dot, while in 33.3 per cent the *gimel* is left unmarked. In Bodleian MS Heb.c.72/39,⁴⁴ however, the use of the diacritic is more constant; the dot is omitted in only 4 per cent of instances. The *gimel* for *ǧīm* appears with a supralinear dot in 88 per cent of occurrences but in the remaining 8 per cent, the diacritic is written below the grapheme. The collection of letters addressed to Mošeh ben Yehūdah

also contains a letter written from Zaragoza, Spain. This well-preserved letter (Bodleian MS Heb.c.72/18⁴⁵) exhibits many features – such as the separation of the definite article from the noun it modifies and the frequent plene representation of the Arabic short vowel *ḍamma* with Hebrew *vav* – which are characteristic of eighteenth–nineteenth-century CE Judaeo-Arabic compositions. Furthermore, *gimel* is always written without a sublinear or supralinear dot when representing either *ǧīm* or *ǧayn*, a practice that is often noted as characteristic of late texts.⁴⁶ The difference in the depiction of *ǧīm* found in the contemporaneous letters Bodleian MS Heb.c.72/18 as compared to Bodleian MS Heb.c.72/13 and Bodleian MS Heb.c.72/39 is notable. It suggests that the conservative, graphical orthography favoured in Egypt up to and including the fifteenth century CE (and possibly sixteenth–seventeenth centuries CE) was superseded by the orthographical innovations of western Judaeo-Arabic writing habits, including the tendency evident in nineteenth century CE documentary material to write *gimel* for *ǧīm* without a dot. Whether this has any phonetic significance has yet to be [established](#).

The roughly contemporaneous folk narratives Firkovitch Evr.Arab.II 852 and Firkovitch Evr.Arab.II 1528⁴⁷ differ noticeably in their respective representations of *ǧīm*. In the former, *gimel* is marked with a sublinear dot in only 11.7 per cent of cases, while the remaining 88.3 per cent of occurrences are left unmarked. In the latter text the opposite occurs: *gimel* for *ǧīm* is marked with a sublinear dot in 88.7 per cent of occurrences, whereas in 11.3 per cent of instances it is left unmarked. Furthermore, while Firkovitch Evr.Arab.II 852 displays infrequent marking of the *gimel* for *ǧīm*, it contains several examples in which the Hebrew graphemes *šin* and *zayin* are used to represent *ǧīm* in place of *gimel*. Yet, in Firkovitch Evr.Arab.II 1528 in which the *gimel* for *ǧīm* is regularly marked with a dot, *kaf* appears as a substitute for *gimel* (these examples are discussed below, see section 3.2). From this, one may infer that the presence of a dot above *gimel* for *ǧīm* may be a graphical, rather than phonetic, phenomenon in these two literary texts.

The folk narrative Firkovitch Evr.Arab.II 1536,⁴⁸ loosely dated by Lebedev, and subsequently, Palva, to the seventeenth/eighteenth century CE (Palva 2007: 396), displays *gimel* for *ǧīm* unmarked in only 7.2 per cent of cases. In the vast majority of occurrences – 92 per cent to be exact – *gimel* for *ǧīm* has a sublinear dot while in 0.8 per cent of cases it is marked with a supralinear dot. A similar consistency in the use of the diacritic is exhibited in the folk narrative AIU VII C.16⁴⁹ in which *gimel* for *ǧīm* is marked with a supralinear

dot and left unmarked in only 8.7 per cent of cases. The latter manuscript was dated by Goitein (1972) to the seventeenth century CE.⁵⁰ An inspection of the manuscript reveals a number of orthographic features – including the separation of the definite article from the noun it modifies, the use of a diacritic above the grapheme *peh* (see below), and frequent writing of *vav* to indicate the presence of the short vowel *ḍamma* – generally associated with eighteenth and nineteenth century CE texts. These features are partially obscured by Goitein’s transcription. I think it is probable, but by no means certain, that this text is more recent than has previously been supposed.⁵¹

In the nineteenth-century CE Judaeo-Arabic letters Rylands L192⁵² and CUL T-S 13J25.24,⁵³ *ǧīm* is consistently denoted with unmarked *gimel*. This is also the case in the contemporaneous folk narrative Cairo JC 104.⁵⁴ However, the folk narrative BnF Hébreu 583⁵⁵ exhibits frequent, if not entirely consistent, marking of *gimel* for *ǧīm* with a supralinear dot; 79.5 per cent of occurrences display a supralinear dot, while 20.5 per cent are left unmarked.

Not only is *gimel* denoting *ǧīm* frequently marked with a supralinear dot in BnF Hébreu 583, but so too is the Hebrew grapheme *peh*. The latter’s function in Judaeo-Arabic is limited to representing its Arabic graphical cognate *fā’*, of which the single reflex is a voiceless labio-dental fricative [f]. This phenomenon is not unique to this folk narrative but also occurs consistently in the aforementioned folk tales AIU VII C.16, Cairo JC 104 and, with less frequency, in the nineteenth century CE letters Rylands L192 and CUL T-S 13J25.24. The marking of *peh* is merely graphical, a verdict confirmed by the use of the initial/medial form of the Hebrew grapheme *peh* at the end of a given word in this text: it retains its initial/medial form (פ) in all positions and thus more closely imitates the physical form of its Arabic cognate *fā’* (ف). Furthermore, *peh* is written exclusively in initial/medial form in all four of the nineteenth-century CE manuscripts referred to here.⁵⁶ These two orthographic phenomena – the marking of *peh* with a supralinear dot, and the imitation of the Arabic grapheme in final form – to which there can be attributed no phonetic function, serve to further corroborate the notion that the marking of the grapheme *gimel* for *ǧīm* in these late Judaeo-Arabic texts has little, or no, discernible phonetic significance.

Century & genre	Classmark	<i>gimel</i> for <i>ǧīm</i>	without dot	supralinear dot	sublinear dot
9th c. letter	Vienna H33	6	6	0	0
9th c. letter	Vienna H34	19	19	0	0
9th c. folk narrative	N/A				

9th c. folk narrative	N/A				
11th c. letter	CUL T-S 8.18	12	12	0	0
11th c. letter	Bodleian MS Heb.d.47/62	11	11	0	0
11th c. folk narrative	CUL T-S NS 298.55	20	18	2	0
11th c. folk narrative	CUL T-S AS 161.32	5	2	3	0
13th c. letter	CUL T-S 12.69	16	6	10	0
13th c. letter	GW VIII	9	9	0	0
13th c. folk narrative	N/A				
13th c. folk narrative	N/A				
15th/16th c. letter	Bodleian MS Heb.c.72/39	25	1	22	2
15th/16th c. letter	Bodleian MS Heb.c.72/13	9	3	0	6
15th/16th c. letter	Bodleian MS Heb.c.72/18	15	15	0	0
15th/16th c. folk narrative	Firkovitch Evr.Arab.II 852	120	106	0	14
15th/16th c. folk narrative	Firkovitch Evr.Arab.II 1528	71	8	0	63
17th c. letter	N/A				
17th c. letter	N/A				
17th c. folk narrative	AIU VII.C.16	23	2	21	0
17th c. folk narrative	Firkovitch Evr.Arab.II 1536	125	9	1	115
19th c. letter	Rylands L192	10	10	0	0
19th c. letter	CUL T-S 13J25.24	26	26	0	0
19th c. folk narrative	BnF Hébreu 583	44	9	35	0
19th c. folk narrative	Cairo JC 104	200	200	0	0

Table 1.1: The use of the diacritic in relation to *gimel* for *ǧīm*, ninth–nineteenth centuries CE.

The diacritic is absent in the letters examined here until its appearance in one of the thirteenth century CE texts, CUL T-S 12.69, where it is used erratically. A supralinear dot appears in the eleventh-century CE folk narratives CUL T-S AS 161.32 and CUL TS NS 298.55, but again, its use cannot be described as consistent. More striking is the lack of the diacritic in the fourteenth/fifteenth century CE folk narrative Firkovitch Evr.Arab.II 852 in which *gimel* for *ǧīm* is sometimes replaced by the Hebrew grapheme *šin*, indicating a fronted *ǧīm* reflex. This, when coupled with the more consistent use of the diacritic in the later fifteenth/sixteenth-century CE text Firkovitch Evr.Arab.II 1528 in which the Hebrew grapheme *kaf* is used to indicate *ǧīm*, belies the interpretation of the diacritic as having fundamental phonetic significance.

The interpretation of the diacritic as serving a graphical rather than phonetic function is further compounded by the manner of its use in the nineteenth-century CE folk narrative BnF Hébreu 583. A dot is frequently used above *gimel* to denote *ǧīm* in this text, a practice which is often said to have ceased by this period of Judaeo-Arabic writing. Furthermore, the

grapheme *peh* representing the Arabic grapheme *fā'* is also written with a supralinear dot in the three folk narratives referred to here (Cairo JC 104, BnF Hébreu 583 and AIU VII C.16) and infrequently in both the contemporaneous letters Rylands L192 and CUL T-S 13J25.24.

This brief overview of the use of the diacritic with *gimel* to denote the Arabic grapheme *ǧīm* in Egyptian Judaeo-Arabic literary and documentary texts between the ninth–nineteenth centuries CE reveals a great degree of inconsistency in the use of the diacritic in all periods. While this study is limited in both the types of genre and number of texts examined, it casts serious doubt on the attribution of phonetic significance to the diacritic. The erratic nature of its use and the lack of discernible phonetic value point to its inaptness as a source from which to reconstruct the phonetic realisations of *ǧīm* in Egypt between the ninth–nineteenth centuries CE.

3.2. Assimilation and metathesis

The second approach to the reconstruction of *ǧīm*'s historical development from Judaeo-Arabic sources relies on instances of assimilation, metathesis and graphemic substitutions.

The most commonly cited example in support of palatalised pronunciation of *ǧīm* is *wǧ* *wišš* 'face' (Classical Arabic: *waǧhun*), which Palva refers to as being the 'result of reciprocal assimilation' (2008: 95). This form, which occurs relatively frequently in Egyptian Judaeo-Arabic and Middle Arabic texts alike is also mentioned by Kaye (1972: 37–38), Blanc (1981: 190), Davies (1981: 68–69), Hary (1996a: 160), Palva (2008: 94–95) and Hasson-Kenat (2016: 83–85) in their respective analyses of *ǧīm*.⁵⁷ Blanc breaks down the process of assimilation as follows:

[wiǧh] > [wižh] > [wišh] > [wišš] (Blanc 1981: 190)

This phonetic development may be best described in two stages: (i) anticipatory devoicing from /wižh/ > /wišh/ (the unvoiced glottal fricative [h] causes the voiced palato-alveolar fricative [ʒ] > an unvoiced palato-alveolar fricative [ʃ]); (ii) lag assimilation of /h/ to /š/ (/š + h/ > /šš/).⁵⁸ As is evident from both Blanc's diagram and the more detailed analysis offered here, the fronted pronunciation of *ǧīm* as the origin of this phonological development is generally assumed on the basis that assimilation between an unvoiced glottal fricative [h] and a voiced palato-alveolar fricative [ʒ] (Kaye 1972: 37–38) is more probable than with a voiced velar stop [g] (Blanc 1981:

190). This form has, therefore, been referenced extensively as an indication of the prominence of fronted reflex(es) of *ǧīm* in Egyptian dialects, specifically by Blanc (1981: 189-190), Hary (1996a: 160) and Palva (2008: 94-95) in support of the affricated pronunciation of *ǧīm*. However, this example and the majority of examples of assimilation referred to by these scholars indicate, not the voiced palato-alveolar affricate [dʒ] reflex or palatalised velar stop reflexes [gʲ]~[dʲ] found in Upper Egyptian dialects, but the voiced palato-alveolar fricative [ʒ] variant of *ǧīm*,⁵⁹ which is characteristic of contemporary Maghrebian, Tunisian and urban Syrian and Palestinian dialects. This perhaps lends greater authority to the theory put forward by Behnstedt and Woidich (1985), Behnstedt (2006) and Woidich (1996) that the fronted reflexes of *ǧīm* found in some contemporary Egyptian dialects in the east, west and Upper Egypt are the result of migration from Libya, Tunisia and the Maghreb in the west and Syria and Palestine in the east.

Attested in all the texts referred to by these scholars is the simultaneous occurrence of the original and dialectal forms of this noun (Classical Arabic: *waǧhun*; Egyptian Colloquial Arabic: *wagh*). As Palva points out, this situation – the concurrence of the sibilant and plosive forms – is also found in present-day Cairene (2008: 95).⁶⁰ Thus, while occurrences of *wšš* undoubtedly suggest that fronted /g/ was present in Egypt during the medieval and late medieval periods, it is doubtful that it constituted the universal form of pronunciation. Palva suggests that the palatalised variant may be either the preservation of an inherited form of pronunciation, or a relic of language contact (2008: 95). Kaye also intimates the latter suggestion when he speculates that it may be a loanword from a Syro-Palestinian dialect (1972: 37). It seems safe to conclude that this dialectal form of pronunciation of the noun cannot be understood as concrete proof of the ubiquitous fronting of *ǧīm*.

Further evidence of the fronted *ǧīm* reflex in the form of assimilation is the representation of *ǧīm* with the Hebrew voiced alveolar fricative *zayin* [z] which occurs in the seventeenth/eighteenth-century CE folk narrative Firkovitch Evr.Arab.II 1536, e.g., זװז 'zww 'old woman' (Firkovitch Evr.Arab.II 1536, 2v.6) (Classical Arabic: *'aǧūzātun*) (Palva 2008: 95; cf. Lebedev 1965: 526; Blanc 1981: 190). Palva describes this phenomenon as 'the result of regressive assimilation of an affricated variant of *ǧ* [ǧīm] – either *ǧ* (j) [[dʒ]] or *ž* [[ʒ]] – to the last phoneme of the syllable' (2008: 95). As with the previous example of assimilation mentioned by these scholars and examined here, either a voiced alveolar fricative [z] or voiced palato-alveolar fricative

[ʒ] is implied here rather than the voiced palato-alveolar affricate [dʒ] reflex advocated by Blanc, Hary and Palva. 'zwzh for 'aǧūza is attested in modern Tunisian and Libyan dialects and may therefore constitute a loanword or borrowing resulting from language contact. It does not occur in present-day Cairene Arabic.

Another example frequently mentioned in analyses of *ǧīm* is the VIIIth form of the verb *ǧm'* in which the *ǧīm* is represented by the Hebrew grapheme *šin*, 'štm' 'to gather, meet' (Classical Arabic: 'iǧtama'a). This verb form occurs, albeit rarely, in eleventh century CE Egyptian letters from the Cairo Genizah collections, e.g., נשתמע nštm' 'We meet' (CUL T-S 8J26.13, 19); אשתמע 'štm' 'I met' (Dropsie 399, 9); אלאשתמאע 'l-'štm' 'the meeting' (CUL T-S 13J17.11, 4) (examples from Wagner 2010: 35-36).⁶¹ It is also found in the fourteenth-century CE folk narrative mentioned above, e.g., וישתמע w'stm' 'and he gathered' (Firkovitch Evr.Arab.II 852, 8r.9); פשתמעה fštm' 'then I gathered' (Firkovitch Evr.Arab.II 852, 12r.11) (examples from Palva 2009: 387).⁶² The use of *šin* in this context suggests that the intended reflex of *ǧīm* is a voiceless palato-alveolar fricative [ʃ], resulting from a process of devoicing caused by the following voiceless alveolar stop [t] (Zaborski 2007, II: 494). The assimilation exhibited here further supports the reconstruction of a voiced palato-alveolar fricative [ʒ] reflex for this period, rather than the affricate variant proposed by Blanc, Hary and Palva.

The Classical Arabic verb *zāǧa*, *yazūǧu* 'to get married' is found in modern Egyptian Colloquial Arabic (*zwg*) alongside the metathesised form of the root: *gwz*. The folk narrative Firkovitch Evr.Arab.II 1536 contains examples of both the original and metathesised forms, e.g., אגז 'ǧwz 'I marry off' (Firkovitch Evr.Arab.II 1536, 2v.16; 6v.9); ואגזוהא w'ǧwzh' 'and he married her' (Firkovitch Evr.Arab.II 1536, 8v.14); and אזג 'azwǧ 'I marry off' (Firkovitch Evr.Arab.II 1536, 3r.2). Palva cites these examples as further evidence of affricate pronunciation (2008: 95), doubtless on an aural or perceptual basis; two sounds that are alike in terms of manner or place of articulation, or sonorancy are sometimes prone to metathesis (Hume 2006: 507). Palva's use of this example, therefore, both presumes and perpetuates the reading of a universal fronted pronunciation of *ǧīm*. There are other motivations for metathesis, however, which may be equally apt in this context. An initial weak consonant – such as a fricative or sonorant – is more prone to be displaced by a strong consonant – such as a plosive – on the basis that a strong consonant is less susceptible to ambiguity (Hume 2006: 508). If the *ǧīm* of the Classical Arabic form *zwǧ* was pronounced as it is in contemporary

Cairene Arabic ([g]), then as a strong, plosive sound its metathesis to the word-initial position, replacing the weaker voiced alveolar fricative [z] reflex to avoid ambiguity, may also be regarded as a plausible explanation. Neither interpretation is definitive. Yet, the continued coexistence of the original and metathesised forms of the root in contemporary Cairene Arabic suggests that the latter is just as probable as the former.⁶³

There is one occurrence in the fifteenth/sixteenth-century CE folk narrative Firkovitch Evr.Arab.II 1528 in which the *gimel* for *ǧīm* is substituted not with a sibilant fricative but with the Hebrew voiceless velar stop *kaf* [k]; אלתאך 'l-t'k 'the crown' (3r.7), corresponding to אלתאג 'l-t'g 'the crown' (Firkovitch Evr.Arab.II 852, 10r.8) (Classical Arabic: *al-tāǧu*). The denotation of *ǧīm* with *kaf* in this fifteenth/sixteenth-century CE manuscript suggests that the voiced velar stop [g] reflex existed in Egypt for longer than has previously been thought.

The evidence suggested by these variant representations of *ǧīm* indicate the existence of fricative reflexes of *ǧīm*, rather than the affricated variant proposed by Blanc, Hary and Palva. It is worth noting, however, that these occurrences are limited to eleventh century CE letters and two folk narratives (Firkovitch Evr.Arab.II 852 and Evr.Arab.II 1536), and do not necessarily preclude the coexistence of the voiced velar stop [g] reflex as demonstrated by the use of *kaf* to denote *ǧīm* in the folk narrative Firkovitch Evr.Arab.II 1528. In light of these various representations of *ǧīm*, I tentatively suggest that the linguistic situation in Egypt with regards to the phonetic realisation of *ǧīm* as represented in Judaeo-Arabic texts was more varied and complex than is implied in previous analyses of the issue.⁶⁴

4. Conclusion

Through a brief examination of some former analyses of historical phonetic realisations of *ǧīm* in which the origins of the fronted *ǧīm* were explored in relation to the voicing and velarisation of *qāf*, this paper laid the foundations for a more detailed exploration of orthographic denotations of *ǧīm* as they appear in Egyptian Judaeo-Arabic literary and documentary texts between the ninth–nineteenth centuries CE. The aim of this paper was to ascertain the extent of the usefulness of the diacritic in reconstructing the phonetic value and chronological development of *ǧīm*; and to search for more unambiguous indications of the phonetic realisations of *ǧīm* as displayed in Egyptian Judaeo-Arabic literary and documentary texts.

In pursuit of this aim, the first stage of Blanc's methodology (1981) – the examination of texts for the use of the diacritic with *gimel* denoting *ǧīm* – was applied to two documentary texts and two literary texts (where available) from six periods, spanning the ninth–nineteenth centuries CE. The degree of inconsistency displayed in the application of the diacritic in all periods and both genres examined here establishes (albeit in a limited capacity) that the diacritic is a dubious source for recreating the phonetic realisations of *ǧīm* in pre-Modern Egyptian dialects.

Oft cited examples of assimilation, metathesis and graphemic substitutions used in support of an affricate pronunciation of *ǧīm* between the twelfth–seventeenth centuries CE in Egypt were re-examined in relation to new evidence. These phenomena offer a far more substantial basis on which to assess, if not quite establish, the phonetic realisations of *ǧīm*. It was, however, demonstrated that these occurrences require more careful analysis: the instances of assimilation and metathesis tend to suggest not affricate but fricative reflexes, which may indicate different reading traditions influenced by Maghrebian, Tunisian and Libyan and urban Syro-Palestinian pronunciations of *ǧīm*. Furthermore, new evidence discovered in the fifteenth/sixteenth-century CE folk narrative Firkovitch Evr.Arab.II 1528 in which *ǧīm* is represented by *kāf* implies that the voiced velar stop [g] reflex of *ǧīm* may have been in circulation in Egypt for longer than has previously been supposed by scholars of Judaeo-Arabic.

The phonetic realisations of *ǧīm* in pre-modern Egypt appear to be more complex and varied than is suggested by Blanc (1981) and Hary (1996a). The role of Judaeo-Arabic orthography in reconstructing the phonetic realisations of this single phoneme is far more limited than is implied by their arguments: Judaeo-Arabic orthography offers only occasional and fleeting glimpses into pre-modern Arabic phonology. While these glimpses have value, they cannot be regarded as providing a complete representation of historical phonetic realisations of *ǧīm* in Egypt.

Footnotes

-
- 1 The three Judaeo-Arabic texts referred to by Blanc are: the Judaeo-Arabic passages from the seventeenth century CE text *Darxe No'am* (Venice, 1697); a purportedly seventeenth century CE Judaeo-Arabic folktale published by Goitein (1972); and Judaeo-Arabic fragments dated and published by Lebedev (1965) (Blanc 1981: 185–6).
 - 2 The Muslim Middle Arabic sources Blanc refers to are: Yusuf al-Mağribi's *Daf' al-iṣr 'an kalām ahl miṣr*, dated to 1606 CE (Zack 2009); and al-Širbīnī's *Hazz al-quḥūf fī šarḥ qaṣīd 'Abī Šādūf*, (Būlāq 1857 CE) (Davies 1981, 2005) (Blanc 1981: 192–3).
 - 3 The Hebrew grapheme *gimel* is also often marked with a diacritic when representing *ǧayn*. It is generally reported as being written above the grapheme, although I argue that its marking is not as consistent as has previously been thought.
 - 4 Blanc states that the diacritic may either indicate 'a phonetic modification, an abbreviation or a foreign word' (1981: 187, n. 6). He does not consider the diacritic's potential graphical significance.
 - 5 Palva (2009), and later Hasson-Kenat (2016), dismiss the diacritic as an indicator of phonetic value, focusing instead on occurrences of assimilation, metathesis and substitute denotations of *ǧīm*.
 - 6 This research does not presume to support one interpretation over the other. It is merely intended question the applicability of Judaeo-Arabic orthographic practices in recreating historical Arabic phonology.
 - 7 Zaborski challenges the established view that the Proto-Semitic phoneme /g/ was realised only as a voiced velar stop [g], stating that '[t]here is no need to assume, and actually there is no proof, that the fronted allophones of /g/ appeared within Semitic for the first time in Proto-Arabic, or in some pre-Classical Arabic dialects.' (2007, II: 495).
 - 8 The occurrence of the same phenomenon in some North-Eastern Neo-Aramaic dialects was pointed out to me in a discussion with the Prof. Geoffrey Khan (Michaelmas term, October 2016). In the Jewish Neo-Aramaic dialect of Sulemaniyya and Ḥalabja /g/ is generally pronounced as a voiced palato-alveolar affricate [dʒ], with allophonic variants that include the palatal glide [j] (Khan 2004: 21–2). The fronting of /g/ has also occurred in the Neo-Aramaic dialect of Qaraqosh (Khan 2002: 26), yet in the Jewish dialect of Arbel, the fronted variants of /g/ are generally limited to loanwords; /g/ is generally pronounced as a voiced velar stop [g] (Khan 1999: 24–6).
 - 9 The shift of *qāf* from [q] > [G] > [g] is generally termed a matter of voicing, however, it may be more accurately defined as voicing *and* movement in place of articulation from uvular to velar.
 - 10 The voicing of the phoneme /q/ > [g] is implied in Akkadian by the consistent lack of distinction drawn between the phonemes /q/ and /g/, which Edzard

- proposes may indicate the existence of variant reflexes of the two phonemes akin to that attested in contemporaneous spoken Arabic (2009, IV: 1-2). This goes against Blanc's assertion, later reiterated by Hary, that Arabic 'is the only Semitic language to exhibit... a general voicing of Semitic q to [g]' (1969: 7; Hary 1996a: 155).
- 11 Cantineau's 1960 article was originally published in *Bulletin de la Société de Linguistique de Paris* 43 (1946), pp. 93–140. This paper refers to its re-published form found in *Études de linguistique arabe: mémorial Jean Cantineau* (Paris: Librairie C. Klincksieck 1960). 165–204.
 - 12 I am indebted to Prof. Geoffrey Khan for this idea and for his generosity in allowing me to write about it here.
 - 13 This is not to suggest that the velarisation of /ħ/ and the fronting of /g/ are phenomena contingent on one another, merely that they may both be indicative of the phonetic status of /q/ in some NENA dialects.
 - 14 While the phonetic shifts evident in these two dialects both involve the loss of *qof*'s pharyngealised element, the influences and extent of the changes differ greatly in each dialect. In Christian Urmi, the shifts in place of articulation of *qof* and *gimel* are far more advanced than those found in Barwar. These developments in Christian Urmi are also attributed to language contact with Armenian and Azeri dialects rather than internal phonetic shifts, as in the Barwar dialect (Khan 2016: 109–10).
 - 15 Sībawayhi's *al-Kitāb* is generally considered to be the first and most comprehensive description of the Classical Arabic language. (Al-Ani 2008, III: 602).
 - 16 It is worth noting that while Sībawayhi prescribes more social value to one allophone than the other two mentioned in his description, he does not anchor any of them in specific geographical locations (Blanc 1969: 11) or give details of the extent of each allophone's use.
 - 17 Blanc uses the IPA symbol [ʒ̤] to denote a voiced palato-alveolar fricative (1969: 12) where here the symbol [ʒ] to denote the same phoneme.
 - 18 Blanc plays with the possibility that the two reflexes of *ǧīm* referred to by Sībawayhi may, in fact, be allophonic variants determined by their position within a word, rather than independent reflexes of *ǧīm* (1969: 12, n. 8; 18).
 - 19 Both Blanc (1981) and Hary (1996a) rely on European accounts of spoken Egyptian Arabic between eighteenth–nineteenth centuries CE. It is beyond the scope of this present paper to examine these accounts (cf. Woidich and Zack (2009) for a detailed exploration of the limitations of such material).
 - 20 Blanc arrives at this conclusion, in part, on the grounds that after the twelfth century CE the *gimel* for *ǧīm* is written consistently with a sublinear dot, the use of which becomes more sporadic after the seventeenth century CE, until the nineteenth century CE when it ceases to be used all-together (see Blanc 1981: 187, n.6). This generalisation regarding the application of the diacritic is challenged

here (see section 3.1).

- 21 The symbols used by Hary to transliterate the reflexes of *ǧīm* in the diagram which is reproduced here correspond to the following IPA symbols $g = [g]$; $g' = [g']$; $ǧ = [dʒ]$ (1996a: 153).
- 22 Behnstedt states that the unceasing migration of Western Bedouin to and from Libya, Tunisia and the Maghreb between the twelfth–eighteenth centuries accounts for the fronted pronunciation of *ǧīm* in western areas of Egypt (2006, I:588–9).
- 23 There is substantial evidence – shown in map 552 in Behnstedt and Woidich 1985 and evident from Syro-Palestinian elements in eastern Egyptian dialects – to support the assertion of a constant flow of Bedouin migrants from Palestine to the eastern provinces of Egypt (Behnstedt 2006, I: 589). This would account for the presence of fronted variants of *ǧīm* in these areas.
- 24 Each manuscript referred to here has been examined in its original form, with transcriptions made from the original text and then, where possible, checked against existing transcriptions.
- 25 The intention here is not to give a definitive summary of the denotation of *ǧīm* throughout the centuries – this would require a far more extensive corpus – but to give a representative overview, which may shed a different light on a complex question, and encourage new approaches to the diachronic development of phonetic realisations of *ǧīm* in Egyptian Arabic.
- 26 Numerals, reconstructions and Hebrew words have been excluded from the data.
- 27 Examples of the phonetic criterion of graphemic representations of Arabic phonemes include the following: /ǧ/, /ħ/ and /t̤/ are regularly denoted with the Hebrew graphemes *gimel*, *kaf* and *tav* with a dot on the basis that they are spirantized allophones of the Hebrew phonemes /g/, /k/ and /t/.
- 28 Common graphical representations of Arabic graphemes include the classical Judaeo-Arabic denotation of *tsadeh* with a supralinear dot (ⱱ) for *ḏād* and *tet* with a supralinear dot (Ⱳ) for *zā'*, each corresponding to *ṣād* (ⱳ) and *ṭā'* (ⱴ) (Blau and Hopkins 1984: 10).
- 29 The early Judaeo-Arabic corpus on which these comments are based comprise a small number of documentary papyri dated to c. ninth century CE, which are thought to have originated in Egypt. One of the texts (numbered XIII) was discovered at Ushmūn (text I was written by the same hand) and a couple of the texts (VII, II) explicitly refer to Ushmūn. Thus, Blau and Hopkins speculate that all of the letters may originate from the same geographical location (1987: 91–2). Blau and Hopkins anticipate and dismiss the suggestion that these texts may, therefore, represent the particular orthographic practices of a specific community; they may not be representative of Judaeo-Arabic spelling conventions throughout Egypt (1987: 92). Indeed, Blau and Hopkins' (2000) more recent work seems to suggest that this phonetic form of spelling was more widely (although not consistently) employed than may be inferred from this particular

- documentary corpus (Ackerman-Lieberman 2014: 138–9). Ackerman-Lieberman, however, attributes more significance to the discovery of these texts in a geographical location that, by virtue of being neither Cairo nor Alexandria, would have been considered ‘rural’ at the time (2014: 159–60). He suggests that the use of phonetic spelling was influenced neither by a lack of education nor insufficient knowledge of Classical Arabic, but by geographical location: the urban communities favoured classical Judaeo-Arabic orthography, while the rural communities tended towards phonetic spelling (2014: 160; cf. Ackerman-Lieberman 2014: 159–63 for a more detailed discussion of this hypothesis).
- 30 Blau and Hopkins originally termed the orthography of pre-tenth century CE documentary texts ‘early vulgar Judaeo-Arabic spelling (EVJAS)’ (1984: 12) or early phonetic Judaeo-Arabic spelling. The term ‘Early Judaeo-Arabic (EJA) orthography’ used here has, however, prevailed.
- 31 In Hebrew (according to the Tiberian reading tradition) *gimel* has two pronunciations: when written with *dageš* (ג) it is realised as a voiced velar stop [g]; but when it is unmarked (ג) the reflex is a voiced uvular fricative [ʁ] (Khan 2013b) (accessed online: 31/10/16)).
- 32 The early Judaeo-Arabic business letter referred to here is no. XIII, 5, 7, 9, 10, 18 in Blau and Hopkins, which corresponds to East Berlin ms 10599 (1987: 117–20).
- 33 The Classical Arabic form *ǧašīš* has been completely supplanted by the colloquial form *dišīš* in contemporary Egyptian Arabic (Hinds and Badawi 1986: 289).
- 34 The widespread shift from early Judaeo-Arabic to classical Judaeo-Arabic spelling has consistently been attributed to Saadia Gaon’s translation of the Pentateuch into Judaeo-Arabic in which he favoured the graphical, rather than phonetic, representation of Arabic graphemes. Blau and Hopkins propose two explanations for why classical Judaeo-Arabic orthography superseded phonetic spelling: either (i) a degree of education in Classical Arabic had been acquired by all communities of Arabic-speaking Jews, which led to the development and universal adoption of classical Judaeo-Arabic spelling; or (ii) a single text of profound religious and cultural significance composed in classical Judaeo-Arabic spelling gained widespread circulation, changing the course of Judaeo-Arabic orthographical conventions for centuries to come (Blau and Hopkins 1984: 13). Dismissing the former explanation, Blau and Hopkins turn their attention to the latter, designating Saadia Gaon’s translation of the Pentateuch the influential book that changed the course of Judaeo-Arabic orthography. This interpretation of the cause of this shift has gone unchallenged until Ackerman-Lieberman’s recent work. Through a systematic examination of the historical evidence concerning the level of familiarity with Classical Arabic by Arabic-speaking Jews throughout the Arab world between the seventh–tenth centuries CE (cf. 2014: 145–57), he concludes that Blau and Hopkins’ division between ‘educated’ (users of classical Judaeo-Arabic spelling) and ‘uneducated’ (users of phonetic Judaeo-Arabic spelling) may be more aptly designated as an urban-rural dichotomy (2014: 157).

- Ackerman-Lieberman attributes the increased movement and interaction between urban and rural areas, via developing trade routes in the early tenth century CE as the cause of the shift from early phonetic Judaeo-Arabic spelling to classical Judaeo-Arabic spelling, dismissing Blau and Hopkins' suggestion that Saadya's Pentateuch translation motivated the shift (cf. Ackerman-Lieberman 2014: 163–8 for a detailed discussion of the limitations of Blau and Hopkins' suggestion).
- 35 CUL T-S 8.18 is a business letter written from Nissīm b. Ḥalfon to Nhūrāy b. Nissīm dated to 1046 CE. A transcription and Hebrew translation of the manuscript was produced by Gil (1997: II, no. 582). The letter, comprising one folio, was written on paper and is in good condition. The recto contains sixteen lines, while the verso contains fourteen lines, with writing in margins on both recto and verso.
- 36 Bodleian MS Heb.d.47/62 is a business letter sent from Ephraim b. Ismā'īl in Alexandria to Joseph b. 'Awkal in Fuṣṭāṭ. Gil produced a transcription and Hebrew translation of the letter in his volume of traders' letters (1997: I, no. 184). The manuscript is well preserved. It comprises one folio with twenty-two lines on recto and three lines on verso.
- 37 CUL T-S AS 161.32: a Judaeo-Arabic version of 'The Story of Baḥīra', which has been dated to c. 1020–1045 CE. This paper fragment comprises two folios of thirteen–fourteen lines on both recto and verso. However, it is quite badly damaged and difficult to read.
- 38 CUL T-S NS 298.55: This Judaeo-Arabic manuscript contains the tale entitled 'The History of Yešū'. It has been dated to c. 1000–1100 CE. It comprises two folios of twenty-six and twenty-seven lines, respectively.
- 39 GW VIII is a letter dated explicitly to the 8th of Marḥešwan 1543 (1231 CE). The manuscript comprises three texts composed by three different hands. It was published with photographs, a transcription and translation by Gottheil & Worrell (1927).
- 40 CUL T-S 12.69: a letter from Solomon b. Elijah, the son of an Egyptian Jewish judge, to his father-in-law Abū al-Faraḡ who was based in Alexandria. A transcription and English translation of this thirteenth century CE letter may be found in Motzkin's PhD thesis (1965).
- 41 Unfortunately, I have been unable to locate Egyptian Judaeo-Arabic folk narratives that can be confidently dated to the thirteenth century CE.
- 42 Dotan Arad and Esther-Miriam Wagner have prepared an edition of transcriptions and translations of the letters in the Bodleian MS Heb.c.72 collection (which I eagerly await), placing them in their historical and linguistic setting (cf. Arad and Wagner: forthcoming).
- 43 Bodleian MS Heb.c.72/13 is a late fifteenth century CE business letter addressed to Mošeh b. Yehūdah, head of the Alexandrian Jewish community, from Ṣadaqah Nīs. It is a well-preserved letter written on a single folio (recto: twenty-two lines;

- verso: one line).
- 44 Bodleian MS Heb.c.72/39 is also addressed to Mošeh b. Yehūdah but is written by the head of the Jewish community in Fuṣṭāṭ. This letter is comprises one folio (recto: twenty-three lines; verso: twenty-one lines). It is fairly well preserved.
- 45 Bodleian MS Heb.c.72/18 was written by Yitsḥaq byt ‘Aṭān from Zaragoza, Spain to Mošeh b. Yehūdah in Alexandria. The letter is in good condition, although the writing is a little faded.
- 46 The assumption that Judaeo-Arabic texts of all genres dating to the eighteenth–twentieth centuries CE consistently display *gimel* for *ḡim* without a diacritic is questioned here.
- 47 Firkovitch Evr.-Arab.II 852; Firkovitch Evr.-Arab.II 1528: these two manuscripts, housed in the Firkovitch Collection, St. Petersburg, both contain versions of the folk narrative *Al-Ḥarb bayna al-wuḥūš wa-l-ṭuyūr* ‘The war between the beasts and the birds’. They were dated by Lebedev to the fourteenth and fifteenth/sixteenth centuries CE, respectively (Palva 2009: 373, 374).
- 48 Firkovitch Evr.-Arab.II 1536: this folk narrative, entitled *Ḥikāyit bint al-tāḡir* ‘The Story of the Merchant’s Daughter’, comprises eight folios of approximately nineteen lines (Palva 2000: 83). A critical edition of the manuscript was published by Palva (2007, 2008).
- 49 AIU VII C.16: a folk narrative which tells the story of an inhabitant of Cairo and a Egyptian countryman who vie with one another, extolling the virtues of their respective dwellings, while deriding the other’s. A transcription and English translation of the manuscript was published by Goitein (1972). The manuscript comprises one folio (recto: twenty-two lines; verso: twenty-four lines), which is in good condition, although the story is incomplete.
- 50 Goitein dated the manuscript AIU VII.C.16 to the seventeenth century CE on the advice of Prof. Meir Benayahu (Goitein 1972: 257).
- 51 There are no known Judaeo-Arabic letters datable to the seventeenth century CE with which to compare these literary findings.
- 52 Rylands L 192 is a letter dated to Tuesday 25th Ḥešwan 569 (Tuesday 15th November 1808 CE) written from Abraham Ha-Levi to Karo Francis. This letter was published complete with transcription, translation and linguistic notes by Khan (2013a).
- 53 CUL T-S 13J25.24: a business letter dated 4th of Shevaṭ 5566 (1806 CE) Shlomo Hayyim to Marcado Karo and Abraham ha-Levi. In this text, the *gimel* is used once in the text with a supralinear dot to denote the Italian grapheme /c/ (pronounced as a voiceless palato-alveolar affricate [tʃ]), and to mark it as foreign; חִזָּנָה ‘Chizana’ (CUL T-S 13J25.24, 106) (Khan 2006: 50). A critical edition of this manuscript was published by Khan (2006).
- 54 Cairo JC 104: there are a number of Judaeo-Arabic and Arabic versions of this folk narrative entitled *Qiṣṣat al-ḡumḡuma* ‘The Story of the Skull’. The version looked at here (Cairo JC 104) is housed in the National Library of Israel, Jerusalem in

microfilm form. An edition of three Judaeo-Arabic versions of this folk narrative are found in Ørum (MA Thesis, 2014).

- 55 BnF Hébreu 583: this folk narrative tells the tale of a small, rural Egyptian community saved from the terrors of ‘the uncircumcised’ by Abraham b. ‘Ezra. A transcription and Hebrew translation of the text was published by Avishur (1992: 163–72).
- 56 In AIU VII C 16, which may be dated to the eighteenth century CE, the curved leg of the Hebrew grapheme *peh* in final form, while noticeable, is not as marked as that found in the nineteenth-century CE texts Rylands L192, CUL T-S 13J25.24, BnF Hébreu 583 and Cairo JC 104. It is most probably an early example of a phenomenon that came to be fully realised by the early nineteenth century CE.
- 57 These scholars vary in the weight which they grant this phenomenon: Blanc (1981: 190) offers it confidently as evidence of affricated pronunciation while Palva (2008: 95) and Hasson-Kenat (2016) explicitly state its limitations.
- 58 I am grateful to Dr. Aaron Hornkohl for his generosity in discussing aspects of this, and other phonological and phonetic processes encountered in the course of writing this paper with me (Michaelmas term, 2016).
- 59 This phonetic distinction was pointed out to me by Prof. Geoffrey Khan in a supervision (Michaelmas term, 2016).
- 60 Hinds and Badawi attest to the fact that both *wagh* pl. *wugūh* ‘face, faces’ (Hinds and Badawi 1986: 925); *wišš* pl. *wušūš* (Hinds and Badawi 1986: 939) coexist in present-day Cairene Arabic. Behnstedt and Woidich further illuminate the contemporary distribution of the two forms in their Egyptian dialect maps (1985: maps 480, 482).
- 61 According to Wagner’s diachronic analysis of Judaeo-Arabic letters from the Cairo Genizah collections, the representation of *ǧīm* with *gimel* and a diacritic occurs only in the eleventh century CE Egyptian letters and the unidentified corpus of the same period. It is not recorded as occurring at all in the later texts examined in her extensive documentary corpus (2010: 36; 40).
- 62 Davies mentions a different example of the same phenomenon in a Middle Arabic text in which the *ǧīm* is replaced by a *šin* in the VIIIth form: *ištarr* (Classical Arabic: *ʾiḡtarra*) ‘to chew the cud’ (i.e. ‘to ruminate’) (example from Davies 1981: 69).
- 63 The phonological metathesis of the form *zwǧ* > *ǧwz* is also attested in Levantine Arabic (albeit less frequently than in Cairene Arabic), in which *ǧīm* is predominantly pronounced as a voiced palato-alveolar affricate [dʒ] or as a voiced palato-alveolar fricative [ʒ].
- 64 One possible reason for the variations in the representations of *ǧīm* found in these texts may be that they represent the variant reading traditions from different geographical regions in Egypt. In the case of folk narratives, this is difficult to assess as the geographical and temporal origin of a given narrative are extremely difficult to ascertain with any confidence.

Bibliography

- Ackerman-Lieberman, P.I. 2014. 'The Disappearance of the Early Phonetic Judaeo-Arabic Spelling (EPJAS) and Sa'adya Gaon's Translation of the Bible', *Jerusalem Studies in Arabic and Islam* 41, 137–72
- Al-Ani, S.H. 2008. 'Phonetics', in Kees Versteegh et al (eds), *Encyclopedia of Arabic Language and Linguistics* (Leiden). III, 593–603
- Arad, D. and E.-M. Wagner. Forthcoming. *Wisdom and Greatness in One Place: The 15th c. Alexandrian Trader Moses ben Judah and his Circle*. (Leiden)
- Avishur, Y. 1992. 'New Folk Tales about Abraham b. 'Ezra (and his Sons) from Egypt and Iraq', in I. Levin and M. Itzhaki (eds), *Studies in the Works of Abraham b. 'Ezra*. (Tel Aviv). 163–92. (Hebrew)
- Behnstedt, P. 2006. 'Dialect Geography', in K. Versteegh et al. (eds), *Encyclopedia of Arabic Language and Linguistics* (Brill, Leiden). I, 583-93
- and M. Woidich. 1985. *Die ägyptisch-arabischen Dialekte*, 5 vols. (Wiesbaden). I, II
- Blanc, H. 1969. 'The Fronting of Semitic *g* and the *qāl-gāl* Dialect Split in Arabic', in *Proceedings of the International Conference on Semitic Studies held in Jerusalem, 19–23 July 1965* (Israel Academy of Sciences and Humanities, Jerusalem). 7–37
- 1981. 'Egyptian Arabic in the Seventeenth Century: Notes on the Judeo-Arabic Passages of *Darxe No'am* (Venice, 1697)', in S. Morag, I. Ben-Ami and N.A. Stillman (eds), *Studies in Judaism and Islam: Presented to Shelomo Dev Goitein on the Occasion of his Eightieth Birthday by his Students, Colleagues and Friends* (Jerusalem). 185–202
- Blau, J. 1981. *The Emergence and Linguistic Background of Judaeo-Arabic: A*

Study of the Origins of Middle Arabic. (Jerusalem)

— and S. Hopkins. 1984. 'On Early Judaeo-Arabic Orthography', *Zeitschrift für arabische Linguistik*, 9–27

— and S. Hopkins. 1987. 'Judaeo-Arabic Papyri: Collected, Edited, Translated and Analysed', *Jerusalem Studies in Arabic and Islam* 9, 87–160

Bush, C. 2016. 'The Qāf in Arabic and its Semitic Background: The Gāl/Qāl Split and its Phonetic Origins'. Unpublished Tripos Part II thesis, University of Cambridge

Cantineau, J. 1960. *Etudes de linguistique arabe: Mémorial Jean Cantineau*. (Paris)

Davies, H.T. 1981. 'Seventeenth-Century Egyptian Arabic: A Profile of the Colloquial Material in Yūsuf al-Širbīnī's *Hazz al-quḥūf fī šarḥ Qaṣīd Abī Šādūf*'. Ph.D. thesis, University of California, Berkeley

— 2005. *Yūsuf al-Širbīnī's Kitāb hazz al-quḥūf bi-Šarḥ qaṣīd Abī Šādūf 'Brains confounded by the ode of Abū Shādūf' expounded, edited and introduced by Humphrey T. Davies*. (Dudley MA)

Edzard, L. 2009. 'Qāf', in K. Versteegh et al (eds), *Encyclopedia of Arabic Language and Linguistics* (Leiden). IV, 1–3

Fischer, W. & O. Jastrow. 1980. *Handbuch der arabischen Dialekte*. (Weisbaden)

Gairdner, W.H.T. 1925. *The Phonetics of Arabic: A Phonetic Inquiry and Practical Manual for the Pronunciation of Classical Arabic and of One Colloquial (the Egyptian)*. (London)

Garbell, I. 1954. 'The Pronunciation of Hebrew in Medieval Spain', in *Homenaje a Millas Vallicrosa*. (Barcelona). I, 647–696.

- Gil, M. 1997. *Be-malkhut Yishma'el bi-tekufat ha-ge'onim*. (Jerusalem)
- Goitein, S.D.. 1972. 'Townsmen and Fellah: A Genizah Text from the Seventeenth Century', *Asian and African Studies* 8, 257–61
- Gottheil, R. and W.H. Worrell. 1927. *Fragments from the Cairo Geniza in the Freer collection*. (New York, London)
- Greenblatt, J. 2011. *The Jewish Neo-Aramaic Dialect of Amadya*. (Leiden, Boston)
- Hary, B. 1996a. 'The *ǧīm*-*Gīm* in Colloquial Urban Egyptian Arabic', *Israel Oriental Studies* 16, 153–68
- 1996b. 'Adaptations of Hebrew Script', in W. Bright and P. Daniels (eds), *The World's Writing Systems* (New York, Oxford). 727–34
- 1997a. 'On Later and Modern Egyptian Judaeo-Arabic', in Asma Afsaruddin and A. H. Mathias Zahniser (eds), *Humanism, Culture, and Language in the Near East: Studies in the Honor of Georg Krotkoff* (Winona Lake, IN). 199–224
- 1997b. 'The Impact of the Cairo Genizah Documents on the Study of the History of Arabic', *Bulletin of the Israeli Academic Center in Cairo* 21, 35–40
- Hasson-Kenat, R. 2016. 'New Manuscripts in Late Judaeo-Arabic from the Firkovich Collection'. Ph.D. thesis, Hebrew University, Jerusalem. (Hebrew)
- Hinds, M. and Badawi, E. 1986. *A Dictionary of Egyptian Arabic: Arabic-English*. (Beirut)
- Hume, E. 2006. 'Diachronic Aspects of Metathesis', in K. Brown et al. (eds), *Encyclopedia of Language and Linguistics*, 2nd ed. (Boston). 506–8

- Kaye, A.S. 1972. 'Arabic /ǧiim/: A Synchronic and Diachronic Study', *Linguistics* 79, 31–72
- Khan, G. 1999. *A Grammar of Neo-Aramaic: The Dialect of the Jews of Arbel*. (Leiden, Boston, Köln)
- 2002. *The Neo-Aramaic Dialect of Qaraqosh*. (Leiden, Boston)
- 2004. *The Jewish Neo-Aramaic Dialect of Sulemaniyya and Ḥalabja*. (Leiden, Boston)
- 2006. 'A Judaeo-Arabic Commercial Letter from Early Nineteenth Century Egypt', *Ginzei Qedem* 2, 37–58
- 2007. 'Judaeo-Arabic', in K. Versteegh et al (eds), *Encyclopedia of Arabic Language and Linguistics* (Brill, Leiden). II, 526–36
- 2008. *The Neo-Aramaic Dialect of Barwar*, 3 vols. (Leiden, Boston). I
- 2009. *The Jewish Neo-Aramaic Dialect of Sanandaj*. (Piscataway, NJ)
- 2013a 'A Judaeo-Arabic Document from Ottoman Egypt in the Rylands Genizah Collection', in R. Smithuis and P.S. Alexander (eds), *From Cairo to Manchester: Studies in the Rylands Genizah Fragments*. (Journal of Semitic Studies Supplement 31, Oxford). 233–48
- 2013b. 'Tiberian Reading Tradition', in G. Khan et al. (eds), *Encyclopedia of Hebrew Language and Linguistics* (accessed online: 31/10/16)
- 2016. *The Neo-Aramaic Dialect of the Assyrian Christians of Urmi*. (Leiden, Boston).
- Lebedev, V.V. 1965. *Skazka o zolotq gazele: obrazǧik arabskogo fol'klora XVII veka*. Semitskie Jazyki. (Moscow)
- Martinet, A. 1959. 'La Palatalisation 'spontanée' de *g* en arabe', *BSL* (54), 90–102

Motzkin, A.L. 1965. 'The Arabic Correspondence of Judge Elijah and his Family: A Chapter in the Social History of Thirteenth Century Egypt'. Ph.D. thesis, University of Pennsylvania (Ann Arbor, University Microfilms, Michigan)

Ørum, O.G. 2014. 'Written and Spoken Judaeo-Arabic in 19th-Century Egypt: With an Edition, Translation and Grammatical Study of *Qiṣṣat al-ǧumǧuma*'. MA Thesis, University of Oslo

Palva, H. 2000. 'Linguistic Notes on a Dialectal 17th-18th Century Egyptian Arabic Narrative', *Oriente Moderno*, 19 (80), 83–97

— 2007. 'A 17th-18th Century Manuscript in Spoken Egyptian Arabic: Part One: Text and Translation', *Le Muséon* 120 (3–4), 395–433

— 2008. 'A 17th-18th Century Manuscript in Spoken Egyptian Arabic: Part Two: Linguistic Notes', *Le Muséon* 121 (1–2), 93–123

— 2009. 'Notes on the Language Form of some 14th–16th-Century Arabic Manuscripts Written in Hebrew Characters', in Jérôme Lentin and Jacques Grand'Henry (eds), *Moyen arabe et variétés mixtes de l'arabe à travers l'histoire: Actes du Premier Colloque International (Louvain-la-Neuve, 10–14 mai 2004)*. (Peeters-Université catholique de Louvain, Louvain-la-Neuve). 373–89

Wagner, E.-M. 2010. *Linguistic Variety of Judaeo-Arabic in Letters from the Cairo Genizah*. (Leiden, Boston)

Watson, J.C. E. 2002. *The Phonology and Morphology of Arabic*. (Oxford)

Woidich, M. 1996. 'Rural Dialect of Egyptian Arabic: An Overview', *Egypte/Monde Arabe* 27–8, 325–54

— and L. Zack. 2009. 'The g/ǧ-Question in Egyptian Arabic Revisited', in

E. al-Wer and R. de Jong (eds), *Arabic Dialectology: In Honour of Clive Holes on the Occasion of his Sixtieth Birthday*. (Leiden; Boston). 41–62

Zaborski, A. 2007. 'Jīm', in K. Versteegh et al. (eds), *Encyclopedia of Arabic Language and Linguistics* (Leiden). II, 494–6

Zack, L. 2009. 'Egyptian Arabic in the Seventeenth Century: a Study and Edition of Yusuf al-Mağribi's *Daf' al-iṣr 'an kalām ahl Miṣr.*' Utrecht: LOT. (LOT Dissertation Series; 199)