English Historical Phonology and Orthographic Design

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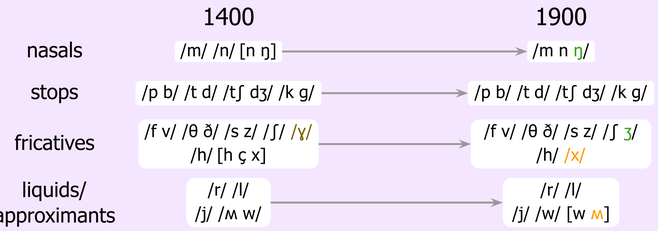
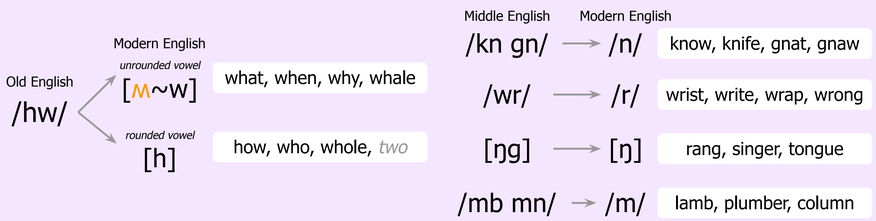
Abstract: Those who would reform English orthography by "spelling the way you speak" neglect the issue of each person's writing becoming potentially incomprehensible to speakers of a different accent, so any reform with hope of success requires a knowledge both of English diaphonemes—abstract groupings of sound-variants from the same historical source—and of their etymological, historical backgrounds. To devise a single, standardized writing system with reduced complexity, little to no irregularity, and minimal disorientation for present-day readers necessitates an untangling of English's diaphonemes and their conventional written representations. This interdisciplinary study marries an informed humanities approach to language planning with some basic computation, so smoothing out English's traditional spelling becomes a less complicated task.

Methodology: Using both a synchronic and diachronic phonological lens across dialects from Middle English into Modern English, I map out the English diaphoneme system by assembling lexical sets which cover the full range of sound changes across particular phonotactic environments. After a careful look at the evolution of the sound system, I consider available letter combinations to create graphemes for each diaphoneme. By being sure to assign each grapheme to just one diaphoneme, complexity as measured by grapheme-phoneme correspondence (GPC) is reduced. Depending on a word's origin as native English, North Germanic, Latinate/French, or as a foreign borrowing, different orthographic standards are available for use to further reduce the number of homographs, to stay true to etymology, and occasionally to maintain word recognizability.

Phonemic Evolution of Consonants





Yod-dropping

lute *loot* /ly:t/ → /liwt/ → /lju:t/ → /lu:t/ *(/lu:t/)*

threw *through* /θriw/ → /θrju:/ → /θru:/ *(/θru:/)*

Yod-coalescence

/dj/ → [dʒ]	educate	['ɛdʒ.ʊ.kɛjt]
/tj/ → [tʃ]	nature	['nɛj.tʃəɹ]
/sj/ → [ʃ]	session	['sɛʃ.ən]
/zj/ → [ʒ]	vision	['vɪʒ.ən]

Phonemic Evolution of Long Vowels

	1400	1500	1600	1700	1800	1900
/aj/				CHAI CAIRO	CHAI CAIRO	CHAI CAIRO
/əj/		PRICE TILE LIGHT WIRE	PRICE TILE LIGHT WIRE	PRICE TILE LIGHT WIRE	PRICE TILE LIGHT WIRE	PRICE TILE LIGHT WIRE
/ij/	PRICE TILE LIGHT WIRE POLICE	FLEECE POLICE QUEER	FLEECE POLICE QUEER	FLEECE POLICE QUEER	FLEECE POLICE QUEER	FLEECE POLICE QUEER
/e:/	FLEECE QUEER	MEAT NEAR *HEAD, GREAT*	MEAT KEY NEAR *HEAD, GREAT*	MEAT KEY NEAR	MEAT KEY NEAR	MEAT KEY NEAR
/ɛj/	WAIT NAIL, KEY STRAIGHT FAIR	WAIT NAIL, KEY STRAIGHT FAIR	WAIT NAIL STRAIGHT FAIR	WAIT NAIL STRAIGHT FAIR	NAME MARE FACE SQUARE WAIT NAIL STRAIGHT FAIR	NAME MARE FACE SQUARE WAIT NAIL STRAIGHT FAIR
/ɛ:/	MEAT NEAR *HEAD, GREAT*			NAME MARE FACE SQUARE		
/æ:/	MARE	NAME MARE FACE SQUARE	NAME MARE FACE SQUARE			
/a:/	NAME FACE SQUARE					
/ɑ:/		LAUGHTER		SPA KARMA PALM	SPA KARMA PALM	SPA KARMA PALM
/ɒ:/		TAUGHT THAW, FRAUD TALK	TAUGHT THAW, FRAUD TALK			
/ɔ:/	BROAD, ROAR GOAT FORCE COLD	BROAD, ROAR GOAT FORCE THOUGHT	BROAD, ROAR THOUGHT	BROAD, ROAR THOUGHT TAUGHT THAW, FRAUD TALK	BROAD, ROAR THOUGHT TAUGHT THAW, FRAUD TALK	BROAD, ROAR THOUGHT TAUGHT THAW, FRAUD TALK
/o:/	FOOT GOOSE BLOOD		GOAT FORCE	GOAT FORCE	GOAT FORCE	GOAT FORCE
/ɔw/	THOUGHT COUGH SNOW FOUR THROUGH	SNOW COLD FOUR	SNOW COLD FOUR	SNOW COLD FOUR	SNOW COLD FOUR	SNOW COLD FOUR
/ɔj/	CHOICE LOIR	CHOICE LOIR	CHOICE LOIR	CHOICE LOIR	CHOICE LOIR	CHOICE LOIR
/y:~ɪw/	NEW CUBE CURE	SHREW NEW CUBE CURE	SHREW NEW CUBE CURE	SHREW NEW CUBE CURE	SHREW NEW CUBE CURE	SHREW NEW CUBE CURE
/uw/	MOUTH TOUGH PLOUGH DROUGHT SOUR NURSE TOUR	FOOT GOOSE BLOOD THROUGH NURSE TOUR MOUTH PLOUGH DROUGHT SOUR	GOOSE THROUGH TOUR	GOOSE THROUGH TOUR	GOOSE THROUGH TOUR	GOOSE THROUGH TOUR
/əw/	SHREW		MOUTH PLOUGH DROUGHT SOUR	MOUTH PLOUGH DROUGHT SOUR	MOUTH PLOUGH DROUGHT SOUR	MOUTH PLOUGH DROUGHT SOUR
/aw/	LAUGHTER TAUGHT THAW, FRAUD				KRAUT GAUR, MAORI	KRAUT GAUR, MAORI

French/Latinate borrowings
Foreign borrowings

Phonemic Evolution of Short Vowels

		1400	1500	1600	1700-1900
/i/	/ɪ/	KIT FIR	KIT FIR	KIT FIR	KIT FIR
/e/	/ɛ/	DRESS TERM	DRESS TERM	DRESS TERM	DRESS TERM *HEAD, GREAT*
/æ/	/a/	TRAP BATH PALM START WASH WARM	TRAP BATH LAUGHTER START PALM WASH WARM	TRAP BATH LAUGHTER START PALM WASH WARM	TRAP BATH LAUGHTER START
/ɑ/	/ɒ/			LOT CLOTH COUGH NORTH	LOT CLOTH COUGH NORTH WASH WARM
/ɔ/	/o/	LOT CLOTH COUGH NORTH	LOT CLOTH COUGH NORTH		BLOOD STRUT TOUGH NURSE
/ʊ/	/u/	BUSH STRUT	BUSH STRUT TOUGH	FOOT BLOOD BUSH STRUT TOUGH NURSE	FOOT BUSH

Results: The chart below demonstrates the list of English diaphonemes alongside their possible spellings. Having multiple graphemes typically stems from a diaphoneme having multiple origins.

Diaphoneme	Grapheme(s)	Diaphoneme	Grapheme(s)
/aj/ /ajər/	ai, ay air, ayr	/ɑ/ /ɑ~ɔ:/	o, å
/əj/ /əjər/	y, iy yr	/ɑr~ɔ:r/	or, år
/ij/	ii	/ɔ:/ /ɔ:r/	oa, åu, åw oar, åur
/e:~ij/	ee, eey	/o:~ɔw/	oo
/ɪər/	iir, eer	/o:r/	oor, owr
/i~ɪ/ /ɪr~ɜ:r/	i ir	/ɔw/	ow
/ɛj/	ei, ey	/ɔj/ /ɔjər/	oi, oy oir
/ɛər/	eir, eyr ear, aer	/ɪw/ /ɪwər/	ew, iw, iu, eu iur, eur
/e:~ɛj/	ea, ae	/ʊ/ /ʊ~ʌ/	u
/ɛ/ /ɛr~ɜ:r/	e er	/ʊr~ʌr~ɜ:r/	ur
/æ/ /æ~ɑ:/	a	/uw/ /ʊər/	uu uur
/ær~ɑ:r/	ar	/əw/ /əwər/	au, aw aur
/a:/ /a:r/	aa aar	/aw/ /awər/	ao aor
/m n ŋ/ /p b t d g/	m, n, ng p, b, t, d, g	/f v θ ð/ /r l j w h/	f, v, th, dh r, l, y, w, h
/tʃ/ /ʃ/	ch, *t(i)* sh, ç*h*, *s(i)*, *ç(i)*	/dʒ/ /ʒ/	j, ġ ġ, *z(i)*, *ś(i)*
/s/ /z/	s, ç z, ṡ	/k/ /ʍ x/	c, k, q hw, kh

Examples: How do the below sentences compare?
Does either orthography seem more systematic? More haphazard?

The light beige hue on the waters of the loch impressed all, including the French queen, before she heard that nice symphony again, just as young Arthur wanted.

Tha lite bayj hyoo an tha waterz uv tha lohh imprest oll, inklooding tha French kween, bifore shee hurd that nays simfownee agen, just az yung Aarther wantid.

Dhe lyht beiġ hiu on dhe wåterz ov dhe lokh impresd ål, incluuding dhe French cwiin, befoor shee herd dhat nyç simfoni agen, just az yung Arthur wåntid.

Conclusion: The research demonstrates that the reformed English spelling system would be much more consistent and predictable; while the benefits are clear, widespread adoption would face the significant social challenges of the process of starting afresh such as education, enforcement, and spending. Given the potential disruption, keeping the traditional system despite its flaws and complexity may be the most practical solution.

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