

# Cynghanedd a seinyddiaeth

(Welsh poetry and phonology)

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# Outline

## Overview

A general theory of meter  
English meter

## Welsh

Rhyme  
Cyghanedd  
Analysis

## Why?

## Conclusion

## Poetry

There are strange things done in the midnight sun  
By the men who toil for gold;  
The Arctic trails have their secret tales  
That would make your blood run cold;  
The Northern Lights have seen queer sights,  
But the queerest they ever did see  
Was that night on the marge of Lake Lebarge  
I cremated Sam McGee.

*The Cremation of Sam McGee*, Robert Service

## Framework and hypothesis

- ▶ Poetry involves a repeated count: rhythm.
- ▶ Certain units of language processing and grammatical organization are available for this: moras, syllables, stresses/feet.
- ▶ Rhyme and alliteration clarify the count/rhythm.
- ▶ Only phonological mechanisms are available for this.

# Framework and hypothesis

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- ▶ Rhyme and alliteration clarify the count/rhythm.
- ▶ Only phonological mechanisms are available for this.
- ▶ This gives us most kinds of regulated verse.
- ▶ But Welsh cyghanedd falls well outside this.

## Service again

There are strange things **dóne** in the mídnight **sún**

By the mén who móil for **góld**;

The **Árctic tráils** have their **sécret táles**

That would máke your blóod run **cóld**;

The **Nórthern Líghts** have séen queer **síghts**,

But the **quéerest** they éver did **sée**

Was that níght on the **márge** of Láke **Lebárge**

I **crémated** **Sám McGée**.

- ▶ 4+3 beats per “line” .
- ▶ 1 or 2 stressless syllables between beats or at beginning of line.
- ▶ Rhyming line-pairs and half-lines.
- ▶ Rhyme necessary because the length of lines varies.

## *The Second Coming*, William Butler Yeats

Túrning and túrning in the wíd(e)ning gyre  
The fálcon cannot hear the fálconer;  
Things fall apart; the céntre cannot hold;  
Mere ánarchy is loosed upon the world,  
The blood-dimmed tide is loosed, and everywhere  
The céremon(y) of ínnocence is drowned;  
The best lack all convíction, while the worst  
Are full of pássionate inténsity.

- ▶ Fairly strict 10 syllables per line.
- ▶ Restrictions on stress; the line is perceived as a sequence of five two-syllable units.
- ▶ Hence no rhyme requirement.

## Cleanness, anonymous

[k]lánnesse who so [k]ýndly	[k]ówþe coménde,
& [r]ékken vp all þe [r]ésounz	þat ho by [r]í <sub>3</sub> t áskez,
[f]áyre [f]órmez my <sub>3</sub> t he [f]índe	in[f]órþering his spéche,
& in þe [k]óntrare, [k]árk	& [k]ómbraunce húge.

Whoever can praise cleanness as it deserves,  
And count up all of the arguments that it claims by right,  
Fair examples might he find in furthering his speech;  
But in doing the opposite, difficulty and great trouble.

- ▶ 4/5 beats/stresses per line.
- ▶ Number of syllables per line varies.
- ▶ All beats but the last alliterate.
- ▶ Alliteration thus marks beats and marks lines.



## Properties of meter

- ▶ Syllables or stresses/beats are counted to define units like lines.

Fabb, Nigel, and Morris Halle. 2008. *Meter in poetry: a new theory*.  
Cambridge: Cambridge University Press

- ▶ Rhyme or alliteration is used to mark units like lines.

Fabb, Nigel. 1999. Verse constituency and the locality of alliteration.  
*Lingua* 108:223–245

## Welsh poetry doesn't fit

Many different kinds of Welsh poetry. I focus on the *cywydd* [kəwið] form.

- ▶ 7 syllables per line.
- ▶ Pairs of lines rhyme.
- ▶ **All** lines must exhibit *cynganedd* 'harmony' [kəŋhánεð].

## An excerpt from a Welsh poem

Yr wybrwynt, helynt hylaw,  
Agwrdd drwst a gerdda draw,  
Gŵr eres wyd garw ei sain,  
Drud byd heb droed heb adain.  
Uthr yw mor eres y'th roed

O bantri wybr heb untroed,

A buaned y rhedy

Yr awr hon dros y fron fry.

Sky-wind, unhindered course,  
mighty commotion passing yonder,  
you are a harsh-sounding minstrel,  
world's fool without foot or wing.

It's amazing how wondrously  
you were sent

from the pantry of the sky  
without any feet,

and how swiftly you run

now across the hilltop on high.

from *Y Gwynt*, 'The Wind', Dafydd ap Gwilym

## Surprising rhyme

Yr wybrwynt, helynt **hýlaw**,  
Agwrdd drwst a gerdda **dráw**,  
Gŵr eres wyd garw ei **sáin**,  
Drud byd heb droed heb **ádain**.  
Uthr yw mor eres y'th **róed**  
O bantri wybr heb **úntroed**,  
A buaned y **rhédy**  
Yr awr hon dros y fron **frý**.

## Why rhyme?

- ▶ The meter of the cywydd form is superficially quite simple.
- ▶ Why then is rhyme required?
- ▶ With a strict requirement for seven syllables in each line, the count should not “need” rhyme.
- ▶ There is *another* count, superimposed on the syllable count, that complicates things.

# Cynghanedd

Yr wýbrw <sup>red</sup> ynt,   <sup>blue</sup> hélynt   <sup>orange</sup> hýlaw,	sain
Agwrdd <sup>blue</sup> drwst   a <sup>orange</sup> gerdda <sup>orange</sup> dráw,	croes
<sup>blue</sup> Gŵr eres wýd   <sup>orange</sup> garw ei <sup>orange</sup> sáin,	croes
<sup>blue</sup> Drud <sup>blue</sup> býd   heb <sup>orange</sup> droed heb <sup>orange</sup> ádain.	traws
<sup>blue</sup> Uthr ýw   mor eres y' <sup>orange</sup> th <sup>orange</sup> róed	traws
O <sup>blue</sup> bántri   wybr heb <sup>orange</sup> úntroed,	traws
A buá <sup>red</sup> ned   y rhé <sup>red</sup> dy	llusg
Yr awr <sup>orange</sup> hón   dros y <sup>orange</sup> frón   <sup>orange</sup> frý.	sain

<sup>red</sup>

line-internal rhyme

<sup>blue</sup>

alliteration in first half

<sup>orange</sup>

alliteration in second half

tiebar “|”

caesura (break)

## Cynghanedd lusc

A buá**ned** | y rhé**dy**

- ▶ Line must end in a polysyllabic word.
- ▶ The penult of the line rhymes with the final syllable of some previous word. (Notice that the line-penult rhyme isn't an obvious constituent.)
- ▶ Those two words are “emphasized”.
- ▶ No alliteration is necessary.

## Cynghanedd groes

Agwrdd drŵst | a gerdda dráw,

- ▶ The line is divided into two parts.
- ▶ The two parts are anchored by “emphasized” syllables in words at the right edges.
- ▶ All consonants preceding the first emphasized syllable are repeated in the same order before the second emphasized syllable. Consonants immediately following the emphasized syllable in a polysyllable must also be echoed. (Certain consonants are not counted in any cynghanedd: [h,w,j].)



## Cynghanedd draws

Uthr ýw | mor eres y'th róed

Just like the previous case, cynghanedd groes, except that the second half may begin with some number of unpaired consonants.

## Cynghanedd sain

Yr awr h**ón** | dros y fr**ón** | fr**ý**.

- ▶ The line is divided into three spans, with an “emphasized” word at the right edge of each.
- ▶ The first two spans are linked by final rhyme.
- ▶ The second and third spans are linked by more limited alliteration. The consonants that precede the emphasized syllable in the final word must be the final consonants preceding the emphasized syllable of the second span.

## Can we make sense of this?

- ▶ Given the complex half-line structure, we expect line-internal rhyme and/or alliteration.
- ▶ Given the freedom of the half-line structure, we should not be surprised by the line-final rhyme requirement.

## Can we make sense of this?

- ▶ Given the complex half-line structure, we expect line-internal rhyme and/or alliteration.
- ▶ Given the freedom of the half-line structure, we should not be surprised by the line-final rhyme requirement.
- ▶ *However*, why is the alliterative system so complex?
  - ▶ Can it be treated with phonological machinery?
  - ▶ Why are similar systems not found elsewhere?

# Arabic morphology

- a. **kataba** 'he wrote'
- b. **kattaba** 'he caused to write'
- c. **kaataba** 'he corresponded'
- d. **takaatabuu** 'they kept up a correspondence'
- e. **ktataba** 'he wrote, copied'
- f. **kitaabun** 'book (nom.)'

There are other language domains than poetry where the consonants matter.

# Hebrew

xam	'hot'	ximem	'to heat'
xamuc	'sour'	xamcic	'sour grass'
hed	'echo'	hidhed	'to echo'
daf	'page'	dafdefet	'paper pad'
lax	'damp'	laxluxi	'slightly damp'

There are other language domains than poetry where an identity requirement holds of spans of consonants.

# Outline of technical analysis

- ▶ We define a correspondence relation between the half-lines [McCarthy and Prince(1995)].
- ▶ We privilege consonants in that relation, e.g. as in Arabic [McCarthy(1981)].
- ▶ We require identity of the consonants, e.g. as in Hebrew reduplication.

Ussishkin, Adam. 1999. The inadequacy of the consonantal root: Modern Hebrew denominal verbs and output–output correspondence. *Phonology* 16:401–442

Bat-El, Outi. 2006. Consonant identity and consonant copy: The segmental and prosodic structure of Hebrew reduplication. *Linguistic Inquiry* 37:179–210

# Confirmation

- ▶ A sequence of identical consonants may count as identical to a single consonant in Arabic morphology.
- ▶ In Arabic morphology, it is possible for a single root consonant to correspond to two surface positions, e.g. *kataba* corresponds to *kattaba* and *muktaabib*.
- ▶ We expect the same thing to be possible in cyghanedd.

Gŵr eres wýd | garw ei sáin,



## Many-to-one and one-to-many

- ▶ drwg y gwéd<sup>da</sup> | dragwéid<sup>di</sup> (1.107)
- ▶ Sul é<sup>n</sup>w | ddisal<sup>w</sup> olé<sup>u</sup>ni (4.5)
- ▶ gwedi dár<sup>ff</sup>o | gwaw<sup>d</sup> ór<sup>ff</sup>wyll (5.61)
- ▶ ymen<sup>y</sup>n gw<sup>y</sup>n | am un gá<sup>i</sup>r (25.23)

All from Dafydd ap Gwilym, cited by Rowlands, E.I. 1976. *Poems of the cywyddwyr*. Oxford: Oxford University Press.

## Toward a story

- ▶ An analysis similar to Arabic/Hebrew would seem to be on the right track.
- ▶ A traditional autosegmental analysis is not really in line with current Optimality Theory, where such relationships are now typically expressed with Correspondence Theory.
- ▶ Confirmation of an correspondence-theoretical approach comes from *Cynghanedd groes o gyswllt* 'linked cross harmony'.

# Cynghanedd groes o gyswllt: the spans can overlap

- ▶ O wrando cúr | nodau cérdde

—Thomas Parry (r,n,d,c)

- ▶ Melys i mí | lais y môr

—R. Williams Parry (m,l,s,m)

- ▶ Anfwyn gwýnfan | eigiófor

—John James Williams, “J.J.” (n,f,n,g,n,f)

Cited by Llwyd, Alan. 2007. *Anghenion y gynghanedd*. Swansea:

Cyhoeddiadau Barddas.

# The alliterative continuum

Traws  $\overbrace{\text{Uthr } \acute{y}w}$  | mor eres  $\underbrace{\text{yth r} \acute{o}ed}$

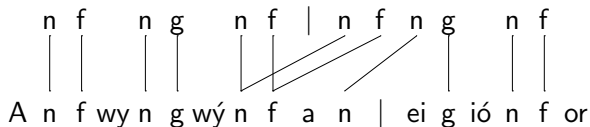
Croes  $\overbrace{\text{Agwrdd dr} \acute{w}st}$  |  $\underbrace{\text{a gerdda dr} \acute{a}w}$

Croes o gyswllt  $\overbrace{\text{Anfwyn gw} \acute{y}nfan}$  |  $\underbrace{\text{eigi} \acute{o}nfor}$

# Autosegmental story #1

Treating alliteration as simple reduplication:

Anfwyn gwýnfan | eigiófor



- ▶ Segments and autosegments are identical.
- ▶ Crossing lines.

## Autosegmental story #2

Treating the whole line autosegmentally:

Anfwyn gwýnfan | eigiórf

A	n	f	wy	n	g	wý	n	f	an	...
...	n	f	a	n	ei	g	ió	n	f	or

- ▶ Segments and autosegments are identical.
- ▶ What's associated is not defined by what's pronounced, as in normal autosegmental phonology.

## A correspondence story

Anfwyn gwýnfan | eigiórfór

An<sub>1</sub>f<sub>2</sub>wyn<sub>3</sub> g<sub>4</sub>wýn<sub>5</sub>f<sub>6</sub>an<sup>3</sup> | eig<sup>4</sup>ión<sup>5</sup>f<sup>6</sup>or

- ▶ Correspondence is a more powerful formal requirement not linked to what's pronounced.
- ▶ Details of the specific analysis available on request.

## Is cyghanedd special?

There are no other poetic systems with such extreme alliterative requirements.

- ▶ That there is alliteration is expected.
- ▶ That alliteration functions as it does, to demarcate the line and establish units within the line, is expected.
- ▶ Alliterative cyghanedd can be treated with orthodox grammatical machinery.
- ▶ But cyghanedd is still at a poetic extreme.
- ▶ Why?



## Factors that make Welsh special

- ▶ Mutations may allow additional options to satisfy cyghanedd requirements.
- ▶ Mutation requires special attention be given to consonants.
- ▶ Spelling of mutations neutralizes contrasts.
- ▶ Court poetry, eisteddfodau.

# Consonant mutation

Word-initial consonants change in systematic ways in different morphosyntactic contexts.

word	gloss	'my'	'his'	'her'
pen [pɛn]	'head'	fy mhen [ə <sup>h</sup> mɛn]	ei ben [i <sup>b</sup> ɛn]	ei phen [i <sup>f</sup> ɛn]
tad [tad]	'father'	fy nhad [ə <sup>h</sup> had]	ei dad [i <sup>d</sup> ad]	ei thad [i <sup>θ</sup> ad]
ci [ki]	'dog'	fy nghi [ə <sup>h</sup> hi]	ei gi [i <sup>g</sup> i]	ei chi [i <sup>χ</sup> i]
barn [barn]	'opinion'	fy marn [ə <sup>m</sup> arn]	ei farn [i <sup>v</sup> arn]	ei barn [i <sup>b</sup> arn]
dant [dant]	'tooth'	fy nant [ə <sup>n</sup> ant]	ei ddant [i <sup>ð</sup> ant]	ei dant [i <sup>d</sup> ant]
gair [gayr]	'word'	fy ngair [ə <sup>ŋ</sup> ayr]	ei air [i <sup>-</sup> ayr]	ei gair [i <sup>g</sup> ayr]

## Do the mutations add options?

Imagine an initial half-line which includes the consonant [...b...].

- ▶ A word-medial or word-final [b] can be used here, e.g. *ateb*, *cwbl*, *abl*, etc.
- ▶ A word-initial [b] can be used here, e.g. *bol*, *barn*, *bara*, etc.
- ▶ A word-initial [b] produced by soft mutation can be used here as well, e.g. *borth*, *baned*, *brif*, etc.

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- ▶ A word-initial [b] produced by soft mutation can be used here as well, e.g. *borth*, *baned*, *brif*, etc.
- ▶ **Prediction: mutations should be relatively more frequent in alliterative lines/spans than in non-alliterative ones.**
  - ▶ 200 lines of Dafydd ap Gwilym marked for type of cyghanedd and number of mutations: not significant.
  - ▶ Same lines marked for number of matched consonants and number of mutations: not significant.

# Mongolian vowel harmony

- ▶ Mongolian has vowel harmony.
- ▶ In an artificial grammar learning experiment, Mongolian speakers learn long-distance dependencies that are harder for English speakers to learn [LaCross(2011)].
- ▶ Hypothesis: vowel harmony sensitizes Mongolian speakers to similar long-distance dependencies.
- ▶ Question: does mutation sensitize Welsh speakers to similar dependencies?

# Spelling

- ▶ Other languages have mutations.
- ▶ Why don't they have anything like cynghanedd?
- ▶ Welsh mutations show up in the spelling differently than other Celtic languages.
- ▶ Welsh spelled mutations neutralize contrasts.

## Spelled mutations

Language	unmutated	mutated	gloss
Welsh	prif [priv] bol [bɔl]	brif [briv]	'main' 'stomach'
Irish	peann [pʲa:nʲ] buí [bʲi:]	bpeann [bʲa:nʲ]	'pen' 'yellow'

# The big picture

- ▶ Welsh poetry makes use of the same raw machinery as other poetry: meter, rhyme, alliteration.
- ▶ The grammatical and orthographic systems of Welsh grant consonants a special status.
- ▶ Grammatical theory provides sufficient technology for extended alliteration.
- ▶ Hence: cynganedd.



## The theory

- ▶ Rhythm, the repetition of sequences, is central to poetry.
- ▶ Certain units can be counted, e.g. syllables, quantity, and stresses.
- ▶ Repetition—rhyme and alliteration—can be used to enhance rhythmic units.