Cynghanedd a seinyddiaeth
(Welsh poetry and phonology)

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Outline

Overview
  A general theory of meter
  English meter

Welsh
  Rhyme
  Cynghanedd
  Analysis

Why?

Conclusion
There are strange things done in the midnight sun
By the men who moil 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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- 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.
- This gives us most kinds of regulated verse.
- But Welsh cynghanedd falls well outside this.
Service again

There are strange things done in the midnight sun
By the mén who múil for góld;
The Árctic tráils have their sécret táles
That would make your blóod run cóld;
The Nóthern Líghts have seen queer síghts,
But the quéerest they éver did sée
Was that níght on the márge of Láke Lébárge
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 céntré cannot hold;
Mere ánarchy is loosed upon the world,
The blood-dimmed tide is loosed, and everywhere
The cérémon(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

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.

- Rhyme or alliteration is used to mark units like lines.
Welsh poetry doesn’t fit

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

- 7 syllables per line.
- Pairs of lines rhyme.
- All lines must exhibit cynghanedd ‘harmony’ [kʰəŋhánɛd].
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 untoed,
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 wybrwynt, | hélynt | hýlaw,       sain
Agwrdd drwst | a gerdda dráw,   croes
Gŵr eres wyd | garw ei sáin,   croes
Drud býd | heb droed heb ádain. traws
Uthr ýw | mor eres y’th róed traws
O bántri | wybr heb únтроed, traws
A buáned | y rhédy llusg
Yr awr hón | dros y frón | frý.       sain

red line-internal rhyme
blue alliteration in first half
orange alliteration in second half
tiebar “|” caesura (break)
A buáned | y rhédy

- 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 drwst | 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.
Yr awr hón | dros y frón | frý.

- 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.
<table>
<thead>
<tr>
<th>Hebrew</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>xam</td>
<td>‘hot’</td>
</tr>
<tr>
<td>ximem</td>
<td>‘to heat’</td>
</tr>
<tr>
<td>xamuc</td>
<td>‘sour’</td>
</tr>
<tr>
<td>xamcic</td>
<td>‘sour grass’</td>
</tr>
<tr>
<td>hed</td>
<td>‘echo’</td>
</tr>
<tr>
<td>hidhed</td>
<td>‘to echo’</td>
</tr>
<tr>
<td>daf</td>
<td>‘page’</td>
</tr>
<tr>
<td>dafdefet</td>
<td>‘paper pad’</td>
</tr>
<tr>
<td>lax</td>
<td>‘damp’</td>
</tr>
<tr>
<td>laxluxi</td>
<td>‘slightly damp’</td>
</tr>
</tbody>
</table>

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.


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. \textit{kataba} corresponds to \textit{kattaba} and \textit{muktaabib}.

We expect the same thing to be possible in cynghanedd.

\textit{Gŵr eres wŷd | garw ei sáin},
Many-to-one and one-to-many

- **drwg y gwédda | dragwéiddi** (1.107)
- **Sul énw | ddisalw oléuni** (4.5)
- **gwedi dárffo | gwawd órffwyll** (5.61)
- **ymenyn gwún | am un gáir** (25.23)

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 a correspondence-theoretical approach comes from *Cynghanedd groes o gyswllt* ‘linked cross harmony’.
O wrando cúr | nodau cérdd
—Thomas Parry (r,n,d,c)

Melys i mí | lais y môr
—R. Williams Parry (m,l,s,m)

Anfwyn gwýnfan | eigiónfor
—John James Williams, “J.J.” (n,f,n,g,n,f)

The alliterative continuum

Traws  \{ Uthr űw | mor eres yth róed \}

Croes  \{ Agwrdd dróst | a gerdda dráw \}

Croes o gyswllt  \{ Anfwyn gwý nfan | eigionfor \}
Treating alliteration as simple reduplication:

Anfwyn gwýnfan | eigionfor

- Segments and autosegments are identical.
- Crossing lines.
Autosegmental story #2

Treating the whole line autosegmentally:

\[ \text{Anfwyn gwýnfan} \mid \text{eigiónfor} \]

\[ \begin{align*}
\text{A} & \quad \text{n} & \quad \text{f} & \quad \text{wy} & \quad \text{n} & \quad \text{g} & \quad \text{wý} & \quad \text{n} & \quad \text{f} & \quad \text{an} & \quad \ldots \\
\quad | & \quad | & \quad | & \quad | & \quad | & \quad | & \quad | & \quad | & \quad | \\
\ldots & \quad \text{n} & \quad \text{f} & \quad \text{a} & \quad \text{n} & \quad \text{ei} & \quad \text{g} & \quad \text{ió} & \quad \text{n} & \quad \text{f} & \quad \text{or} 
\end{align*} \]

- Segments and autosegments are identical.
- What’s associated is not defined by what’s pronounced, as in normal autosegmental phonology.
A correspondence story

Anfwn gwynfan | eigiónfor

An$_1$f$_2$wyn$_3$ g$_4$w$_{\frac{1}{5}}$f$_6$an$_3$ | eig$_4$ión$_5$f$_6$or

- Correspondence is a more powerful formal requirement not linked to what’s pronounced.
- Details of the specific analysis available on request.
Is cynghanedd 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 cynghanedd can be treated with orthodox grammatical machinery.
- But cynghanedd is still at a poetic extreme.
- Why?
Factors that make Welsh special

- Mutations may allow additional options to satisfy cyngihanedd 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.

<table>
<thead>
<tr>
<th>word</th>
<th>gloss</th>
<th>‘my’</th>
<th>‘his’</th>
<th>‘her’</th>
</tr>
</thead>
<tbody>
<tr>
<td>pen</td>
<td>‘head’</td>
<td>fy mhen</td>
<td>ei ben</td>
<td>ei phen</td>
</tr>
<tr>
<td>tad</td>
<td>‘father’</td>
<td>fy nhad</td>
<td>ei dad</td>
<td>ei thad</td>
</tr>
<tr>
<td>ci</td>
<td>‘dog’</td>
<td>fy nghi</td>
<td>ei gi</td>
<td>ei chi</td>
</tr>
<tr>
<td>barn</td>
<td>‘opinion’</td>
<td>fy marn</td>
<td>ei farn</td>
<td>ei barn</td>
</tr>
<tr>
<td>dant</td>
<td>‘tooth’</td>
<td>fy nant</td>
<td>ei ddant</td>
<td>ei dant</td>
</tr>
<tr>
<td>gair</td>
<td>‘word’</td>
<td>fy ngair</td>
<td>ei air</td>
<td>ei gair</td>
</tr>
</tbody>
</table>
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.
Do the mutations add options?

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- A word-medial or word-final [b] can be used here, e.g. *ateb*, *cwbl*, *abl*, etc.
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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 cynghanedd 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

<table>
<thead>
<tr>
<th>Language</th>
<th>unmutated</th>
<th>mutated</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welsh</td>
<td>prif [priv]</td>
<td>brif [briv]</td>
<td>‘main’</td>
</tr>
<tr>
<td></td>
<td>bol [bol]</td>
<td></td>
<td>‘stomach’</td>
</tr>
<tr>
<td>Irish</td>
<td>peann [pʲaːnˠ]</td>
<td>bpeann [bʲaːnˠ]</td>
<td>‘pen’</td>
</tr>
<tr>
<td></td>
<td>buí [bˠiː]</td>
<td></td>
<td>‘yellow’</td>
</tr>
</tbody>
</table>
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: cynghaneddd.
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.