

Learning Meters of Arabic and English poems

With Recurrent Neural Networks

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Introduction

فَقُولُ رَسُولِ اللَّهِ أَزْكَى وَأَشْرَحُ

وَدَعْ عَنْكَ آرَاءَ الرِّجَالِ وَقَوْلَهُمْ

But ... What is poetry?

General Definition:

- **Poetry** is a piece of writing or speaking, which **MUST** follow specific Patterns.

Example, *English verse*:

That **time** of **year** thou **mayst** in **me** behold

To detect poems' meters, we need to learn those **Patterns**.

- **Foot** التفعيلة: is a sequence of vowels and consonants.

Feet	Scansion
فَعُولُنْ	0/0//
فَاعِلُنْ	0//0/
مُسْتَفْعِلُنْ	0//0/0/
مَفَاعِيلُنْ	0/0/0//
مَفْعُولَات	0//0///
فَاعِلَاتُنْ	0/0//0/
مُفَاعَلَتُنْ	0///0//
مُتَفَاعِلُنْ	0//0///

Arabic Patterns/Meters بحور الشعر:

- **Meter** البحر: is a sequence of **feet**.

Meter Name	Meter feet combination
<i>al-Wafeer</i>	مُفَاعَلَتْنِ مُفَاعَلَتْنِ فَعُولُنْ
<i>al-Taweel</i>	فَعُولُنْ مَفَاعِيلُنْ فَعُولُنْ مَفَاعِلُنْ
⋮	⋮
<i>al-Moktadib</i>	مَفْعُولَاتُ مُسْتَفْعِلُنْ مُسْتَفْعِلُنْ
<i>al-Modar'e</i>	مَفَاعِيلُنْ فَاعِلَاتُنْ مَفَاعِيلُنْ

Arabic Prosody, example!

From بحر الوافر:

ويسأل في الحوادث ذو صوابٍ		
ويسأل فل	حوادث ذو	صوابين
0///0//	0///0//	0/0//
مفاعلتنْ	مفاعلتنْ	فعولنْ

English Meters Building Blocks:

- Syllables: $/\text{'w}\text{ɔ:t}\text{ə}/ = / \text{'w}\text{ɔ:}/ + / \text{t}\text{ə}(\text{r})/$.
 - **stressed** + unstressed.
- Foot: is a combination of stressed and unstressed syllables.

Feet	Stresses Combination
<i>Iamb</i>	$\times/$
<i>Trochee</i>	$/\times$
<i>Dactyl</i>	$/\times\times$
<i>Anapest</i>	$\times\times/$
<i>Pyrrhic</i>	$\times\times$
<i>Amphibrach</i>	\times/ \times
<i>Spondee</i>	$//$

Meter: is repeating a foot n times; where $n \in [1, 8]$.

Iambic pentameter verse:

That **time** of **year** thou **mayst** in **me** be**hold**

2nd 3rd 4th 5th

lambic Foot

The diagram illustrates the structure of iambic pentameter verse. The line of poetry is "That time of year thou mayst in me behold". The words "time", "year", "mayst", "me", and "behold" are highlighted in green. Brackets above the line group the words into five pairs: "That time", "of year", "thou mayst", "in me", and "behold". These pairs are labeled "2nd", "3rd", "4th", and "5th" respectively, indicating the second through fifth feet of the verse. A bracket below the first pair "That time" is labeled "lambic Foot", indicating the first foot of the verse.

Literature Review

Technical Details

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