

**Plotting Poetry 2025**

# **Transforming Poetic Thought into Waka:**

## **How to Pack the Skeleton into a 31-Syllable Closet**

- Bor Hodošček, [The University of Osaka](#)
- Hilofumi Yamamoto, [Institute of Science Tokyo](#)

thought2waka

# Basics of WAKA

Classical Japanese Poetry, **WA****KA**

- **WA** → Japanese / Japanese style
- **KA** → Song

## Early Established Waka

- The Man'yōshū: est. around 7-8th century in Chinese notation. written in Chinese characters, but read in Japanese.
- The Kokinshū: est. ca. 905 in Japanese notation. written in Japanese characters, and read in Japanese.
- Before the Man'yōshū, Kanshi (Chinese poetry) was the dominant form.

## Style and Rhetorics

- Include only 31 syllables with 5,7,5,7,7 sounds

	Japanese	Romaji	English Translation
5	うめがえに	ume ga e ni	at the plum branch
7	きめるうぐひす	kiiru uguhisu	warbler came
5	はるかけて	haru kakete	cries over spring
7	なけどもいまだ	nake domo imada	even though it cries
7	ゆきはふりつつ	yuki ha furi tsutsu	snow keeps falling

Theme: **Waiting for the arrival of spring**

## Style and Rhetorics

- Express natural views and emotions in a simple sentence:
  - plum branch, warbler, spring, snow
- Use of rhetorics to create a poetic atmosphere:
  - Pun (kakekotoba)
  - Pillow words (makurakotoba)
  - Introductory words (o-kotoba)

## Preface of Kokinshū: Kanajo

やまとうたは、人の心を種として、  
よろづの言の葉とぞなれりける。  
世の中にある人、ことわざ繁きものなれば、  
心に思ふことを、見るもの聞くものにつけて、言ひ出せるなり。

Japanese poetry (yamato-uta) takes the human heart as its seed,  
and from it grows a myriad of words and leaves.  
Since people living in this world are  
surrounded by countless events,  
they express what they feel in their hearts  
by attaching it to the things they see and hear.

## Preface of Kokinshū: Kanajo

- Does not mention the 31-syllable form
- The format is driven from the practice of poetic expression
- Not too short, not too long, just right for expressing emotions
- One theory suggests that the pleasantness of phonetics and rhythm (5-7 pattern),
- The length of breath, and ease of recitation and transmission are involved.

## Poetic ideas pack into 31-Syllable Form

- The 31-syllable is the final form of the poem, not the initial one.
- The constraint of Waka is the construction of 5,7,5,7,7 syllables.
- Poets create a poem under the 5 segments of 5,7,5,7,7 syllables constraint.
- It is the first step to shorten ideas to fit to 5 or 7 syllables.



## Poetic Rules may include:

- Omission of grammatical elements
- Inversion of word order
- Symbolic substitution
- Nominalization
- Manipulation of ambiguity
- Compression of meaning
- Expansion of meaning
- Reinterpretation of context
- ...

## Obtain some typical conversion patterns from both

- OP: original poems, and
- CT: contemporary translations

## Through the comparison of OP and CT, we can obtain:

- Grammatical pattern, especially predicative elements.  
i.e. tense, aspect, ← elements making a poem longer.
- Lexical construction such as proper nouns.
- Rhetorical techniques → such as implications.

# Material

- A) Kokinshu: a collection of 1000 waka poems
- B) Modern Japanese translations: 10 sets of translations
  - Parallel corpus: a dataset of original poems and their translations

## A: Kokinshu 1000 original dataset (OP)

- **Hachidaishu Classical Japanese Poetic Vocabulary Dataset** on Zenodo contains the original poems of the Hachidaishu (including the Kokinshu) and their semantic codes.
- <https://zenodo.org/records/14001396>
- Creators: Yamamoto, Hilofumi and Hodošček, Bor
- Published: October 28, 2024 / Version v1.0.1
- Hachidaishu classical Japanese poetic vocabulary dataset
- DOI [10.5281/zenodo.14001396](https://doi.org/10.5281/zenodo.14001396)

## B: Ten sets of the Translations

No.	Translator	Year	Pages	Manuscript	Translation Style
1.	Kaneko Motoomi*	1933	1,105	Teika	Literal translation
2.	Kubota Utsubo	1960	1,449	Teika	Literal translation
3.	Matsuda Takeo	1968	1,998	Teika	Free translation
4.	Ozawa Masao	1971	544	Teika	Changes word order and grammar
5.	Takeoka Masao	1976	2,278	Teika	Literal translation
6.	Okumura Tsuneya	1978	434	Teika	Respects author's intent
7.	Kusojin Hitaku	1979	1,260	Teika	Supplements words
8.	Komachiya Teruhiko	1982	407	Teika	Unknown
9.	Kojima Noriyuki & Arai Eizo	1989	483	Teika	Unknown
10.	Katagiri Yoichi	1998	3,022	Teika	Literal translation

## Kokinwakashu Hyoshaku by Motoomi Kaneko

- only Kaneko Motoomi's translation is available on Zenodo.
- [Kokinwakashu Hyoshaku by Motoomi Kaneko translation sentence vocabulary dataset](#)
- <https://zenodo.org/records/13942707>
- Hilofumi Yamamoto, Bor Hodošček, and Xudong Chen
- Published October 16, 2024 / Version v1.0.1
- DOI [10.5281/zenodo.13942707](https://doi.org/10.5281/zenodo.13942707)

## Methods

- Using a parallel corpus of waka (OP) and modern Japanese translations (CT)
- Align waka (OP) with contemporary translations (CT)
- Using BG-code (WLSP: word list semantic principle) semantic principle codes to match words by 3 levels of categorical similarity.  
<https://github.com/masayu-a/WLSP>

## Subtraction

$$\text{CT} - \text{OP} = \text{Residual}$$

- We will subtract the elements of OP from the elements of CT.
- In other words, we will find out what the CT needs to say that the OP does not say.



## Parallel Comparison between OP and CT

Kokinshu No. 3 CT by kaneko

OP : はるがすみ.たてる.や.いづこ.みよしの.の.よしの.の.やまに.ゆき.は.ふりつつ

Gloss: spring haze.arise.Q.where?.Miyoshino.of.Yoshino.of.Mt.snow.falling

-----  
Spring haze—where does it rise? On Mount Yoshino in Yoshino, the snow keeps falling and falling.

CT : 春には成ったが、長閑な霞の立っているのは何処の辺か、この吉野の里の吉野山には  
雪が降り降りして、一向に春めきもしない。

Gloss: spring-----haze.arize-----where---Q-----Yoshino--MtYoshino-  
snow--fallfall-----

-----  
Spring has arrived, but where is that gentle haze drifting? Here in the Yoshino village, on Mount Yoshino, snow keeps falling and falling, and it shows no sign of spring at all.

We anotated each poem and each translation as the following:

## OP: Kokinshu No.3

1	KW000003	111	1	02	00	00	BG-01-5152-09-040-A	はるがすみ はるがすみ 春霞 spring haze
1	KW000003	111	3	02	00	00	BG-01-1624-02-010-A	-- はる 春 spring
1	KW000003	111	3	02	00	00	BG-01-5152-09-010-A	-- かすみ 霞 haze
1	KW000003	211	0	47	25	04	BG-02-1513-01-010-A	たて たつ 立つ
1	KW000003	212	0	74	68	20	BG-09-0010-03-030-C	る り り
1	KW000003	213	0	65	00	00	BG-08-0065-14-010-C	や や や
1	KW000003	221	0	14	00	00	BG-01-1700-02-100-C	いづこ いづこ 何処
1	KW000003	311	0	11	00	00	CH-29-0000-20-010-A	みよしの みよしの 御吉野
1	KW000003	312	0	71	00	00	BG-08-0071-01-010-A	の の の
1	KW000003	411	0	11	00	00	CH-29-0000-20-010-A	よしの よしの 吉野
1	KW000003	412	0	71	00	00	BG-08-0071-01-010-A	の の の
1	KW000003	421	0	02	00	00	BG-01-5240-05-010-A	やま やま 山
1	KW000003	422	0	61	00	00	BG-08-0061-05-010-A	に に に
1	KW000003	511	0	02	00	00	BG-01-5153-07-010-A	ゆき ゆき 雪
1	KW000003	512	0	65	00	00	BG-08-0065-07-010-A	は は は
1	KW000003	521	0	47	28	03	BG-02-1540-10-010-A	ふり ふる 降る
2	KW000003	521	2	47	28	03	BG-02-5150-03-010-A	ふり ふる 降る
1	KW000003	522	0	64	00	00	BG-08-0064-15-010-A	つつ つつ つつ

## CT: Kaneko No.3

1	kaneko	0003	0	02	00	00	BG-01-1624-02-010-A	春 はる 春 spring
1	kaneko	0003	0	61	00	00	BG-08-0061-05-010-A	に に に
1	kaneko	0003	0	65	00	00	BG-08-0065-07-010-A	は は は
1	kaneko	0003	0	47	17	06	BG-02-1220-01-030-A	成っ なる 成る
1	kaneko	0003	0	74	54	01	BG-09-0010-04-010-A	た た た
1	kaneko	0003	0	64	00	00	BG-08-0064-04-010-A	が が が
1	kaneko	0003	0	79	00	00	BG-16-0079-01-010-A	、 、 、
1	kaneko	0003	1	18	00	00	BG-03-3010-02-140-A	長閑 のどか 長閑
1	kaneko	0003	2	18	00	00	BG-03-5150-02-040-A	-- のどか のどか
1	kaneko	0003	0	74	55	06	BG-09-0050-01-030-A	な だ だ
1	kaneko	0003	0	02	00	00	BG-01-5152-09-010-A	霞 かすみ 霞 haze
1	kaneko	0003	0	61	00	00	BG-08-0061-07-010-A	の の の
1	kaneko	0003	0	47	13	05	BG-02-1513-01-010-A	立っ たつ 立つ
2	kaneko	0003	2	47	13	05	BG-02-1521-06-020-A	立っ たつ 立つ
3	kaneko	0003	2	47	13	05	BG-02-3330-11-020-A	立っ たつ 立つ
4	kaneko	0003	2	47	13	05	BG-02-3391-02-110-A	立っ たつ 立つ
1	kaneko	0003	0	64	00	00	BG-08-0064-16-010-A	て て て

... continues

## Meta-code system

BG-01-2030-01-030-A-かみ-神 (god)  
↑ ↑ ↑  
GFE  
↓ ↓ ↓  
BG-01-2030-01-250-A-ほとけ-仏 (Buddha)

- G: Group match... 10 digits
- F: Field match..... 13 digits
- E: Exact match..... 17 digits

The three matching levels are judged by the length of BG-code digits.

# Code Categories with English annotation

BG-01-1000-00-000-X:demonstrative\_pronoun  
BG-01-1100-00-000-X:class,kinds  
BG-02-1000-00-000-X:abstract\_relation  
BG-02-1110-00-000-X:relation  
BG-03-3100-00-000-X:language\_and\_speech  
BG-03-3400-00-000-X:personal\_affairs  
BG-04-1100-00-000-X:conjunction  
BG-05-0000-00-000-X:prefix  
BG-06-0000-00-000-X:infix  
BG-07-0000-00-000-X:suffix  
BG-08-0061-00-000-X:case\_particle  
BG-09-0000-00-000-X:auxiliary\_verb  
BG-10-0000-00-000-X:auxiliary\_verb\_and\_auxiliary\_adjective  
BG-11-0000-00-000-X:relative\_pronoun  
BG-12-0000-00-000-X:word\_endings  
BG-13-0000-00-000-X:preposition\_and\_postposition  
BG-14-0000-00-000-X:meaning\_unknown  
BG-15-0000-00-000-X:proper\_noun  
BG-16-0000-01-000-X:punctuation  
BG-17-0000-00-000-X:wordplay\_handling  
BG-18-0000-00-000-X:counting

# Computer Tools

## code2match.c

- Align waka with contemporary translations
- github: <https://github.com/yamagen/code2match>

```
% cat op_file.txt ct_file.txt | code2match -a
```

## code2match -h

```
% code2match [-ahv] file....
-a    print all data
-b    print between check
-c    print calculation table
-d    print predicate part out
-e    once matched out (bag of words option)
      use it with other options
-i    print calculation in line style
-l    print token list table
-o    print original poem out
-p    print pair token table
-r    print residual
-s    print valid on
-t    print title
-u    print unmatched portion
-h    print this help
-v    print code2match version
(c) 2025 H. Yamamoto yamagen@ila.titech.ac.jp
```



# Pair Token Table: -p

+----- number of pair			value of exact=17, field=13, group=10			number of POS			number of OP token			number of CT token		
+-----			+-----			+--			-----+			+-----		
									OP token			CT token		
									OP token			CT token		
1	13	2							春	01	<->	00	春	
2	17	2							霞	02	<->	10	霞	
3	17	47							立つ	03	<->	12	立つ	
4	13	65							や	05	<->	26	か	
5	17	14							何処	06	<->	20	何処	
6	17	71							の	08	<->	21	の	
7	17	11							吉野	09	<->	30	吉野	
8	17	71							の	10	<->	31	の	
9	17	2							山	11	<->	37	山	
10	17	61							に	12	<->	38	に	
11	17	2							雪	13	<->	40	雪	
12	17	65							は	14	<->	02	は	
13	17	47							降る	16	<->	43	降る	
14	10	64							つつ	17	<->	47	て	

## Print Residual: -r

Residual tokens reveal what the translation needs to say that the original poem leaves unsaid.

```
CT A--B--C--D--E--F--G--H-----
7 0 1 0 -1 64 0 0 BG-08-0064-16-010-A て て
10 0 1 0 -1 61 0 0 BG-08-0061-02-010-A が が
12 0 1 0 -1 16 0 0 BG-01-1624-05-010-A 冬 冬
13 0 1 0 -1 16 0 0 BG-01-1612-01-060-A 時分 時分
14 0 1 0 -1 61 0 0 BG-08-0061-01-010-A から から
15 0 1 0 -1 57 0 0 BG-03-1000-01-010-A この この
17 0 1 0 -1 61 0 0 BG-08-0061-08-010-A へ へ
21 0 1 0 -1 18 0 0 BG-03-1600-03-020-A 頻り 頻り
22 0 1 0 -1 72 0 0 BG-08-0072-02-010-A に に
33 0 1 0 -1 47 3 7 BG-02-3420-01-010-A し する
36 0 1 0 -1 55 0 0 BG-03-1200-03-060-A 一向 一向
37 1 1 0 -1 47 8 2 BG-02-1624-02-110-A 春めか 春めく
42 1 1 0 -1 74 59 1 BG-03-1200-02-090-A ぬ ぬ
45 0 1 0 -1 21 0 0 BG-01-1010-01-020-A こと こと
46 1 1 0 -1 69 0 0 BG-08-0069-30-010-A よ よ
47 0 1 0 -1 61 0 0 BG-08-0061-03-010-A へ へ
```

## Elements breakdown between OP and CT: -c

OP(original poem; valid number of items)	= 16
E (ratio of exact agreement)	$11/16 = 0.688$
F (ratio of field agreement)	$2/16 = 0.125$
G (ratio of group agreement)	$1/16 = 0.062$
T (ratio of total agreement)	$14/16 = 0.875$
U (ratio of unmatched)	$1 - T = 0.125$

-----

CT(contemporary translation; valid number of items)	= 39
W (ratio of original word use)	$11/39 = 0.282$
A (ratio of annotation)	$1 - W = 0.718$
- breakdown of the annotation -	
P1(ratio of FG paraphrased)	$(F+G)/V = 0.077$
P2(ratio of U paraphrased)	$(A-P1)*U = 0.080$

-----

D (ratio of purely added)	$A - (P1+P2) = 0.561$
H (theoretical value)	$1 - 16/39 = 0.590$
Gap:	$\text{fabs}(D-H) = 0.029$

Figure: Ingredients of the translation of Kokinshu No. 298 by Komachiya.

## Predicate alignments between OP and CT: -d

```
$ cat data/kokin/0005.db.txt data/kaneko/0005.db.txt | src/code2match -d
PRED: kaneko    5 [09|かけ|て|なけ|ども|13] => [19|かけ|て|頻り|に|鳴く|けれども|24]
PRED: kaneko    5 [18|ふり|つつ|19] => [30|降り降り|し|て|34]
```

```
$ cat data/kokin/0007.db.txt data/kaneko/0007.db.txt | src/code2match -d
PRED: kaneko    7 [12|きえあへ|ぬ|15] => [20|消え|て|果て|ず|25]
PRED: kaneko    7 [22|みゆ|らむ|23] => [41|見える|の|で|あろ|う|46]
```

op predicate

ct predicate

## Script to run code2match

```
#!/bin/sh

# This script compares two directories containing Waka poems and their translations.
if [ "$#" -lt 3 ]; then
    echo "Usage: $0 <dir1> <dir2> <id> [option]"
    exit 1
fi

DIR1="$1"
DIR2="$2"
ID=$(printf "%04d" "$3") # ID can be 1-9999, so we format it to 4 digits
OPTION="$4"              # Optional argument for code2match

cat "$DIR1/$ID.db.txt" "$DIR2/$ID.db.txt" | ../src/code2match $OPTION
```

# Script: loop 1-1000 to run code2match

```
#!/bin/sh

# args: $1 = kokin directory name (e.g., kokin)
#       $2 = contemporary translation directory name (e.g., kaneko)
#       $3 = poem ID or range (e.g., 1, 100, or 1-100)
#       $4 = optional argument for code2match (e.g., -d, -r)

SRC=../src/code2match

# judge if $3 is a range or a single number
if echo "$3" | grep -qE '^[0-9]+-[0-9]+$'; then
    START=$(echo "$3" | cut -d- -f1)
    END=$(echo "$3" | cut -d- -f2)
else
    START=$3
    END=$3
fi

# Loop through the specified range or single number
for i in $(seq "$START" "$END"); do
    FILE1="$1/$(printf '%04d' "$i").db.txt"
    FILE2="$2/$(printf '%04d' "$i").db.txt"

    if [ -n "$4" ]; then
        cat "$FILE1" "$FILE2" | "$SRC" "$4"
    else
        cat "$FILE1" "$FILE2" | "$SRC"
    fi
done
```

# The Compression of Poetic Thought into 31-Syllable Form

- How to detect the compression of poetic thought into 31-syllable form?
- Should we use multivariate analysis of the parallel corpus?
- What variables do we need to consider?



- Even a statistician would hesitate to give a definitive answer here.
- We will observe the patterns of compression one by one.

So far, we've sketched out the problem—but how do we proceed?

# Asking AI? But how are we going to explain...

- John Tukey's Exploratory Data Analysis (EDA) is a good start.

A foundational work in exploratory data analysis (EDA) that introduced the stem-and-leaf display as a way to visualize data distributions effectively.

- We will seek the evidence but more than that,

→ ***we need the accountability of the results.***

# Why is "Researchers Getting Hands-On" Important?

- **"Not a Black Box" Assurance**

Both cluster analysis and visualization are conducted with the researchers manually verifying the correspondence between data changes and hypotheses, which is crucial in linguistic research.

- **"Small Examples to Big Understanding"**

The process of analyzing the data is not just about the final results, but also about understanding the individual transformations. For example, showing how "春霞 → 春 + 霞" or "ふりつつ/furitsutsu → 降り降りして/furi furi shite" illustrates each transformation helps convey the meaning of the analysis

- **"Hands-On Approach"**

The hands-on approach allows researchers to explore the data in a way that is not just about the final results, but also about understanding the individual transformations. This is especially important in linguistic research, where the meaning of the data is often complex and nuanced.

## **Demonstration of the Process**

## Content words

```
$ ./c2m.sh kokin kaneko 1-100 -r | awk '/BG-01/{print $9, $10}' | sort | uniq -c | sort -nr | nl | head -20
```

1	41	BG-01-5530-12-010-A	花	flower
2	39	BG-01-1010-01-020-A	こと	thing
3	18	BG-01-1000-01-050-A	それ	that
4	16	BG-01-1000-03-010-A	もの	thing
5	13	BG-01-2000-06-080-A	人	person
6	11	BG-01-5520-20-040-A	梅	plum
7	10	BG-01-5520-20-100-A	桜	cherry
8	10	BG-01-1000-01-020-A	これ	this
9	9	BG-01-2000-01-300-A	自分	self
10	9	BG-01-1610-01-010-A	時	time
11	8	BG-01-1624-02-010-A	春	spring
12	6	BG-01-4000-01-080-A	物	thing
13	6	BG-01-1990-05-030-A	さえ	even
14	6	BG-01-1770-01-050-A	外	outside
15	6	BG-01-1642-01-030-A	昔	past
16	6	BG-01-1610-03-020-A	間	while
17	5	BG-01-5153-07-010-A	雪	snow
18	5	BG-01-3066-02-080-A	はず	should
19	5	BG-01-1770-01-030-A	内	inside
20	5	BG-01-1641-01-010-A	今	now

## Nouns Avoided in Waka (Top 20 Residuals)

- **Abstract & Deictic Nouns**

- 花 (flower), こと (thing), それ (that), もの (thing), これ (this)
- ⇒ Preference for concrete, symbolic imagery

- **Time & Season Terms**

- 時 (time), 春 (spring), 昔 (past), 今 (now)
- ⇒ General time words give way to specific kigo

- **Self & Agency**

- 人 (person), 自分 (self), 内 (inside), 外 (outside), はず (should)
- ⇒ Avoidance of explicit self-reference



## Key Insights 1

- **Concrete / Symbolic Keywords**

- Waka retains vivid imagery; abstract/utility nouns are cut

- **Poetic Temporal Expression**

- General time nouns are replaced by evocative seasonal or momentary phrases

- **Anthology Bias**

- 梅 (plum), 桜 (cherry), 雪 (snow) less frequent in some collections

## Key Insights 2

- **Unexpectedly low direct frequencies**
  - i.e., "ume" (plum), "sakura" (cherry), and "yuki" (snow)
  - Often subsumed under the generic term “flower” or conveyed metaphorically
- **A promising focal point for comparative studies on thematic selection**
  - Why do these specific nature terms appear less frequently in waka?
  - Why did not poets choose simple, direct expressions for these themes? such as "Ume/plum" or "Sakura/cherry"?

## Nature Themes as Residuals

- Specific names like Ume/plum · Sakura/cherry are often replaced by the generic 「Hana/flower」 in waka
- 雪/snow is frequently rendered metaphorically (e.g. 「白き/shiroki 花/flower」 ) rather than named directly

⇒ This substitutional practice leads to low direct frequencies for these terms

## Remarks

- The 31-syllable form is not a fixed structure but a flexible framework.
- Poets use the 31-syllable form to express their emotions and thoughts in a concise manner.
- Preference for generic yet symbolic nouns (e.g., "hana" = flower) over specific ones (e.g., "hana tachibana").
- Abstract, deictic, or self-referential nouns are often avoided.
- Temporal references are not expressed through general time words but through poetic imagery.

# Predicate Correspondence Analysis

## Command executed

```
./c2m.sh kokin kaneko 1-100 -d \  
| awk '{print length($0), $0}' \  
| sort -nr \  
| nl \  
| head -10
```

- Extracted the top 10 longest predicate mappings between the Kokin and Kaneko corpora
- Each line shows:
  - Length in characters
  - Original predicate span ([start|...|end])
  - ⇒ Transformed predicate span in the waka context

```

$ ./c2m.sh kokin kaneko 1-100 -d | awk '{print length($0), $0}' | sort -nr | nl | head -10
1 148 PRED: kaneko 86 [21|ふく|らむ|22] => [07|吹か|ぬ|時|に|も|、|雪|の|よう|に|ひたすら|散
る|が|、|それ|さえ|以て|惜しく|ある|もの|を|、|また|この上|どのように|烈しく|散れ|と|いっ|て|、|こ
う|も|風|が|吹く|の|で|あろ|う|57]
2 111 PRED: kaneko 78 [21|まぢみ|て|ちら|ば|ちら|なむ|29] => [35|待っ|て|み|て|、|いよいよ|来|
ぬ|時|に|こそ|、|散る|なら|ば|お前|の|勝手|に|散っ|て|貰お|う|わ|64]
3 98 PRED: kaneko 36 [11|をり|て|かざさ|む|15] => [27|折り取っ|て|、|我が|容貌|の|老|も|隠れ
る|か|どう|か|と|、|試し|に|挿頭し|て|みよ|う|58]
4 96 PRED: kaneko 11 [01|き|ぬ|04] => => [02|た|と|世間|の|人|は|いう|が|、|まだ|鶯|は|鳴い
て|い|ない|、|自分|は|何でも|鶯|の|鳴か|ぬ|31]
5 94 PRED: kaneko 76 [12|をしへよ|いき|て|うらみ|む|18] => [32|教え|て|くれ|よ|、|然らば|、|
そこ|に|行っ|て|思う存分|恨み|を|いお|う|52]
6 91 PRED: kaneko 61 [04|く|は|はれ|る|05] => [11|加わっ|て|長く|なっ|た|今年|なり|とも|、|人|
の|心|に|は|なぜ|厭か|れ|は|せ|ぬ|39]
7 85 PRED: kaneko 77 [06|ちり|な|む|11] => [08|散る|なら|ば|、|自分|も|一緒|に|何処|へ|なり|
と|退散|し|て|しまお|う|32]
8 85 PRED: kaneko 74 [03|ちら|ば|ちら|なむ|ちら|ず|11] => [07|散る|なら|ば|勝手|に|散っ|て|貰
お|う|、|たとえ|散ら|ず|22]
9 83 PRED: kaneko 45 [00|くる|と|あく|と|めかれ|ぬ|ものを|12] => [12|と|いっ|て|は|見|、|夜|
が|明ける|と|いっ|て|31]
10 80 PRED: kaneko 63 [01|こ|ず|03] => [07|来れ|ば|こそ|、|この|桜|を|花|と|は|見|ますれ|、|若
し|今日|来|ぬ|28]

```

## Key Observations

- Substantial expansions

Eg. “ふく | らむ” ⇒ “吹かぬ時に…雪のようにひたすら散るが…” (148 chars)

- Frequent verb classes

Scattering (散る), blooming (咲く), seeing (見る), falling (降る)

- Waka elaboration patterns
  - Addition of temporal/conditional clauses
  - Shift from simple verb forms to more poetic constructions



## Word Types

- Chinese word construction techniques applied to Waka
  - Two chinese characters combination methods.
    - person + action (e.g., 人言, 人来, a person speaks, a person comes)  
... not: 人の言葉, 人の来る, someone speaks words, someone comes somewhere
    - noun + noun (e.g., 山川, 山野, mountain and river, mountain and field)  
... not: 山の川, 山の野, mountain's river, mountain's field
    - noun modifier + modified noun (e.g., 朝露, 白露, morning dew, white dew)  
... not: 朝に降りている露, 白く光った露, morning's dew, white dew
- These are one of the **compression methods** in Waka.

## Poetic Compression

- Poetic compression is a key feature of Waka.
- It involves condensing complex ideas into concise phrases.

Normal Narration (Expansion)	Poetic Compression (Condensation)
梅の花を折ってしまったので	梅の花
I picked a plum blossom and it fell	ume no hana
朝に降りている露	朝露
Morning dew falling down	asa tsuyu
白く光った露	白露
White dew shining	shira tsuyu
鳴いていないけれども	かけてなけども
Not chirping, but	kakete nakedomo
ゆっくりと降り続いている雨	降り降りして
Slowly keep falling rain	furi furi shite

## Poetic Compression Techniques

Technique	Description	Example
文を語に圧縮	Compressing sentences into words	梅の花 (ume no hana)
漢語化圧縮	Using Chinese characters to condense meaning	朝露 (asa tsuyu)
畳語強調	Repetition for emphasis	降り降りして (furi furi shite)
感情の抽象化	Abstracting emotions	鳴く → cry(birds)..cry(human)
省略と省略語	Omitting unnecessary words	白露 (shira tsuyu)
読者に委ねる	Leaving interpretation to the reader	白...雪/snow, 花/flower

## Questions for Discussion

- What kinds of patterns do you observe when comparing poetic originals with their translations in your own corpus?
- Have you found similar cases of word expansion (e.g., a single poetic word becoming a phrase in translation)?
- Do you ever annotate or align poetic lines manually before analysis? How do you balance structure and meaning?
- Can we think of ways to represent translation divergence not just as loss/gain, but as stylistic transformation?
- How might this Japanese example (e.g., "朝露" → "露が朝に降りている") resonate with condensation in your own poetic tradition?

# Conclusion 1

## The Ways of the Compression of Poetic Thought Into 31-Syllable Form

### → How to Pack ideas into the Closet of Skeleton

- Word Compression
- Predicate Compression
- Shortening by removing grammatical elements

This is how we approached translation analysis in Japanese waka. We wonder how similar or different your poetic traditions behave in such transformations. Let's explore this together.

## Conclusion 2

## Future research directions

- Explore the description of poetic compression in other languages and cultures
- Invent new description methods for colloquial sentences  
→ ***Immediate grammar and syntax***
- Develop ecosystem for analyzing colloquial sentences in terms of:
  - ***Semantic and syntactic compression***
  - ***A co-development environment for data ecosystems***
  - ***A collaborative platform for developing data ecosystems***
  - ***A co-creation environment of tools***

## Reference 1

- Kamitani, Kaoru, (1999). Kokinwakashu yogo no goiteki kenkyu (Lexical Study of Kokinwakashu vocabulary), Izumi Shoten, Osaka.
- Sachi Kato, Masayuki Asahara, Nanami Moriyama, Asami Ogiwara, and Makoto Yamazaki (2021). Opposite Information Annotation on Word List by Semantic Principles, Journal of Natural Language Processing, Vol.28, No.1, 60-81, DOI <https://doi.org/10.5715/jnlp.28.60>.
- John W. Tukey, (1977). Exploratory Data Analysis, Addison-Wesley, Reading, MA.
- Yamamoto, H., (2009). Thesaurus for the Hachidaishu (ca. 905-1205) with the classification codes based on semantic principles, The Study of Japanese Linguistics, The Society of Japanese Linguistics, Vol. 5, No. 1, pp. 46-52.



## Reference 2

- Yamamoto, H. and Hodošček, B. (2019). An Analysis of the Differences Between Classical and Contemporary Poetic Vocabulary of the Kokinshu, The 9th Conference of Japanese Association for Digital Humanities, JADH2019) Localization in Global DH, 68--71.
- Yamamoto, H., Hodošček, B., & Chen, X. (2024). Hachidaishu Part-of-Speech Dataset (1.0.1) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.13940187>
- Yamamoto, H., Hodošček, B., & Chen, X. (2024). Kokinwakashu Hyoshaku by Motoomi Kaneko translation sentence vocabulary dataset (v1.0.1) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.13942707>
- Yamamoto, H. (2024). Process Grammar Model: Immediate Grammar and Adjustment Grammar [Working paper]. Zenodo. <https://doi.org/10.5281/zenodo.15003730>