

# A historical and morphosyntactic analysis of Japanese epistemic markers (*dearoo/daroo* and *-oo*)

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March 12, 2023

## Japanese epistemic markers

- (1) a. [ *asa*     *k*]     \*     *amu*.  
         shallow PRED be-EPI

‘(It) will be shallow.’

- (2) *asa*     *i*             *de* \*(*ar-*)*oo*.  
         shallow PRED.PRS DE be-EPI

‘(it) will be shallow.’

- (3) *asa*     *i*             *dearoo*.  
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(1) a. [ *asa*    *k* ]    *\*(ar-)****amu***.  
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- (2) *asa* *i* *de* \**(ar-)****oo.***  
shallow PRED.PRS DE be-EPI  
'(it) will be shallow.'
- (3) *asa* *i* ***dearoo.***  
shallow PRED.PRS EPI  
'(it) will be shallow.'

# Literature on Japanese epistemic modals

- The majority of the literature: **semantics/pragmatics** (Hara 2018, amo.)
- A few **syntactic** studies on epistemic modals:
  - Inoue (2007)
  - Ueda (2008)
  - Haraguchi and Shuhama (2011)
- They are interested in the relative position of epistemic modals as opposed to other modal expressions (aka utterance-modals).
- Finer-grained analysis of *-am/oo* and *dearoo/daroo* has not been extensively carried out.



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# Outline

- 1 Introduction
- 2 Copular sentences
- 3 Epistemic modal markers
- 4 Analysis
  - The morphosyntax of *-amu* and *-oo*
  - The morphosyntax of *dearoo/daroo*
- 5 Historical Changes
- 6 Conclusion

# Copular Sentences

## *Copula 1: Predicative copula (CJ)*

## Copular sentences (Nishiyama, 1997, 1999)

(4) Bernie consider [Alex smart].

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(5) Contemporary Japanese (CJ)

- |    |                                     |                 |                            |   |               |
|----|-------------------------------------|-----------------|----------------------------|---|---------------|
| a. | <i>Bernie-ga</i>                    | [ <i>Alex-o</i> | { <i>gakusya/siawase</i> } | ] | <i>si-ta.</i> |
|    | Bernie-NOM                          | Alex-ACC        | scholar/happy              |   | do-PST        |
|    | 'Bernie made Alex a scholar/happy.' |                 |                            |   | <i>NP/NAP</i> |
| b. | <i>Bernie-ga</i>                    | [ <i>Alex-o</i> | <i>utukusi</i>             | ] | <i>si-ta.</i> |
|    | Bernie-NOM                          | Alex-ACC        | beautiful                  |   | do-PST        |
|    | 'Bernie made Alex beautiful.'       |                 |                            |   | <i>CAP</i>    |

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(5) Contemporary Japanese (CJ)

- a. *Bernie-ga* [*Alex-o* {*gakusya/siawase*} *ni*] *si-ta*.  
 Bernie-NOM Alex-ACC scholar/happy PRED do-PST  
 'Bernie made Alex a scholar/happy.' NP/NAP
- b. *Bernie-ga* [*Alex-o utukusi* *ku*] *si-ta*.  
 Bernie-NOM Alex-ACC beautiful PRED do-PST  
 'Bernie made Alex beautiful.' CAP



# Copular sentences (Nishiyama, 1997, 1999)

## 1. Contemporary Japanese: **Predicative copula**

(6) a. *Alex-ga* {*gakusya/siawase*} **de** *at-ta*.  
 Alex-NOM scholar/happy PRED be-PST

'Alex was a scholar/happy.'

*NP/NAP*

b. *Alex-ga utukusi* **ku** *at-ta*.  
 Alex-NOM beautiful PRED be-PST

'Alex was beautiful.'

*CAP*

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 Alex-NOM scholar/happy PRED be-PST  
 'Alex was a scholar/happy.' NP/NAP
- b. *Alex-ga utukusi ku at-ta.*  
 Alex-NOM beautiful PRED be-PST  
 'Alex was beautiful.' CAP
- (7) a. *Alex-ga {gakusya/siawase} dat-ta.*  
 Alex-NOM scholar/happy PRED.be-PST  
 'Alex was a scholar/happy.' NP/NAP
- b. *Alex-ga utukusi kat-ta.*  
 Alex-NOM beautiful PRED.be-PST  
 'Alex was beautiful.' CAP

## *Copula 2: Dummy copula (CJ)*

# Copular sentences (Nishiyama, 1997, 1999)

## 1. Contemporary Japanese: **Dummy copula**

(8) a. *Hasit-ta.*

run-PST

'(S/he) ran.'

b. *Hasir-anak \*(at-)ta.*

run-NEG **be**-PST

'(S/he) **did** not run.'

VP

## *Copula 2: Dummy copula (EMJ)*

# Copular sentences (Nishiyama, 1997, 1999)

## 2. EMJ Japanese: **Dummy copula**

(9) a. *Hasiri-keri.*

run-PST

'(S/he) ran.'

b. *Hasir-az*      \**(ari-)*keri.

run-NEG

be-PST

'(S/he) did not run.'

VP

## *Copula 1: Predicative copula (EMJ)*

# Copular sentences (Nishiyama, 1997, 1999; Watanabe, 2009)

## 2. EMJ Japanese: **Predicative copula**

- (10) a. [PredP {*yama/apare*} ***ni***]-zo \*(***ari-***)*keru*.  
 mountain/amazing PRED-PRT be-PST.ADN  
 '(It) was a mountain/amazing.' NP/NAP
- b. [PredP *asa* ***ku***]-zo \*(***ari-***)*keru*.  
 shallow PRED-PRT be-PST.ADN  
 '(It) was shallow.' CAP



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- b. [PredP *asa* ***ku***]-zo \*(***ari-***)*keru*.  
 shallow PRED-PRT be-PST.ADN  
 '(It) was shallow.' CAP
- (11) a. {*yama/apare*} ***nari-keri***.  
 mountain/amazing PRED.be-PST  
 '(It) was a mountain/amazing.' NP/NAP
- b. *asa* ***kari-keri***.  
 shallow PRED.be-PST  
 '(it) will be shallow.' CAP

# Epistemic modal markers

# *Epistemic modal marker 1: -amu (EMJ)*

## Distribution of *-amu*

- (12) a. *Hasir-**amu**.*  
run-EPI  
'(S/he) will run.'
- b. *Hasir-az **ar-*amu***.*  
run-NEG be-EPI  
'(S/he) will not run.'      VP

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- (12) a. *Hasir-amu.*  
run-EPI  
'(S/he) will run.'
- b. *Hasir-az ar-amu.*  
run-NEG be-EPI  
'(S/he) will not run.' VP
- (13) a. {*yama/apare*}  
mountain/amazing  
'Will (it) be a mountain/amazing?' NP/NAP
- b. *asa*  
shallow  
'Will (it) be shallow?' CAP
- ni-ya* PRED-PRT be-EPI
- ku-ya* PRED-PRT be-EPI

## Distribution of *-amu*

- (12) a. *Hasir-**amu**.*  
run-EPI  
'(S/he) will run.'
- b. *Hasir-az **ar-*amu***.*  
run-NEG be-EPI  
'(S/he) will not run.' VP
- (14) a. {*yama/apare*}  
mountain/amazing  
'(It) will be a mountain/amazing.' PRED.be-EPI NP/NAP
- b. *asa*  
shallow  
'(It) will be shallow.' PRED.be-EPI CAP

## *Epistemic modal marker 2: -oo (CJ)*

## Distribution of *-oo*

- (15) a. \**Hasir-oo*.  
run-EPI  
'(S/he) will run (intended).'
- b. *Hasira-nak ar-oo*.  
run-NEG be-EPI  
'(S/he) will not run.'
- (16) a. {*yama/aware*}  
mountain/pathetic  
'Will (it) be a mountain/pathetic?'
- b. *asa*  
shallow  
'Will (it) be shallow?'
- de-wa*  
PRED-PRT  
*ar-oo*.  
be-EPI  
*NP/NAP*
- ku-wa*  
PRED-PRT  
*ar-oo*.  
be-EPI  
*CAP*



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- (17) a. {*yama/aware*}  
mountain/pathetic  
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- b. *asa*  
shallow  
'(It) will be shallow.'
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PRED.be-EPI  
NP/NAP
- kar-oo*.  
PRED.be-EPI  
CAP

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- b. *asa*  
shallow  
'(It) will be shallow.'
- dar-oo*.  
PRED.be-EPI  
NP/NAP
- kar-oo*.  
PRED.be-EPI  
CAP

## *Epistemic modal marker 3: dearoo/daroo (CJ)*

## Distribution of *dearoo/daroo*

- (24) *Hasir-u* {*dearoo/dearoo*}.  
run-PRS EPI  
'It may be the case that (s/he) runs.' VP
- (18) {*yama/aware*} (\**ad-*) {*dearoo/daroo*}.  
mountain/pathetic be- EPI  
'(It) will be a mountain/pathetic.' NP/NAP
- (3) *asa i* (\**ad-*) {*dearoo/daroo*}.  
shallow PRED.PRS be EPI  
'(It) will be shallow.' CAP

# Analysis

# Theoretical assumptions

- (19) a. **EpiP**, distinct from CP, TP, and Vol(ition)P (Cinque, 1999; Haraguchi and Shuhama, 2011).
- b. Failure of head movement → **do/be-support** (Arregi and Pietraszko, 2019)
- c. Postsyntactic morphological operations
- d. The head displacement is subject to historical change (Roberts, 2007).
- |       |                      |          |        |
|-------|----------------------|----------|--------|
| (i)   | V-to-T (T-Lowering): | EMJ (✓), | CJ (✓) |
| (ii)  | T-to-Epi:            | EMJ (✓), | CJ (*) |
| (iii) | A/N/Pred-to-T:       | EMJ (*), | CJ (*) |

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# Analysis 1: *-amu* (EMJ)

The morphosyntax of *-amu* and *-oo*

## The morphosyntax of *-amu* and *-oo*

- (13) a. *Hasir-**amu**.*  
run-EPI  
'(S/he) will run.'
- b. *Hasir-az **ar-*amu***.*  
run-NEG be-EPI  
'(S/he) will not run.' *VP*

- (19)d. V-to-T movement (T-Lowering): EMJ (✓), CJ (✓)
- (19)d. T-to-Epi: EMJ (✓), CJ (\*)
- (19)b. Failure of head movement → do/be-support

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- |         |                                    |              |                |
|---------|------------------------------------|--------------|----------------|
| (14) a. | { <i>yama/apare</i> }              | <i>ni-ya</i> | <i>ar-amu.</i> |
|         | mountain/amazing                   | PRED-PRT     | be-EPI         |
|         | 'Will (it) be a mountain/amazing?' |              | <i>NP/NAP</i>  |
| b.      | <i>asa</i>                         | <i>ku-ya</i> | <i>ar-amu.</i> |
|         | shallow                            | PRED-PRT     | be-EPI         |
|         | 'Will (it) be shallow?'            |              | <i>CAP</i>     |

- (19)d. V-to-T movement (T-Lowering): EMJ (✓), CJ (✓)
- (19)d. T-to-Epi: EMJ (✓), CJ (\*)
- (19)b. Failure of head movement → do/be-support
- (19)c. Morphological fusion (after be-support)



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| (14) a. | { <i>yama/apare</i> }              | <i>ni-ya</i> | <i>ar-amu.</i> |
|         | mountain/amazing                   | PRED-PRT     | be-EPI         |
|         | 'Will (it) be a mountain/amazing?' |              | <i>NP/NAP</i>  |
| b.      | <i>asa</i>                         | <i>ku-ya</i> | <i>ar-amu.</i> |
|         | shallow                            | PRED-PRT     | be-EPI         |
|         | 'Will (it) be shallow?'            |              | <i>CAP</i>     |

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The morphosyntax of *-amu* and *-oo*

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- (15) a. {*yama/apare*} *nar-amu.*  
 mountain/amazing PRED.be-EPI  
 '(It) will be a mountain/amazing.' NP/NAP
- b. *asa* *kar-amu.*  
 shallow PRED.be-EPI  
 '(It) will be shallow.' CAP

- (19)d. V-to-T movement (T-Lowering): EMJ (✓), CJ (✓)
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The morphosyntax of *-amu* and *-oo*

## *Analysis 2: -oo (EMJ)*

The morphosyntax of *-amu* and *-oo*

## The morphosyntax of *-amu* and *-oo*

- (18) a. {*yama/aware*} *dar-oo.*  
 mountain/pathetic PRED.be-EPI  
 '(It) will be a mountain/pathetic.' *NP/NAP*
- b. *asa* *kar-oo.*  
 shallow PRED.be-EPI  
 '(It) will be shallow.' *CAP*

- (19)d. V-to-T movement (T-Lowering): EMJ (✓), CJ (✓)
- (19)d. T-to-Epi: EMJ (✓), CJ (\*)
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The morphosyntax of *-amu* and *-oo*

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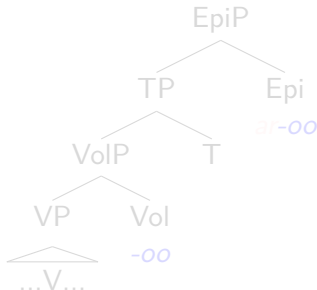
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run-EPI

'(S/he) will run (intended).'

**Prediction:**

Head chain is split → *ar*-support



- (19)d. V-to-T movement (T-Lowering): EMJ (✓), CJ (✓)
- (19)d. T-to-Epi: EMJ (✓), CJ (\*)
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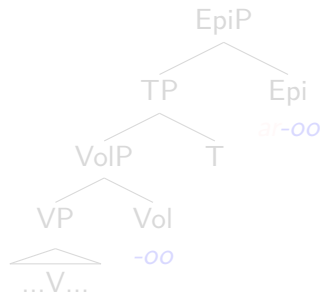
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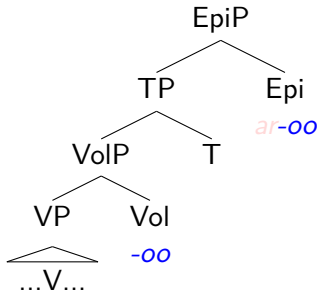
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The morphosyntax of *-amu* and *-oo*

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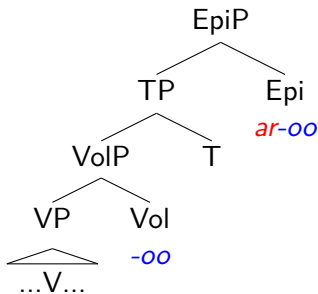
(16) a. \**Hasir-oo*.

run-EPI

'(S/he) will run (intended).'

**Prediction:**

Head chain is split → *ar*-support



- (19)d. V-to-T movement (T-Lowering): EMJ (✓), CJ (✓)
- (19)d. T-to-Epi: EMJ (✓), CJ (\*)
- (19)b. Failure of head movement → *do*/*be*-support
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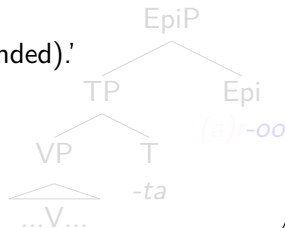
run-PST EPI

'It may be that (s/he) ran (intended).'

b. *hasit-ta r-oo*.

run-PST be-EPI

'It may be that (s/he) ran.'



- (19)d. V-to-T movement (T-Lowering): EMJ (✓), CJ (✓)
- (19)d. T-to-Epi: EMJ (✓), CJ (✗)
- (19)b. **Failure of head movement** → **do/be-support**
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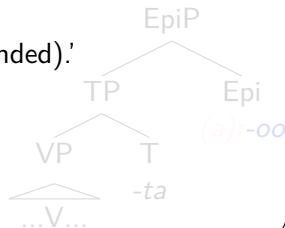
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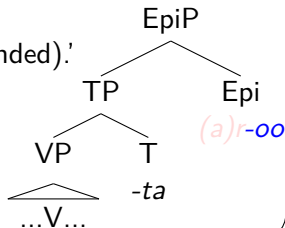
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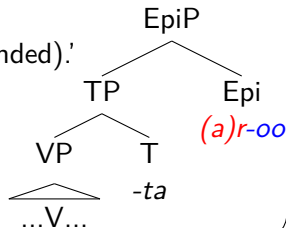
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The morphosyntax of *-amu* and *-oo*

## Analysis 3: *dearoo/daroo* (EMJ)

The morphosyntax of *dearoo/daroo*

## The morphosyntax of *dearoo/daroo*

(18) a. {*yama/aware*}      ***dar-oo***.  
           mountain/pathetic PRED.be-EPI  
           ‘(It) will be a mountain/pathetic.’

(24) *Hasir-u* {*dearoo/dearoo*}.  
           run-PRS EPI  
           ‘It may be the case that (s/he) runs.’

Is *dearoo/daroo* decomposable into three independent morphemes?

No, because:

- First, it predicts that *dearoo/dearoo* can only be used with a noun or a nominal adjective.
- Second, it predicts that the element preceding *dearoo* (*dearoo*) must not be preceded by a tensed element.

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(25) {*yama/aware*}    *de-wa*    *at-ta*    {*dearoo/dearoo*}.  
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 '(it) will be a mountain/amazing.'

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The morphosyntax of *dearoo/daroo*

## The morphosyntax of *dearoo/daroo*

- (27) a. [zyuudai *de*] katsu [konnan *de*] *ar-oo*  
 serious PRED and difficult PRED be-EPI  
 '(It) will be serious and difficult.'
- b.\*[kaze-ga tsuyo i *de*] katsu [atsu i *de*]  
 window-NOM strong PRS *de* and hot PRS *de*  
*ar-oo*  
 be-EPI  
 '(It) will be windy and hot (intended).'

Is *dearoo/daroo* decomposable into three independent morphemes?

No, because:

- Third, unlike the predicative copula, the *de* in *dearoo* can be coordinated.

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morpheme	status	Functional projection	Era
<i>-amu</i>	suffix	Epi	EMJ
<i>-oo</i>	suffix	Epi	CJ (archaic)
<i>dearoo/daroo</i>	free morph	Epi	CJ

↓*how?*

Table: Interim summary

The morphosyntax of *dearoo/daroo*

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<i>↓how?</i>			
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Table: Interim summary



# Historical changes in Japanese epistemic modal markers







## Replacement?

- (29) a. [PredP [NP *konnan* ] *de*] *ar-oo*.  
           difficult                   PRED be-EPI  
           ‘(It) will be difficult.’
- b.       [TP *hasir-u* ] *de-ar-oo*.  
           run-PRS                   PRED-be-EPI  
           ‘(S/he) will run.’

**Problems** Second, it is unclear why this does not hold with *ku*:

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                   run-PRS            PRED-be-EPI  
           ‘(S/he) will run.’

**Problems** Second, it is unclear why this does not hold with *ku*:

- (31) \*[TP *hasir-u* ] *ku-ar-oo*.  
       run-PRS            PRED-be-EPI  
       ‘(S/he) will run.’

## Observation 1: Markedness in Pred

- The distribution of *de* is much wider than that of *ku*:

- (6) a. *Alex-ga* {*gakusya/siawase*} *de* *at-ta*.  
 Alex-NOM scholar/happy PRED be-PST  
 'Alex was a scholar/happy.' **NP/NAP**
- b. *Alex-ga* *utukusi* *ku* *at-ta*.  
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 'Alex was beautiful.' **CAP**

- (32) a. **Pred** ↔ *de* (CJ), *ni* (EMJ)  
 b. **Pred**<sub>[Sel:⟨CA,1⟩]</sub> ↔ *ku*  
 c. **#Pred** + *dummy* # ↔ *dar* (CJ), *nar* (EMJ)  
 d. **#Pred**<sub>[Sel:⟨CA,1⟩]</sub> + *dummy* # ↔ *kar*



## Observation 2: Nominalization and reanalysis in EMJ

- (38) [ *asa*     *ku* ]-ya                     *ar-amu*.  
shallow PRED-PRT                             be-EPI  
'Will this be shallow?'









# Corpus survey

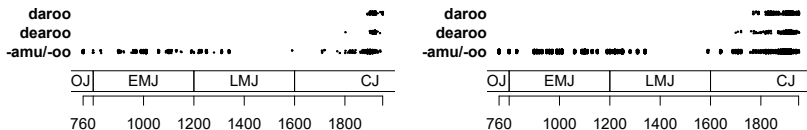


Figure: Historical change in the epistemic modal construction: CAP + EPI (Left) and VP + EPI (Right).

# Conclusion and future directions

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  - not only for the way the old and new grammar differ
    - 1 The underlying structure are the same.
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→ VP+*-oo* cannot express the epistemic modal meaning.
  - but also for their historical transition.
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## Future issues

- Crosslinguistic comparison: parametric change of head movement and its relation to do-support (e.g., English Lightfoot 1979; Roberts 2007).
- Emergence of *de*: development from *ni te* to *de* (Yamaguchi, 2002)

# Acknowledgements

This study is supported by The JSPS Core-to-Core Program, A. Advanced Research Networks “International Research Network for the Human Language Faculty” (#JPJSCCAJ221702004).





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