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A Study in Transfer Japanese–English

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Introduction

Together with our partners at DFKI and the University of Saarbruecken we selected for our first approach to transfer rules Japanese–English (out of the dialogues we received) six example sentences. On the following pages we would like to give the imaginary analysis output and the target transfer rules for these sentences.

First let us have a look at some grammatical phenomena occurring in these sentences.

An essential phenomenon of the Japanese language is the differentiated honorific system (much more differentiated than the corresponding English system). Thus we have to check the descriptions produced by analysis if they can be dropped in English or in how far they have to be kept.

The honorific behaviour of the Japanese language is determined by the following factors:

Belonging to the same group or to different groups

Status (higher–equal–lower)

Sex (male–female)

Age

Generally speaking, the speaker and the hearer use different levels to express respect (only if they are equal in status there is a reciprocal use of the honorific forms). The chosen honorific form shows the relationship between the speaker and the hearer (or if the speaker speaks about a third person, then it shows the relationship between the speaker and this person). The speaker speaks about the action of another person who is higher in status (or —if the speaker and this person belong to different groups— is equal in status) with more respect, about the speaker's own action in a modest or neutral way.

The level of respect can be graded by means of honorific groups according to the relationship between the speaker and hearer.

Some of frequently used verbs have lexical variants for respect or modesty. However, most of the verbs form their honorific forms in the following way:

o V *ni naru* (respect) or

o V *suru* (modesty)

Nouns often have honorific markers (for example the prefix *go* or *o*), too.

A further remarkable phenomenon of Japanese is the benefactive. In Japanese, the forms of verbs expressing giving and receiving are determined depending on the social relationship between the giver and the receiver.

The verb *kureru* (give) is used when the receiver is the first person or a person with whom the speaker empathizes (usually a member of the speaker's in–group). Otherwise *ageru* is chosen to mean 'give.'

There is still another verb *morau* which corresponds to the English verb 'get.' *morau* is chosen when the receiver is the first person or someone with whom the speaker empathizes (usually a member of the speaker's in–group).

kudasaru, *sashiageru*, and *itadaku* are honorific forms of *kureru*, *ageru*, and *morau*, respectively. When they are used, the following conditions must be satisfied:

kudasaru — the giver is superior to the receiver

sashiageru — the receiver is superior to the giver

itadaku — the giver is superior to the receiver

In Japanese doing something for someone else is seen as giving a thing to someone. Accordingly, the verbs expressing giving or receiving are attached to the *te*–form of the verb which expresses the action. The use of these compound verbs is governed by the same conditions as described above. (V *te–ageru*, V *te–kureru*, V *te–morau*).

The semantics of these auxiliaries allows or forces to omit the constituents that describe the acting partners. In most cases the speaking person is omitted because its role is determined by the corresponding auxiliary. The profiting partner (in particular if identical with the hearer) is also often omitted.

Reference Sentences and Transfer Rules

In what follows we will show how analysis outputs of the six reference sentences and transfer rules for them should look like. The following points are noteworthy.

- Only the core part of each sentence meaning (mostly lud_preds) is given.
- Zero pronouns and other anaphoras are treated like usual predicates, because it is convenient for transfer rule description.
- Case roles are named explicitly like 'agent' or 'theme' instead of 'arg1' etc. (as they are named in Melanie Siegel's Japanese grammar for verbmobil), because it is easier to understand.
- Tense/aspect information is neglected for the time being.

[A050 1471 02a]

satou	seNsei	no	sukejuuru	o	o	ukagai shi	tai	to
NAME	TITLE	ADNM	schedule	ACC	HON	ask	DESD	QUOT

omoi	mashi te	o	deNwa	sashiage	ta	Ndesu	ga.
think	POL	HON	telephone	give	PAST	EXPL	CONC

'I am calling because I would like to know Professor Satou's schedule.'

Characteristics of the sentence

- A collocation to express desire, *tai to omoimasu*, is used.

  Tai (want to) is attached to V and the resulting predicate is then used as an adjective. This predicate is basically used to express the speaker's desire. If it is used to express the speaker's desire, *tai* is often connected with *to omoimasu* (*to omoimasu* is usually a means to indicate the speaker's thoughts at the moment of speech). This collocation is preferable if the hearer has superior status (same group) or at least equal status (different group). When used for another person than the speaker some modifications are necessary like for example V–*tai no desu*.

- Zero pronouns appear that indicate the speaker and hearer. They can be identified here on the basis of honorific expressions and a speech act. (See the above description of benefactives and honorific forms).

Imaginary analysis output

```
l1:te_cause(h1,h2)
l2:omou(i1)
l2:agent(i1,i2)
l2:theme(i1,h3)
l3:zero_anaphora(i2)
l4:tai(i3)
l4:agent(i3,i2)
l4:theme(i3,l5)
l5:ukagau(i4)
l5:agent(i4,i2)
l5:recipient(i4,i5)
l5:theme(i4,i6)
l6:modest(i4,i2,i5)
l7:zero_anaphora(i5)
l8:anaphora(i6)
l9:sukejuuru(i6)
l10:no_possession(i7,i6)
l11:named(satou,i7)
l12:sensei_title(i7)
l13:anaphora(i7)
l14:nodesu(l15)
l15:denwasuru(i8)
l15:agent(i8,i9)
l15:recipient(i8,i10)
l16:zero_anaphora(i9)
l17:zero_anaphora(i10)
l18:modest(i8,i9,i10)
l19:centrifugal(i8,i9,i10)
```

On the analysis output

- The binding between subjects in complex predicates such as in *o–ukagai shi–tai* must be made in analysis.
- It should not be supposed that *te*, the particle introducing the subordinate clause, always marks a causal clause. The ambiguous meanings of the *te*–clause must be disambiguated in analysis, which is by no means an easy task. The *te*–form functions , in part, to link sentences. The meaning varies according to the context. The hearer is forced to interpret the meaning by means of the contentional relations between the involved sentences. The most important relationships are coordinative, temporal, causal, modal, and conditional.
- The predicate 'modest' is assigned to the honorific predicates *o–ukagai shi* and *o–denwa sashiage*.
- The predicate 'centrifugal' is assigned to the emphatic predicate *o–denwa sashiage*. In general, it is assigned to *ageru*–series predicates. To *kureru*–series predicates is assigned 'centripetal.'

Target transfer output

'I am calling you because I would like to ask about Professor Satou's schedule'

```
l1:because(h1,h2)
l2:would_like_to(i1)
l2:agent(i1,i2)
l2:theme(i1,l5)
l3:ego(i2)
l5:ask(i4)
l5:agent(i4,i2)
l5:recipient(i4,i5)
l5:theme(i4,i6)
l7:you(i5)
l8:anaphora(i6)
l9:schedule(i6)
l10:s_possession(i7,i6)
l11:named(satou,i7)
l12:professor_title(i7)
l13:anaphora(i7)
l15:call(i8)
l15:agent(i8,i9)
l15:recipient(i8,i10)
l16:ego(i9)
l17:you(i10)
```

Transfer Rules

```
transfer_flag(statistics).
transfer_flag(source_target_only).
transfer_flag(autoload).
transfer_flag(mrs_IO).
transfer_module(jp,en).

% l1
% te -> because

[H:te_cause(X,Y)] -> [H:because(X,Y)].

% l2, l4
% tai to omou -> woud like to

[H:omou(E),_:agent(E,X),_:theme(E,Y),_:tai(E2),_:agent(E2,X),
_:theme(E2,H3)] ->
[H:would_like_to(E),_:agent(E,X),_:theme(E,H3)].

% l5
% ukagau -> ask

[H:ukagau(E),_:agent(E,X),_:recipient(E,Y),_:theme(E,Z)]
-> [H:ask(E),_:agent(E,X),_:theme(E,Z)].

% l9
% sukejuuru -> schedule

[H:sukejuuru(X)] -> [H:schedule(X)].

% l10
% no -> 's

[H:no_possession(X,Y)] -> [H:s_possession(X,Y)].

%l12
% Sensei -> Professor

[H:kyouju_title(X)] -> [H:professor_title(X)].

% l14
% delete nodesu

[H:nodesu(Y)] -> [].

%l15
% denwasuru -> call

[H:denwasuru(E),_:agent(E,X),_:recipient(E,Y)] ->
[H:call(E),_:agent(E,X),_:recipient(E,Y)].
```

```
% zero anaphora identification

[_:modest(E,X,Y),H1:zero_anaphora(X),H2:zero_anaphora(Y)] ->
[H1:ego(X),H2:you(Y)].

[_:centrifugal(E,X,Y),H1:zero_anaphora(X),H2:zero_anaphora(Y)]
-> [H1:ego(X),H2:you(Y)].

% Default

default_transfer(jp,en).
```

On transfer

- Zero–pronominalized agents and recipients are in this study always identified with the speaker and hearer on the basis of 'modest' and 'centrifugal' predicates. This is by no means always correct.

- In converting 'NP no NP2' to 'NP's NP2' we use predicates 'no_possession' and 's_possession.' This is because all *no* marked NPs are not possessive and all possessive NPs in Japanese are not transferred to 'NP's.' The proposed rule still needs more explicit context specifications. The particle *no* combines generally two noun phrases into a larger noun phrase. The two noun phrases are related to each other in various ways, where these relationships are determined by context. Possible relationships are for example: (N1 first noun phrase, N2 second noun phrase)

  N1 is the possessor of N2

  N1 is the relation where N2 exists

  N2 is about N1

  N1 is a specific kind of N2

  N1 is the object and N2 is the subject

  N1 created N2

  N1 is an attribute of N2

  N2 is made of N1.

- *n(o) desu ga* adds a contextual meaning that softens the speech act request in this case. Generally speaking, *n(o) desu* indicates that the speaker gives an explanation about his intention. However, this part of the sentence meaning is neglected for the time being.

[A050 1471 09b]

gogo	dake	desu	to	nijuuyokka	demo	kamai	mase	N	keredomo.
afternoon	only	COP	COND	24th	even	mind	POL	NEG	CONC

'So for only an afternoon, the 24th is possible.'

Characteristics:

- Modification by *dake* (only) and *demo* (even).

Imaginary Analysis Output

```
l1:to_condition(h1,h2)
l2:copula(i1)
l2:theme(i1,i2)
l2:identified(i1,i3)
l3:zero_anaphora(i2)
l4:anaphora(i3)
l5:pofd(i3,afternoon)
l6:dake(l5,h3)
l7:negative(h4)
l8:kamau(i4)
l8:agent(i4,i5)
l8:theme(i4,i6)
l9:zero_anaphora(i5)
l10:anaphora(i6)
l11:ord(i6,i7,24)
l12:tp(i7,month)
```

On imaginary analysis output

- There is no clue in the sentence to identify the zero pronoun subject in the *to*–clause and matrix sentence.
- The subordinate conjunction marks a condition that brings about a uncontrollable event or state. There are other possibilities in Japanese in order to mark conditions. The ranges of meaning covered by these conditionals overlap to a large extent, though there are some slight differences in nuance and use. If there are two sentences S1 and S2 (connected with *to*) then is S2 a natural consequence of S1.

Target transfer output

'Even the 24th is O.K. if it is only in the afternoon'

```
l1:if(h1,h2)
l2:copula(i1)
l2:theme(i1,i2)
l2:identified(i1,i3)
l3:anaphora(i2)
l4:anaphora(i3)
l5:pofd(i3,afternoon)
l6:only(l5,h3)
l7:ok(i4)
l8:theme(i4,i6)
l10:anaphora(i6)
l11:ord(i6,i7,24)
l12:tp(i7,month)
```

Transfer Rules

```
transfer_flag(statistics).
transfer_flag(source_target_only).
transfer_flag(autoload).
transfer_flag(mrs_IO).
transfer_module(jp,en).

% l1
% to -> if

[H:to_condition(X,Y)] -> [H:if(X,Y)].

% l6
% dake -> only

[H:dake(X,Y)] -> [H:only(X,Y)].

% l7-l8
% kamawa nai -> be O.K.

[H:negative(H2),H2:kamau(E),_:agent(E,X),_:theme(E,Y)]

-> [H:ok(E),_:theme(E,B)].

% Default

default_transfer(jp,en).
```

On transfer

- *kamai mase N* is translated as *be O.K.*
- *keredomo*, originally a concessive subordinator, is used to weaken the assertive act. Its function is neglected for the time being.

[A050 1471 11b]

nijuuni nichi	kayoubi	wa	juuichi ji	haN	kara	ni ji	made
22th	Tuesday	TOP	11 o'clock	half	from	2 o'clock	until

chuushoku go	no	uchiawase	ga	haitte	ori	masu.
after lunch	ADNM	meeting	NOM	be scheduled	RESL	POL

'On Tuesday, the 22nd, he is scheduled for an afternoon meeting.'

Imaginary analysis output

```
l1:hairu(i1)
l1:theme(i1,i2)
l2:kara(i1,i3)
l3:made(i1,i4)
l4:tloc(i1,i5)
l5:some(i2,l6)
l6:uchiawase(i2)
l7:no_modify(i6,i2)
l8:anaphora(i6)
l9:chuushokugo(i6)
l10:uhrzeit(i3,11.5)
l11:uhrzeit(i4,2)
l12:ord(i5,i6,22)
l13:tp(i6,month)
l14:dofw(i5,tuesday)
```

Target transfer output

'On Tuesday 22th a meeting is planned from 11:30 to 2 o'clock'

```
l1:be_planned(i1)
l1:theme(i1,i2)
l2:from(i1,i3)
l3:to(i1,i4)
l4:tloc(i1,i5)
l5:some(i2,l6)
l6:meeting(i2)
l7:after(i2,i6)
l8:anaphora(i6)
l9:lunch(i6)
l10:uhrzeit(i3,11.5)
l11:uhrzeit(i4,2)
l12:ord(i5,i6,22)
l13:tp(i6,month)
l14:dofw(i5,tuesday)
```

Transfer Rules

```
transfer_flag(statistics).
transfer_flag(source_target_only).
transfer_flag(autoload).
transfer_flag(mrs_IO).
transfer_module(jp,en).

% l1
% hairu -> be planned

[H:hairu(E),_:theme(E,X)] -> [H:be_planned(E),_:theme(E,X)].

% l2
% kara -> from

[H:kara(E,A)] -> [H:from(E,A)].

% l3
% made -> to

[H:made(E,X)] -> [H:to(E,X)].

% l6
% uchiawase -> meeting

[H:uchiawase(X)] -> [H:meeting(X)].

% l7, l9
% chuushoku go no N -> N after lunch

[H:no_modify(X,Y),H2:chuushokugo(Y)]
-> [H:after(X,Y),H2:lunch(Y)].

% Default

default_transfer(jp,en).
```

On transfer

- *uchiawase ga haitte ori masu* is interpreted as *meeting is planned*. Notice that the noun *uchiawase* is a jargon among the officials.

[A050 1471 18a]

itsudemo	go	tsugou	no	yoroshii	toki	ni	o
whenever	HON	convenience	ADNM	good HON	time	TPOINT	HON

deNwa	o	o	negai	itashi	masu.
telephone	ACC	HON	request	HON	POLT

‘Could I ask you to call me back whenever it suits you?’

Charcteristics

N *o o negai itashi masu* is a collocation to express request.

Imaginary analysis output

```
l1:gq(itsudemo_tokini,i2,l2,h1)
l2:yoroshii(i2)
l2:sentient(i2,i3)
l2:theme(i2,i4)
l3:tsugou(i4)
l4:zero_anaphora(i3)
l5:negau(i5)
l5:agent(i5,i6)
l5:recipient(i5,i7)
l5:theme(i5,i8)
l6:zero_anaphora(i6)
l7:zero_anaphora(i7)
l8:denwa(i8)
l9:modest(i5,i6,i7)
```

Target transfer output

‘Please call me whenever it is convenient to you’

```
l1:gq(whenever,i2,l2,h1)
l2:convenient(i2)
l2:sentient(i2,i3)
l2:theme(i2,i9)
l4:deictic(i3)
l10:anaphora(i9)
l5:request(i5)
l5:agent(i5,i6)
l5:recipient(i5,i7)
l5:theme(i5,i8)
l6:ego(i6)
l7:you(i7)
l8:call(i8)
l11:agent(i8,i7)
l12:recipient(i8,i10)
```

On imaginary analysis output:

- *itsu demo* and *toki ni* are supposed to be analyzed as a single 'quantifier.' It might be troublesome to posit analysis rules for them in a general way.
- The 'sentient' case is supposed to be subcategorized by *yoroshii* and to be zero–pronominalized. However, it is difficult to set up a transfer rule to identify this zero pronoun as the second person.
- The zero–pronominalized agent and recipient cases in the matrix sentence are identified on the basis of the emphatic auxiliary verb *itasu*.

Transfer Rules

```
transfer_flag(statistics).
transfer_flag(source_target_only).
transfer_flag(autoload).
transfer_flag(mrs_IO).
transfer_module(jp,en).

% l1
% itsudemo ...  toki ni -> whenever

[H:gq(itsudemo_tokini,X,Y,Z)]
-> [H:gq(whenever,X,Y,Z)].

% l2-l3
% tsugou ga yoroshii -> be convenient

[H:yoroshii(E),_:sentient(E,X),_:theme(E,Y),_:tsugou(Y)]
```

```
-> [H:convenient(E),_:sentient(E,X),_:theme(E,Z)].

% 15, 18
% odenwa o negau

[H:negau(E),_:agent(E,X),_:recipient(E,Y),_:theme(E,Z),_:denwa(Z)] ->
[H:request(E),_:agent(E,X),_:recipient(E,Y),_:theme(E,Z),_:call(Z)].


% zero anaphora identification

[_:modest(E,X,Y),H1:zero_anaphora(X),H2:zero_anaphora(Y)] ->
[H1:ego(X),H2:you(Y)].

% Default

default_transfer(jp,en).
```

[B357 5202 05a]

raigetsu	shigatsu	juuichi nichi	kara	nijuuyokka	no	aida	de
next month	April	11th	from	24th	ADNM	temporal space	INTV

kyoudoukeNkyuu	no	tame	no	uchiawase	o	okonai	tai
joint research	ADNM	purpose	ADNM	arrangement	ACC	make	DESD

no desu	ga.
EXPL	CONC

‘We would like to have a talk about our joint research between the 11th and the 24th of the next month April.’

Imaginary analysis output

```
l1:nodesu(l2)
l2:tai(i1)
l2:agent(i1,i2)
l2:theme(i1,l3)
l3:okonau(i3)
l3:agent(i3,i2)
l3:theme(i3,i4)
l4:zero_anaphora(i2)
l5:uchiawase(i4)
l6:no_tame_no(i4,i5)
l7:kyoudoukenkyuu(i5)
l8:tloc(i3,i6)
l9:aida(i6)
l10:kara(i6,i7)
l11:made(i6,i8)
l12:tspec(i9,next)
l12:tp(i9,month)
l13:mofy(i7,4)
l14:ord(i7,i9,11)
l15:ord(i8,i9,24)
l16:tp(i9,month)
```

Target transfer output

‘I would like to arrange a meeting about our joint research between the 11th and the 24th of the next month April’

```
l2:would_like_to(i1)
l2:agent(i1,i2)
l2:theme(i1,l3)
l3:arrange(i3)
l3:agent(i3,i2)
l3:theme(i3,i4)
l4:ego(i2)
l5:meeting(i4)
l6:about(i4,i5)
l7:joint_research(i5)
l8:between(i3,i7,i8)
l12:tspec(i9,next)
l12:tp(i9,month)
l13:mofy(i7,4)
l14:ord(i7,i9,11)
l15:ord(i8,i9,24)
l16:tp(i9,month)
```

Transfer Rules

```
transfer_flag(statistics).
transfer_flag(source_target_only).
transfer_flag(autoload).
transfer_flag(mrs_IO).
transfer_module(jp,en).

% l1
% delete nodesu

[H:nodesu(Y)] -> [].

% l2
% tai -> would like to/zero anaphora identification

[H::tai(E),_:agent(E,X),H2:zero_anaphora(X),_:theme(E,H2)] ->
[H:would_like_to(E),_:agent(E,X),H2:ego(X),_:theme(E,H2)].

% l3, l5
% uchiawase o okonau -> arrange a meeting

[H:okonau(E),_:agent(E,X),_:theme(E,Y),_:uchiawase(Y)]
-> [H:arrange(E),_:agent(E,X),_:theme(E,Y),_:meeting(Y)].

% l6
% no tame no -> about

[H:no_tame_no(X,Y)] -> [H:about(X,Y)].

% l7
```

```
% kyoudoukenkyuu -> joint research

[H:kyoudoukenkyuu(X)] -> [H:joint_research(X)].

% l8-l11
% Temp kara Temp made no aida -> between Temp and Temp

[H:tloc(E,A),_:aida(A),_:kara(A,X),_:made(A,Y)]
-> [H:between(E,X,Y)].

% l16
% raigetsu -> next month

[H:raigetsu(X)] -> [H:next_month(X)].

% Default

default_transfer(jp,en).
```

On transfer

- The zero–pronominalized agent is identified on the basis of the speech act.

[B357 5202 09a]

dewa	hatsuka	no	gogo	kara	to iu	no	wa	ikaga
so	20th	ADNM	afternoon	from	QUOT	FNOUN	TOP	how

deshou	ka?
COP-POL	INTG

‘So, how about the afternoon of the twentieth?’

Characteristics

- S *to iu no wa ikaga desu ka?* is a collocation to express a proposal by means of a surface expression meaning a WH–question.

Imaginary analysis output

```
l1:whq(ikaga,l3,h1)
l2:you_presumptive(l3)
l3:general_property(i1)
l4:theme(i1,i2)
l5:kara(i2,i3)
l6:pofd(i3,afternoon)
l7:ord(i3,i4,20)
l8:tp(i4,month)
```

On imaginary analysis output

- It is supposed that the form *ikaga desu ka* is analyzed as a WH–question and converted by the transfer to a predicate meaning a proposal. As an alternative the form may be directly analyzed as a proposal.

Target transfer output

‘How about the afternoon of the 20th?’

```
l1:how_about_propose(i4)
l4:theme(i4,i3)
l6:pofd(i3,afternoon)
l7:ord(i3,i4,20)
l8:tp(i4,month)
```

Transfer Rules

```
transfer_flag(statistics).
transfer_flag(source_target_only).
transfer_flag(autoload).
```

```
transfer_flag(mrs_IO).
transfer_module(jp,en).

% l1, l3
% Temp kara wa ikaga desu ka -> how about Temp

[H:whq(ikaga,H2,X),_:yo_presumptive(H2),H2:general_property(Y),
H3:theme(Y,Z),_:kara(Z,A)]
-> [H:how_about_propose(B),H3:theme(B,A)].

% Default

default_transfer(jp,en).
```