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Manual for tagging the SLDB English dialogues with speech acts and topics

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We describe a dialogue tagging project on the bilingual ATR spoken dialogue corpus. This project is a part of a larger research effort, the goal of which is to promote research and development involving speech translation systems based on multi-level information. The discourse level information contains dialogue act and topic types. The novel feature in our tagging research is the use of topic tags, which represent the information content of utterances, and thus complement dialogue act tags which represent the speakers' intentions. In this report we describe the design and use of the tag sets for these two features. We also report on a tag browser which we have developed to check the consistency of the tag sets, and on the preliminary results concerning tag prediction and bilingual surveys on our corpus.

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1 Introduction

The recent tendency in computational linguistics, the use of statistical methods, has boosted research on corpus collection and especially on corpus tagging. Related to technological development on such large frameworks as speech recognition and speech-to-speech translation, motivation for the corpus tagging research also comes from the possibility to build better Language Models (LMs) for automatic speech recognition (Switchboard SWBD-DAMSL, Meteer & al (1995), [Jurafsky et al.97]), and provide the necessary contexts for automatic translation (e.g. VERBMOBIL, [Alexandersson 96]).

Research on tagging and corpus collection is of course also motivated by investigations on spoken dialogues and interactive discourse as well as prosody, having roots in such projects as Map Task ([Anderson et al.91], Tutiya & al (1995)), TRAINS (Heeman and Allen 1995), COCONUT (Di Eugenio & al, 1997), The Boston Corpus (Hirschberg & al 1998)), MATE (Dybkjaer et al), and being recently centered within the DRI initiative.

To promote the research and development of speech translation systems based on multi-level information, we have started a project to build a bilingual corpus that includes multi-level information such as:

- physical features of speech such as intonation, pause and power,

- linguistic information such as parts of speech and syntactic structures of utterances,

- higher level discourse information: dialogue acts and topic types.

In this report, we focus on our discourse tag design and tagging work specifically for the English side of the corpus. We discuss discourse level tagging from the point of view of building a bilingual spoken dialogue corpus with multi-level information, to be used in developing spoken language applications such as automatic speech recognition and translation systems.

In section 2, we briefly explain our tagging corpus and outline the project in general. In section 3, we discuss about our design principles and utterance modelling. Section 4 defines utterance segmentation, and section 5 the tagging format. In section 6 we introduce our discourse level tags, which concern dialogue act types and topic types. In section 8, we report on actual tagging work and its present status. We describe the tag browser developed to check the consistency of the tag sets and discuss on-going research in section 9. We conclude our paper in section 10.

2 Background and Resources

The starting point has been the assumption that discourse knowledge can help the spoken language systems by providing contextual information for:

- Automatic speech recognition

- Prediction of words likely to be uttered

- Disambiguation

- Higher-level reasoning.

Our corpus is based on the ATR bilingual spoken language database (SLDB) on the travel arrangement domain [Morimoto 94]. SLDB is based on the recordings of dialogues collected in simulated travel arrangement situations between Japanese and English speakers mediated by interpreters. The size of SLDB is 618 dialogues, and it contains 1) audio data, 2) transcription (text), 3) morphological analysis, and 4) syntactic analysis (Japanese only).

199 of the 618 dialogues were previously assigned tags from a set of 30 dialogue act types designed for Japanese. A provisional tag set of dialogue act types also existed for English, with which 80 dialogues were tagged. We decided to extend these resources to build a bilingual multi-level information corpus. The extension included checking and redesigning the English dialogue act tags, and designing a set of topic tags.

210 dialogues on particular reservation tasks were selected and tagged using the tag sets. 99 of our tagged dialogues overlapped 199 Japanese dialogues tagged with the previous dialogue act tags. These common dialogues make our *bilingual multi-level* information corpus.

3 Design of the Tag Sets

3.1 Utterance Modeling

We define *utterance* as "an act of speech" [Bloomfield 26], and model it as a pair of a *Dialogue Act Type* and a list of *Topic Types*:

$$Utterance = \langle Dact, Tops \rangle$$

where Dact (Dialogue Act) refers to "Illocutionary Force Type" (roughly: intentions of the speaker in uttering the utterance) and Top (Topic) to "New Information" (roughly: the main semantic content of what the speaker intends to convey).

Each utterance has only one DACT but may have several TOPS. The DACT represents the speaker's intention in the utterance, and is more or less similar to the traditional illocutionary force type [Searle 69] or the speech act type. The TOPS abstract what the speaker talks about.

Both the DACT and TOPS are realized by individual words in the surface structure of the utterance, and particular syntactic patterns and words are often associated with them. For instance, the utterance *What is the expiration date of your card?* is represented as the pair

⟨ INFO-REQ,EXP-DATE ⟩

where the dialogue act type INFO-REQ is realised by the question mood of the utterance and the wh-word *what*, and the topic EXP-DATE concerns the expiration date of a card, and is realised by the content words *expiration date of your card.*

As another example, the utterance *I'd like to reserve a room from August 10th to 11th* is represented as the pair

⟨ DESIRE,RES-MAKE;STAY ⟩

where the dialogue act type DESIRE is realized by the declarative mood and the phrase *I'd like to*, and the topics RES-MAKE and STAY are realized by the content words *reserve a room* and *from August 10th to 11th*, respectively.

3.2 Design Principles

We set the granularity level of our DACT and TOP tag sets considering the potential applications of the corpus: the tag sets should be general enough to abstract the functions and content of utterances away from their surface differences, but fine enough to specify the context so that the prediction of next utterances would be possible. Even though statistical methods may be of good help in producing solutions to the granularity problem (e.g., [Katoh 97]), we considered linguistic knowledge to be of great importance. This is because there is a large number of available classifications, and this way avoids arbitrary classes.

The DACT is made to be fine enough for use in utterance prediction, while at the same time, the classification is designed to be as simple as possible to avoid sparseness in statistical treatments. For example, since the act of ACCEPT tends to conclude a discourse segment, while the act of REJECT tends to elicit DACTS such as SUGGEST, they are kept as separate classes.

Similarly, TOP tags are designed to capture transitions and cohesion of what the speakers are expected to talk about in our task-oriented dialogues. We have constructed topic trees to represent the hierarchical organization of topics in our domain, and the granularity level can be determined by moving up in the tree, from specific to more general topics. More specifically, our TOP tags are the nodes of the topic trees, on which the transition of topics tend to occur locally.

In addition, we also considered the fact that the tag sets will be used for tagging both English and Japanese dialogues, and defined our tags by functional rather than syntactic criteria. For example, in Japanese, confirmation is often marked by the sentence-end particle *ne*, while it lacks a definite syntactic marking in English. To tag Japanese dialogues, the DACT CONFIRM is thus required, while for English dialogues the DACT INFORM would be enough. By defining CONFIRM as having the function of conveying information already introduced in the dialogue rather than a corresponding to a particular syntactic form, we can label corresponding utterances with the same tags in both Japanese and English dialogues.

4 Utterance Segmentation

The sentences in our corpus were transcribed manually form the recorded sound of dialogues. At this time, the transcribers gave sentence ending markers like a period '.' and a question mark "?" following the written language convention.

We give a Dact tag basically to each sentence mentioned above and we call this unit the default tagging unit. The default tagging unit, however, is not always appropriate for tagging since it sometimes contains several Dacts. Further segmentation of the default unit is thus required.

Most of the exceptional cases include coordination structures and commas in the default tagging unit. These syntactic and stylistic features indicate possible break points. We examine the breaking possibilities on encountering these features. Here we show the cases that require further default unit segmentation.

4.1 Coordinate sentence structure

Overall rules are viewed in the decision chart in appendix A.

4.2 Sentence Coordination

When the default tagging unit contains a coordination sentence structure, we break it and tag each of the coordinates separately.

$$S_1 \& S_2 \& \cdots \& S_n \quad \Rightarrow \quad \begin{aligned} & S_1 \ @Dact_1 \\ & S_2 \ @Dact_2 \\ & S_3 \ @Dact_3 \end{aligned}$$

"&" are the conjunctions like "and" and "but."

Here are some examples of the application of the above rule:

"It's for groups of three women who want to stay on a Saturday night and it's a party plan." @inform ⇒

| It's for groups of three women who want to stay on a Saturday night | @inform |
| and it's a party plan. | @inform |

"It can accommodate up to three people and it's thirty thousand yen per night." ⇒

| It can accommodate up to three people | @inform |
| and it's thirty thousand yen per night. | @inform |

"It seems we don't have a twin room available on the twelfth, but there is a deluxe twin available on both the twelfth and thirteenth." ⇒

| It seems we don't have a twin room available on the twelfth, | @inform |
| but there is a deluxe twin available on both the twelfth and thirteenth. | @inform |

"My name's Kazuo Suzuki and I work at Tokyo Shoji, the Los Angeles branch office." ⇒

My name's Kazuo Suzuki	@inform
and I work at Tokyo Shoji, the Los Angeles branch office.	@inform

"so you will be staying at our hotel on the eleventh, one night, in a twin room, and you're Ms. Harris." ⇒

so you will be staying at our hotel on the eleventh, one night, in a twin room,	@confirm *stay; *room
and you're Ms. Harris.	@confirm *name

"I will check the vacancy and I will call you back later." ⇒

I will check the vacancy	@promise
and I will call you back later.	@promise

4.3 Verb Phrase Coordination

The default tagging unit contains a verb coordination structure, like $VP_1 \& VP_2 \& \cdots \& VP_n$
We have two different cases:

- **Different Dacts**

  If the dacts for VPs are not the same, break the default unit and give a tag to each VP. Thus we have,

$$VP_1 \& VP_2 \& \cdots \& VP_n \quad \Rightarrow \quad VP_1 \; @Dact_1$$
$$VP_2 \; @Dact_2$$
$$VP_3 \; @Dact_3$$

An example:

"I would like to reserve a room and wonder if you have an inexpensive one." ⇒

I would like to reserve a room	@desire
and wonder if you have an inexpensive one.	@information-request

- **Same Dacts**

  If Dacts for VPs are the same, do not break the default unit.

Examples:

"please take the Kintetsu Nara Line, again, and switch to the Kyoto Line at Saidaiji Station." ⇒

please take the Nara Line, again, and switch to the Kyoto Line at Saidaiji Station	@instruct

"it is about ten minutes and costs you about one thousand five hundred yen by cab" ⇒

it is about ten minutes and costs you about one thousand five hundred yen by cab	*inform

"First, I would like to have breakfast and then play tennis." ⇒

First, I would like to have breakfast first and then play tennis. @desire	@desire

4.4 Other coordination structure

Other coordination structures like NP & NP will not be separated. Some examples are given below:

"May I have your name and a phone number where you can be reached?" $\Rightarrow$

> May I have your name and a phone number where you can be reached? @info-req

4.5 Commas

Commas in special situations trigger further segmentation of the default tagging unit. Here we show such situations. The decision chart in appendix A shows the overall segmentation rules.

- person's name before/after comma

  If the default tagging unit starts with a person name and a comma followed by the body, then cut the unit at the comma. The person name will usually have the @alert tag.

Person's name, Body $\Rightarrow$	*Person's name*	*@alert*
	Body	*@Dact*
Body, Person's name $\Rightarrow$	*Body*	*@Dact*
	Person's name	*@alert*

  Examples:

  "Mr. Suzuki, can I have your credit card number?" $\Rightarrow$

Mr. Suziki	@alert
can I have your credit card number?	@information-request

  "Thank you very much, Ms. Suzuki." $\Rightarrow$

Thank you very much,	@expressive
Ms. Suzuki.	@alert

  Note (title after comma):
  We do not split a sentence at a comma leading a sentence-ending title (Body, Title).

  Examples:
  "Yes, sir."
  "May I help you, ma'am?"

- Interjections before comma

  If a sentence begins with an interjection like "Oh," "Yes," "Hi," and "hello", we follow the rules below.

  If the body part is a fixed expression, we do not break the default tagging unit at the comma. Otherwise break at the comma.

  Examples of non-breaking cases:

  "Yes, that's right." $\Rightarrow$

Yes, that's right	@Affirm

"Okay, no problem." ⇒

    Okay, no problem.   @Affirm

"Okay, great." ⇒

    Okay, great.   @Accept

"Yes, that's correct." ⇒

    Yes, that's correct.   @Affirm

Examples of breaking cases:

"Yes, that can certainly be arranged." ⇒

    Yes,   @affirm
    that can certainly be arranged.   @inform

- Tag questions

  While tag questions of the form "right?" and "correct?" are split off from the body, those in the form

  $$\langle Aux - Verb(+"n't") \; Pronoun? \rangle$$

  (e.g. "isn't it?") are kept together with the body.

Examples of non-breaking cases:

"But a deluxe twin is expensive, isn't it?" ⇒

    But a deluxe twin is expensive, isn't it?   @Confirm

Examples of breaking cases:

"Ms. Karen Ford, correct?" ⇒

    Ms. Karen Ford,   @Confirm
    correct?   @TF-Question

- Commas in other situation

  Sometimes a comma is used for a sentence ending period and sentential coordination conjunction "and." If such a comma appears in a default tagging unit, we break it at the comma.

  We can judge the comma's role by breaking the default tagging unit with the comma and seeing if this produces normal meaningful sentences.

  For example,

      New York City Hotel, may I help you ?
      I have a friend joining me, so I'd like to request a room change.

  Each of the sentences above can be separated into two meaningful sentences with breaking at the comma, so we break this into two segments.

  It must be noted that in the transcriptions, "so" may be used to conjoin two sentences without comma (e.g., *I'll check so please wait a moment.*). In such a case, we assume a comma before "so" and split the sentence there.

4.6   Exceptions

The segmentation rules mentioned above have one common exceptional case which does not allow segmentation. If a segmentation with any rule mentioned above produces an ending with an utterance marked with "[]", we do not apply the rule. An unit marked with "[]" means that the utterance is insignificant and we do not give a tag to such utterances. Thus we avoid such segmentation. Here is an example:

"[Uh], Yes, that's all right." ⇒

    [Uh], Yes, that's all right.   @affirm

Here the break at the first comma produces [] ending and we do not break here. The second comma is not used for breaking since "that's all right" is a fixed expression.

4.7   Some difficult cases

As was explained, the commas and conjunctions can be the breaking triggers in a default tagging unit. In some cases, however, conjunctions and commas appear together in one default tagging unit, which yields ambiguity in choosing rules to use. In these cases, we choose rules that produce meaningful segments or sentences. An example illustates the situation:

    Yes, that's right but for reservation purposes, [uh] you're one per son, so [uh] you want a single room.

Here, we observe four breaking triggers. If we allow all breaking rules, we will have the following 5 fragments.

    1) Yes,
    2) that's right (comma)
    3) but for reservation purposes (coordination)
    4) you're one person (comma)
    5) so [uh] you want a single room. (comma)

Fragment 3) seems to be too incomplete as a meaningful sentence, and it should not be separated as a unit. We merge fragment 3) to fragment 2) or fragment 4), so that it produces a better understandable segment.

We judge that 3) and 4) together make a meaningful unit and merge them into 2).

Since 2) is an isolated fixed expression, we merge 2) and 1) into 1). This is in accordance with the comma rules in 2.2, which say that we do not split the fragments 1) and 2) because the body part is a fixed expression (that's right).

The result of applying the segmentation rules to this problematic case is thus:

    1) Yes, that's right @affirm
    2) but for reservation purposes, you're one person @inform
    3) so [uh] you want a single room. @confirm

5   Tagging format

The tagging format for each segment is as follows:

```
-----------------------------------------------------------------------
FILE    : file name (first 9 letters)
TURN#   : a turn counter from the beginning of the dialogue
UTTR#   : an utterance counter in a turn
SPEAKER : clerk|customer|interpreter
```

```
UNIT    : dact unit (words)
DACT    : dact (multiple entries are separated by ";")
DACTEXPR: key expressions for DACT
TOPIC   : top (multiple entries separated by ;)
TOPEXPR : topic words (if multiple topics, the words realising each
          topic are separated by ";")
```

DACTEXPR is the part of UNIT which contributes to the decision of DACT. The parts of UNIT which don't affect the choice of DACT even if they are replaced with other expressions of the same syntactic categories should be replaced with "*".

Some important points to be noted:

1. Expressions in brackets [...] do not have to be substituted with '*': they can be simply ignored.

2. Instead of '*', the abbreviations 'np','subj' and 'propern' can be used for a noun phrase, a subject and a proper noun respectively. "subj" is to be used to indicate the subject positions in affirmative/interrogative sentences relative to (auxiliary) verbs. (Exceptions: when the subject is "you", "I" or a pronoun in a fixed expression such as "that's ok", "this is fine".) "np" is used to represent fragments such as "Eighty thousand yen." ⇒ "np." "propern" is used to represent fragments such as "Miyako Hotel, reservations." ⇒ "propern, *"

3. A verb or auxiliary verb can be omitted when its inclusion is not essential for DACT selection and a corresponding auxiliary verb is present (e.g., "Can this thing be eaten?" ⇒ "Can subj *?").

4. In case of verb phrase coordination (see segmentation section 4.2), the two verb phrases are conjoined with an ampersand (&).

5. Punctuations should, in principle, be retained in DACTEXPR.

6. Letter cases (upper/lower) should be retained in DACTEXPR.

TOPEXPR is the part of UNIT which realises the information that the utterance is about. Usually it contains the main verb and noun phrases of the sentence but may also contain noun phrases only. Copula verb is omitted. It can overlap with DACTEXPR, but most often occurs as its complementary part in the segment. If the segment realises one of the dialogue control acts, TOP is "iam" (InterAction Managment) and TOPEXPR is left blank. Also, when DACT is affirm, accept, acknowledge, reject, or negate, TOPEXPR is left blank if the utterance is a fixed phrase. Any omitted part in TOPEXPR should be represented with '*.'

Important points to be noted with TOPEXPR:

1. Expressions in brackets [...] do not have to be substituted with '*': they can be simply ignored.

2. Punctuations are not retained in TOPEXPR.

An example:

```
FILE    : TAC22011
TURN#   : 001
UTTR#   : 1
SPEAKER : clerk
UNIT    : Hello,
DACT    : expressive+opening
DACTEXPR: Hello,
```

```
TOPIC   : iam
TOPEXPR :
-----------------------------------------------------------------
FILE    : TAC22011
TURN#   : 001
UTTR#   : 1
SPEAKER : clerk
UNIT    : New York City Hotel,
DACT    : inform+opening
DACTEXPR: propern,
TOPIC   : iam
TOPEXPR :
-----------------------------------------------------------------
FILE    : TAC22011
TURN#   : 001
UTTR#   : 1
SPEAKER : clerk
UNIT    : may I help you?
DACT    : offer+opening
DACTEXPR: may I help you?
TOPIC   : iam
TOPEXPR :
-----------------------------------------------------------------
FILE    : TAC22011
TURN#   : 002
UTTR#   : 1
SPEAKER : interpreter
UNIT    : Hello,
DACT    : expressive+opening
DACTEXPR: Hello
TOPIC   : iam
TOPEXPR :
-----------------------------------------------------------------
FILE    : TAC22011
TURN#   : 002
UTTR#   : 1
SPEAKER : interpreter
UNIT    : my name is Hiroko Tanaka
DACT    : inform+opening
DACTEXPR: subj is *
TOPIC   : name
TOPEXPR : my name * Hiroko Tanaka
-----------------------------------------------------------------
FILE    : TAC22011
TURN#   : 002
UTTR#   : 1
SPEAKER : interpreter
UNIT    : and I would like to make a reservation for a room at your hotel.
DACT    : desire
DACTEXPR: * I would like to *.
TOPIC   : res
```

```
TOPEXPR : * make a reservation for a room at your hotel
_____

FILE    : TAC22011
TURN#   : 003
UTTR#   : 1
SPEAKER : clerk
UNIT    : Very good.
DACT    : acknowledge
DACTEXPR: Very good
TOPIC   : iam
TOPEXPR :

_____

FILE    : TAC22011
TURN#   : 003
UTTR#   : 2
SPEAKER : clerk
UNIT    : May I have the spelling of your name, please? *name
DACT    : info-req
DACTEXPR: May I have the spelling *, please?
TOPIC   : name
TOPEXPR : * spelling of your name *

_____
```

6   Dialogue Act Tags (Dacts)

6.1   Dact definition

The dialogue act (Dact) is an act performed by the speaker by uttering an utterance in a particular context. The act carries a particular "Illocutionary Force" which refers to the utterance's capability to order, state, accept etc. The different types of illocutionary force are called "Illocutionary Force Types", or simply, "Dialogue Acts", since they describe the repertoire of different acts that the speaker can use when conversing with the partner.

There are several ways to recognize dialogue acts (surface patterns, the previous context, the speaker's intentions). We have defined our Dacts on the basis of the speaker's intentions so that the view-point is always that of the speaker and not that of the hearer: the Dacts model what the speaker wants to say and not how the hearer understands the Dact.

The Dact definitions avoid formal language since our goal is to have an "easy-to-use" manual for taggers. The definitions try to be unambiguous but they are accompanied with em points which provide further clarification and describe ambiguous or particularly tricky cases. There are also *patterns* which describe associated surface patterns, and each Dact definition is provided with an ample set of typical examples. In the other Dacts, the particular surface structure patterns function as keywords in the dact recognition. In the tagging format they go into the special slot "Dactexpr".

6.2   Dact tags

Our DACT set is based on the set in [Seligman 94], but modified to better fit the purpose of our research. In [Seligman 94], the relationship between DACTs and surface expressions is emphasized and DACTs are defined on the basis of the different surface expressions found in the utterances. While we also take surface expressions into account, we have pruned their 25 DACTs according to functional criteria and also by considering a suitable granularity level for the classification. In all, we have obtained 17 DACTs after merging some of their tags. We have also created two supplementary tags, OPENING and CLOSING to indicate the opening and closing phases of dialogues. The list of our DACTs is given in appendix B.

In our corpus, the acts are usually rather easy to recognize, but there are also utterances whose illocutionary force is ambiguous or debatable. Below are some guidelines to make the decision in such problematic cases.

- When assigning a Dact, first look at the surface structure patterns. Does the utterance contain fixed exprppessions (thanks, hello, okay etc.) or particular surface patterns (I would like to; could you please; if you want to go to X, you will want to take the bus)?

- If the utterance contains fixed expressions (see a list of fixed expressions in the examples below), it is one of the Interaction Management Acts (EXPRESSIVE, ALERT, X+OPENING, X+CLOSING). These acts are used to manage the flow of the dialogue, but they do not normally convey information about the task domain, so their Topic tag will be IAM (see section 7).

- Consider the speaker's evocative intentions.

  If the speaker requires an explicit reaction from the hearer (either a physical act or acceptance), the utterance is most likely to be ACTION-REQUEST, OFFER, DESIRE, or SUGGEST.

  If the speaker makes an explicit query, the utterance is TF-QUESTION or INFORMATION-REQUEST, depending on whether the query concerns truth-value of a proposition or other type of information.

  If the speaker tells something to the hearer (without requiring any explicit reaction from the hearer except acknowledgement), the utterance is INFORM, CONFIRM, PROMISE, or INSTRUCT.

- Consider whose goal is to be achieved. Who is the beneficiary of the act.

  If the speaker's goals are tried to be achieved, the utterance is DESIRE. If the partner's goals are tried to be achieved, the utterance is OFFER or SUGGEST.

- Consider what type of goal is to be achieved.

  If the requested thing refers to a direct physical action (checking, calling back), the utterance is ACTION-REQUEST or OFFER. If the requested thing is an abstract proposition, the utterance is DESIRE or SUGGEST.

- Consider who will act to fulfil the goal.

  If the speaker does something, the utterance is OFFER, and if the partner does something, the utterance is ACTION-REQUEST. If both the speaker and the partner must contribute to the goal, the utterance is DESIRE or SUGGEST.

- Consider what type of information is exchanged.

  If the speaker informs about steps in a procedure, the utterance is INSTRUCT. If the speaker informs about new information, the utterance is INFORM. If the speaker wants to make sure that they

The list of dialogue acts is in Appendix B.

7   Topic tags (Tops)

7.1   Motivation

The novel feature of our tagging research is to have explicit ToP-tags to represent different types of meanings that the speaker wants to get across. The previous tagging research has mainly concentrated on dialogue acts, and the semantic content of utterances, related to the exchange of domain information, is usually overlooked.

The previous tagging research has mainly concentrated on dialogue acts which concern the speaker's intentions and their classification, and although the set of necessary dialogue acts is by no means agreed upon, classifications and can thus be assumed to be domain-independent, and form a suitable basis for statistical dialogue models. For instance, [Nagata 94] argued that plan-based approaches (where the plan covers domain

knowledge in a form of a plan tree) require painful hand-coding of the dialogue structures and higher level knowledge into the system, and thus an information-theoretic interpretation of the dialogue, based on dialogue acts (Illocutionary Force Types) and their sequencing, serves as a better basis for applications such as speech recognition. Consequently, several excellent studies on dialogue act prediction and recognition are available (e.g. [Nagata 94, Reithinger and Maier 95, Eckert et al.96, Jurafsky et al.97]).

We also aim at statistical applications, but considering the specific purpose of our tagged corpus (support for our speech-to-speech translation systems), at least a shallow semantic analysis of what is being talked about is necessary too.[1]

Dialogue acts usually overlook the semantic content of utterances which is related to the exchange of domain information. The semantic content of utterances is represented in a separate semantic representation language, e.g. the conceptual hierarchy in JANUS [Levin] or as expressions parsed by domain specialists [Möller 96]. However, this requires a good parser, and often such representations are too detailed for shallow statistical modeling. Sometimes the semantic content can be included in domain-dependent dialogue acts (e.g., *propose_a_date* in VERBMOBIL [Alexandersson 96]), but besides mixing the content and intentional information, such tags also lead to the sparseness problem by increasing the number of tags.

We thus opted for abstracting the semantic content of the utterance, and designed a set of topic types to represent the semantic content of the utterances in an analogous way to the dialogue act types. We also wanted to study the relationship between DACTs and TOPs, so as to gain an insight into their respective roles as two different means in encoding a speaker's message. Some attempts have previously been made to tag utterances with topic information, (e.g. [Discourse Research Working Group 98]), but these classifications have lacked a principled theoretical basis for the different topic types. Contrary to those, we base our classification on domain modeling and a linguistically motivated view of the information carried in utterances.

(7.1.1)   Information Structure of Utterances

The information content of the utterance is divided into new and old information [Vallduví and Engdahl 96, Jokinen 97]: new information (NewInfo) is the locus of what the speaker intends to say, the newsy bit, and old information (Central Concept) is the known part of the utterance, background assumptions which are often pronominalised or left out (ellipses). NewInfo usually appears at the end of the utterance, while the old information usually appears at the beginning of the utterance. Typically, the main verb acts as the *pivot* of the utterance as stated in [Meteer 96].

Topic tagging is based on the new information: each utterance is tagged according to the new information that is conveyed in the utterance. There may be several information units that are new. In this case we say that the utterance conveys "Multiple NewInfo".

The NewInfo is recognized by studying the utterance in its immediate dialogue context. In general, the context for initiative utterances (e.g., questions) concerns the presuppositions behind the initiative (e.g., why a question was asked), while the context for responsive utterances (mainly statements) can be set up by looking at the question(s) that the utterance is meant to address.[2] Some examples are given in figure 1.

The phrases that correspond to the NewInfo are called *Topic expressions*, and in the tagging format, they go into the TOPEXPR slot. If an utterance contains multiple NewInfo units, the corresponding expressions are separated by semicolons. As with the case of DACT tags, the gaps between different surface expressions that realize a particular TOP are marked with an asterisk.

According to [Carlson 83], new and old information are formalized as follows:

If a sentence $S = XBY$ is addressed to a sentence $S' = XAY$, then

string B is *old* if B repeats A, and

string B is *new* if B replaces A.

---

[1]Needed e.g. in semantic disambiguation such as Japanese to English translations 高い = 'expensive' vs. 'high', or なおす = 'repair' vs. 'cure'.

[2]There need not be only one presupposition or question that determines the context: the aim of the context specification is to narrow down alternatives so that the correct information structure for a given utterance can be found.

Usually the previous immediate context is available in the dialogue itself: there is the previous utterance by the partner, or the context is the beginning of the dialogue when the task topic is introduced. Sometimes there may be problems with finding the proper context. In these cases, the Question Method can be used. The Question Method is a method by which the context is set up by finding appropriate questions that the utterance is meant to address. There need not be one single correct question to set up the context: the aim of the Question Method is to narrow down the context so that the new information can be distinguished from the background.

Not all utterances carry task information. More than one third of all utterances are so-called InterAction Management acts [Bunt 94, Allwood 92] which control the flow of the dialogue but do not usually have information content related to the task (e.g., openings, closings, acknowledgments, expressives, alerts, time management requests, etc.). These utterances are tagged with the topic tag IAM, and they do not have any explicit topic expressions.[3]

There are also utterances that have single unique topics not directly related to the task at hand. These topics are regarded as *out-of-domain topics*, and marked with the tag MIX.

Examples

The underlines denote old information, and the boxes denote new information.

1. I'd like to pay by Master Card.

   Immediate Context: What about paying?
   How would you like to pay?
   Utterance: I'd like to pay by Master Card

2. I'd like to make a reservation for one night on August 25th

   Immediate Context: Hello. How can I help you?
   What about your activities?
   What would you like to do next?
   Utterance: I'd like to make a reservation for one night on August 25th

The context for questions is usually more appropriately set up by statements than by questions. These statements concern presuppositions behind the question. For instance:

3. How would you like to pay?

---

[3] Notice the difference between ACKNOWLEDGEMENT on one hand, and ACCEPT and AFFIRM on the other hand: the former has the topic tag IAM, while the latter two have a topic tag which refers to the same issue which is been accepted/affirmed. All of them have blank topic expressions. REJECT and NEGATE are analogous to ACCEPT and AFFIRM.

Immediate Context: Hello. How can I help you?
Utterance: I'd like to make a reservation for one night on August 25th

Immediate Context: About paying, yes, I know
(presupposition) you'll pay somehow, but....
Utterance: How would you like to pay ?

Figure 1: Information structure of utterances. The underlines denote old information, and the boxes denote new information.

Immediate Context: About paying, yes, I know you'll pay somehow, but....

Utterance: | How | would you like | to pay |

                        NewInfo concerns how to pay ⇒ topic tag: PAYMENT METHOD

Topic tags for the same utterance may be different depending on the dialogue context the utterance occurs in, since the context affects the NewInfo. Notice the difference between the taggings of the utterance "we do have twin rooms available on the fourteenth and fifteenth" in the examples 4 and 5.

4. A: What kind of room change would you like?
   B: We'd like to stay in a twin room.
   A: Ok, and what date would you like to make your change?
   B: For the fourteenth and fifteenth, please.   *STAY
   A: I see. Could you hold on for a minute, please.
      Thank you for waiting.
      Yes,
      we do have twin | rooms available | on the fourteenth and fifteenth

5. B: I'd like to make a reservation for two single rooms
      from the fourteenth to seventeenth of August.   *RES-MAKE;ROOM-TYPE;STAY
   A: I see. Could you hold on for a minute, while I check.
      Thank you for waiting.
      I'm sorry, we have single rooms available
      only on the sixteenth and seventeenth.   *ROOM-AVAIL;STAY
      However,
      we do have | twin rooms available | | on the fourteenth and fifteenth |

NewInfo concerns availability of twin rooms on 14th and 15th ⇒ topic tags: ROOM TYPE; STAY

The topic tags are abstractions of NewInfo. They are the nodes in the Topic-tree which describes the different issues that the speakers are likely to talk about when conversing over a particular task. (See the topic trees below.) For instance, if the speaker has initiated a dialogue on hotel reservation, the necessary issues that she and the clerk are going to talk about are described by the topic tree.

The phrases that correspond to NewInfo are "Topic expressions" and they go into the TopExpr slot in the tagging format. If the utterance contains Multiple NewInfo units, the corresponding expressions are separated by semicolons (example 2). Sometimes there may be a gap between different expressions (example 3). The Interaction Management Acts (openings, closings, acknowledgements, expressives, and alerts) control the flow of the dialogue and they do not have informational content related to the task. We don't mark any explicit topic expressions for these.

In the above examples, the topic expressions are:

1) by Master Card
2) make a reservation; for one night on August 25th
3) How * to pay

The speakers' turns are segmented into utterances according to the instructions given in section 42, and a topic tag is assigned to each utterance.

Utter   : I'd like a Japanese-style room if possible.
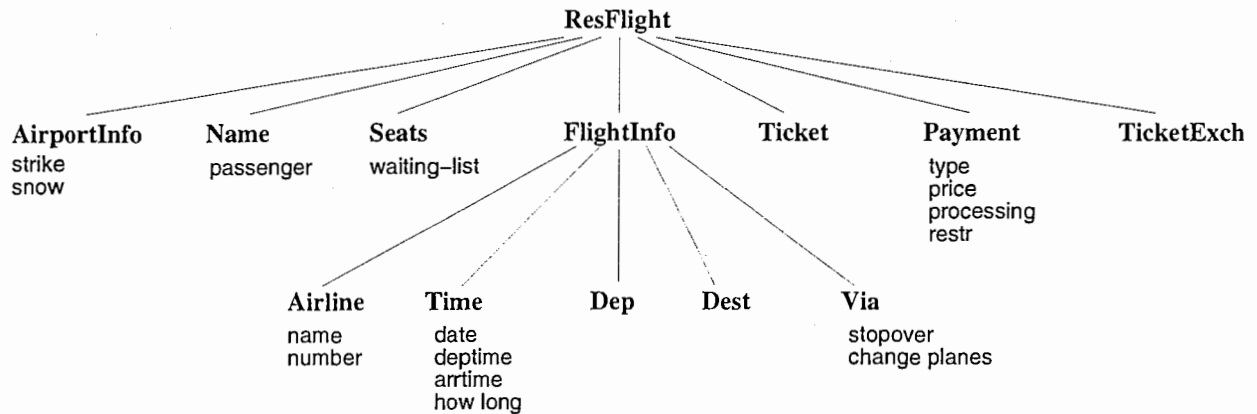Top   : Room-type

Figure 2: A topic tree for making/changing flight reservations.

TopExpr : * a Japanese-style room *

Utter   : My name is Kazuo Suzuki
Top   : Name
TopExpr : My name * Kazuo Suzuki

Utter   : and I have a VISA card
Top   : CardType
TopExpr : * a VISA card

Utter   : and the number is 4883 5800 4088 1718.
Top   : CardNumber
TopExpr : * the number * 4883 5800 4088 1718

Utter   : thank you for calling.
Top   : iam
TopExpr :

7.2   Topic trees

Topic types are abstractions of the NewInfo. They describe the different issues that the speakers are likely to talk about in the course of the dialogue. In task-oriented dialogues, the speakers usually exchange information about the different topic types in a certain order and do not jump from one topic to another randomly. The possible types can be structured into a *topic-tree* which represents the domain information as a coherent hierarchical tree, cf. [McCoy 91, Carcagno 93]. For instance, the necessary issues that the speakers are likely to talk about when making or changing flight reservations, can be represented as the topic tree in figure 2.

Topic tags are the nodes of the topic trees. They do not refer to a focus entity or a backward looking center [Grosz 86, Grosz 95]: our goal is to model the information content of utterances rather than anaphoric relations.

The following topic trees describe likely topics for three different tasks. They are a high-level descriptions of the domains. We may want to distinguish finer topic types (i.e. add subnodes to the given nodes) if such distinction are necessary for topic tracking.

Hotel reservation

```
              Reservation
             / / |\  \ \ \
            / /  | \  \ \ _____
     _____/ /   |  \  \ _____     \
    /         /   |  \ \              \      \
   Name      /    |   \ Contact    Meals    Checkio
 (spelling)  /    |    \ (tel,addr, (breakfast,
          /       |     \ fax)       dinner)
         /        |      \
       Stay     Room      Payment
      (when,    (type,    (credit card, cheque,
       nights)   price,        name on the card)
                 availability,
                 number-of-people
                 etc.)
```

Train reservation

```
              ResTrain
             //|\\\_____
            // | \\_____   \
           //  |  \\____    \ Facilities
     _____//  |   \    \    \
    /      /   |    \    \    \
   Dest   Time |  Seats People Ticket
              |              (type,
          TrainInfo           price)
          / |  | \\
         /  |  |  \\____
        /   |  |   \    \
       /    |  |    \    \
     Train Time  Dep  Dest Via
    (name, (date, (track)
     type,  deptime,
     number) arrtime,
             how long)
```

Bus reservation and bus information

```
                    ResBus
                    //|\\_____
                   // | \\_____   \
                  // |  \\____     \ Facilities
          _____//  |   \     \     \
         /    /  |   \     \     \
        Dest   Time  | Seats People Ticket
                     |              (type,
                BusInfo             price)
               / |   | \\
              /  |   |  \\____
             /   |   |   \    \
            /    |   |    \    \
          Bus   Time  Dep Dest Via
        (name,  (date, (track)
         type,   deptime,
        number) arrtime,
                how long)
```

Making/changing flight reservations

```
                   ResFlight
                  / /|\ \\ \
                 / / | \ \\ \
                / / |  \ \\ _____
         _____/ /  |   \ \_____       \
          /    /   |    \ \_____    \         \
         /    /    |     \    \      \         \
      AirportInfo  Name   |  Seats  Ticket  Payment TicketExch
      (strike,   (passenger) | (Waiting- (type,
       snow)                 |  list)    price,
                             |           processing,
                         FlightInfo      restr)
                        / /|\ \
                       / / | \ \
                      / / |  \  \
                     / / |   \   \
                    / / |    \   \
                 Airline Time  Dep Dest Via
                 (name,  (date,         (stopover,
                  number) deptime,       change planes)
                         arrtime,
                         how long)
```

Giving instructions

```
                  Waysto
                 / /|\ \ \
                / / | \ \ \
               / / |  \ \ \
              / /   |   \ \ _____
        _____/ /   |    \ _____        \
        /        /    |     \              \       \
       /        /     |      \              \       \
    StartInfo  Means   Route    TimeFreq     RouteComp Cost
    / | \     (bus,   (stops,   (how long,            (how much does
   /  |  \    train,  stations, how often)             it cost by bus
Time Dep Dest subway) transfers,                       from A to B)
                        etc.)
```

```
                  Waysto
                 / /|\ \ \
                / / | \ \ \
               / / |  \ \ \
              / /   |   \ \ _____
        _____/ /   |    \ _____        \
        /        /    |     \              \       \
       /        /     |      \              \       \
    StartInfo  Means   Route    TimeFreq     RouteComp Cost
    / | \     (bus,   (stops,   (how long,            (how much does
   /  |  \    train,  stations, how often)             it cost by bus
Time Dep Dest subway) transfers,                       from A to B)
                        etc.)
```

Hotel information

```
                  HotelInfo
                 / / /|\ \ \
                / / / | \ \ \
               / / /  |  \ \ _____
          ____/ / /   |   \ \_____        \
          /     / /    |    \      \       \
     @Reservation  / /    |     \       \       \
                  / Name  Room-  Contact  Loc  Facil-Services
                 /        price (tel,fax       /  |  \
            InitInfo            addr)         /   |   \
        _____/ / |\                          /    |    \
        /     / | \                         /     |     \
     Hotel  Budget Loc People        Facilities Services Activities
     Style                           (pool,gym, (laundry, (cruise, PGA
                                      mini-golf, medical,  golf course,
                                      parking;   room,     excursion)
                                      price)     reservations)
```

Package information (tentative)

```
              Package
             / | \  \
            / | \  _____
           / |  \        \
          / |    \        \
    @Reservation Package- Package-  Package-
               type   services  price
```

Ship information
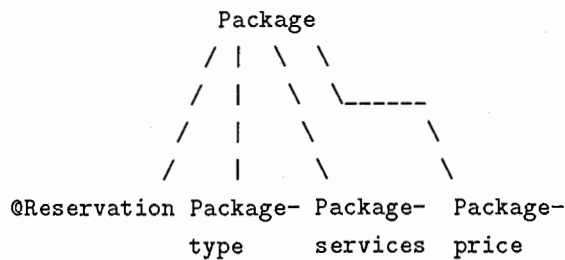
```
              ShipInfo
             / | \  \
            / | \  \_____
           / |  \       \
          / |   \        \
    @Reservation  Room  Facilities Budget
              (cabin)
```
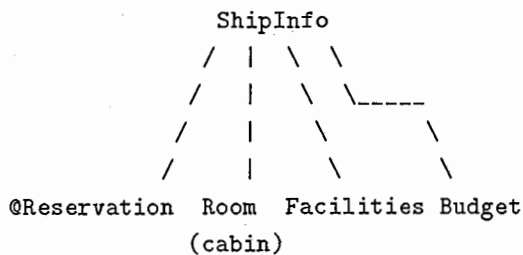
@-sign refers to a situation where the speaker can jump to another topic tree and either initiate the named, related task topic, or use the topics of the tree as if she we involved in the named task. For instance, @Reservation means that the speaker can use topics that are included in the Reservation topic tree, i.e. if the speaker requests information about ships, she can then also start a dialogue on making a reservation on the ship, or talk as if she is planning to make a reservation.

The list of topic tags is given in appendix C.

8 Tagging Work

Our tagging unit is the utterance. In most cases, the utterance coincides with a written sentence in the transcripts, see section 4.[4]

The taggers were first trained using examples by the researchers. They were also given a tagging manual containing the definitions of the tags as well as some theoretical background of the tag sets and tagging guidelines. A sample tagging format is shown in table 1.

During the tagging process, the taggers were advised to mention any difficult and/or controversial cases. For instance, since the dialogue corpus contained tasks that did not have an appropriate domain model

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[4]The ATR spoken language dialogue corpus has been transcribed using written language conventions to mark utterance limits.

Table 1: Tagging format.

FILE	:	TAC22011
TURN#	:	003
UTTR#	:	2
SPEAKER	:	clerk
UNIT	:	May I have the spelling of your name, please? *name
DACT	:	info-req
DACTEXPR	:	May I have *, please?
TOPIC	:	name
TOPEXPR	:	* spelling of your name *

evocative intention

initiative / \ responsive

question

no / \ yes

NewInfo already introduced

yes / \ no

requests physical action

truth-value

CONFIRM

NewInfo concerns action sequence

yes / \ no

yes / \ no

yes / \ no

speaker's action

speaker's goal

TF-QUESTION

INFO-REQ

INSTRUCT   **INFORM**

yes / \ no

yes / \ no

OFFER   **ACTION-REQUEST**

DESIRE   **SUGGEST**
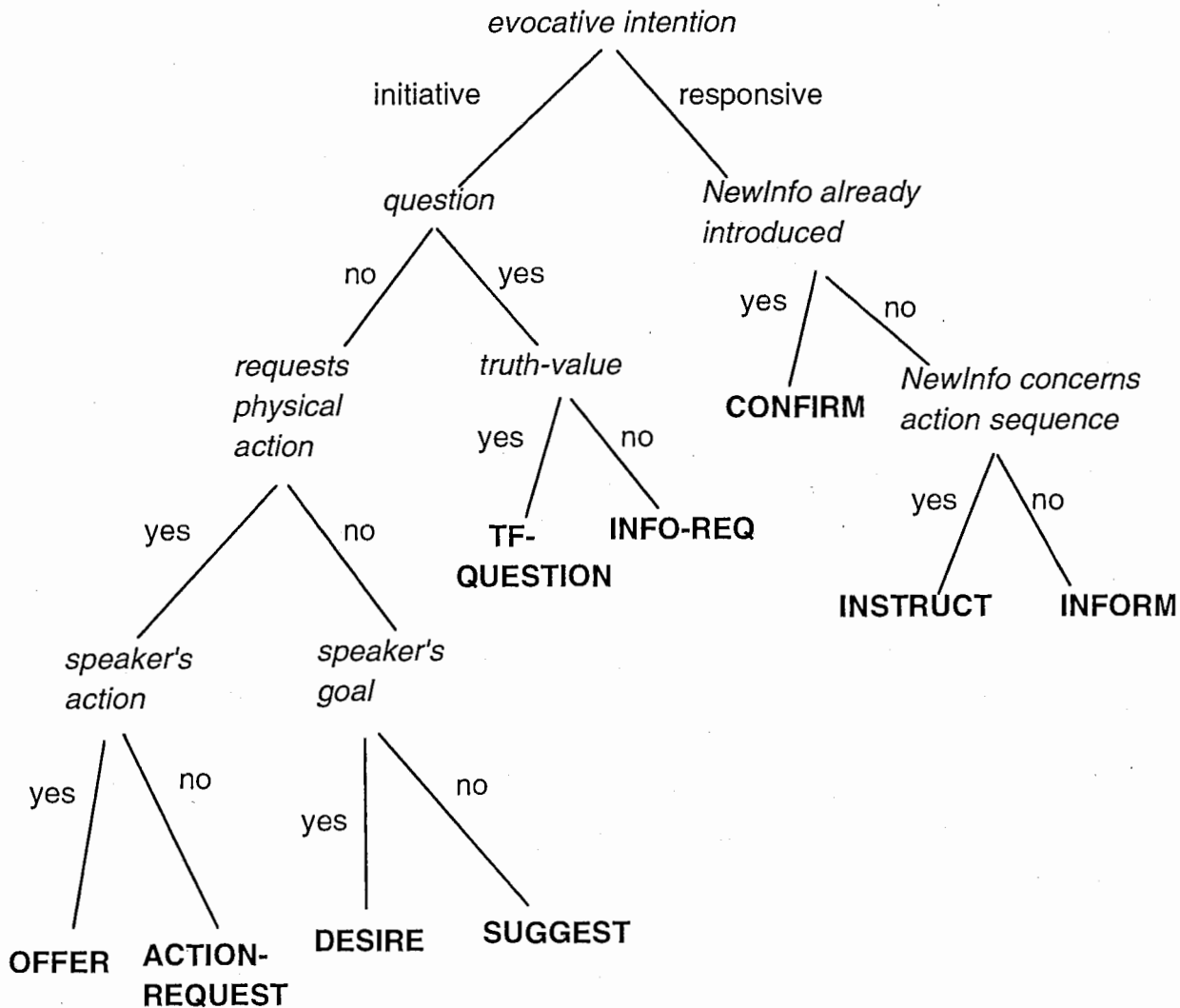
Figure 3: A decision tree for disambiguating Dacts.

given in the manual, the set of topic tags had to be increased with missing tags. This is a general problem with domain related tags: new domains usually require extension of the tag set. However, minimal domain modelling is required for DACT-sets too, and limited models are not hard to build.

To give the readers a feeling of the actual tagging work, a decision tree for disambiguating DACT tags is represented in figure 3.

The steps in manual topic tagging are:

A. Utterances in declarative or imperative mood
- What is NewInfo?
  How is the utterance related to the previous question, or if there is no question,
  use the Question Method to separate NewInfo from the background.
- What is the Topic-tree node that the NewInfo belongs to?
- Assign the topic tag as the appropriate topic tree node.

B. Utterances in interrogative mood
- What is NewInfo?
  What is being asked for?
- What is the Topic-tree node that the NewInfo is meant to update?
- Assign the topic tag as the appropriate topic tree node.

Table 2: Information contained in each language.

Item	Japanese	English
Size of tagging unit[5]	11,025	5,240
File ID No.	x	x
Turn ID No.	x	x
Utterance ID No.	x	x
Speaker's role	x	x
Tagging unit surface form	x	x
DACT tag	x	x
DACT expression	x	x
Topic tag		x
Topic expression		x
Morphological analysis	x	x
Pause duration between morphemes	x	

9 On-going Research

In this chapter, we will describe some activities toward the construction of our bilingual multi-level information corpus and briefly introduce some research activities with the corpus.

The utterances in the bilingual corpus were matched to other types of information such as morphological analysis data, pause information, speakers' role information, and so on. The major information contained in both languages at present is summarized in table 2.

We have been developing a bilingual data browser for the corpus. This browser has two main functions: tag search and expression search. The former retrieves all tagging units bearing the tag specified by a user, and displays them with some forward and backward tagging units to show some contexts to the user. The number of tagging units in the context is specified by a user. At this time, the corresponding tagging units in the other language are also displayed.

The latter retrieves tagging units that contain the expression specified by a user and displays them just like the tag search. Figure 4 shows an example screen image for expression search. The figure shows the results of the search for the Japanese expression *Onegai shimasu*.[6] The left middle part shows Japanese utterance units containing the target expression and the right hand side shows their translations. The lowest part shows the detailed information attached to the utterance in the middle.

At present, the browser is being used to check the consistency of tagging work. Such checking is mainly being done between surface expressions, topic type tags, and speech act type tags.

We have already studied several tag prediction methods. In [Jokinen 98], we presented the predict and support algorithm to predict TOPs and showed its usefulness in a task-oriented speech recognition system. The algorithm obtained the accuracy of 78.68% with cross-validation tests. This test is based on the 70 dialogue files, each of which contain about 400-500 utterances.

In [Iwamoto 98], we showed a method to correctly reorder speech recognition outputs by incorporating DACTs into the language model. We evaluated the method's ability to sort the speech outputs by descending order of word accuracy rate. And we obtained the average of 3% increase in correct ordering compared to the raw speech outputs.

We have surveyed our bilingual corpus to check if DACTs are preserved in translations.[7] Although one might think that DACTs should be preserved in translations, a considerable number of DACTs are not preserved. For example, utterances characterized as REQUEST in one language are sometimes translated

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[5] The numbers of tagging units were calculated for the 99 common files. They differ because we used different segmentation criteria for the Japanese and English data.

[6] This is used when requesting something and is often translated as "please" in English.

[7] This survey was done after we unified the tag sets for English and Japanese manually.
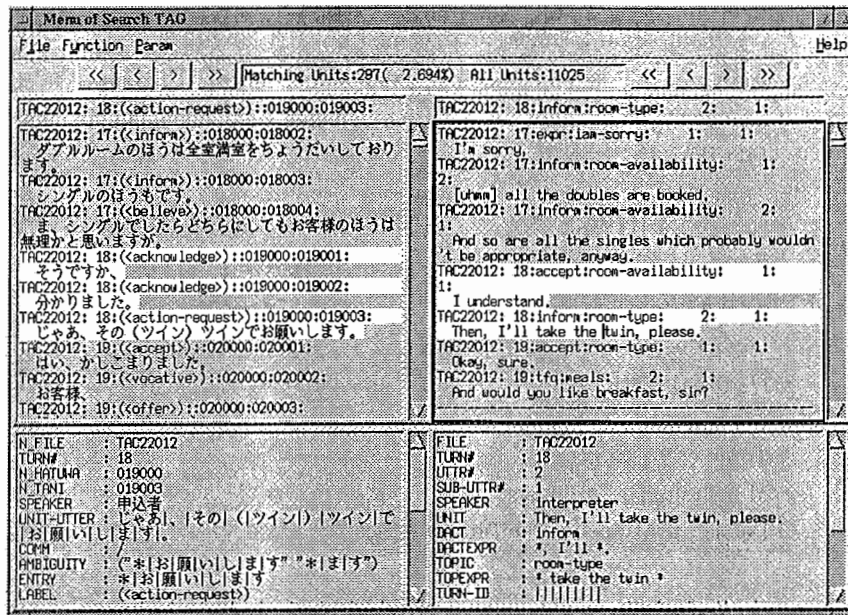
Figure 4: Search results for *Onegai shimasu*.

as DESIRE in another language. The reason for this disparity is that a direct speech act of desiring can simultaneously perform an indirect act of requesting, but we tag direct speech acts only: the indirect act of requesting in DESIRE is not tagged.

We have also started some investigations on the use of multi-level information in our corpus for translation selection, and have found that DACT tags together with information on the speaker's role are useful in correctly translating short expressions like *Yes* and *I see*. These expressions can be used both as ACCEPT and ACKNOWLEDGE, and each of them should be translated into Japanese with proper politeness according to the standing of the speaker: customer or clerk.

As for future tasks, we plan to evaluate tagging consistency with such criteria as Kappa-score [Carletta 96] and Krippendorff's agreement coefficient [Krippendorff 83], which measure the tag stability among several taggers.

Moreover, we plan to extend our browser to a tagging aid tool, since our experience here has shown that human tagging work is quite labor-intensive. The tool should consist of the following functions: a corpus browser, an utterance segmentation tool, and a semi-automatic tagger. The tag prediction algorithm studied so far may be useful for this application. We have also started work on automatic utterance segmentation, which will be required in the first stage of corpus construction.

Finally, to utilize the multi-level information in the resources fully, we plan to survey the relation between prosody and discourse information. For example, intonation would be helpful to recognize DACTs and segment dialogue into utterances.

10 Conclusion

This report has described our dialogue tagging research and its application at ATR-ITL. The innovative feature of our tag sets is the use of topic tags which model the information content of utterances. Dialogue acts are used to classify the intentions of speakers in utterances, and can be recognized on the basis of cue patterns.

To check the consistency of tag sets and to help us with our research in general, we have a tag browser which has two main functions: tag search and expression search.

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A   Chart for segmentation rule

Figure 5 and 6 show the charts for the utterance segmentation rules that were described in section 4.
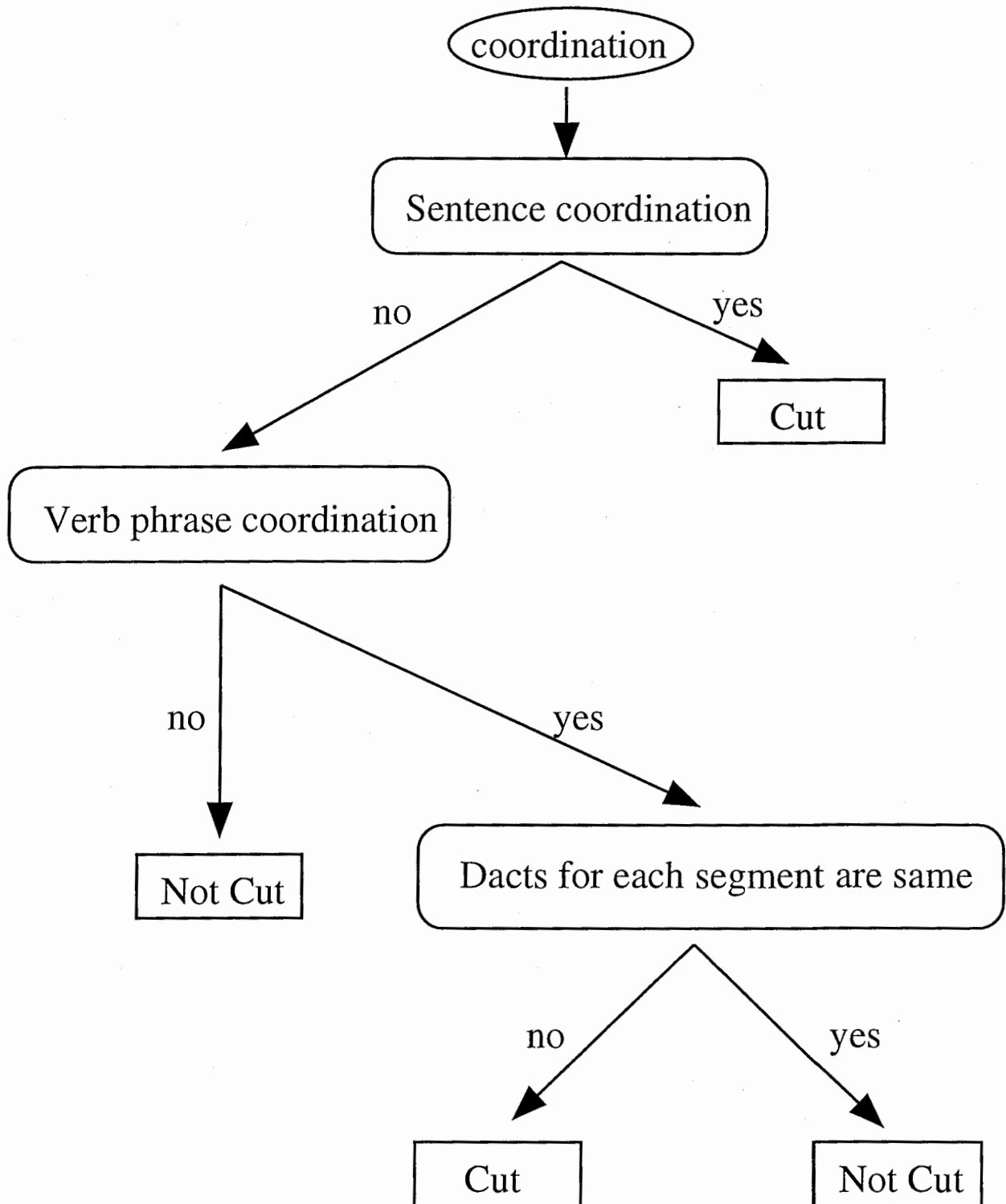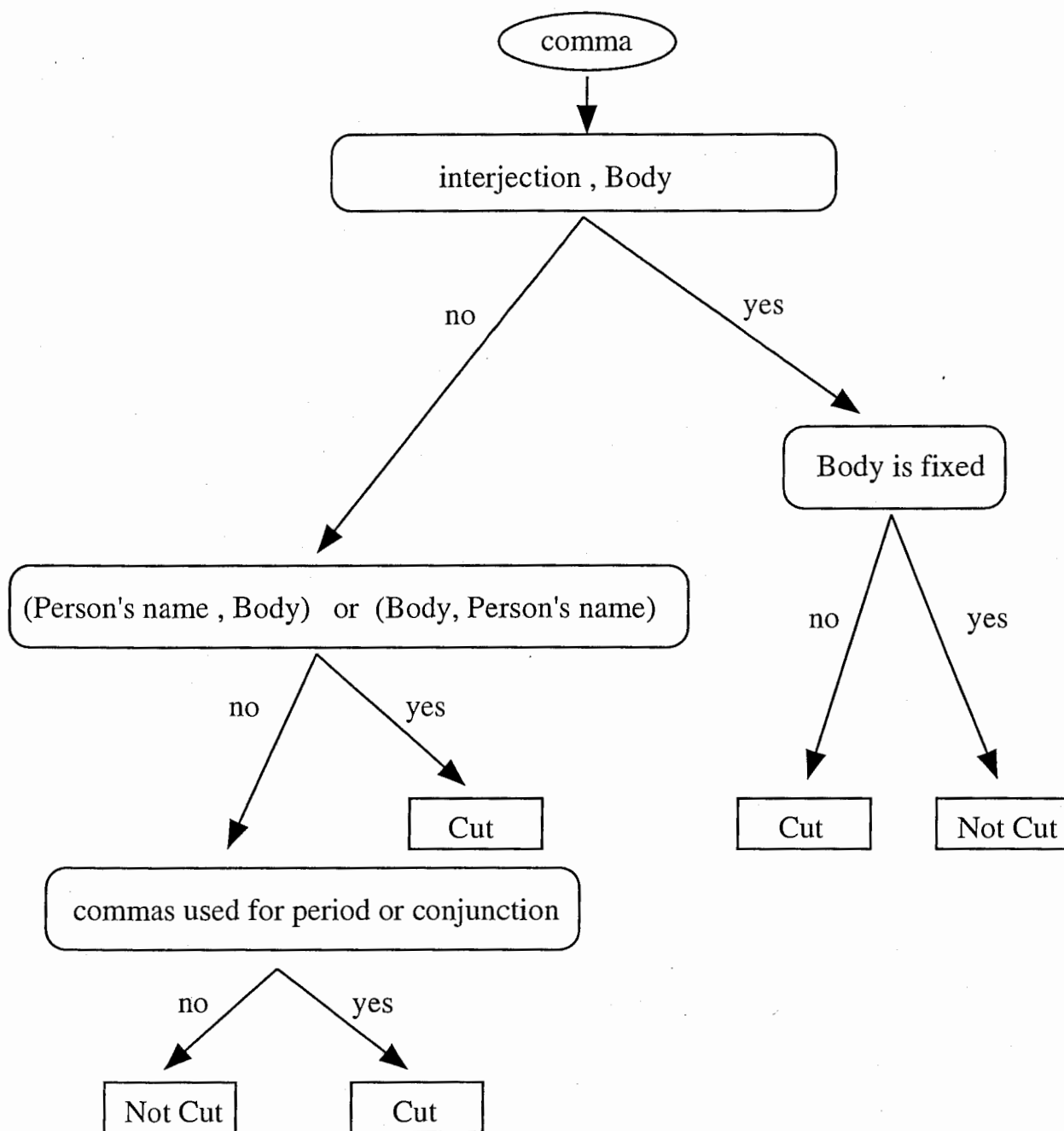
Figure 5: Segmentation rule chart 1.

Figure 6: Segmentation rule chart 2.

B   List of dialogue acts

In the definitions, the following abbreviations are used:

S : speaker
H : hearer

Long Dacts names can be abbreviated. The abbreviations are given in parenthesis, and are semantically equivalent to the longer name.

B.1   Basic Dacts

Name : ACCEPT

Definition : S accepts and commits herself to the suggestion—information—action presented by H

Points : often ambiguous with ACKNOWLEDGE but includes S's commitment to the presented information

Patterns : usually fixed expressions

Examples : That would/will be fine, Sure, All right, that's no problem at all.
   - B's responses after A's OFFER/SUGGEST/ACT-REQ/ DESIRE/CONFIRM/TFQ:

A: Then shall I make a reservation for you?	OFFER
B: [uh] Yes.	
A: And about breakfast, can we change your reservation to two?	
B: Yes, please.	
A: So, then will a single room be all right?	
B: That'll be fine.	
A: can you please wait a moment while I check room availability	
B: Okay.	
A: And we will bring a rollaway bed into your single room.	
B: That will be fine.	
A: Is that right?	
B: Sounds fine.	
A: Then I'll just make the reservation for the room only.	
B: That's fine.	
A: We'd like to stay for 5 nights from 25th to 30th of October.	
B: Certainly,	
A: Since you'll be canceling your reservation for the 10, you are required to pay a 50 % cancellation charge.	
B: Fifty percent?	CONFIRM
[well] I guess I have no choice.	ACCEPT

Name : ACKNOWLEDGE (ACK)

Definition : S wants H to know that S has heard, received, understood what H said

Points : - often ambiguous with ACCEPT but differs from it as no commitment is made: used to maintain communication and give feedback on the information given by H
   - often paraphase: "go on, I'll follow"
   - may be simultaneous with H's speech

Patterns : fixed expressions, extra-linguistic gestures: nodding, smiling

Examples : okay, sure, yeah, fine, great, I see.

A: How much do your rooms run?	INFO-REQ
B: Yes,	ACKNOWLEDGE
our rooms range from 10 000 yen to 25 000 yen.	INFORM
Compare:	
A: Do you have a particular preference for room type?	TF-QUEST
B: Yes,	AFFIRM
if there are twin rooms, I would like to have a twin room.	INFORM

Name : ACTION-REQUEST (ACT-REQ)

Definition : S requests H to perform some action

Points :

- occurs often with "please" and in imperative mood
- S is the beneficiary of the action
NOTE!!! "could you tell me your credit card number" INFO-REQ

Examples :

Please give me a reservation for breakfast too then.
please hold on a moment, Just a minute, please.
please make a reservation for the single room with a shower.
Could you change it to two people, please?

Name : AFFIRM

Definition : a positive answer after H's question about whether some proposition holds or not

Points :

- often ambiguous with ACCEPT but concerns the truth-value of a proposition and not acceptance of an action or a suggestion

    response to TF-QUESTION $\Rightarrow$ AFFIRM
    (Was the reservation for yourself?)
    response to other initiatives $\Rightarrow$ ACCEPT
    (Please give me a reservation for breakfast too then.)

- a positive answer after INFO-REQ is AFFIRM, if INFO-REQ is in the form of asking a truth value.

Examples : Yes, Yeah. Yes, that's correct.

- B's responses after TF-QUESTIONS:

A: And by the way do you accept traveler's checks?
B: We certainly do.
A: So, then will a single room be all right?
B: That'll be fine.
A: Do you know how to get here?
B: Yes, we do.
A: Is it possible to have an extra bed put in?
B: Yes, of course.
A: Do you accept Master Card?
B: Yes, we do take Master Card.
A: Do the rooms you mentioned have private baths?
B: Yes, all our hotel rooms have baths.

- B's positive answer after INFO-REQ in the form of asking a truth value:

A: May I have the spelling of your name, please?	INFO-REQ
B: [uh] Yes.	AFFIRM
It's T- A- N- A- K- A.	INFORM
A: I wonder if I could get your number now, please.	INFO-REQ
B: Yes,	AFFIRM
the number is 267, 521, 03, 87.	INFORM
A: May I have your name please?	INFO-REQ
B: Yes.	AFFIRM
My name is Tanaka.	INFORM
A: I wonder if I could get your name.	INFO-REQ
B: Yes.	AFFIRM
My name is Tanaka.	INFORM

Name : ALERT

Definition : S addresses H

Patterns : fixed expressions, titles, names

Examples :

Mr Phillips!
hey, hey you!
waitress!
excuse me! (but didn't you tell me that...)

Name : CONFIRM

Definition : S confirms old information to make sure/clarify things

Points :

- differs from INFORM in that S thinks that H already knows the information: thus S does not truly inform H about new information but wants to confirm that they both share the same previously given information

- can be combined with supplementary acts, see appendix B.2

Patterns :

- starts often with "so, then"

- contains 2nd person pronouns "you'll arrive at around 6pm"

- often a list of declarative sentences confirming old information or declarative phrases with rising intonation
(Tuesday 24th?)

- includes utterances with tag-questions
(It is a single room, isn't it?)

- includes special confirming interrogatives
(was it a single room?)

NOTE!!! a separate "Is that right"-question at the end of a CONFIRM list is TF-QUESTION which asks for the truth-value of the facts listed

Examples :

So, that's two single rooms for Friday, Oct 28.
So that's zero three, three two two three, one two three four.
Your name is Mr. John Phillips

That's right, isn't it?	CONFIRM (tag-question)
That's for the eighth and the ninth,	CONFIRM (staying)
correct?	TF-QUESTION (confirmation question)
four people all together,	CONFIRM (number of people)
right?	TF-QUESTION (confirmation question)
K- A- R- E- N- and the last name is F-O-R-D	CONFIRM (spelling)
Ms. Karen Ford,	CONFIRM (name)
correct?	TF-QUESTION (confirmation question)
Then, I'll see you around six.	CONFIRM+CLOSING

Name : DESIRE

Definition : S expresses her preferences or wishes

Points :

- differs from INFORM in that S expects H to "do something" so that the desire will be fulfilled

- differs from INSTRUCT in that S is the beneficiary of the action

- differs from SUGGEST in that S states her goal (instead of proposing a goal for H)

- introduces a new topic if occurs in the beginning of dialogue

Patterns :

Examples :

I'd like to make a reservation,
I'd like to stay in the twin room

Name : EXPRESSIVE (EXPR)

Definition : S expresses emotions, surprise, excitement, greetings, etc.

Points :

- thanking, apologies, greetings, farewells, conventional opening and closing expressions

- can be combined with supplementary acts, see appendix B.2

Patterns : fixed expressions

Examples : thank you very much; you're welcome; (I'm) sorry; that's all right; wow, oops, whoop, oh

Hello, hi.	EXPRESSIVE+OPENING
bye, good-bye, see you then.	EXPRESSIVE+CLOSING
Have a nice day/a good trip.	EXPRESSIVE+CLOSING

Name : INFORM

Definition : S gives new information in a declarative sentence form

Points :

- NewInfo is a parameter value (e.g. price, time) or a proposition (if no apparent previous question occurs), cf. AFFIRM/NEGATE

- S intend that H believes NewInfo without preconditions, cf. SUGGEST

- Utterances can be elliptical such as "By credit card, please." (="I/you pay by credit card, please.").

Examples :

there is a separate charge for breakfas.
A twin room used as a single with a bath is a 140 dollars per night.
it's just for myself.
I'm staying at the Tokyo Hotel.
my name is John Phillips.
I'll probably be arriving around four p.m.
I think I will be checking in at around six o'clock.
I think the suite room will prove economical.
I think we can arrange that.
This is a [ah] busy part of the midtown section with the highest number of tourist hotels.
Actually I checked with other places and everywhere was booked up so I was worried.

This the front desk/Kyoto New Hankyu Hotel.	INFORM+OPENING
This is Naoko Suzuki calling.	INFORM+OPENING

Name : INFORMATION_REQUEST (INFO-REQ)

Definition : S requests H to tell information on a particular fact

Points: • How, what, when, why-questions.

- S seeks information on price, date, time-period, number-of-people, means-of-doing-something (information on something else than the truth-value)

- also indirect speech acts which on the surface level are yn-questions but function as (polite) information requests

Examples :

How many people do you have in your party?
Could you tell me the way to get there?
Could you tell me both of the two ways?
How may I be of service? ??
What is the room charge for a single room?
When do you plan to stay?
Could I have your name and phone number,
could you tell me the price of each room,
Could you give me the date of your stay?
Could you tell me how many people will be staying?
May I have your name, please
May we have your card number and the expiration date?

A: Do you need the number?	TF-QUESTION *tel
B: Yes,	AFFIRM *tel
please.	INFORMATION-REQUEST *tel

Name : INSTRUCT

Definition : S tells H (steps of) a procedure.

Points :

- differs from OFFER in that S will not be the actor of the procedure.
- differs from SUGGEST in that S does not present different alternatives
- When S gives new information in a declarative sentence form, give INSTRUCT only when it is clear that S tells H how to do (otherwise INFORM).

Name : NEGATE

Definition : a negative answer after H's question about whether some proposition holds or not

Points : often ambiguous with REJECT but concerns the truth-value of a proposition and not rejection of an action or a suggestion

Examples :

No, it wasn't.
No, that's all right.
A: Would you like to make meal reservations as well?   TF-QUESTION
B: No, that's all right.   NEGATE
- B's responses in AFFIRM-examples if they were negative

Name : OFFER

Definition : S is willing to do some action(s) to help H to achieve H's goals

Points :

- differs from INSTRUCT and SUGGEST in that S performs the action
- does not necessarily require an explicit acceptance from H to perform the action
- can be combined with supplementary acts, see appendix B.2

NOTE!! "May I help you with this?" SUGGEST

Patterns : usually fixed expressions

Examples :

Let me check for vacancies.
Let me give you the price for the single accommodation as well.
Let me repeat that.
Why don't I check the (av) availability.
And we could put a cot in the room for your other child.
If you have any questions, please feel free to give me a call.

Name : PROMISE

Definition : S commits herself to some future action

Patterns :

- future tense

- differs from INFORM in that the commitment is future-directed

Examples :

I will call you as soon as I find out.
I'll do that.
Then, we will be waiting for you.   PROMISE+CLOSING

Name : REJECT

Definition : S does not accept nor commit herself to the suggestion—information—action presented by H

Points : often ambiguous with NEGATE but includes S's commitment not to accept the suggestion or information

Patterns :

Examples :

No, that'll be all.
so I won't need breakfast.
B: I'd like to make some changes.   DESIRE
A: Would you like to change the date?   SUGGEST
B: No,   REJECT
    I'd like to change the name of the person who's staying.   INFORM

Name : SUGGEST

Definition : S proposes alternative(s), suggests how the goal can be reached

Points :

- differs from INFORM in that the given information is conditioned in regard to H's acceptance

- differs from INSTRUCT in that the given information is only a suggestion to do things in a certain way, not particular steps to reach a goal

Examples :

Then I recommend the deluxe types
Could I recommend single use of a twin room with a bath?
Perhaps you could view the room and decide then whether you need an extra bed.
I can prepare two twin rooms for you (ins) instead.

Name : TF-QUESTION (TFQ)

Definition : S requests H to tell whether some proposition is true or false

Points :

- often called yes-no-questions

- covers separate confirmation-questions (Is that right?)

Examples :

Do you know our address?

By the way, is breakfast included?

Would you like to make meal reservations as well?

Are there no cheaper rooms available?

Do you accept Master Card?

Do I have to pay a cancellation fee?

Do you have twin rooms with an ocean view and a balcony?

Can I pay for that by credit card?

Would the address and phone number of the hotel be all right?

Is there anything else?

Do you have any other questions?

So, then will a single room be all right?

Is that so? Is that right/correct?

Can we continue?

B.2 Supplementary acts

The following are special acts that occur in the begining and end of the dialogue. They are attached to INFORM, OFFER, EXPRESSIVE, PROMISE, CONFIRM, and ALERT acts.

Name : CLOSING

Definition : S intend to close the dialogue

Points :

- conventionalized closing/farewell/good wishes acts

- mark the closing part of the dialogue

Patterns : usually fixed expressions

Examples :

we've got that all set for you.	INFORM+CLOSING
We are looking forward to serving you.	EXPRESSIVE+CLOSING
Have a nice day/a good trip.	EXPRESSIVE+CLOSING
Then, we will be waiting for you.	PROMISE+CLOSING
Then, I'll see you around six.	CONFIRM+CLOSING
Everything seems to be in order.	INFORM+CLOSING
bye, good-bye, see you then.	EXPRESSIVE+CLOSING

Name : OPENING

Definition : S intend to start a dialogue

Points :

- conventionalized opening/greeting/self-introduction acts

- form the opening part of the dialogue

Examples :

New Washington Hotel.	INFORM+OPENING
This the front desk/Kyoto New Hankyu Hotel.	INFORM+OPENING
This is Naoko Suzuki calling.	INFORM+OPENING
Hello, hi.	EXPRESSIVE+OPENING
What can I do for you?	INFORMATION-REQUEST+OPENING
How may I help you?	INFORMATION-REQUEST+OPENING

C List of topics for the travel and reservation domains

Name : *ACTION-

Definition : description of the physical act performed simultaneously to the uttering of the utterance

Points :

- occurs usually in face-to-face conversations which involve physical action, not in ordinary information seeking/providing dialogues

- dialogue act is INFORM (i.e. the utterance informs the hearer of the kind of act performed)

- topic is the action specified with a topic tag which would be given to the utterance if it were an ordinary inform act. For instance, in the context of handing over items concerning payment the tag is *ACTION-PAYMENT

NOTE: the topic expression should include "here's" which anchors the utterance in the action situation

Examples :

- here's your card	*ACTION-PAYMENT
- here's your stub and your receipt	*ACTION-PAYMENT
- here's your ticket coupon	*ACTION-PAYMENT

Name : *ACTIVITIES

Definition : leisure activities in the vicinity of a hotel or a ship available for guests (golf courses, cruises etc)

Points :

- often organised via special arrangement with the hotel and local service providers

- participants usually have to go outside the hotel

- Notice that jogging or swimming within the hotel premises is *FACILITIES, not *ACTIVITIES, since the facility that makes this kind of activity possible (jogging-course, pool) belongs to the hotel (ship)

- can be specified with price and type of the activity

Examples :

- Guests staying at the hotel have access to the famous course used for the PGA Tournament	*ACTIVITIES-GOLF
- What would there be in the line of cruising around Miami	*ACTIVITIES-CRUISE
- one-day cruise on a luxury liner that you can board in Miami	*ACTIVITIES-CRUISE
- That's a luxury liner	*ACTIVITIES-CRUISE
- you can even go shopping for jewels in the Bahamas	*ACTIVITIES-SHOPPING
- about a hundred and fifty dollars a person	*ACTIVITIES-PRICE

Name : *AIRLINE

Definition : information about the airline

Points : Airline name, flight number

Examples :

- Japan Airline flight number 509

Name : *AIRPORTINFO

Definition : information about the airport

Points :

- describes preconditions for being able to fly
- specified with the type of condition

Examples :

- what *will happen if the airport is not reopened before eight o'clock	*AIRPORTINFO
- you'll *have to check with us three hours before your flight	*AIRPORTINFO
- saw some news on TV about a strike tomorrow	*AIRPORTINFO-STRIKE
- most strikes to date have been avoided, but we can't make any promises	*AIRPORTINFO-STRIKE
- I heard that JFK Airport has been closed due to this heavy snow, but is this true	*AIRPORTINFO-SNOW

Name : *BUDGET

Definition : price restrictions: budget limits

Points : NOTE: often mergers with room price, but gives approximate limits; roomprice is an exact price

Examples :

- Could I ask you the number of people and your budget, please
- I'd like to have a room at a hotel for around one
- hundred dollars per night
- Your budget is around a hundred dollars

Name : *BUS

Definition : information about buses

Points : type, name, number, bound for etc.

Examples :

- what's the name of the bus
- it's the New Jersey Transit Airport Express

Name : *BUSINFO

Definition : general category for detailed information about buses

Points : not often used since it is a mother node with specific subnodes: *BUS, *TIME, *DEP, *DEST, *VIA

Examples :

- Could you give me some information about the bus service from Salt Lake City
- I'd like to know the schedule for the bus from Salt Lake City to Las Vegas
- Three buses travel that route each day
- We have quite a few buses a day from Las Vegas to Los Angeles

Name : *CHECKIO

Definition : checking in and checking out

Points : could be included in STAY, but usually it occurs at the end of the dialogue and deals with future directed information that the speaker is not sure of ("I think I'll arrive at 6pm")

Examples :

- About what time tomorrow will you be arriving?
- I expect to arrive around 4 pm.

Name : *CONTACT

Definition : contact information

Points :

- all issues dealing with how to get in contact with the person, asking and giving information about their name, telephone number, address, current hotel where staying

- hen giving a telephone number or a fax number, this tag is hypheneted: *CONTACT-TEL, *CONTACT-FAX

NOTE: in some dialogues there may be a confusion between the customer's and the hotel's contact numbers, but this should be clear from the speaker: the customer asks for and the clerk informs about hotel contact numbers, while the customer informs about and the clerk asks for the customer's contact number

NOTE: a customer requesting a phone-call to be contacted by the clerk (e.g. to confirm something) is *CONTACT

Examples :

- can you give us your telephone number where we can reach you number 123 at Tokyo Hotel
- staying at the Tokyo Hotel, a friend's place
- their telephone number is 203,444,0700.   *CONTACT-TEL
- telephone number for the Madison Hotel   *CONTACT-TEL
- fax number of the hotel you're staying at   *CONTACT-FAX
- would you please call me?   *CONTACT

Name : *COST

Definition : cost of travelling from one place to another

Points : concerns the ticket price and approximate cost of a trip in the "Giving instructions" scenario

Examples : - how much does it cost by bus?

Name : *DEP

Definition : start location of the flight, journey

Points :

- from where (departure point)
- departure tracks and platforms for trains and buses are specified as *DEP-TRACK

Name : *DEST

Definition : end location of the flight, journey

Points : to where (destination)

Name : *FACILITIES

Definition : facilities offered in hotels, ships and trains

Points :

- various means and equipments in the premises of a hotel (ship) which the guests can use to make their stay (travel) pleasant
- extra facilities like jogging course, gym, theater bar, mini-golf, shopping aboard, parking, bigger seats etc.
- can be specified with price

NOTE: "What types of activities are there to do aboard the ship" is *FACILITIES, since it deals with the facilities available on the ship. We do not distinguish the guests' activities when they use the facilities from a mere listing of the facility equipments themselves

Examples :

- and we have many facilities available.	
- We have an outdoor pool, a gym, miniature golf, a sports deck.	
- while in port the theater doesn't show movies	
- there are larger seats on that car	
- the outdoor pool is available	
- There's a buffet style breakfast and sunbathing on the deck	
- on the twenty-sixth and twenty-seventh I'll need parking	*FACILITIES-PARKING
- Our parking is available for your use for one thousand yen over night	*FACILITIES-PRICE
- that's twenty dollars per person	*FACILITIES-PRICE
- have a chance to see what it feels like to be a king for a day on that ship	*FACILITIES
- What types of activities are there to do aboard the ship	*FACILITIES

Name : *FLIGHTINFO

Definition : a general category for the detailed flight information

Points :

- not often used since it is a mother node with specific subnodes: *AIRLINE, *TIME, *DEP, *DEST, *VIA
- also issues dealing with flight availability (that flight does not operate on Saturdays etc.)

NOTE: issues with seat availability (flight is full etc.) belong to *SEAT

Examples :

- Which flight would you prefer?
- Your new flight is ....
- we do have another flight

Name : *HOTELCOMPENSATION

Definition : compensation for hotel fees due some misoperation or failure to provide already paid services so that the customer is forced to stay overnight in hotel

Points : dialogues are combined with *TICKET-REFUND

Examples : - Can I be compensated for the hotel fee?

Name : *HOTELINFO

Definition : general information about hotels (ordinary and resort hotels)

Points :

- introducing topic: recommend some hotels
- top node of the topic tree

Examples :

- Could you recommend some hotels in New York, please?
- There are three hotels currently available.

Name : *HOTELSTYLE

Definition : information about different hotel types

Points :

- often part of the initial information which describes what kind of hotels one wants more information about
- hotels, inns, and hostels, traditional Japanese inn

Examples :

- What type of place would you like?
- We prefer a traditional Japanese inn

Name : *IAM

Definition : InterAction Management: no task topic

Points :

- deals with dialogue control and management: opening and closing, greeting, thanking, acknowledging etc.

- all utterances containing fixed expressions (thank, sorry, hello, bye, fine etc.)

NOTE: also requests for waiting, checking, helping, confirming, calling back; asking "anything else?" have a topic tag *IAM. However, the tag will be specified with the content of the request which is attached to the name with a hyphen: *IAM-WAIT, *IAM-CHECK, *IAM-CONF, *IAM-CALLBACK etc.

NOTE: a clerk giving information about hotels and then offering to make a phone-call for the customer (to reserve a room) is *IAM-CALL (Can I make the call for you?), not *SERVICES. This is a similar type of act as "could you please wait while I check if there are any rooms available", which is classified as *IAM-WAIT, and occurs in the middle of the dialogue as to manage the interaction.

Examples :

- Good afternoon.
- Thank you for calling.
- Can you give me some more information
- Okay, All right
- is there anything else you want
- any other changes?   *IAM-ELSE
- let me confirm   *IAM-CONFIRM
- don't hesitate to call us   *IAM-CALL
- Please hold a minute   *IAM-WAIT
- I'll check what's available   *IAM-CHECK
- get some pen and paper   *IAM-GETREADY
- Can I make the call for you   *IAM-CALL
- I can call myself   *IAM-CALL

Name : *INITINFO

Definition : a general category for the information needed to give hotel information

Points : not usually used since it is a mother node with specific subnodes:

- *BUDGET (price limits)

- *LOC (preferred location)

- *PEOPLE (for how many people)

- *HOTELSTYLE (different types of hotels)

Name : *LOC

Definition : issues dealing with locations

Points : usually concerns location of a hotel

Examples :

- near Madison Square Garden.
- this is the New York City Hotel, which is close to the Museum of Modern Art.

Name : *MEALS

Definition : meal reservations

Points :

- all issues dealing with breakfast, dinner
- specification (price, style, res etc.) can be added via a hyphen if needed

Examples : - how about breakfast, is breakfast included, how much, how many breakfast, two breakfasts, type: Western, Japanese, dinner, children's menu

Name : *MEANS

Definition : different means of transportation

Points :

- concerns alternative ways to go to a place:
- bus, subway, train, taxi
- the type can be specified with a hyphen: *MEANS-BUS

Examples :

- you can either use Keihan or JR
- take the A line or the C line
- I was thinking of going by taxi
- there are various ways to go to Enryakuji,
  such as taking the keihan line or the JR line or a bus

Name : *MIX

Definition : single unique topics not pertinent to the task

Points :

- usually given as reasons or motivations for action requests
- concerns associations, afterthoughts, or other information not related to the task fulfilment

Examples :

- A friend will be joining me
- how safe the area is?
- busy part of the midtown section with the highest number of tourist hotels
- Do you know the way/our address?
- I have a fairly detailed map.
- how long will it take from the airport to your hotel,
- taxi would probably cost about thirty dollars
- participate in zen meditation
- Only women are accepted in our temple

- My wife will be relieved to hear that
- Actually I checked with other places
  and everywhere was booked up so I was worried
- My job is taking longer than I expected
- nine o'clock curfew
- make sure to return by nine o'clock
- cook at the cottage,buy grocery,
- shopping district which you can get to in 10 minutes by car
- And I was hoping to show my wife and child something that'll
- leave a lasting impression on my wife and child.

Name : *NAME

Definition : name and its spelling

Points : all issues dealing with the name of the persons and the spelling of the names
     NOTE: hotel names have specification *NAME-HOTEL

Examples :

- Could you give me the name of the person who's joining you?
- May I have your name, please?
- Ms. Karen Ford, correct?
- The contact name is Ms Suzuki of K and K Transportation Company
- My name is John Phillips.
- The first hotel is the Madison Hotel   *NAME-HOTEL

Name : *PACKAGE

Definition : Ladies Weekend Package information

Points :

- information about a specific package which does not concern room-reservation or hotel information
- specification (type, services, price etc.) can be added via a hyphen if needed

NOTE: there may not be many dialogues with this topic!!

Examples :

- what kind of package; pyjama party,
- What do you offer? gift pajamas, a cosmetic travel set,
- room service meals
- until when the package is available,
- available every Saturday night,
- cost of package (price)

Name : *PAYMENT

Definition : payment method

Points :

- all issues dealing with payment (how, when, details of the card, name on the card).

- Also: when paying with traveler's checks one is required to show the passport
- specification (type, number, name etc.) can be added via a hyphen if needed

Examples :

- how would you like to pay,
- will you be paying for all three rooms,
- you can pay on departure,
- ask you to pay for it in advance,
- credit card, traveler's cheque, bill
- card expiration date, card number, card type
- And the name on the card, under my name Kazuo Suzuki

Name : *PEOPLE

Definition : number of people for which a reservation is made

Points : occurs in ticket reservation situations NOTE: in hotel reservations, the information about for how many people the room will be is part of the information about the *ROOM, and hyphenated into this tag: *ROOM-PEOPLE

Name : *RES

Definition : making/changing/extending/canceling/confirming etc. reservation

Points :

- introducing the task topic: the dialogue will be about making or changing reservation
- top-node of the topic tree
- specification of the act (making/changing etc.) is hypenated to the name: *RES-MAKE, *RES-CHANGE etc.

Examples :

- I'd like to make a reservation,	*RES-MAKE
- make some changes [to the reservation]	*RES-CHANGE
- what kind of changes,	*RES-CHANGE
- extend reservation	*RES-EXTEND
- can we get a reservation confirmation beforehand	*RES-CONF

Name : *RESBUS

Definition : issues making a bus reservation

Points : similar to *RESTRAIN

Examples :

- Do I have to make a reservation for the seats
- Just board the bus at the bus terminal

Name : *RESFLIGHT

Definition : issues dealing with flight reservation/change/cancel

Points :

- introducing topic: flight reservation/change
- top node of the topic tree

Examples :

- I'd like to change my flight reservation
- you are canceling your old reservation for flight
- number two oh one on August tenth.

Name : *RESTRAIN

Definition : making a train reservation

Points : introducing the task topic: top-node of the topic tree

Examples :

- I'd like to get a ticket for Washington.
- I want tickets on the Shinkansen bound for Kyoto on September tenth

Name : *ROOM

Definition : room and its properties, cottage, cabin, availability

Points :

- all issues dealing with the room
- includes also information about cottages, cabins etc. which can be rented
- also availability/ fully booked
- also issues dealing with room change
- specification (type, price, people etc.) can be added via a hyphen

Examples : The hyphenated specification deals with:

- type (single, twin, connecting ...),
- style (Western, Japanese, tatami...),
- features (quiet, soundproof, large, size, deluxe...)
- facilities (bath, shower, windows...)
- bed (extra bed, rollaway bed, twin bed, cot...)
- price (budget, room charge, tax, service charge, cancellation fee, 50% cancellation charge...)
- availability (all rooms are reserved, fully booked...)
- people (how many people, alone, two of us; also age: how old,
  5 years old one of them [children] is quite big; may also be *MIX)
- cottage (B-type Prince Cottage, Kamiyama Lodge)
- change (room change, also: I'd rather not change rooms, I don't mind changing rooms)

Name : *ROUTE

Definition : information about the route that can be taken

Points : the speaker informs (or instructs) about route possibilities, stops, stations, transfers, etc.

Examples :

- take a bus/subway/JR or Keihan Line,
- go to 57th street, walk 10 mins
- you have to transfer to bus
- the bus stop is outside hotel
- the ferry leaves at Battery Park
- where can I catch it
- right near the hotel
- does it go directly there?
- there is also the E line
- also: will the taxi-driver understand if I ask for ATR?
- are you familiar with the subway station?
- Do we have to make any transfers

Name : *ROUTECOMP

Definition : comparision of route alternatives and final decision

Points :

- evaluation usually initiated by the customer

- also recommendations by the clerk

- informing about one's decision

Examples :

- which is faster/more convenient
- which do you recommend?
- I'll take the taxi then

Name : *SEATS

Definition : seats to be reserved/cancelled/changed

Points :

- also type of the seat: economy, deluxe, first class, smoking, window seat

- NOTE: we can have first-class seats and first-class tickets, and we can have smoking/non-smoking/window seats, but not smoking/non-smoking/window tickets

- also issues with seat availability

NOTE: offers to check availability are *IAM-CHECK (Let me check for seat availability on that flight *IAM-CHECK)

Examples :

- but that flight is booked
- Are there vacancies on other flights
- all the seats on that flight are booked   *SEATS
- give you priority access to vacant seats   *SEATS
- the first-class smoking seat   *SEATS-TYPE
- smoking or non-smoking seats   *SEATS-TYPE
- a window seat on the mountain side   *SEATS-TYPE

Name : *SERVICES

Definition : services available at the hotel

Points :

- room sevice, laundry service, medical service, reservation service etc.

- typically requires that another person takes care of the guest's needs and requirements: e.g. if the guest can leave clothes to be cleaned by the hotel's laundry service, the topic is *SERVICES, but if the hotel has a laundry room where the guests can wash their clothes themselves, this is *FACILITIES

NOTE: a clerk giving information about hotels and then offering to make a phone-call for a customer (to reserve a room) is *IAM-CALL (Can I make the call for you?)

Examples :

- Could you please reserve a cab for me   *SERVICES-RESCAB
- I'll have the cab waiting in front of the hotel   *SERVICES-RESCAB

Name : *SHIPINFO

Definition : information about ships

Points :

- using ship while at port

- accommodations, full size liner

Examples :

- I was told that I can use your ship as a hotel while in port.
- We have accommodations available with many other service
- the Queen Mary is a full sized ocean liner

Name : *STARTINFO

Definition : a general category for the information needed to give instructions

Points : not often used since it is a mother node with specific subnodes: *TIME (when will you go), *DEP (from where, start, departure point), *DEST (where-to, destination)

Examples :

- I'll go tomorrow/right now
- current location
- where are you now?
- want to go to Brooklyn

Name : *STAY

Definition : staying time and length

Points : all issues dealing with staying: from when to when

Examples :

- arrival/departure date, length of stay: two nights
- I'll make a special note on your reservation [of arrival time]
- stay overnight at your temple

Name : *TICKET

Definition : information about the ticket

Points :

- type (first class, ordinary) and price
- price can be attached by a hyphen to the tag *TICKET-PRICE
- writing and issuing of tickets by the airline/travel agency is *TICKET-PROCESSING
- restrictions on tickets are *TICKET-RESTR
- ticket refunds *TICKET-REFUND
- NOTE: requests for tickets are *RESTRAIN

Examples :

- What is the price difference between the two?
- You will have to pay thirteen thousand nine hundred twenty yen per person
  if you would like to take the Nozomi
- A first class ticket on the 1 p.m. Washington bound Metroliner.
- take two or three days to process   *TICKET-PROCESSING
- have a restriction that once we issue the tickets
  you can't re-schedule or cancel them   *TICKET-RESTR
- Will the refund include the fare to Hiroshima   *TICKET-REFUND

Name : *TICKETEXCH

Definition : procedure about how to change ticket

Points : where to take the ticket, etc.

Examples :

- where can I exchange my ticket?
- Take your ticket to any Air Pacific office or other
- travel agency by August tenth

Name : *TIME

Definition : ate and time of departure/arrival

Points :

- exact single times for departure/arrival
- departure date is always *TIME
- departure time can be separated into *DEPTIME
- arrival date is always *TIME
- arrival time can be separated into *ARRTIME
- can also include time spans: how long a flight take

Examples :

- departing at nine fifty six
- What time would you like to leave?   *DEPTIME'
- I'd like to arrive in Kyoto around noon   *ARRTIME
- departing tomorro   *TIME
- Is there a train leaving for Washington very soon   *TIME
- Do you have any bus that gets to Las Vegas at night   *ARRTIME

Name : *TIMEFREQ

Definition : Information about timetables and time constraints

Points :

- time information on schedules and frequencie
- how long does it take, how frequently a ferry/bus goes
- by what time one has to be somewhere

Examples :

- checked the timetables
- I need to get there by 10am
- what time are you scheduled to be there
- too late for ferry
- the train leaves at 9.10
- how frequently a ferry goes
- it takes about 10 mins
- get there within 30 mins
- does that flight leave every day
- also: much closer than I expected

Name : *TRAIN

Definition : information about trains

Points : type, name, number, bound for etc.

Examples :

- That's Nozomi number nine bound for Hakata.
- The next train is a local train.
- train after that is a Metroliner

Name : *TRAININFO

Definition : general category for detailed information about trains

Points : not often used since it is a mother node with specific subnodes: *TRAIN, *TIME, *DEP, *DEST, *VIA

Name : *VIA

Definition : place which the flight or journey goes via

Points : covers also stopovers and plane changes

Examples :

- you have to have a stopover in Moscow
- You change in Helsinki

Name : *WAITINGLIST

Definition : be/put on a waiting list and possibly get a seat if somebody cancels their flight reservation

Points :

- waiting for cancellation is part of ResFlight task
- "priority access to seats" is *SEATS

Examples :

- you can wait for a cancellation
- you can come to the airport to get on the waiting list

Name : *WAYSTO

Definition : requesting or giving information about how to go to place

Points :

- introducing a topic: information about routes
- top-node of the topic tree

Examples :

- want to go to Brooklyn
- how to get to the Statue of Liberty
- would like to go to Enryakuji
- I want to go to Newark Airport, but could you tell me the quickest way to get ther