TR-IT-0036

Syntactic trees for the sentences of ten dialogues

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Abstract

This report lists sentences of ten of the ATR dialogues with their associated syntactic trees. The choices made for syntactic representation are explained. These choices have been consistently adopted throughout the corpus.

Keywords

ATR dialogues, syntactic tree, VP node.

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Introduction

For their Interpreting Telephony project, the ATR team chose an illustrative scenario: someone calls a secretariat to get some information about an international conference.

A collection of simulated conversations were recorded and transcribed. With annotations of segmentation and syntactic categories, they constitute the ATR dialogue database.

For the design of the experimental prototype demonstrated on the 28th of January 1993, 12 dialogues were selected. They were numbered A-B, 1-10. There exists a version of these dialogues in Japanese, German and English.

To our surprise, there did not exist any complete syntactic description of each of the sentences of the dialogues. In a previous work [Lepage 93a], we automatically extracted the syntactic part from the feature structures produced by the analysis in the ASURA system. Unfortunately, they happened to contain inconsistencies and even errors of representations. Our feeling is that, any linguistic work on a corpus requires a predefined complete syntactic description, something like a tree bank. The goal of the work reported here is to fill this demanding lack. We intended this to be a reference for syntactic structures of the English ATR dialogue database.

This report lists a good part of the syntactic trees associated with English sentences of dialogues 1 to 10. These syntactic trees were designed by hand. The trees shown here are projective and do not contain any trace node. We insisted on consistency, and as a consequence, the same phenomenon is described by exactly the same representation throughout the corpus.

1 Representational choices

The conventions adopted for the trees are described in this section.

1.1 Morpho-syntactic categories

We used 14 morpho-syntactic categories. Here is an exhaustive list. The signification of the abbreviation is followed by examples.

- adj adjective *closer, your*

- adv adverb *yet, not, already*

- conj conjunction *if, and*

- copula copula *is, was, are*

- det determiner *a, the*

- interj interjection *yes, no, hello*

- modal modal verb *please, will, can, do*

- noun noun *Hotel, address, registration*

- post adjunct particle of a verb *in* in *fill it in*

- prep preposition *at, in, of*

- pron pronoun *it, you, what, when*

- prtp participle *listed, included*

- quant quantifier *any, some, all*

- verb verb *help, apply, follow*

Of course, the same word may be ambiguous with respect to the morpho-syntactic classes. Hence, for example, *what* may be adj or pron, as in the following sentences.

What sort of procedure should I follow?
What is it?

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The previous categories apply to single words. As one of our main concerns was to keep exact projectivity, we were forced to decompose sequences such as *take place* or *at all*, although other analyses would consider them as single units bearing only one category (for example, the analysis of *well then* in [Fais 93, p. 25]). Reciprocally, for the same reason, we decomposed clusters like *don't* or *we'll* into two words.

1.2 Phrase types

We used 7 types of phrases. Here is a list of them with examples.

- AP adjectival phrase *closer to the Conference Center*

- AVP adverbial phrase *Not yet*

- NP noun phrase *the Kyoto Prince Hotel*

- PP prepositional phrase *at the Kyoto Prince Hotel*

- PRPP prepositional complex *instead of*

- S sentence *Please., Is this the Conference Office.*

- VP verbal phrase *help you, use a registration form*

The analysis of *please* was problematic. It is more a discourse element than a syntactical element [Fais and Kikui 91]. For this reason, preverbal *please* was analysed as a modal, and, post-sentential *please* was analysed as a sentence.

Please tell me about the topic of the conference.
May I have your name and your address, please?

This is different from the analysis described in [Fais 93] where *please* gets the category greeting-word, and special rules are added to authorise both *vp please* and *please vp* structures.

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1.3   Noun phrases

1.3.1   Addresses

The representation of addresses is one of the most difficult problems as lack of order and optionality play a big role in these phrases. To make it simple we chose to flatten the tree and normalise it in the following pattern.

```
        NP
----------|---------
adj noun noun noun noun
```

1.3.2   Names

In a similar way, names are represented by a flattened tree.

```
   NP
 __|__
noun noun
```

1.4   Verb phrases

Although we adopted a rather unusual representation for the past, we did not follow completely our conviction, and refrained from eliminating the VP nodes. Anyhow, good arguments against VP may ultimately put an end to the use of this label. Some are given in the appendix.

1.4.1   Verb types

We divided the set of all verbs into three subsets:

- copula this labels the forms of *to be* when it works as a copula. The main reason for this distinct node is that, considering it as a verb would have consequently led us to build a NP node and to introduce discontinuous structures for inversions, as in:

    Is this the conference office?

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- **modal** this stands for modals properly, as *can* for auxiliaries, as *will, do* in negatives, and verbal clause modifiers, as *please*. The reason for this node is similar to that for the node **copula**.

- **verb** this class collects all other verbs.

As was seen, the introduction of different nodes was mainly motivated by problems originating in the presence of a VP node. If it would have been only for us, we would have removed any VP node. The appendix gives a short linguistic discussion and references against the VP node. Until this view prevail in mainstream linguistics, we submitted to the prevailing representation and kept the VP nodes in the syntactic trees.

1.4.2 Past

We represented the past tense according to Zemb's representation. In the sentence

We have made arrangements...

the verb is *have* and *made arrangements* is a noun phrase which has to be analysed as an adjective phrase followed by a noun.

```
                    S
       _____|__
   NP              VP
    |       _____|__
  pron verb         NP
    |    |     _____|__
   We   have  AP      noun
              |        |
            prtp   arrangements
              |
            made
```

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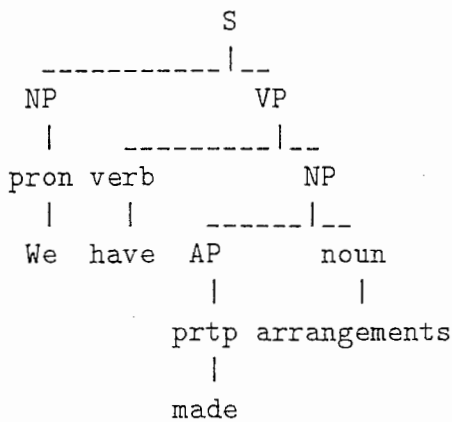
2 The data

2.1 Data

The trees are available on the machine as11. They are located under the directory

```
/export/as11/share/data/dialogue
```

as the files 1 through 10. Each line of these files contains two fields separated by a tabulation. The first one is the pure syntactic tree, *i.e.* without the words, in a parenthesised form. The second one contains the sentence enclosed in double-quotes. Words are separated by spaces. The escape character \ appears before commas and apostrophes.

Here is an excerpt of the file dialogue/3.

```
S(interj)                                "Hello."
S(NP(pron),copula,NP(det,NP(noun),noun)) "This is the Conference
Office."
...
S(NP(pron),VP(verb))                     "I see."
S(VP(verb,NP(pron)),AVP(AVP(adv),adv))   "Thank you very much."
S(interj)                                "Good-bye."
```

2.2 Programs

The separation of the fields by a tabulation character allows the use of the standard UNIX commands cut and paste. For example, the following command lists the sentences of dialogue 3.

```
prompt> cd /export/as11/share/data
prompt> cut -f2 dialogue/3
"Hello."
"This is the Conference Office."
...
"I see."
"Thank you very much."
"Good-bye."
prompt>
```

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Other programs for the manipulation of these data may be found under the /home/-lepage/bin/tree directory. These programs use features described in [Lepage 92a] and objects of the C toolbox documented by [Lepage 92b]. We give some examples in the following.

projForest produces the trees with words as leaves.

```
prompt> projForest < dialogue/3
S(interj(Hello.))
S(NP(pron(This)),copula(is),NP(det(the),NP(noun(Conference)),
noun(Office.)))
...
S(NP(pron(I)),VP(verb(see.)))
S(VP(verb(Thank),NP(pron(you))),AVP(AVP(adv(very)),adv(much.)))
S(interj(Good-bye.))
prompt>
```

2Dforest draws a forest given under parenthesised form. By using the -l command, which applies the same command on each line of a file, one can draw all the trees of a dialogue.

```
prompt> cut -f1 dialogue/3 | -l 2Dforest
    S
    |
interj


              S
    _____|_____
  NP   copula      NP
   |            _____|____
  pron         det  NP  noun
   |
  noun


...
```

yieldForest gives the yield of a forest, that is the sequence of its leaves. Applied on the trees of the dialogue files, this gives the sequence of morpho-syntactic categories for each sentence.

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```
prompt> cut -f1 dialogue/3 | -l 2Dforest
interj
pron,copula,det,noun,noun
. . .
verb,pron,adv,adv
interj
prompt>
```

enumsubTree enumerates all subtrees of a forest. Here is how to enumerate without repetition all subtrees in the structure of sentence 2 of dialogue 3.

```
prompt> head -2 < dialogue/3 | tail -1
S(NP(pron),copula,NP(det,NP(noun),noun)) "This is the Conference Office."
prompt> head -2 < dialogue/3 | tail -1 | cut -f1 | enumsubTree | sort -u
NP(det,NP(noun),noun)
NP(noun)
NP(pron)
S(NP(pron),copula,NP(det,NP(noun),noun))
copula
det
noun
pron
prompt>
```

These data have been used for experiments on a bi-directional system with a genetic algorithm engine. The system has been described in [Lepage 93a]. Results obtained with the data have been reported in [Lepage 93b] and [Lepage 93c].

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3   The syntactic trees

Here is the listing of the syntactic trees for the ten dialogues. For each sentence, the number of the dialogue and the number in the dialogue are given first. Then, the corresponding tree is drawn, with the terminals as leaves. The sentence is also explicitely given.

3.1   Interjections

```
      S
      |
   interj
      |
   Hello.
```

Figure 1: Dialogue 1: Sentence 1: *"Hello."*

```
      S
      |
   interj
      |
   Yes.
```

Figure 2: Dialogue 1: Sentence 3: *"Yes."*

```
      S
      |
   interj
      |
   No.
```

Figure 3: Dialogue 1: Sentence 10: *"No."*

3.2 Agreements, Confirmation, Denial

```
          S
          |
         AVP
       ___|_
      AVP   adv
       |     |
      adv  yet.
       |
      Not
```
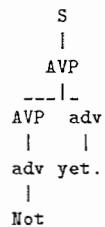
Figure 4: Dialogue 1: Sentence 11: *"Not yet."*

```
          S
        __|__
       NP    VP
       |     |
      pron  verb
       |     |
       I    see.
```
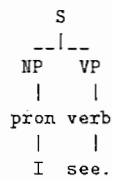
Figure 5: Dialogue 1: Sentence 12: *"I see."*

```
              S
        _____|_____
       VP          AVP
     __|__       __|__
    verb   NP   AVP   adv
     |     |     |     |
   Thank  pron  adv  much.
            |     |
           you   very
```
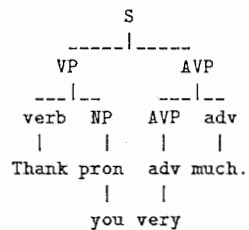
Figure 6: Dialogue 1: Sentence 19: *"Thank you very much."*

```
                 S
        --------|-----
        AVP  AVP    interj
         |    |       |
        adv  adv  good-bye.
         |    |
        Well then,
```
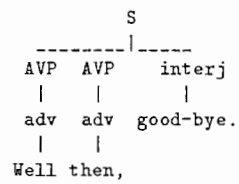
Figure 7: Dialogue 1: Sentence 20: *"Well then, good-bye."*

```
                 S
                 |
                AP
            ----|--
         quant    adj
           |       |
          All   right.
```
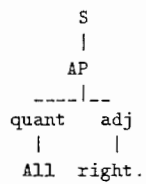
Figure 8: Dialogue 4: Sentence 16: *"All right."*

3.3 Copulas

```
                 S
        --------|-----
        NP   copula   AP
        |       |      |
       pron    's     adj
        |              |
       That          right.
```
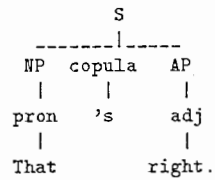
Figure 9: Dialogue 1: Sentence 4: *"That 's right."*

```
                      S
         -----------|-------
         NP    copula      NP
        ___|_      |     ____|___
        AP noun    is    noun    noun
        |    |            |       |
       adj  name        Mayumi  Suzuki.
        |
        My
```
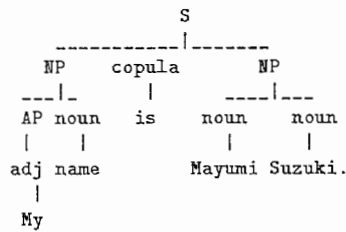
Figure 10: Dialogue 1: Sentence 16: *"My name is Mayumi Suzuki."*

```
                    S
       ----------------|-----
       NP  copula          NP
       |     |      ----------|--------
      pron   is    det   NP       noun
       |      |     |     |        |
      This   the   the   noun    Office.
                          |
                      Conference
```
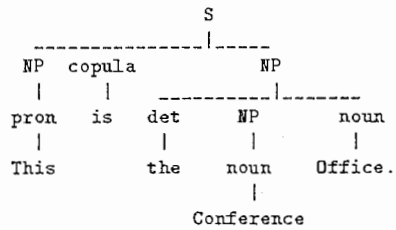
Figure 11: Dialogue 2: Sentence 2: *"This is the Conference Office."*

```
                          S
                 --------|-----
                 NP  copula   AP
                 |      |      |
                pron   're   prtp
                 |             |
                You         welcome.
```
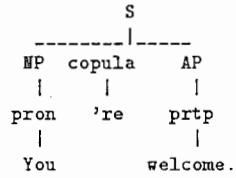
Figure 12: Dialogue 2: Sentence 19: *"You 're welcome."*

```
                            S
                 ----------------|-----
                 NP  copula        NP
                 |     |      --------|------
                pron  's    noun  conj  noun
                 |           |     |     |
                 It       English and Japanese.
```
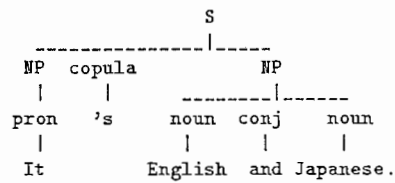
Figure 13: Dialogue 3: Sentence 9: *"It 's English and Japanese."*

```
                          S
               -----------|--------------
                   NP        copula     NP
           --------|-------    |      __|___
          det    NP    noun   is    AP   noun
           |      |     |             |    |
          The    noun  fee          adj  yen.
                  |                   |
               attendance          40,000
```
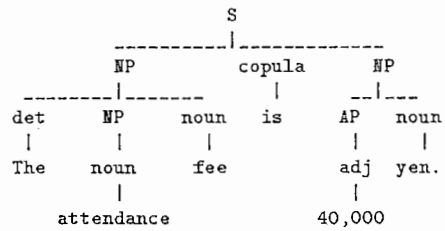
Figure 14: Dialogue 4: Sentence 8: *"The attendance fee is 40,000 yen."*

```
                          S
                -----------|-------
                NP   copula      NP
              ___|_    |      ----|---
              AP noun  is    noun  noun
              |   |           |     |
             adj name      Mayumi Suzuki.
              |
             My
```
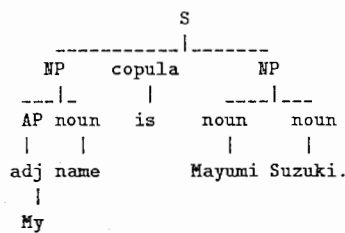
Figure 15: Dialogue 4: Sentence 12: *"My name is Mayumi Suzuki."*
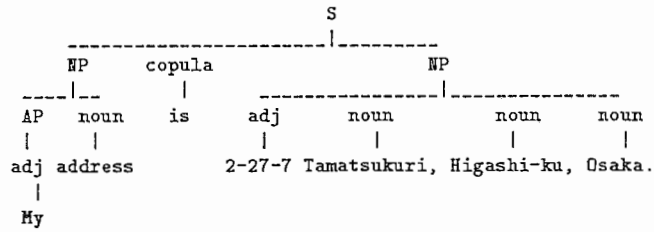
23
```

```
                               S
          ----------------------|---------
              NP      copula              NP
          ____|__        |      ----------------|----------------
          AP    noun     is     adj     noun        noun      noun
          |      |               |       |           |         |
          adj  address         2-27-7 Tamatsukuri, Higashi-ku, Osaka.
          |
          My
```

Figure 16: Dialogue 4: Sentence 13: *"My address is 2-27-7 Tamatsukuri, Higashi-ku, Osaka."*

```
                   S
            --------|------
            NP  copula    NP
            |      |       |
           pron   's     noun
            |             |
            It          372-8018.
```

Figure 17: Dialogue 4: Sentence 17: *"It 's 372-8018."*

```
                       S
          ----------------|----------------
          NP  copula        PP          AVP
          |      |      -------|__        |
         pron   'm    prep        NP     adv
          |      |      |     ____|___     |
          I      at    NP    noun  now.
                        |      |
                      noun  Station
                        |
                      Kyoto
```

Figure 18: Dialogue 9: Sentence 6: *"I 'm at Kyoto Station now."*

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3.4 Declarative sentences

```
                                 S
         _____|_____
        AVP   AVP   NP   modal                   VP
         |     |    |     |       _____|____
        adv   adv  pron  'll    verb  NP             NP
         |     |    |            |    |     _____|_____
        Well then,  I           send pron det    NP        noun
                                      |    |      |          |
                                     you   a    noun       form.
                                                  |
                                             registration
```

Figure 19: Dialogue 1: Sentence 13: *"Well then, I 'll send you a registration form."*

```
                                 S
         _____|_____
        NP   modal                VP                      AVP
         |     |    _____|_____                  |
        pron  'll  verb  NP              NP                adv
         |          |    |     _____|_____           |
         I         send pron det    NP        noun immediately.
                        |    |      |          |
                       you   a    noun       form
                                    |
                               registration
```

Figure 20: Dialogue 1: Sentence 18: *"I 'll send you a registration form immediately."*

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```
                              S
      -------------------------|----------------------
         PP                NP      copula         NP
      ----|--        ---------|-------   |      ---------|-----
     prep   NP     det     NP      noun  is    adj  noun      PP
      |     |       |      |        |          |     |     ----|--
     At    noun    the    noun     fee       35,000 yen  prep    NP
      |                    |                              |      |
    present            attendance                        per   noun
                                                                |
                                                             person.
```

Figure 21: Dialogue 2: Sentence 6: *"At present the attendance fee is 35,000 yen per person."*

```
                                 S
         ------------------------|-----------------------
              NP              copula                    AP
        -------------|-----------    |        --------------|----
      NP       conj       NP        are     prtp              PP
    ------|--       |    ---------|------     |       ----------|--
   det    noun    and  det    NP     noun  included prep        NP
    |      |            |     |        |             |     ---------|-------
   The  proceedings    the   noun     fee           in   det    NP      noun
                              |                            |     |        |
                           reception                      the   noun     fee.
                                                                 |
                                                             attendance
```

Figure 22: Dialogue 2: Sentence 8: *"The proceedings and the reception fee are included in the attendance fee."*

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```
                                      S
        _____|_____
        NP  copula                      NP
        |     |.  _____|_____
       pron  'm  det  noun                  PP
        |         |    |    _____|__
        I         a  member prep                NP
                         |   _____|__
                        of  det               NP
                             |    _____|_____
                            the   NP              noun
                               _____|_____         |
                               NP      noun      Society.
                               |        |
                             noun    Processing
                               |
                          Information
```

Figure 23: Dialogue 2: Sentence 9: *"I 'm a member of the Information Processing Society."*

```
                                   S
        _____|_____
        NP  modal            VP                    PP
        |     |    _____|__          _____|__
       pron should verb      NP          prep        NP
        |          |    _____|_____   |    _____|_____
       You        pay det      NP     noun with det   NP    noun
                        |       |       |    |    |     |
                       the     noun    fee   a   noun transfer.
                                |                 |
                            attendance          bank-
```

Figure 24: Dialogue 2: Sentence 14: *"You should pay the attendance fee with a bank-transfer."*

27

```
                                        S
          --------------------------------|------
          NP   modal                           VP
          |      |     ---------------------|-------------
         pron   'd   verb prep           VP                    PP
          |      |    |    |     -----|----            --------|--
          I         like  to   verb     NP         prep        NP
                             |    ---|--    |    ------|--
                           present det noun  at  det    noun
                                  |    |          |      |
                                  a  paper      the Conference.
```

Figure 25: Dialogue 3: Sentence 3: *"I 'd like to present a paper at the Conference."*

```
                                              S
          -----------------------------------------------|-------
           NP                                                VP
        -----|--    --------------------------------------|----
        det   noun     verb                                    NP
         |     |        |      --------------------------------|----------
       This Conference includes det    AP    noun                      PP
                                 |     |      |     ----------------------|--
                                 an   adj  sphere prep                     NP
                                       |               |       -----------------|----
                                   extensive          of     noun              AP
                                                              |       ----------------|---
                                                           research  prtp            PP
                                                                      |       ------------|--
                                                                   related prep          NP
                                                                           |       -----|-------
                                                                          to     NP        noun
                                                                                  |          |
                                                                                 noun    Telephony.
                                                                                  |
                                                                             Interpreting
```

Figure 26: Dialogue 3: Sentence 5: *"This Conference includes an extensive sphere of research related to Interpreting Telephony."*

28

```
                                                  S
         _____|____
        NP   adv                                          VP
        |     |     _____|___
       pron  also  verb                                         S
        |           |                             _____|_____
        We        expect                          NP                       prep    VP
                         _____|___                  |      |
                        noun                              S                 to    verb
                         |                      _____|__                     |
                       people  NP                             VP                  attend.
                               |                 _____|_____
                              pron   verb                         PP
                               |       |          _____|__
                              who   specialize  prep                     NP
                                                 |           _____|_____
                                                 in        noun        noun    conj   NP
                                                           |           |        |    ___|_
                                                        linguistics, psychology, and adv prep
                                                                                      |    |
                                                                                      so   on
```

Figure 27: Dialogue 3: Sentence 6: *"We also expect people who specialize in linguistics, psychology, and so on to attend."*

```
                                      S
        _____|__
       NP                                     VP
        |         _____|__
       pron      verb                               NP
        |    |    |          _____|_____
       We   have  AP      noun                               PP
                   |         |         _____|__
                  prtp   arrangements prep                       NP
                   |                    |       _____|_____
                  made                 for   det      AP           noun           PP
                                        |      |         |         ____|__
                                        a     adj    translation  prep    NP
                                               |                   |       |
                                          simultaneous            into    noun
                                                                           |
                                                                        English.
```

Figure 28: Dialogue 3: Sentence 13: *"We have made arrangements for a simultaneous translation into English."*

29

```
                                                  S
                  _____|_____
               NP      modal                                              VP
          _____|_          |         _____|_____
         det    noun    will  verb     NP        PP            PP                                 PP
          |      |       |     |     _____|__   __|__   _____|__           _____|__
    The Conference      take  noun prep    NP  prep  NP  prep                   NP
                              |     |    __|___  |    |    |      _____|_
                           place  from   NP   noun  to  noun   at  det                  NP
                                         |     |          |        |      _____|_____
                                       noun   22nd      25th      the    NP        NP          noun
                                        |                                 |     _____|____        |
                                     August                             noun   AP      noun   Center.
                                                                         |      |        |
                                                                      Kyoto    adj   Conference
                                                                               |
                                                                         International
```

Figure 29: Dialogue 4: Sentence 7: *"The Conference will take place from August 22nd to 25th at the Kyoto International Conference Center."*

```
                    S
             _____|__
            NP        VP
            |      _____|__
          pron verb      NP
            |    |    _____|_
            I  have  det   noun
                     |      |
                     a   request.
```

Figure 30: Dialogue 5: Sentence 3: *"I have a request."*

3.5 Negative declarative sentences

```
                            S
        --------------------|--------------
        NP    copula       NP             NP
        |       |       _____|__        ___|__
       pron    's     quant  noun     det   noun
        |               |     |        |     |
      There            no  discount  this  time.
```

Figure 31: Dialogue 2: Sentence 11: *"There 's no discount this time."*

```
                            S
        --------------------|------------------
        NP  modal AVP          VP              PP
        |     |    |       ____|_____        ___|__
      pron    do  adv     verb      NP      prep quant
        |          |       |        |        |    |
        I         n't  understand  noun     at   all.
                                    |
                                 Japanese
```

Figure 32: Dialogue 3: Sentence 10: *"I do n't understand Japanese at all."*

```
                      S
        ----------|-------
        NP  modal AVP    VP
        |     |    |    __|__
      pron    do  adv verb  NP
        |          |    |    |
        I         n't have  pron
                             |
                            it.
```

Figure 33: Dialogue 4: Sentence 5: *"I do n't have it."*

31

```
                                    S
                  _____|_____
                  PP                       NP  modal AVP       VP
        _____|__                |    |    |     ____|__
        prep              NP                pron can adv verb    NP
         |         _____|_____          |        |    |     |
        For      noun            PP          we      't  make  noun
                  |          _____|__                              |
             cancellations prep       NP                          refunds.
                            |       ___|____
                           after    NP    noun
                                     |      |
                                   noun    27th
                                     |
                                  September
```

Figure 34: Dialogue 5: Sentence 15: *"For cancellations after September 27th we can 't make refunds."*

```
                                    S
                  _____|_____
                  AVP              NP copula AVP          NP
        _____|____            |    |    |    _____|_____
        AVP adj      AVP          pron  is  adv det    AP      noun
        |   |    _____|__          |        |   |      |        |
       adv far conj     S         there    n't  a     adj    problem.
        |      |    ___|__                         |
        As     as  NP    VP                      special
                   |     |
                  pron  verb
                   |     |
                 that  goes,
```

Figure 35: Dialogue 5: Sentence 18: *"As far as that goes, there is n't a special problem."*

```
                 S
            _____|_____
            NP  copula  AVP
            |     |      |
           pron   is    adv
            |            |
          There         n't.
```

Figure 36: Dialogue 7: Sentence 19: *"There is n't."*

32
```
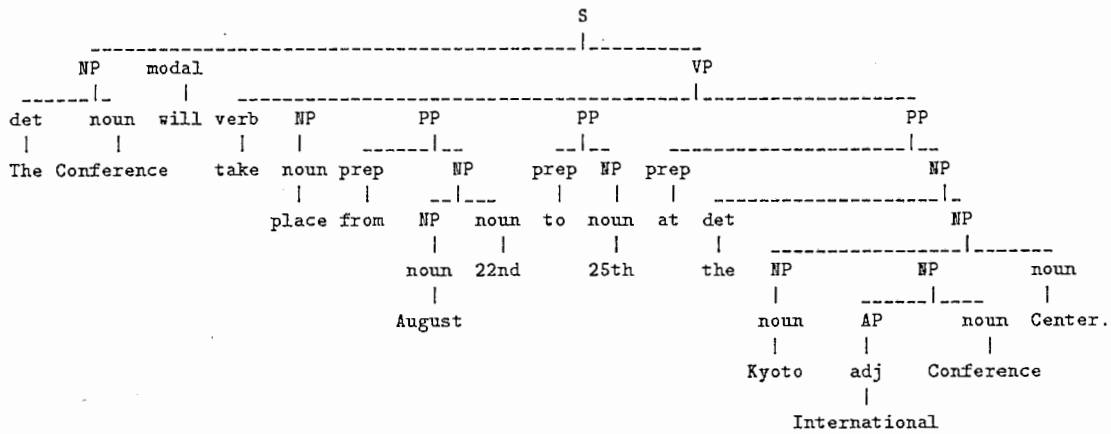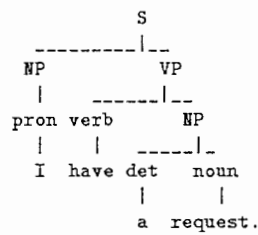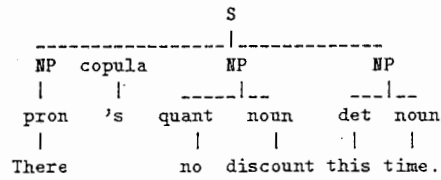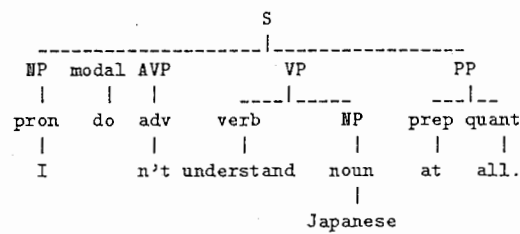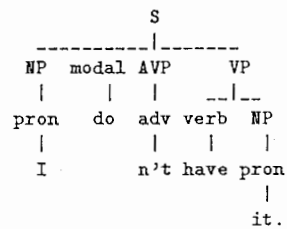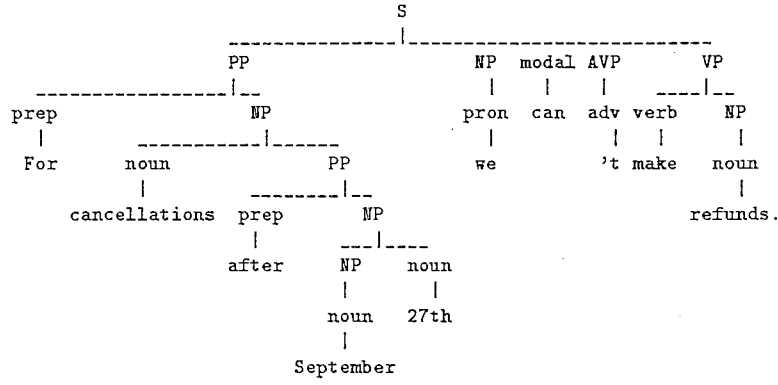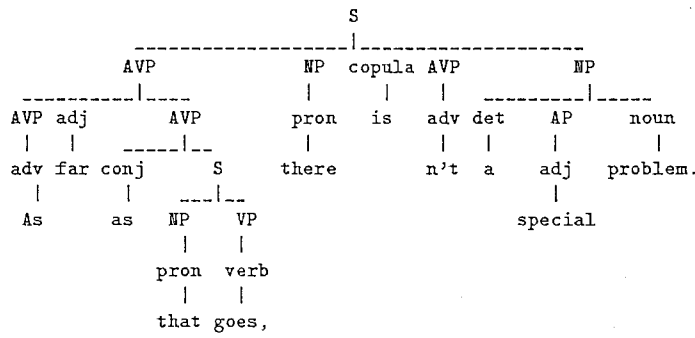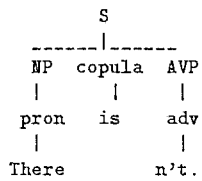
3.6 Interrogative sentences

```
                          S
              ---------------|-----
          copula  NP              NP
            |      |     ----------|--------
           Is    pron det    NP        noun
                  |   |       |          |
                this the    noun     Office?
                              |
                          Conference
```
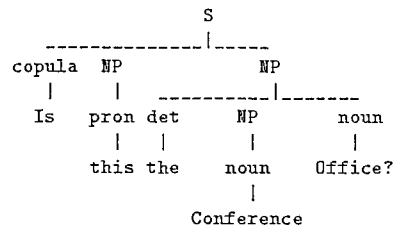
Figure 37: Dialogue 1: Sentence 2: *"Is this the Conference Office?"*

```
                      S
              --------|-----
          modal  NP      VP
            |     |     __|__
          May   pron verb  NP
                  |    |    |
                  I  help pron
                             |
                           you?
```
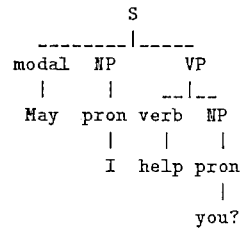
Figure 38: Dialogue 1: Sentence 5: *"May I help you?"*

```
                          S
              -----------|-------------------
            NP              modal  NP    VP
      -----------|----       |     |     |
     AP  noun       PP     should pron  verb
      |   |     _____|__           |     |
    adj sort prep    NP            I  follow?
     |        |      |
    What     of    noun
                    |
                 procedure
```
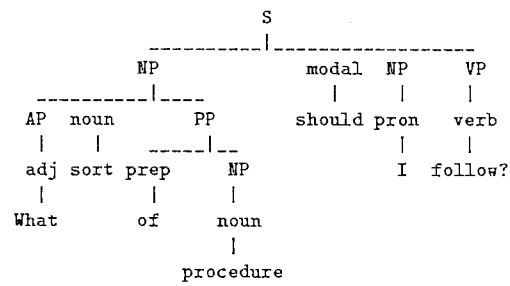
Figure 39: Dialogue 1: Sentence 7: *"What sort of procedure should I follow?"*

33

```
                               S
        ----------------------|-----
        modal   NP                        VP
          |      |          --------------|------
         Do    pron       AVP    verb              NP
          |      |         |       |      ----------|--------
                you       adv    have det      NP       noun
                           |             |      |        |
                         already         a     noun    form?
                                                |
                                          registration
```
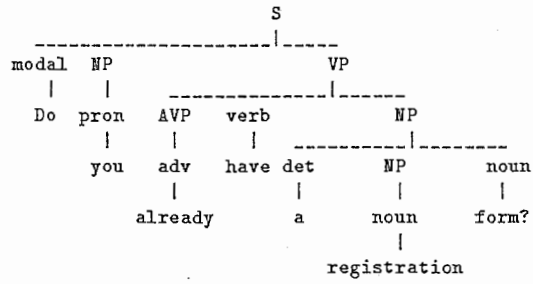
Figure 40: Dialogue 1: Sentence 9: *"Do you already have a registration form?"*

```
                         S                           S
        ---------------------|-----                  |
        modal  NP                  VP              modal
          |     |       --------------|--            |
         May   pron verb             NP            please?
          |     |    |      ----------|-------
          I    have  NP    conj        NP
                    __|__    |       ____|__
                   AP  noun and  AP    noun
                   |    |        |      |
                  adj  name     adj  address,
                   |             |
                  your          your
```
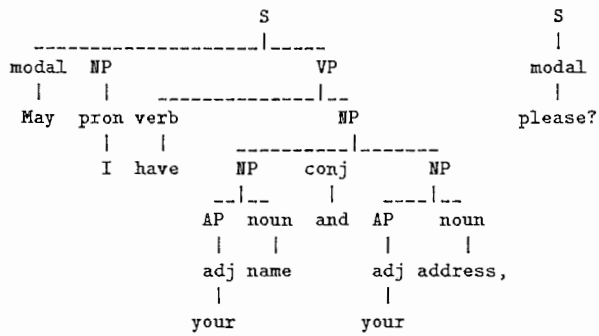
Figure 41: Dialogue 1: Sentence 14: *"May I have your name and your address, please?"*

34

```
                                          S
            ----------------------------------|-----
       modal  NP                                   VP
         |     |          --------------------------|----
       Could  pron  verb  NP                             PP
               |     |     |     ---------------------|--
              you   tell  pron  prep                      NP
                           |     |    --------------------|---------
                          me   about det      NP     noun         PP
                                       |       |       |    --------|--
                                      the     noun    fee  prep        NP
                                               |           |     ------|--
                                           attendance     for  det    noun
                                                               |       |
                                                              the  Conference?
```
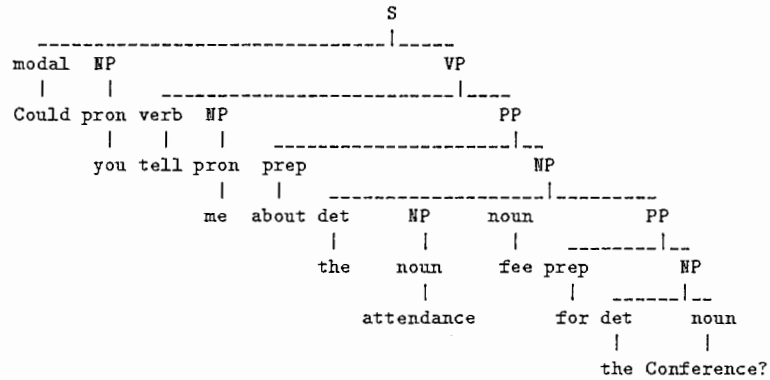
Figure 42: Dialogue 2: Sentence 3: *"Could you tell me about the attendance fee for the Conference?"*

```
                                S
            --------------------|--------
        AVP   modal  NP                VP
         |      |     |     ----------|--
        adv  should  pron  verb           NP
         |            |     |    --------|-------
        How           I    pay  det      NP     noun
                                  |       |       |
                                 the     noun    fee?
                                          |
                                      attendance
```
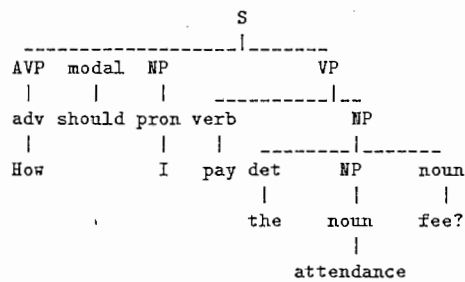
Figure 43: Dialogue 2: Sentence 13: *"How should I pay the attendance fee?"*

```
                                        S
            --------------------------------|------------------------
         PP        NP   copula            NP                    PP
      ----|--      |      |    ----------|------        --------|--
     prep   NP    pron   's   det   AP        noun    prep        NP
      |   ---|-    |           |     |         |       |    ------|--
     By  det noun what        the   adj    language   at  det    noun
         |    |                      |                     |       |
        the  way,               official                 the  Conference?
```
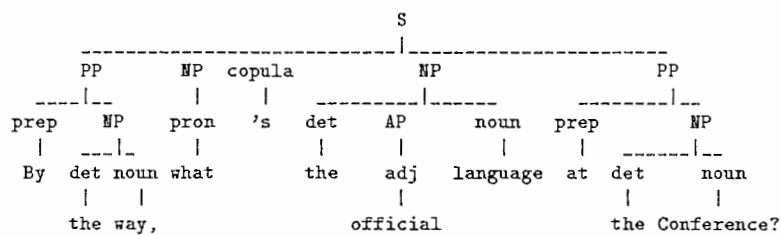
Figure 44: Dialogue 3: Sentence 8: *"By the way, what 's the official language at the Conference?"*

```
                                 S
        --------------------------|-----
        modal   NP                            VP
          |      |        --------------------|--
         Do    pron verb                     NP
                  |     |      --------------------|--------
                 you  have det      noun                 PP
                            |         |         --------|--
                          the  Announcement prep       NP
                                             |    ------|--
                                            of  det    noun
                                                 |      |
                                                the  Conference?
```
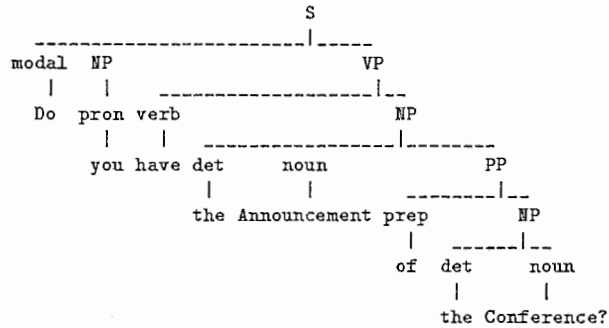
Figure 45: Dialogue 4: Sentence 3: *"Do you have the Announcement of the Conference?"*

```
                             S
       -----------------------|----------
       modal  NP    AVP                    VP
         |     |     |      -----------|---
       Could pron   adv   verb           NP
               |     |     |      --------|--------
              you possibly refund det    NP      noun
                                   |      |        |
                                  the    noun    fee?
                                          |
                                     registration
```
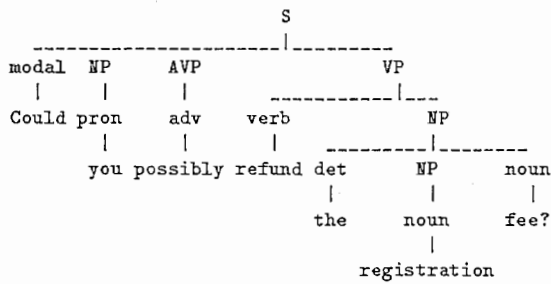
Figure 46: Dialogue 5: Sentence 12: *"Could you possibly refund the registration fee?"*

```
                                  S
      --------------------------------|----------------------
      AVP  AVP  modal    NP           VP                    PP
       |    |     |       |       -------|---             --|------
      adv  adv   can    noun     verb       NP           PRPP    NP
       |    |     |       |       |      ------|-        ---|---    |
      Well then,        someone attend det   noun       noun prep pron
                                       |      |          |    |    |
                                      the Conference instead  of   me?
```
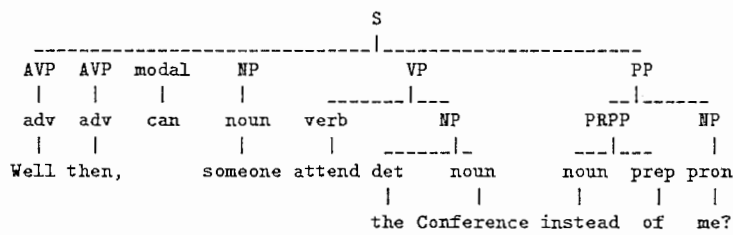
Figure 47: Dialogue 5: Sentence 17: *"Well then, can someone attend the Conference instead of me?"*

```
                              S
          _____|_____
         AVP    copula          NP
        ___|_      |        _____|_____
        AVP  adv   is    det    NP      noun
         |    |           |      |        |
        adv  much        the    noun    fee?
         |                        |
        How                   attendance
```
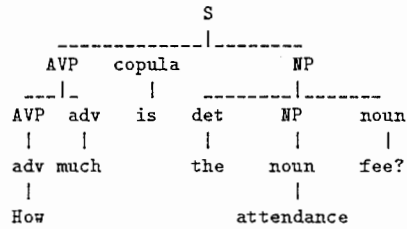
Figure 48: Dialogue 6: Sentence 9: *"How much is the attendance fee?"*

```
                                         S                                 S
      _____|_____                             |
     AVP  AVP  modal  NP                          VP                     modal
      |    |     |     |     _____|__                     |
     adv  adv   may   pron  verb                    NP                  please.
      |    |           |     |      _____|_____
    Well then,         I    have   NP    conj              NP
                             __|__   |    _____|_____
                            AP  noun and det  noun    PP              PP
                             |    |       |    |    ___|__       _____|__
                            adj  name    the number prep  NP    prep    NP
                             |                       |    |      |    ___|__
                            your                     of  noun   in   AP  noun
                                                          |           |    |
                                                        people       adj party,
                                                                      |
                                                                     your
```
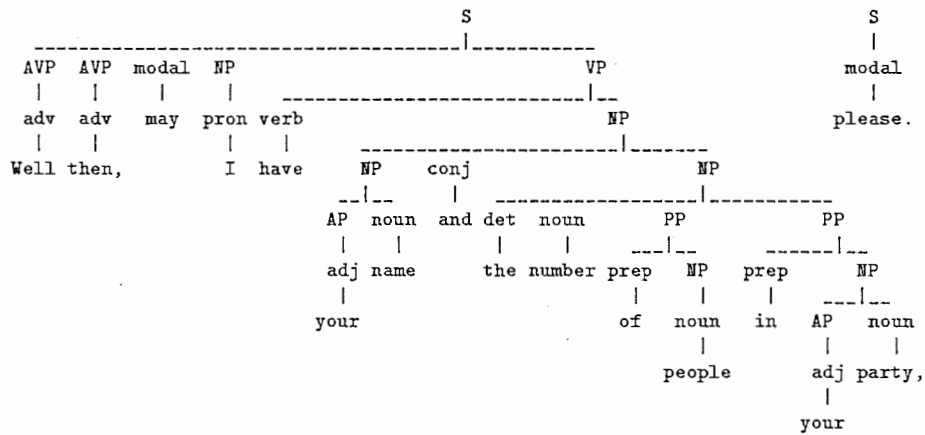
Figure 49: Dialogue 6: Sentence 16: *"Well then, may I have your name and the number of people in your party, please."*

```
                              S
          _____|_____
         AVP               NP          copula     NP
          |         _____|____        |         |
         adv       AP  noun    PP        is       pron
          |         |    |    ___|__               |
    Specifically,  adj sort prep   NP            this?
                    |         |    |
                   what       of  noun
                                   |
                                 topic
```
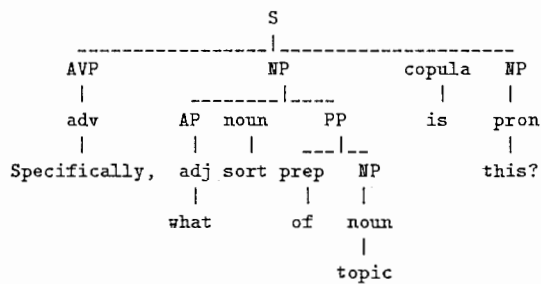
Figure 50: Dialogue 7: Sentence 7: *"Specifically, what sort of topic is this?"*

37

```
                          S
       _____|_____
      modal  NP   modal                VP
       |      |     |       _____|_____
     Would  pron  please  verb    NP          PP
             |            |     ___|_       __|__
            you          take det noun   prep   NP
                          |    |   |      |      |
                          a  look  at    pron
                                          |
                                         it?
```
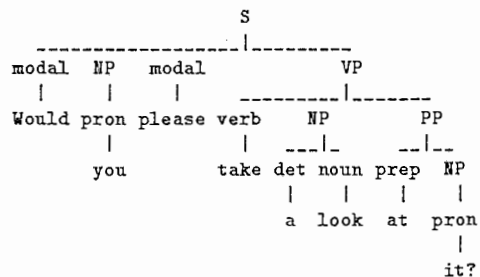
Figure 51: Dialogue 7: Sentence 10: *"Would you please take a look at it?"*

```
                     S
       _____|_____
      copula  NP          NP
       |       |       ___|____
       Is     pron   noun    adj
               |      |       |
             there anything else?
```
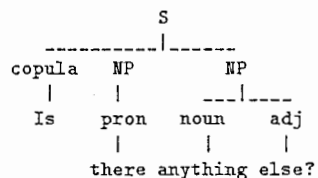
Figure 52: Dialogue 7: Sentence 17: *"Is there anything else?"*

```
                          S
       _____|_____
              PP        modal  NP          VP
       _____|__      |     |      _____|__
      prep        NP    should pron   verb      NP
       |     _____|_____      |      |     _____|_
      With  AP  noun    PP      I    write det    noun
             |   |    __|__                 |      |
            adj kind prep  NP              the  summary?
             |        |    |
            what     of  noun
                          |
                        form
```
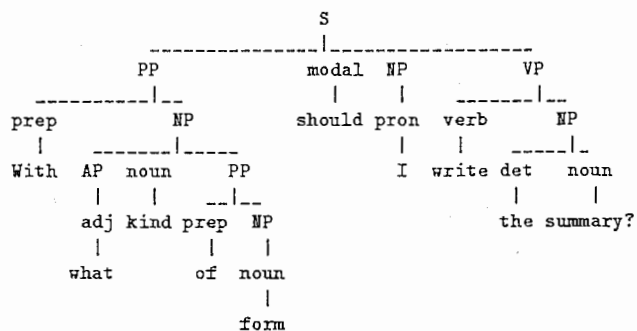
Figure 53: Dialogue 8: Sentence 11: *"With what kind of form should I write the summary?"*

```
                                                       S
          ---------------------------------------------|--------------
          AVP           modal  NP                                VP
      -----|----         |     |     ---------------------------------|------------------------
      quant AVP   adv   does pron verb prep                           VP                          PP
       |    |     |            |    |    |     --------------------------|----------                ---|--
     About adv much            it  cost to   verb          PP                       PP           prep  NP
           |                               go   prep       PP          prep         NP            by  noun
          how                               |   -------|--              |   ---------|-------           |
                                          from   NP   noun   to  det    NP       noun  taxi?
                                                  |     |         |     |         |
                                                noun Station     the   noun     Center
                                                  |                     |
                                                Kyoto                Conference
```
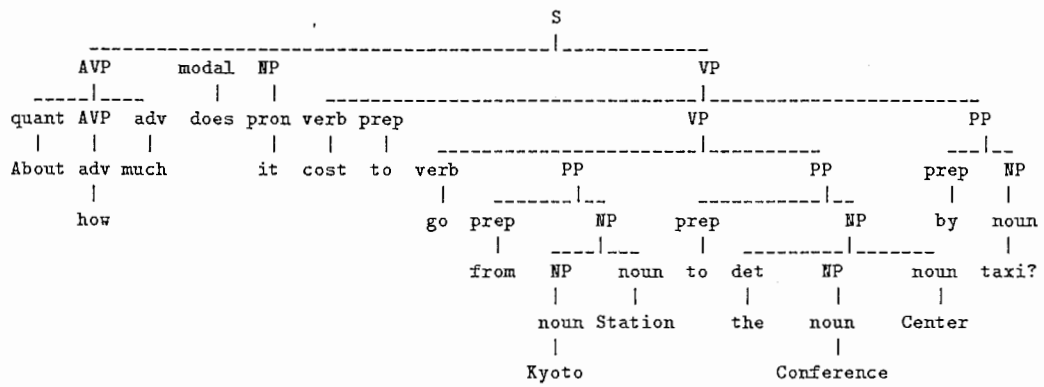
Figure 54: Dialogue 9: Sentence 10: *"About how much does it cost to go from Kyoto
Station to the Conference Center by taxi?"*

3.7 Negative interrogative sentences

```
                                   S
         ---------------------|---------
    copula   AP    NP                   NP
      |      |     |      --------------|----------
     Is     adv  pron  det       NP            noun
      |      |     |     |     __|_____          |
            n't  there   an    NP    noun  discount?
                               |      |
                              noun   fee
                               |
                            attendance
```
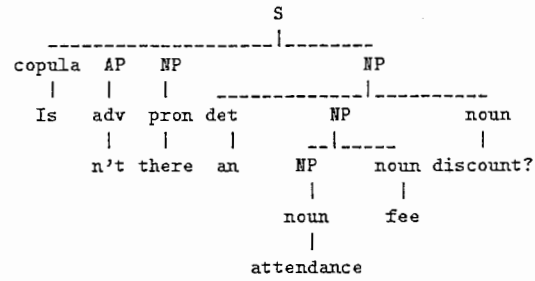
Figure 55: Dialogue 2: Sentence 10: *"Is n't there an attendance fee discount?"*

40

3.8 Incitative sentences

```
                         S
            _____|___
          modal              VP
            |         _____|__
        Please verb            NP
              |       _____|_____
            use det      NP        noun
                |        |          |
                a       noun      form.
                        |
                   registration
```
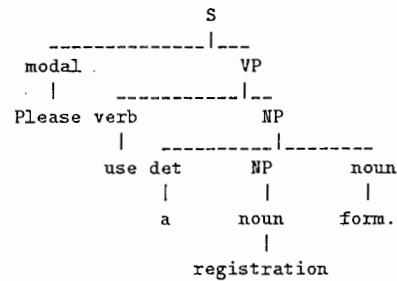
Figure 56: Dialogue 1: Sentence 8: *"Please use a registration form."*

```
                                          S
         _____|_____
       modal      VP                                      PP
         |      __|__      _____     |__
      Please  verb  NP  prep                               NP
         |     |    |    |    _____|_____
      deposit pron into det  NP    noun                     S
               |         |    |     |        _____|_____
              it        the noun account   NP  copula     AP              PP
                            |              |    |        _____|__
                           bank           pron  is      prtp prep     NP
                            |              |            |    |    _____|__
                          which         indicated  in det    noun
                                                    |      |
                                                   the announcement.
```
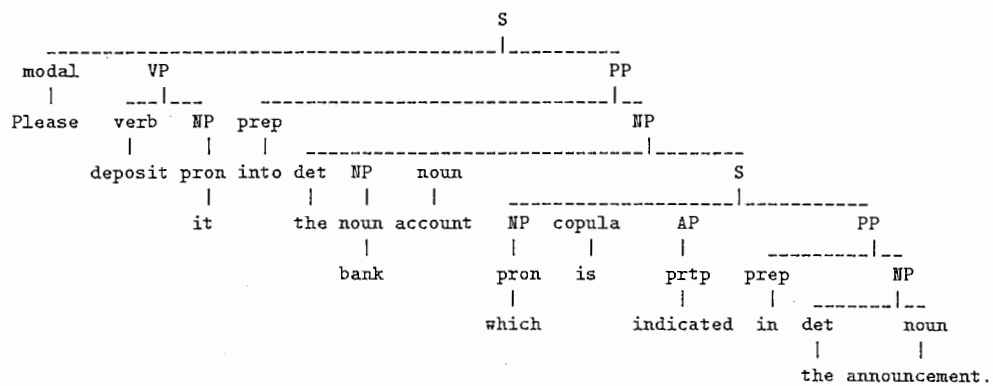
Figure 57: Dialogue 2: Sentence 15: *"Please deposit it into the bank account which is indicated in the announcement."*

```
                              S
    _____|___
modal                        VP
  |         _____|____
Please verb  NP                     PP
      |    |        _____|__
     tell pron  prep                   NP
          |    |      _____|____
          me about det   noun              PP
                  |    |      _____|__
                 the topic prep           NP
                          |      _____|__
                         of  det      noun
                             |         |
                            the Conference.
```

Figure 58: Dialogue 3: Sentence 4: *"Please tell me about the topic of the Conference."*

```
                            S
    _____|___
modal                          VP
  |         _____|_____
Please verb  NP                        NP
      |    |        _____|_____
     tell pron quant    noun               PP
          |    |     |         _____|___
          me  some details prep             NP
                          |      _____|__
                       about det      noun
                            |          |
                           the Conference.
```

Figure 59: Dialogue 4: Sentence 2: *"Please tell me some details about the Conference."*

42

```
                                    S
       -----------------------------|---
       modal                        VP
         |              -------------------|-----------------
       Please verb          NP              NP             PP
              |        --------|-------   --|--   ----------|--
             pay  det      NP      noun det noun prep       NP
                   |       |        |   |    |    |   --------|-----
                  the     noun     fee that day at det  NP     noun
                           |                        |   |       |
                      attendance                   the noun   place.
                                                        |
                                                     meeting
```
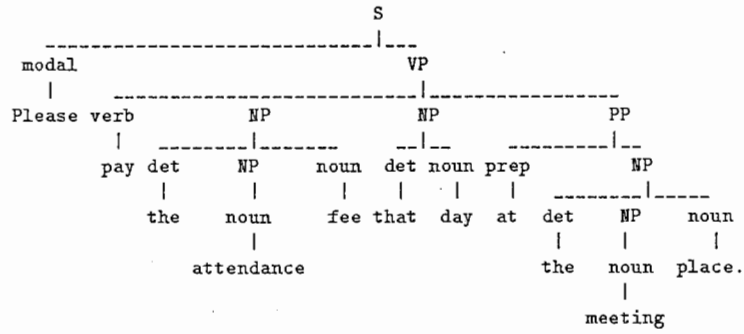
Figure 60: Dialogue 6: Sentence 20: *"Please pay the attendance fee that day at the meeting place."*

```
                                      S
      --------------------------------|---------
      AVP  AVP   modal                         VP
       |    |     |      --------------------|--------------
      adv  adv  please verb  NP      NP              AP
       |    |     |     |    |    -------|_       -----|------
     Well then,      mail pron det    noun       AVP        adj
                           |   |       |        __|____      |
                          me  the Announcement  AP   adv  possible.
                                               ---|_   |
                                               AVP adj as
                                                |   |
                                               adv soon
                                                |
                                                as
```
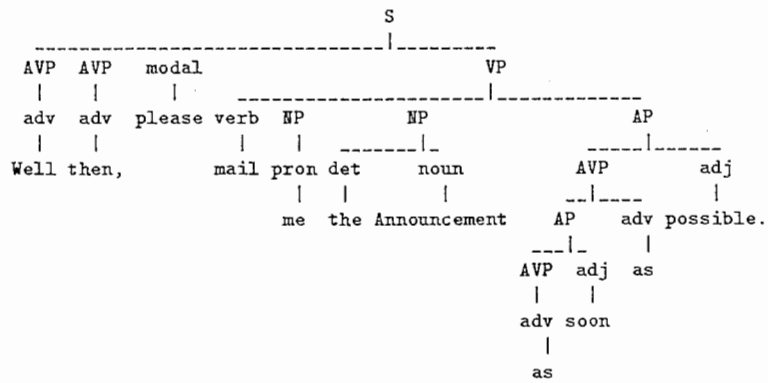
Figure 61: Dialogue 7: Sentence 12: *"Well then, please mail me the Announcement as soon as possible."*

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3.9 Confirmatory sentences

```
                       S
         ------------|----------
       NP   copula    NP      AVP
        |      |       |       |
      pron    's     noun     adv
        |              |        |
       It           372-8018, right?
```
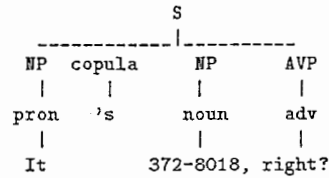
Figure 62: Dialogue 4: Sentence 18: *"It 's 372-8018, right?"*

```
                           S
        --------------------|--------------------
       NP   copula              NP               AVP
        |      |     -------------|---------       |
      pron    's   noun noun  noun      PP        adv
        |           |    |     |      __|__        |
       It          Mr. Mayumi Suzuki prep  NP    right?
                                       |    |
                                     from  noun
                                            |
                                           ATR,
```
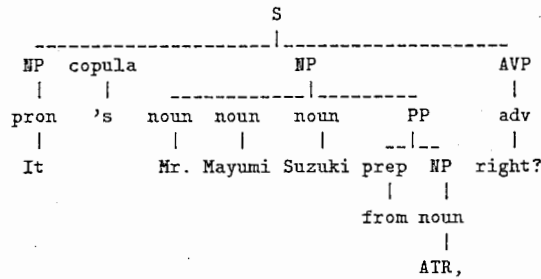
Figure 63: Dialogue 8: Sentence 17: *"It 's Mr. Mayumi Suzuki from ATR, right?"*

```
                               S
       ----------------------------|-----------------------------
         NP      copula                NP                    AVP
      ----|--      |       -------------|-------------         |
     AP   noun     is     adj    noun           noun  noun    adv
      |     |               |      |              |     |      |
     adj address          3-2-5 Higashi-Ikebukuro, Toshima-ku, Tokyo, right?
      |
     Your
```
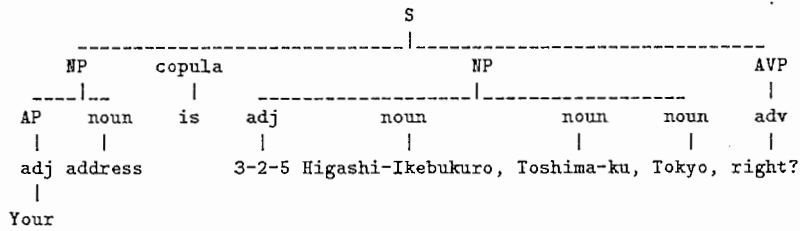
Figure 64: Dialogue 8: Sentence 18: *"Your address is 3-2-5 Higashi-Ikebukuro, Toshima-ku, Tokyo, right?"*

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3.10 Infinitive clauses

```
                                   S
          _____|_____
          NP   modal                  VP
          |      |      _____|____
         pron   'd    verb prep            VP
          |            |    |     _____|__
          I           like  to  verb          PP
                                 |     _____|__
                               apply prep       NP
                                      |     _____|__
                                     for   det    noun
                                           |       |
                                          the   Conference.
```

Figure 65: Dialogue 1: Sentence 6: *"I 'd like to apply for the Conference."*

```
                                   S
         _____|_____
         NP   modal             VP                   AVP
         |      |     _____|_____                |
        pron   'd   verb prep          VP             adv
         |           |    |    _____|__             |
         I          like  to  verb        NP          too.
                               |     _____|_____
                              ask   AP    NP    noun
                                    |     |      |
                                   adj   noun  number,
                                    |     |
                                  your  phone
```
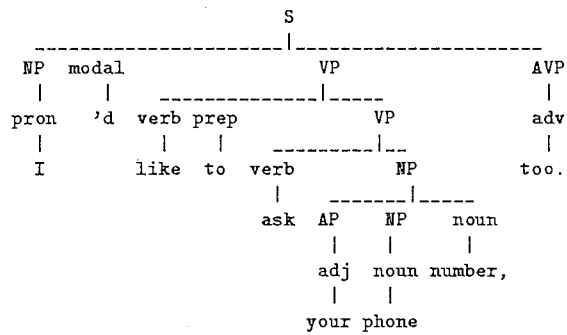
Figure 66: Dialogue 4: Sentence 15: *"I 'd like to ask your phone number, too."*

```
                          S
         _____|_____
        NP    modal              VP
         |      |      _____|____
        pron   'd    verb prep            VP
         |            |    |     _____|___
         I           like  to  verb        NP
                               |       _____|__
                             cancel   det    noun
                                       |      |
                                      my  attendance.
```

Figure 67: Dialogue 5: Sentence 5: *"I 'd like to cancel my attendance."*

```
                                  S
        _____|_____
       NP    modal                       VP
        |      |      _____|_____
       pron   'd    verb prep                       VP
        |            |    |     _____|_____
        I           like  to  verb        NP                   PP
                               |      _____|_          _____|__
                             make    det    noun        prep      NP
                              |       |      |            |    _____|__
                              a   presentation at        det    noun
                                                          |      |
                                                        this  Conference.
```
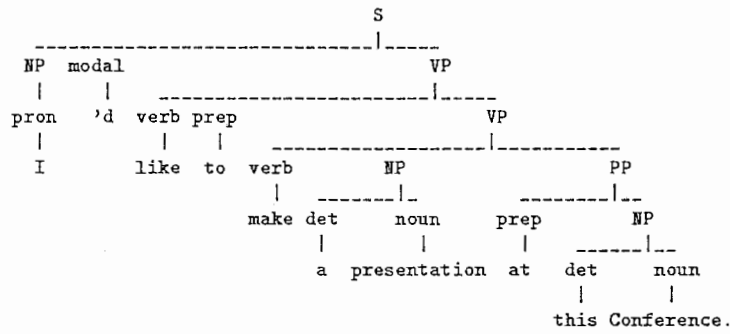
Figure 68: Dialogue 8: Sentence 4: *"I 'd like to make a presentation at this Conference."*

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```
                                                  S
        _____|_____
    NP    modal                                          VP
    |       |        _____|_____
   pron    'd    verb   NP   prep                                  VP
    |              |    |    |      _____|____
    I             like pron  to   verb  NP                          S
                       |          |    |    _____|_____
                      you        tell pron AVP   NP    modal               VP
                                       |   |     |      |        _____|__
                                       me  adv  pron  should   verb             PP
                                           |     |             |      _____|__
                                          how    I             go    prep          NP
                                                                      |      _____|_____
                                                                      to    det     NP       noun
                                                                            |        |         |
                                                                           the      noun    Center.
                                                                                     |
                                                                                 Conference
```
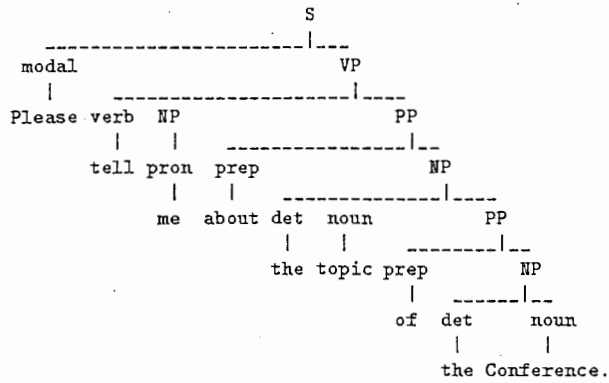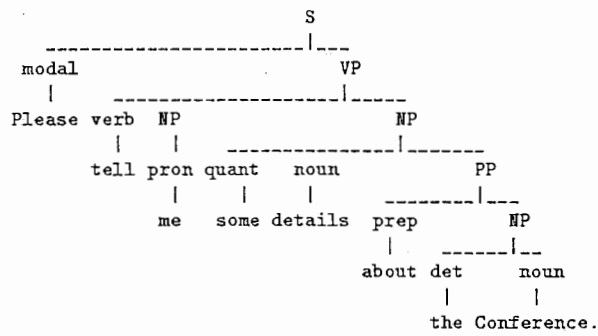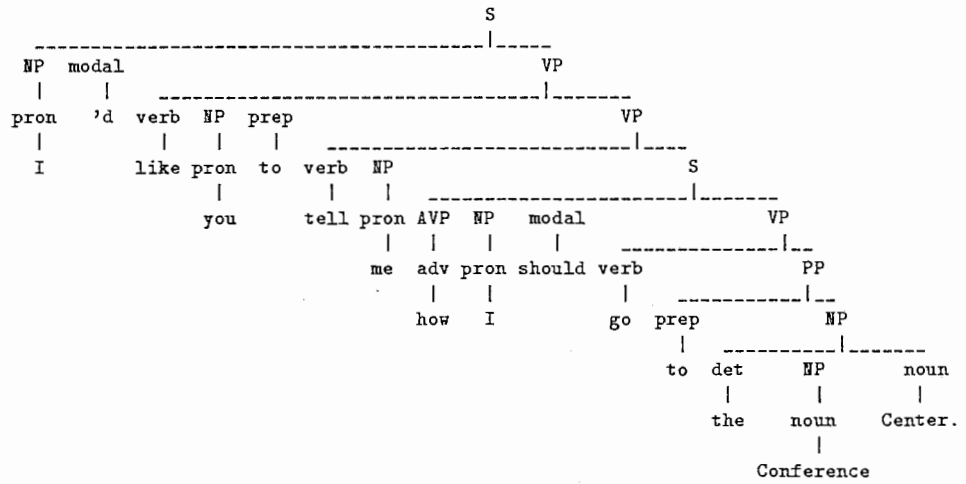
Figure 69: Dialogue 9: Sentence 5: *"I 'd like you to tell me how I should go to the Conference Center."*

```
                                           S
        _____|_____
    NP    modal                                      VP
    |       |        _____|____
   pron    'd     verb  prep                              VP
    |              |    |      _____|__
    I             like  to   verb                          PP
                            |      _____|_____
                           ask   prep          NP                    PP
                            |     _____|__           _____|__
                          about  NP     noun        prep         NP
                            |     |       |           |       ____|__
                          noun  accommodations      for     det    noun
                            |                                 |       |
                          hotel                              the  Conference.
```
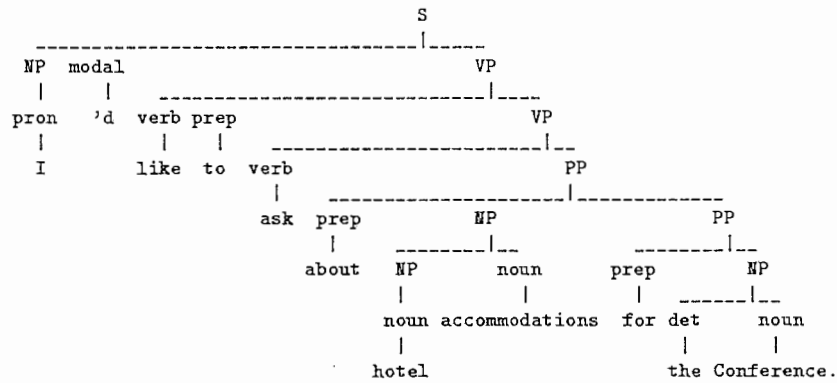
Figure 70: Dialogue 10: Sentence 4: *"I 'd like to ask about hotel accommodations for the Conference."*

3.11 Relative clauses

```
                                             S
-----------------------------------------------|-----
NP  modal                                          VP
 |     |       ----------------------------------------|-----
pron  'd  verb prep                                         VP
 |         |    |    ---------------------------------------|--
 I        like  to  verb                                        NP
                 |    -------------------------------------|------
                ask quant    noun                              PP
                      |        |     ------------------------------|--
                    some   questions prep                          NP
                                      |    ----------------------------|-----
                                    about det  noun                    S
                                           |     |    ----------------------|-------------
                                          the topics NP modal copula   AP               PP
                                                      |    |     |       |       --------|--
                                                     pron will   be    prtp   prep       NP
                                                      |                  |      |    ------|--
                                                    which             treated  at  det   noun
                                                                                    |      |
                                                                                   the Conference.
```
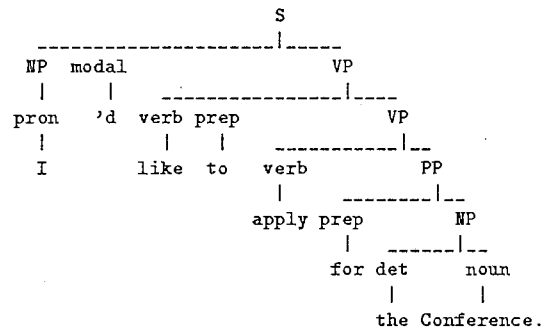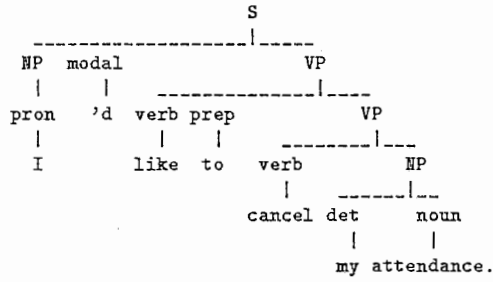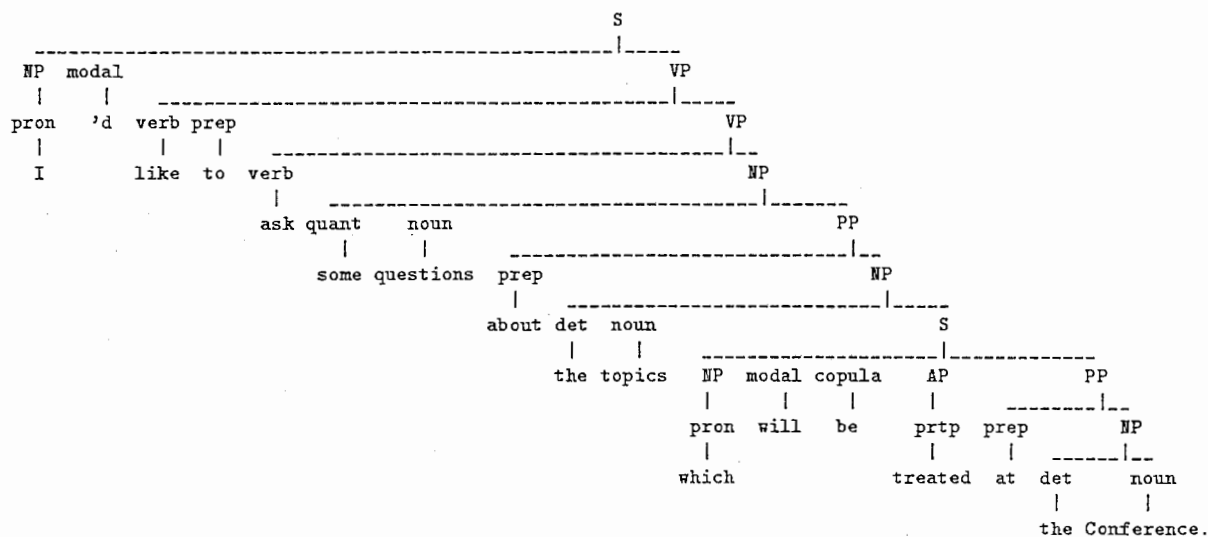
Figure 71: Dialogue 7: Sentence 3: *"I 'd like to ask some questions about the topics which will be treated at the Conference."*

```
                                                        S
                        ----------------------------------|-----------------------
                        NP              copula  AP                        PP
          ----------------------|------   |      |     ----------------------|--
det    noun                     PP       are   prtp  prep                    NP
 |      |    ----------------------------|--    |     |    ------------------|---------
The  titles prep                        NP    listed in  det   AP    noun             PP
            |    --------------------------|-----  |    |     |      |    ----------|--
            of  det   noun                 S      the  adj  version prep            NP
                |     |    ----------------------|-------------  |    |    ------|--
              the papers NP modal copula  AP              PP   second of  det   noun
                         |    |     |      |        -------|--         |    |     |
                        pron will   be   prtp    prep      NP        the Announcement.
                         |                |       |   ------|-
                       which          presented   at  det  noun
                                                   |    |
                                                  the Conference
```
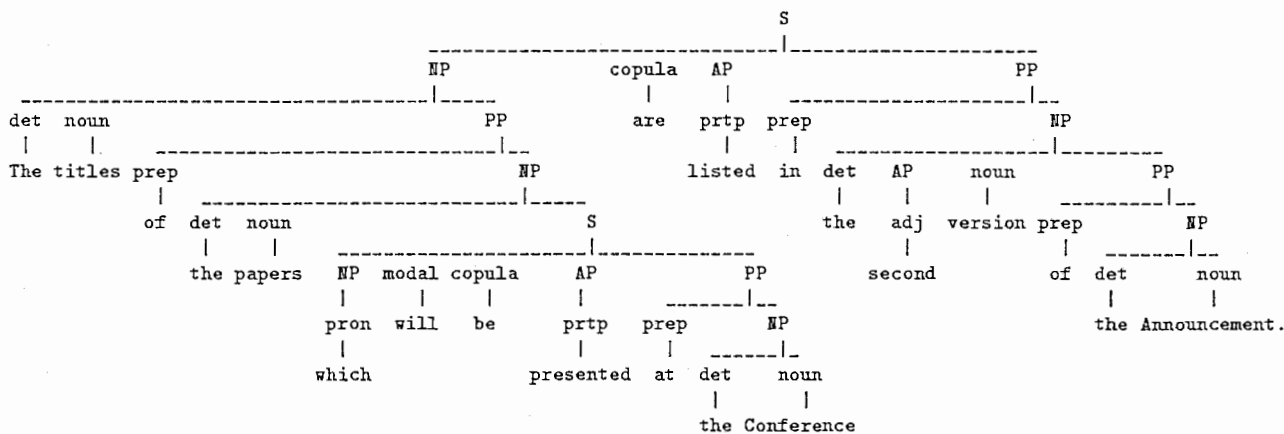
Figure 72: Dialogue 7: Sentence 9: *"The titles of the papers which will be presented at the Conference are listed in the second version of the Announcement."*

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```
                                    S
                 _____|_____
                NP   copula                 NP
                 |      |         _____|_____
                pron   's        noun              S
                 |               |          _____|_____
               There          something    NP   modal     VP
                                            |     |     ____|____
                                           pron   'd  verb prep  VP
                                            |         |    |     |
                                            I        like  to   verb
                                                                 |
                                                                ask.
```
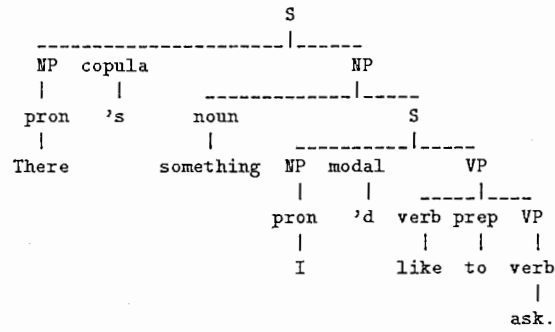
Figure 73: Dialogue 8: Sentence 3: *"There 's something I 'd like to ask."*

```
                                         S
                         _____|_____
                        NP            copula                 NP
            _____|_____          |          _____|_____
           det   noun         S        are        NP    conj          NP
            |     |      _____|_____              _____|_____      _____|_____
          The  hotels   NP  modal  VP            det   NP  noun  and  NP   NP   noun
                        |     |     |             |    |    |        |    |     |
                       pron  can   verb          the  noun Hotel    noun noun Hotel.
                        |           |                  |                  |    |
                        we        suggest             Kyoto           Kyoto Prince
```
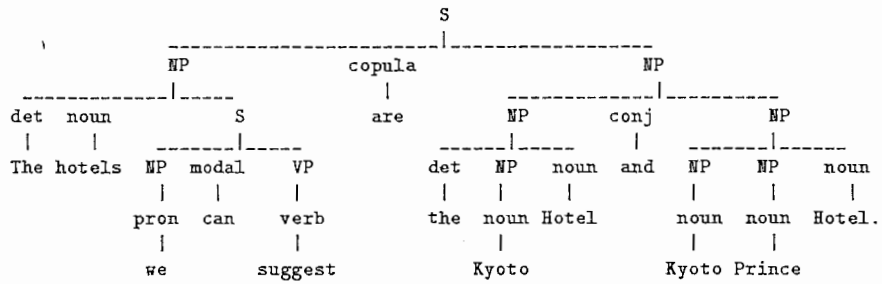
Figure 74: Dialogue 10: Sentence 7: *"The hotels we can suggest are the Kyoto Hotel and Kyoto Prince Hotel."*

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3.12 Subordinate clauses

```
                    S                              S
  ------------------|------------------    --------------|--------
  conj  NP          VP          AVP    AVP    copula        NP
   |    |    ----------|---      |    ---|_      |     --------|-------
   If  pron verb          PP    adv AVP  adv    is   det    NP      noun
        |    |     -------|__     |   |    |           |     |       |
        I  apply prep        NP  now, adv much        the   noun    fee?
                  |     ------|_        |                    |
                 for det      noun      how               attendance
                      |        |
                     the    Conference
```
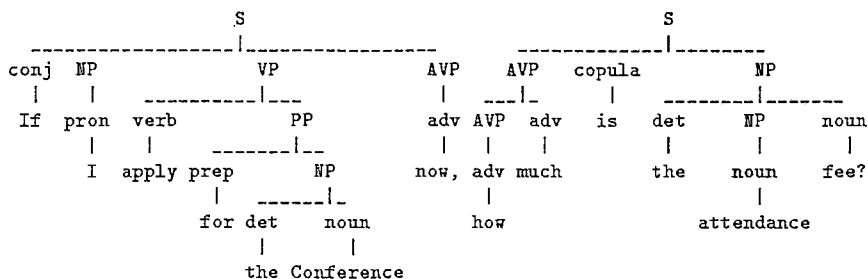
Figure 75: Dialogue 2: Sentence 4: *"If I apply for the Conference now, how much is the attendance fee?"*


```
                    S                            S
  ------------|---------    -------------|----------
  conj  NP   VP        NP    NP  modal copula      NP
   |    |    |    ---|--     |    |     |       __|___
   If  pron verb  AP   noun pron will   be     adj  noun
        |    |    |     |    |                   |    |
       you apply adj  month, it              40,000 yen.
                  |
                 next
```

Figure 76: Dialogue 2: Sentence 7: *"If you apply next month, it will be 40,000 yen."*

```
                                    S                                                S
        ----------------------------|--------                              --------|------
    conj   NP   copula                          NP                       modal   VP    NP
     |     |     |                ------------------|----                  |      |   ---|---
    If   pron   's    noun                           S                   please  verb quant noun
           |          |              ---------------|----------            |      |    |    |
        there      something      NP   NP  modal AVP      VP              ask   any  time.
                                  |    |    |    |        |
                               pron pron   do  adv      verb
                                  |    |         |        |
                               which  you      n't  understand,
```

Figure 77: Dialogue 2: Sentence 20: *"If there 's something which you do n't understand, please ask any time."*

```
                       S                                                    S
        ---------------|-----------------                   -----------------------|------
     PP          NP       copula      AP              copula   NP                        NP
   --|--      -------|--     |      -------|--           |      |      ------------------|--------------
  prep NP    det   noun     is    prtp      PP          is    pron  det    AP        noun         PP
   |   |      |     |              |      -----|--        |     |    |      |          |        ----|--
  In  noun    a  presentation    made  prep      NP     there   a   adj  translation prep     NP
       |                                 |        |                       |                    |        |
      case                              in    Japanese,              simultaneous           into     noun
                                                                                                       |
                                                                                                    English?
```
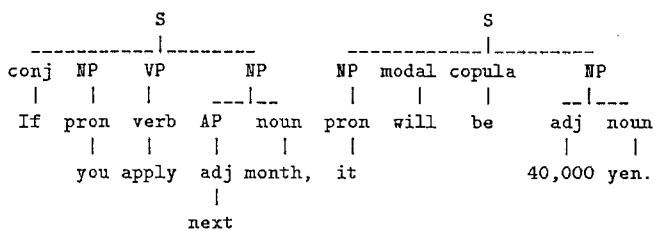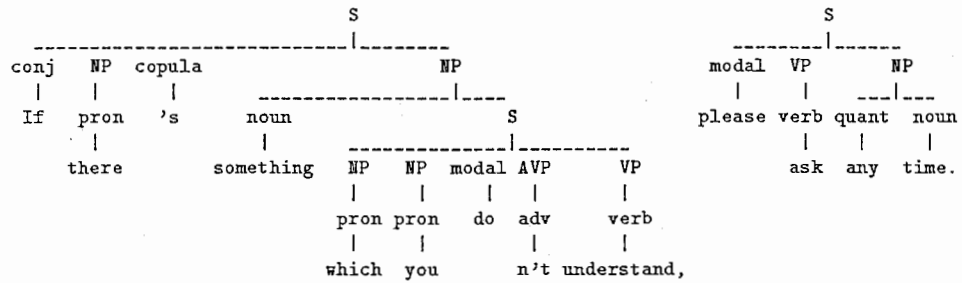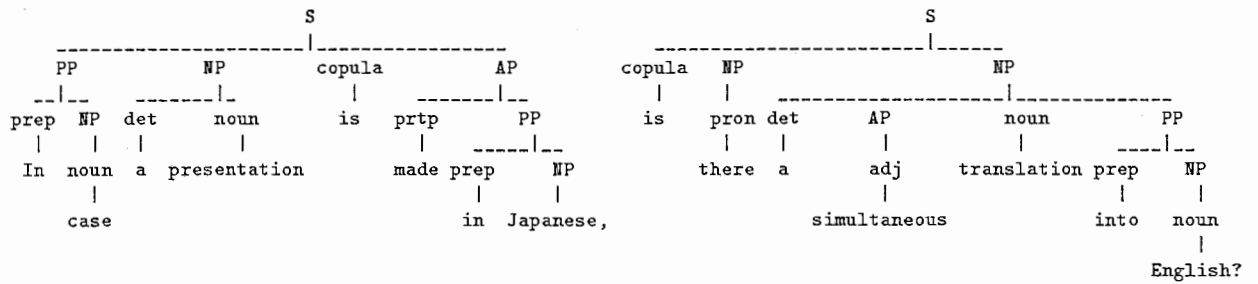
Figure 78: Dialogue 3: Sentence 11: *"In case a presentation is made in Japanese, is there a simultaneous translation into English?"*

```
                     S                                                S
        -------------------|--------                    --------------------|-------------
    conj  NP  modal              VP                   modal     VP                   PP
     |    |    |        ---------------|----            |     ------|---          ------|--
    If  pron would  verb  prep           VP           please verb     NP       prep      NP
         |               |    |    ----------|--         |    |    ----|--       |     ---|---
        you            like  to  verb          NP     submit det   noun        by   NP    noun
                             |      -------|--          |    |      |                |     |
                           make   det     noun          a  summary               noun   20th.
                                   |       |                                        |
                                   a   presentation,                              March
```
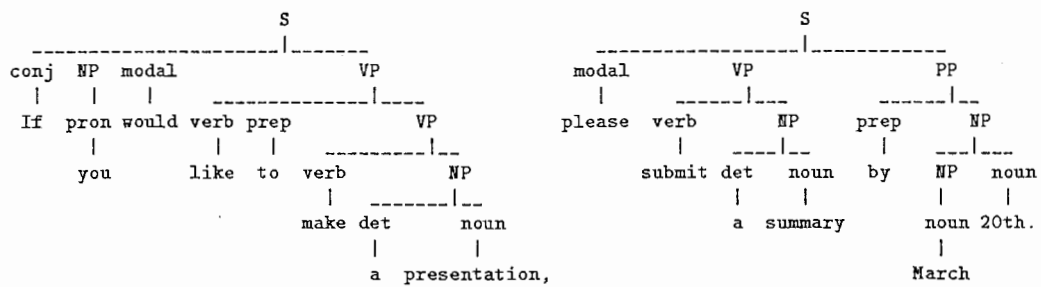
Figure 79: Dialogue 4: Sentence 9: *"If you would like to make a presentation, please submit a summary by March 20th."*
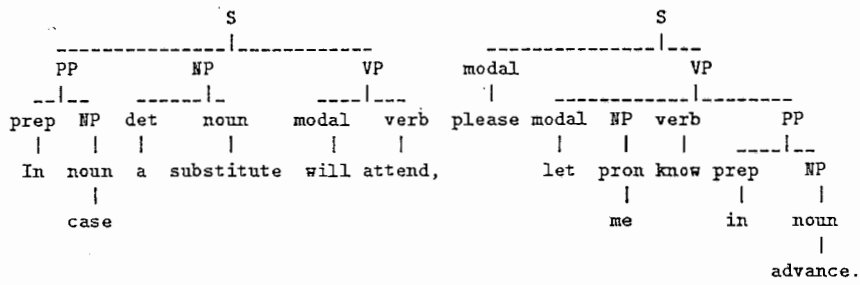
```
                    S                                      S
    _____|_____        _____|___
    PP          NP           VP      modal              VP
   __|__      _____|_      ____|___       |     _____|_____
  prep NP   det    noun   modal verb  please modal NP  verb      PP
   |    |    |      |       |     |      |     |    |    |     ___|__
   In  noun  a  substitute will attend,    let pron know prep   NP
        |                                       |         |      |
       case                                     me        in    noun
                                                                 |
                                                              advance.
```

Figure 80: Dialogue 5: Sentence 19: *"In case a substitute will attend, please let me know in advance."*

```
                       S                                   S
    _____|_____        _____|_____
   conj       NP          VP       AP      NP  modal         VP
    |     _____|_        |        |       |    |       _____|__
  When  det    noun    copula    prtp    pron  'll    verb    VP
         |      |         |        |       |           |    ___|__
         a  substitute   is     selected,  I          let   NP   verb
                                                            |     |
                                                          noun  know.
                                                            |
                                                           you
```
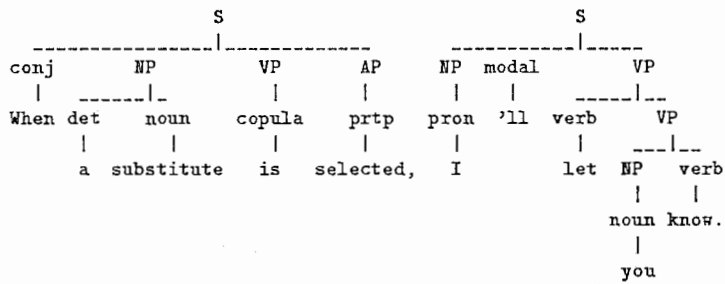
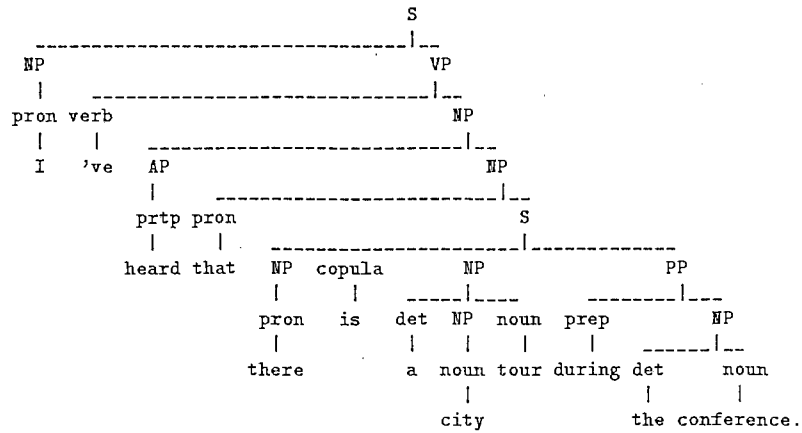Figure 81: Dialogue 5: Sentence 21: *"When a substitute is selected, I 'll let you know."*

```
                                  S
       -----------------------------------|--
  NP                                      VP
   |      ------------------------------|--
pron verb                              NP
   |    |      ----------------------------|--
   I    've  AP                             NP
             |       ---------------------------|--
           prtp pron                            S
             |    |   -----------------------|--------------
           heard that  NP  copula     NP                PP
                        |    |    -----|----      --------|--
                      pron   is  det NP noun     prep        NP
                        |          |   |   |      |     ------|--
                      there        a  noun tour during det      noun
                                       |                 |       |
                                     city              the conference.
```

Figure 82: Dialogue 6: Sentence 3: *"I 've heard that there is a city tour during the conference."*

```
                      S                                    S
      ------------------|----------------    ----------------|-----
  conj        NP        VP        AP     NP  modal           VP
   |     -------|--      |         |      |    |    ---------|----
  If   adj    noun   copula      prtp   pron  'll verb           NP
        |       |        |         |      |          |       ---|-----
      your contribution was    accepted,  we      enclose  NP      noun
                                                            |        |
                                                          noun     forms.
                                                            |
                                                        manuscript
```
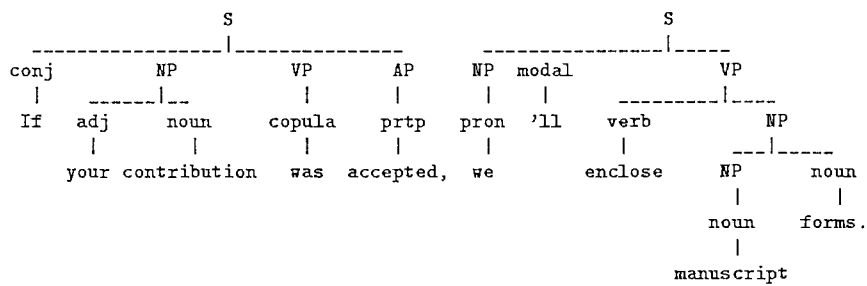
Figure 83: Dialogue 8: Sentence 8: *"If your contribution was accepted, we 'll enclose manuscript forms."*

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```
              S                              S
 _____|__             _____|__
conj             S              NP           VP
 |       _____|_____       |      _____|__
If   NP copula        PP        pron verb      NP
     |     |      _____|__       |    |    _____|_____
    pron   's   prep      NP      it  costs quant  AP  noun
     |           |     _____|__              |      |    |
     it        from   NP    noun           about   adj  yen.
                      |      |                      |
                    noun  Station,               6,000
                      |
                    Kyoto
```
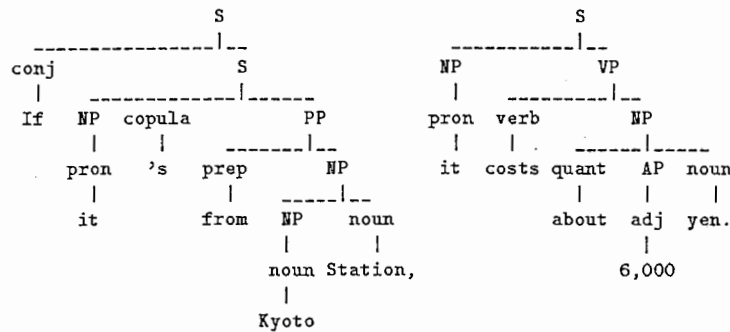
Figure 84: Dialogue 9: Sentence 11: *"If it 's from Kyoto Station, it costs about 6,000 yen."*

```
                          S                                    S
  _____|_____           _____|_____
AVP  AVP conj  NP copula            PP              AVP      modal NP   VP
 |    |   |    |    |         _____|__        _____|____    |    |    |
adv  adv  if  pron  's     prep         NP       quant AVP adv does pron verb
 |    |         |           |       ____|____      |    |    |        |    |
Well then,      it        from     NP     noun   about adv  much      it  cost?
                                    |      |             |
                                  noun  Station,        how
                                    |
                                 Kitaooji
```
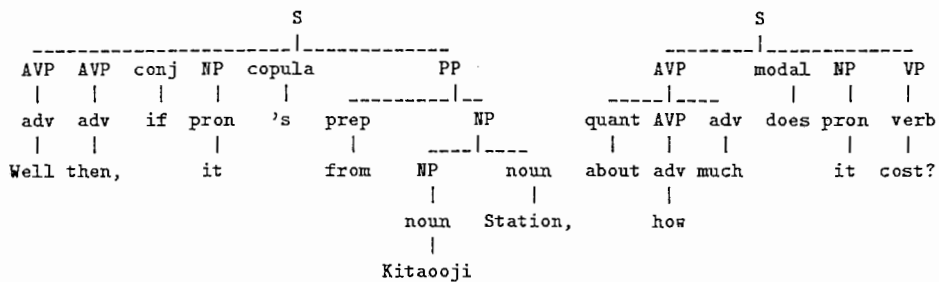
Figure 85: Dialogue 9: Sentence 12: *"Well then, if it 's from Kitaooji Station, about how much does it cost?"*

```
              S                              S
 _____|__             _____|_____
conj                S              NP  copula       NP
 |        _____|_____         |     |     _____|____
If   NP copula        PP           pron   's  quant  AP noun
     |     |      _____|__       |          |     |   |
    pron   's   prep        NP       it       about  adj yen.
     |           |      ____|____                     |
     it        from    NP      noun                  900
                       |        |
                     noun    Station,
                       |
                    Kitaooji
```
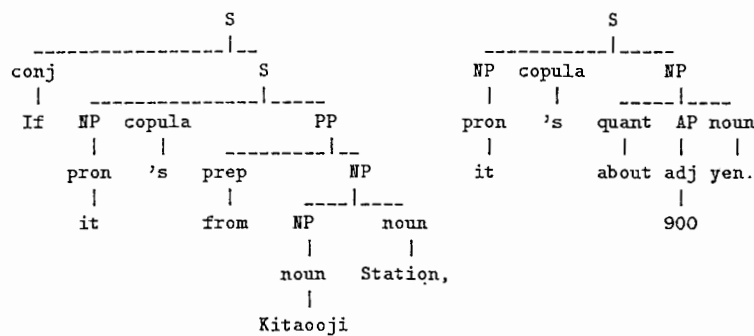
Figure 86: Dialogue 9: Sentence 13: *"If it 's from Kitaooji Station, it 's about 900 yen."*

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```
                                   S
              ----------------------|-----
             NP    modal                  VP
              |      |       ----------------|--
            pron    'll     verb               S
              |              |      ---------------|-------
              I            check conj  NP   modal         VP
                            |     |    |      _____|__
                           if   pron  can   verb      NP
                            |     |          |    ___|__
                            I                take det  noun
                                              |     |    |
                                              a   room.
```
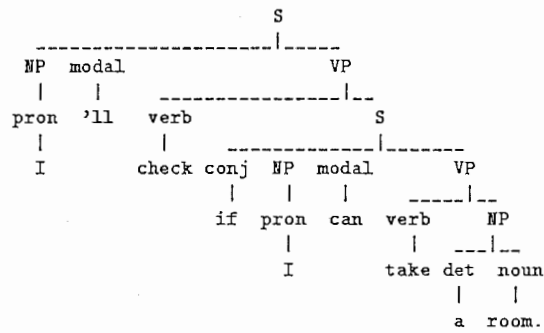
Figure 87: Dialogue 10: Sentence 28: *"I 'll check if I can take a room."*

3.13 Coordinate clauses

```
                        S                                          S
    ------------------------|-----              ----------------|------
    NP   modal               VP                 conj   modal          VP
    |     |     --------------------|----------- |      |     ----------|--------
    pron  'll  verb           NP              PP  so   please verb    NP      PP
    |           |    ------------|-------    __|__                 |   ___|_   __|__
    I          send det    NP        noun   prep  NP             have det noun prep  NP
                   |        |          |      |    |                 |    |    |    |
                  the      noun    Announcement to pron              a   look  at  pron
                            |                       |                              |
                        Conference                 you,                            it.
```
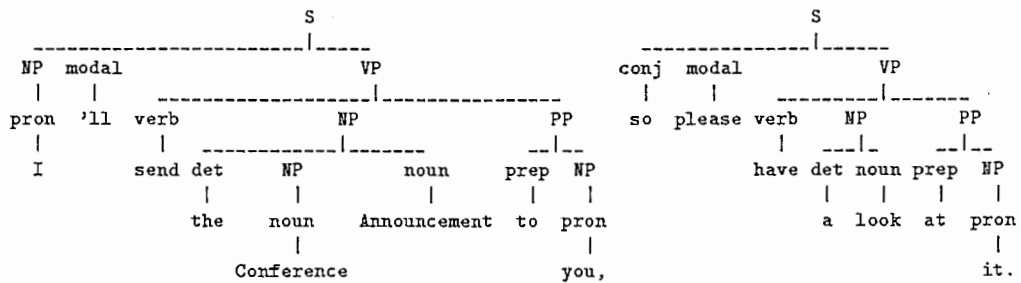
Figure 88: Dialogue 4: Sentence 10: *"I 'll send the Conference Announcement to you, so please have a look at it."*

```
                        S                      S
            ------------|-------         ----|-----
            NP   copula        AP        NP   VP   AVP
            |     |         ___|____      |    |    |
            pron  'm       AVP      adj  pron verb adv
            |              |         |    |    |    |
            I             adv     sorry,  we  can  't.
                           |
                        terribly
```
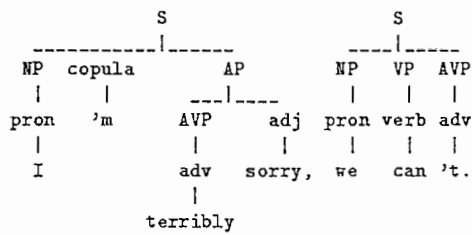
Figure 89: Dialogue 5: Sentence 13: *"I 'm terribly sorry, we can 't."*

```
                    S                                              S
        _____|_____               _____|_____
       NP   copula        AP       conj  NP  modal AVP                 VP                    AVP
        |     |        ___|____      |    |    |    |     _____|___                 |
      pron    'm     AVP      adj   but  pron can  adv  verb                NP               adv
        |             |        |          |             |     |      _____|_____     |
        I            adv     sorry,        I            't  answer quant        AP      noun  here.
                      |                                          |         |            |
                   terribly                                     any       adj       questions
                                                                           |
                                                                        technical
```
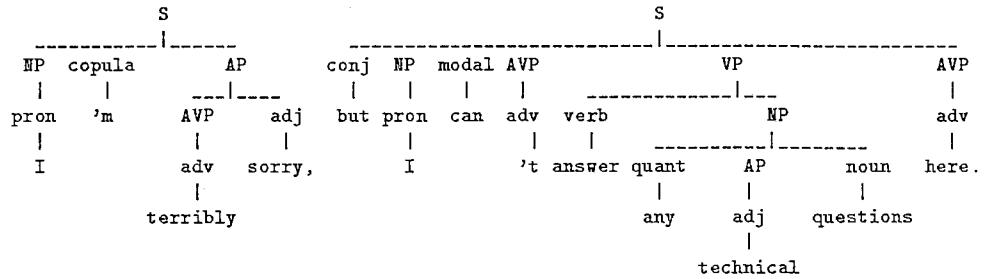
Figure 90: Dialogue 7: Sentence 8: *"I 'm terribly sorry, but I can 't answer any technical questions here."*

```
                    S                                         S
        _____|_____          _____|_____
       NP   modal        VP       AVP  conj  NP  modal          VP                     PP
        |     |        __|___      |    |    |    |     _____|____            _____|__
      pron   '11    verb    NP    adv  and  pron '11  verb  NP       NP          prep      NP
        |            |      |      |          |        |    |     ___|_            |      __|__
       We         review  pron  here         we      send pron  det  noun        by     NP   noun
                           |                                     |    |    |            |    |
                          it                                    you  the  result      noun 20th.
                                                                                       |
                                                                                      May
```
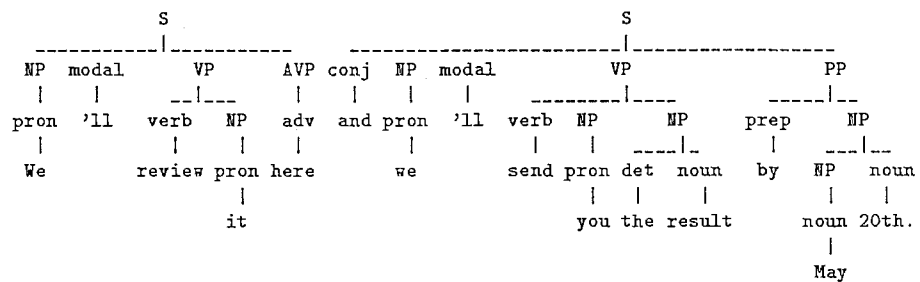
Figure 91: Dialogue 8: Sentence 7: *"We 'll review it here and we 'll send you the result by May 20th."*

```
                       S                               S
        _____|_____      _____|_____
       NP   copula               NP        conj  modal       VP
        |     |     _____|_____   |    |    _____|____
      pron    's  det    AP          NP    noun  so please verb  NP  post
        |          |     |           |      |              |    |    |
      There        a    adj        noun   form,           fill pron in.
                         |           |                          |
                      special    application                   it
```
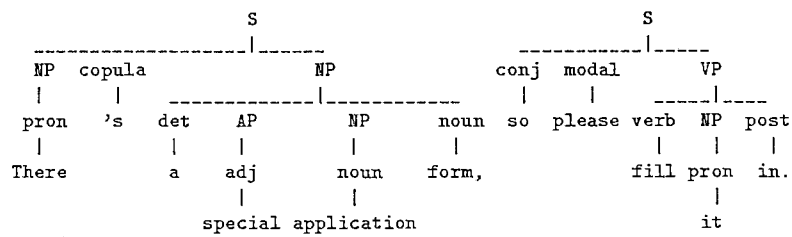
Figure 92: Dialogue 8: Sentence 12: *"There 's a special application form, so please fill it in."*

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```
                           S                                S              S
        -----------------------|-----------       ----------------|-------         |
        AVP  AVP   NP  modal              VP       conj modal  NP        VP     modal
         |    |    |    |    ---------------|-----    |    |    |    -------|--      |
        adv  adv  pron  'll  verb  NP              NP   so   may  pron verb      N   please?
         |    |    |    |     |     |    ---------|--------    |    |    ----|--
        Well then,  we       send pron det      NP      noun   I   have AP   noun
                                   |    |        |        |              |     |
                                  you   an      noun    form,          adj  address,
                                                 |                      |
                                             application               your
```
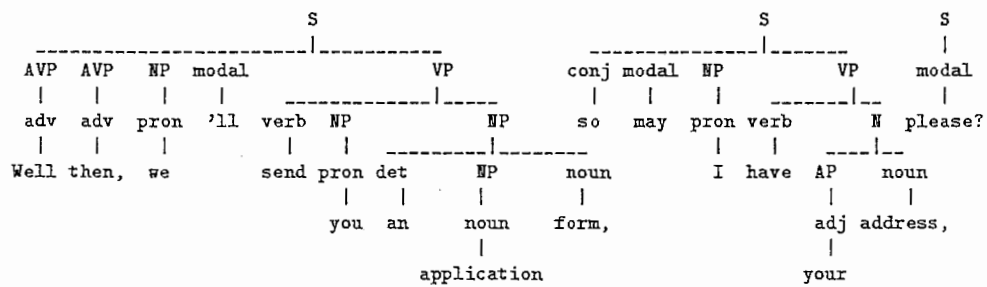
Figure 93: Dialogue 8: Sentence 13: *"Well then, we 'll send you an application form, so may I have your address, please?"*

58

Conclusion

This report has presented a list of some sentences of the ten dialogues of the ATR corpus with their associated syntactic trees.

These trees are totally projective and were written with a preoccupation of consistency.

A Appendix: Against the VP node

In the process of building the previous syntactic trees, it appeared clear that the VP node is more a difficulty than a convenience. Hence, for example, if the forms of *to be* had been considered those of a verb subcategorising a noun phrase, the representation for

This is the conference office.

would have been

```
                      S
      _____|__
       NP                VP
        |        _____|__
      pron verb           NP
        |    |    _____|_____
      this  is  det    NP      noun
                 |      |        |
                the    noun    office
                        |
                    conference
```
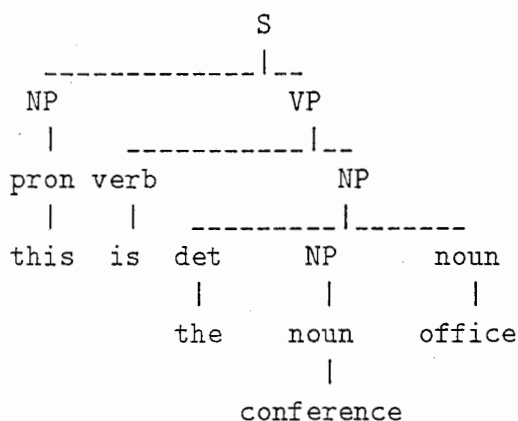
But the interrogative form is problematic as some discontinuous representation has to be introduced.

```
                      S
           _____|__
         NP              VP
      ____|_____ ____|__
     verb pron              NP
       |    |      _____|_____
      is  this  det    NP      noun
                 |      |        |
                the    noun    office
                        |
                    conference
```
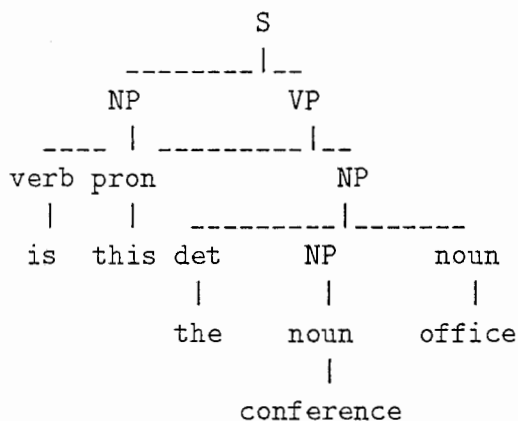
As a matter of fact, the presence of a VP node is responsible for discontinuous representations. Starosta goes even farther [Starosta 88, p. 17]:

> *Positing a VP in the GB framework forces the loss of generalizations at every turn (Starosta 1977; Starosta 1985f). Anyone who cares to can verify this claim by (a) going carefully through Chomsky's 'Lectures on Government and Binding' (Chomsky 1981), including the footnotes, and making a list of the conventions, constraints, principles, and constituents, including the INFL node, which owe their existence solely to the NP-VP split and could be eliminated without it; and then (b) counting the number of generalizations for which an exception must be stated solely because the subject is not the sister of the verb. Almost all of these onerous difficulties vanish when the S-VP distinction is eliminated and the subject becomes the sister of the verb.*

and page 21:

> *It is hard to avoid the dark suspicion that having a VP has become an end in itself, and that the awkward Spec analysis of subjects and INFL analysis of clauses is an artifact of the determination to maintain a VP category at all costs. It may not be an exaggeration to state that the main obstacle that is now standing between Government and Binding framework and a genuinely generative monostratal theory is VP.*

This criticism can be addressed to Gunji's argumentation [Gunji 87] in favour of a VP node for a language, Japanese, where the order of subject, object and indirect object is tremendously well-known to be free.

Historically, the existence of VP is a consequence of the Chomskyan infamous misinterpretation of Port-Royal Grammar analysis – a sentence is composed of a subject and a predicate – and its transcription into a constituent context-free rule $S \rightarrow NPVP$. Here is the place to quote Zemb [Zemb 84, pp. 3]:

> *... à me disputer si souvent avec des contemporains tout en invoquant un patronage des Anciens dont ils eussent pu se réclamer plus directement que moi-même s'ils ne s'étaient pas interdit l'aveu de leur traditionalisme, p.ex. $VP(NP)$ par rapport à $f(x)$ ou prédicat(sujet)[1].*

This misinterpretation originates in Chomsky's refusal to differentiate between constituents and functions. One of the most persuasive advocates of this distinction is to be found

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[1] ...(I have to) argue so often with contemporary linguists by invoking the heir of the Ancients which they could claim theirs more than I can, would not they forbid themselves to confess their traditionalism, *e.g.* $VP(NP)$ compared with $f(x)$ or *predicate(subject)*. (my translation)

in French linguistics itself, namely Tesnière. This distinction is at the very core of his theory established in the fifties [Tesnière 59]. The need for functions has been rediscovered only recently in the Government and Binding framework under the inflated name of θ-theory. But sadly, the failure of recognising the constituent/function distinction created an artificial separation in the linguistic spheres between constituency and dependency representation proponents. Arguments in favour of the latter representation may be found in [Hajičová 88]. Again, Starosta elegantly bridged the gap by removing precisely ... VP. He shows that structures respecting his X-bar-only representation can be viewed as constituent *and* dependency structures at the same time [Starosta 88, pp. 104 and 110]. By the way, these structures are very similar to Vauquois' intermediate structures [Vauquois 88].

For its *Japanese Phrase Structure Grammar*, Gunji insisted on having a *VP* node in the structures drawn, *i.e.* to prefer the following left structure over the right one.
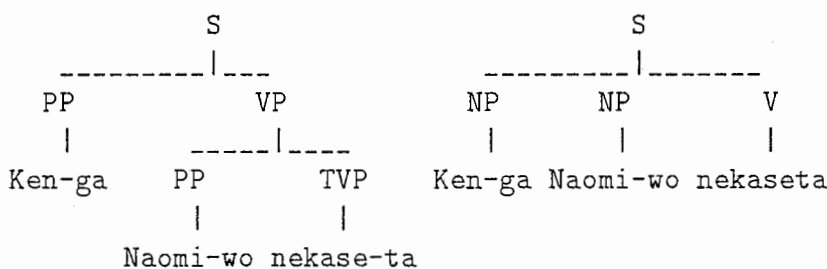
```
              S                               S
    _____|___                   _____|_____
    PP          VP                  NP       NP        V
    |        ____|____               |        |        |
  Ken-ga   PP       TVP           Ken-ga  Naomi-wo  nekaseta
           |         |
       Naomi-wo  nekase-ta


        (3.3)                               (3.4)
```

He honestly states:

> *I am currently not aware of any strong argument for preferring (3.4) over (3.3). Even though it may also be difficult to give a strong argument for (3.3) over (3.4), there seem to be several pieces of evidence that suggest the constituency of the object and the transitive verb in Japanese.*

His argumentation is based on two facts.

- the anaphorical value of the form *soo-su. Ken-ga neta node Marie-mo soo-sita.*

- the commutation of an intransitive verb with its factitive correspondent and its associated object: *Ken-ga Naomi-wo nekaseta / Ken-ga neta.*

Against the first argument, one can say the following. soo-su^2 is not a basic unit, as it is by no means felt as a verb by native speakers of Japanese. The verb su exists and the similar forms *soo-iw*, *soo-omow*, etc. exist also. Consequently, the only deduction from the examples given in [Gunji 87] is that *soo* could get a similar representation to that of an object noun-phrase.

Against the second argument, we must examine the underlying assumption. It is that commutating pieces of text have to be represented by similar *subtrees*. Unfortunately, this assumption gives rise to many problems of representation, not the least of which being representation of coordination. For instance, following this never explicitly settled assumption, [Gazdar 81] admits that a simple rule for coordination such as

$$a \rightarrow a_1 a_2 \ldots \text{and } a_n$$

cannot apply directly to the sentence

John gave the book to Mary and the records to Sue.

because the direct and indirect objects do not form a constituent. In terms of data structures, the representation of the direct and indirect objects is not one tree, but two trees making a forest.

This problem leads to a fundamental question: the well-foundness of linguistic operations dealing only with subtrees. We have argued [Lepage 91] elsewhere, that an enormous amount of perspicuity is gained by allowing operations on forests, and not only on subtrees. This question loops back to the problem of discontinuous structures, a number of which have been exhibited as arguments against the existence of a VP node. For example, in German the three following sentences ([Uszkoreit 86]).

Geben sollte er seiner Frau das Buch.
Das Buch geben sollte er seiner Frau.
Seiner Frau geben sollte er das Buch.

Other such phenomena have been shown in Finnish and treated without any VP in a lexicalist approach in [Karttunen 86].

In conclusion, we have argued here against the existence of the VP node, which is one of the touchstones of one of the dominant (if not imperialistic) streams in linguistics. We have shown that the advantages of its absence have been advocated by renowned linguists. We hope that this discussion will help people not to consider as untouchable axioms which appear to hinder simple descriptions.

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[2]We keep Gunji's notation.

References

[Fais and Kikui 91] Laurel Fais and Kikui Gen-Ichiro
Determining Surface Form for Indirect Speech Acts in English
ATR report TR-I-0235, Kyoto, December 1991.

[Fais 93] Laurel Fais
An English Analysis Grammar in a Unification-based Framework
ATR report TR-I-0351, Kyoto, March 1993.

[Gazdar 81] Gerald Gazdar
Unbounded Dependencies and Coordinate Structure
Linguistic Inquiry, Volume 12, Number 2, Spring 1981, pp. 155-184.

[Gunji 87] Gunji Takao
Japanese Phrase Structure Grammar
D. Reidel Publishing Company, 1987.

[Hajičová 88] Eva Hajičová
Reasons Why We Use Dependency Grammar
Proceedings of COLING-88, p 451, Budapest, 1988.

[Karttunen 86] Lauri Karttunen
Radical Lexicalism
Report No. CSLI-86-68, Stanford, December 1986.

[Lepage 91] Yves Lepage
Parsing and Generating Context-Sensitive Languages with Correspondence Identification Grammars
Proceedings of the Pacific Rim Symposium on Natural Language Processing, Singapore, November 1991, pp. 256-263.

[Lepage 92a] Yves Lepage
Easier C programming
Input/output facilities
ATR report TR-I-0293, Kyoto, November 1992.

[Lepage 92b] Yves Lepage
Easier C programming

Some useful objects
ATR report TR-I-0294, Kyoto, November 1992.

[Lepage 93a] Yves Lepage
Analysis, generation and more by means of genetic algorithms
ATR report TR-IT-0002, Kyoto, June 1993.

[Lepage 93b] Yves Lepage
Analysis, generation and more in natural language processing by means of genetic algorithms
Proceedings of the First Meeting of Special Interest Group on Parallel Processing for Artificial Intelligence, pp 13-18, Tokyo, September 1993.

[Lepage 93c] Yves Lepage
Analysis, generation and more using genetic algorithms
Technical Report of IEICE, NLC 93–42-47, October 1993, pp. 1-8.

[Tesnière 59] Lucien Tesnière
Eléments de syntaxe structurale
Klincksieck, Paris, 1959.

[Starosta 88] Stanley Starosta
The Case for Lexicase
Pinter Publishers, London and New York, 1988.

[Uszkoreit 86] Hans Uszkoreit
Categorial Unification Grammars
Report No. CSLI-86-66, Stanford, December 1986.

[Vauquois 88] Bernard Vauquois
Bernard Vauquois et la TAO, vingt-cinq ans de Traduction Automatique
Bernard Vauquois and MT, twenty-five years of MT C.Boitet ed., association Champollion & GETA, Grenoble, 1988.

[Zaharin and Lepage 92] Zaharin Yusoff and Yves Lepage
On the specification of abstract linguistic structures in formalisms for Machine Translation
Proceedings of the International Symposium on Natural Language Understanding and AI, pp 145-153, Iizuka, July 1992.

[Zemb 78] Jean Marie Zemb
           Vergleichende Grammatik Französisch-Deutsch
           Comparaison de deux systèmes - Teil 1
           Dudenverlag, 1978.

[Zemb 84] Jean Marie Zemb
           Vergleichende Grammatik Französisch-Deutsch
           L'économie de la langue et le jeu de la parole - Teil 2
           Dudenverlag, 1984.