

## Research on Language Acquisition ( II )

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### I. Introduction

This paper seeks the hypothesis based upon the experimental data: the results of Listening Comprehension Test performed by JACET in 1988 and 1989.<sup>1</sup>

In the previous paper,<sup>2</sup> some problems based upon the recent linguistic theory were considered: GB theory must be the most suitable analysis to manifest the language acquisition device which shows the innate and universal peculiarities in the human brain. From the syntactic point of view, the theory of UG must be related to computing the grammatical categories.<sup>3</sup> Indeed, I – language suggested by Chomsky<sup>4</sup> refers to the theory or characters of the inner ability in the human brain. On the contrary, E – language<sup>5</sup> has no relation to the universal theory. The theory of E – language may be an ad – hoc one, because the theory itself deals with the outer peculiarities of the human brain. However, the plausible relation between I – language and E – language is that the theory of E – language must be the output of I – language; the human behavior of E – language can be observed, but the behavior of I – language cannot. The device of language acquisition has a close relation to the peculiarities of I – language; the theory of UG.

To consider the syntactic development of language acquisition, such a theory must play a very important role. However, the development of language acquisition must contain various elements to be considered not only from the syntactic analysis, but also from the phonetic analysis. Based upon the recent linguistic theory, the syntactic approach is now too much emphasized, but considering the development of language acquisition, the phonetic side is also

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<sup>1</sup> The testees are the students majoring in English Literature Course in Kagoshima Prefectural College.

<sup>2</sup> M. Kukita and K. Tsuchimochi. (1990). "On Language Acquisition ( I )". *Bulletin of Kagoshima Prefectural College No.41*. pp.29 – 45.

<sup>3</sup> W. Elliott and K. Wexler. (1987). "Principle and Computation in the Acquisition of Grammatical Categories". U. C. – Irvine. manuscript.

<sup>4</sup> N. Chomsky. (1986). *Knowledge of Language*. New York : Prager. pp.21 – 24.

<sup>5</sup> N. Chomsky. *Knowledge of Language*. pp.19 – 21.

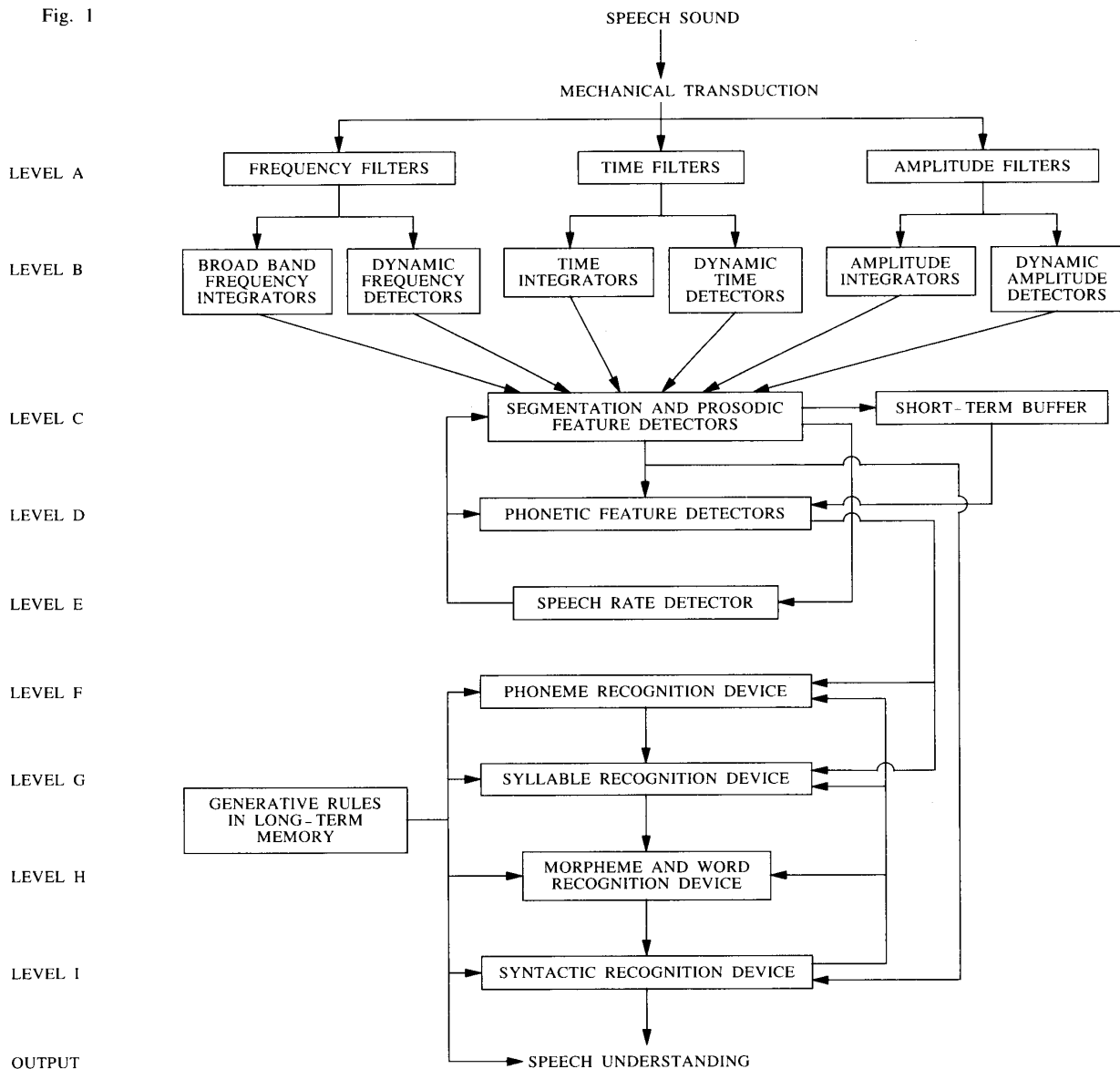
important and has to be considered in detail.

This paper attempts to find the universal peculiarities in the development of language acquisition from the phonetic side.

## II. Speech Perception

Before analyzing the phonetic features to find the phonetic universal peculiarities, the general stages of speech perception have to be considered in detail. The following models can be considered the general theory about the speech perception suggested by W. Cooper.<sup>6</sup>

Fig. 1



<sup>6</sup> W. Cooper. (1979). *Speech Perception and Production*. Norwood, New Jersey : Ablex Pub. p.16.

The figure shown above manifests the various stages of speech perception. In this figure, the term “speech perception” contains “all levels of information – processing normally involved in speech understanding” as suggested by W. Cooper.<sup>7</sup> As W. Cooper explained,<sup>8</sup> the figure shown above deeply depends upon lots of general and specific models of speech perception such as Liberman,<sup>9</sup> Pisoni & Sawusch,<sup>10</sup> Summerfield,<sup>11</sup> and Cooper & Nager.<sup>12</sup> In addition to these scholars’ contribution, this figure greatly depends upon the works of communication engineers such as Rovner, Nash – Webber, and Woods etc., for computer recognition of speech. Generally speaking, the figure shown above clearly manifests the stages of speech perception, but brief explanation is necessary to understand the stages in detail. The explanation of Level A suggested by W. Cooper is as follows:<sup>14</sup>

Level A : At the first of these levels (Level A), a large number of filters code frequency, amplitude, and time information. The specification of separate filters for each of these parameters at Level A is not meant to imply that each filter operates completely independent of information contained in other parameters. For example, individual frequency filters are amplitude dependent to some extent and operate over time windows. A more precise model of speech perception must include the frequency – response characteristics of these filters and the degree to which the response ranges of separate filters overlap. Studies in auditory psychophysics, physiology, and speech recognition by machine permit some inferences to be made about that details.

At level A, many filters can efficiently work. Considering the semilingual, bilingual, multilingual ways, many problems remain to be unsolved. On the semilingual problem, the

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<sup>7</sup> W. Cooper. *Speech Perception and Production*. p.15.

<sup>8</sup> W. Cooper. *Speech Perception and Production*. p.15.

<sup>9</sup> M. Liberman. (1970). “The Grammars of Speech and Language”. *Cognitive Psychology*. 1. pp.301 – 323.

<sup>10</sup> D. Pisoni and J. Sawusch. (1975). “Some Stages of Processing in Speech Perception”. In A. Cohen & S. Nooteboom (eds.). *Structure and Process in Speech Perception*. Heidelberg : Springer – Verlag.

<sup>11</sup> Q. Summerfield. (1974). “Toward a Detailed Model for the Perception of Voicing Contrasts”. *Speech Perception report of research in progress at the Department of Psychology, The Queen’s University of Belfast, Northern Ireland*, 2. 3. pp.1 – 26.

<sup>12</sup> W. Cooper and R. Nager. (1975). “Perceptuo – motor adaptation to Speech : An Analysis of Bisyllabic Utterances and a Neural Model”. *Journal of the Acoustical Society of America*, 58. pp.256 – 265.

<sup>13</sup> R. Rovner, B. Nash – Webber, and W. Woods. (1975). “Control Concepts in a Speech Understanding System”. *IEEE Transactions on Acoustics, Speech, and Signal Processing*, ASSP – 23. pp.133 – 140.

<sup>14</sup> W. Cooper. *Speech Perception and Production*. p.15.

place or level has to be manifested where the handicapped mechanism is born. On the level of filters, some acoustic elements can be considered. However, the semilingual problems seem to have completely different problems from other problems; bilingual, multilingual problems, for the problem greatly depends upon the medical problems. However, the sound environment seems to be one of the cause to be semilingual. On the contrary, some interesting problems seem to be considered about bilingual and multilingual problems. To be effectively bilingual, many filters seem to work simultaneously, corresponding to each language. Such a problem needs various types of experiment to prove which filter or level has a crucial point or not.

The same explanation of Level B suggested by W. Cooper is as follows :<sup>15</sup>

Level B : At Level B, the output of each set of Level A filters is integrated by a broader band filter. Here, some degree of frequency, amplitude, and time resolution is lost for the sake of obtaining a more abstract representation. At this level, for example, the outputs of a number of filters for frequency information are pooled to yield a representation resembling a formant frequency, such as that shown in the spectrogram in Figure 3. A variety of possibilities exists for how such formant frequencies are actually computed. Programs for machine recognition of speech may rely on the processing of zero-crossing of an oscillogram-like trace, computing the peak in amplitude for a given broad frequency region, or on more sophisticated procedures, including linear-prediction (based on analysis-by-synthesis) or cepstral analysis. Whether any of these methods provides a useful analogy to formant processing in humans remains to be determined. At level B, the system also detects information about changes in the output of the previous stage over time. At this stage, for example, a rise or fall in the frequency of a particular formant is detected. Again, it is not known how extraction of this information occurs. One possibility is by lateral inhibition among separate formant frequency filters, analogous to a network proposed in the visual system for detecting motion.

At Level B, lots of mechanical device can efficiently work. The detailed explanation by W. Cooper clearly manifest the process of sound recognition.

Both systems of Level A and Level B are not visible, these systems seem to be compared with the inner and innate abilities of humans as I-language suggested by Chomsky. Within Level A and Level B, compared with the language development, a particular language is not determined yet. Every language has the same procedure within the Level A and Level B.

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<sup>15</sup> W. Cooper. *Speech Perception and Production*. p.16.

Within the framework of GB theory, such a model of information – flow has a close relation and similarity. Such a model can be compared with the various parameters of GB theory. However, this paper does not deal with the detailed comparison with the parameters of GB theory.

The same explanation of Level C suggested by W. Cooper is as follows :<sup>16</sup>

Level C : segmentation is performed to break down the incoming speechwave into syllablelike chunks. This segmentation process may proceed by computing the average number of times that an oscillogram – like trace crosses zero amplitude. The output of each segmentation pass is stored in a short – term buffer. In addition, the detection of prosodic features, including significant inflections of fundamental frequency and rhythm, is carried out at this level.

At Level C, a particular language is determined, for the visible segmentation and prosodic features are detected. The mechanism of this level does not seem to be an innate one, for the segmentation and prosodic features can be learned in the language environment. Within the Level C, the language can be a particular element. To be efficiently bilingual or multilingual, some efficient devices have to be found between Level B and Level C. The input of another language has a very important element between Level B and Level C.

The same explanation of Level D suggested by W. Cooper is as follows :<sup>17</sup>

Level D : the output signals from Level C are processed to derive information about individual phonetic features, such as manner and place of articulation. A decision regarding the value of any feature is based on inputs from a number of auditory filters. Again, many details are unknown. It is plausible that the manner features are extracted first, since these are the most reliably coded in the speech signal and would be most useful in guiding later hypotheses about phoneme identity.

At Level D, phoneme identification has a very important meaning. How to identify a particular phoneme greatly depends upon the learning phoneme. This identification ability seems to have non – innate one.

The same explanations of Level E, Level F, Level G, and Level H suggested by W. Cooper are as follows :<sup>18</sup>

Level E : a decision about the speaker's rate of speech is made on the basis of an average of how many segments occurred over a given time interval at Level C. The judgment of

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<sup>16</sup> W. Cooper. *Speech Perception and Production*. p.17.

<sup>17</sup> W. Cooper. *Speech Perception and Production*. p.17.

<sup>18</sup> W. Cooper. *Speech Perception and Production*. pp.17 – 18.

speech rate is fed back to Level D where initial hypotheses about phonetic features may be revised. The initial and revised outputs of Level D are transmitted to a phoneme recognition device at Level F, where hypotheses are made about the identity of each phoneme. The outputs of Level D are also transmitted in parallel to a syllable – recognition device at Level G, where hypotheses are made about the identity of the whole syllable – sized chunk segmented at Level D.

Level F & Level G : Levels F and G also receive input from a set of generative rules stored in long – term memory. These rules aid the listener in making decisions about phoneme and syllable identity, as well as in computing the probability that the decisions made at Level G and H are correct. Decision making about phonemes and syllables proceeds independently, and both types of units are accorded an important status as input to later stages of processing. A probability score is derived by assessing the match between the preliminary output of these levels and an interval representation of the phoneme or syllable in question. In this way, the system can decide when sufficient information is available about phoneme and syllable identity to serve as useful input to later stages of processing.

Level H : In Level H, large chunks, such as morphemes (minimal meaning – bearing units) and words are identified, using generative rules for lexical look – up as a guide. At the same time, that lexical information is being extracted, a syntactic processor is beginning to make hypotheses about the probable locations of phrase and clause boundaries. This processor receives primary input from auditory filters which compute the fundamental frequency contour and duration of speech segments as well as from information based on lexical items whose identity has already been determined. The output of the syntactic processor feeds back to Level F, G, and H to derive revised phoneme, syllable, and word hypotheses as necessary.

As W. Cooper suggested, he tried to explain in detail some aspects of the preliminary, data – driven stages of the model, particularly Level A and B, involving the early processing of acoustic information.

However, the crucial different point between his model and the recent linguistics that the “Generative Rules in Long – term Memory” belong to different level. In terms of his explanation, the term “Generative Rules in Long – term Memory” seems to mean the particular rules in English; passive transformation, question transformation, pronominalization, topicalization, relativization etc., which exclude the concept of UG suggested by Chomsky.<sup>19</sup>

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<sup>19</sup> N. Chomsky. *Knowledge of Language*. pp.17 — 29.

Indeed, within the model of information – flow during speech perception, the mechanical ways of generative rules give a strong power to understand the language. Such a viewpoint has a strong one before the discovery of UG. The discovery of UG seems to change the basic viewpoint of speech perception; understanding language. The theory itself of recent linguistics contains the universal theory; the principles. The model suggested by W. Cooper shown above is the standard one for speech perception. However, the way of adopting the approach of transformational generative grammar seems to lack one side; the universal way of languages. Then, within the Level A and Level B, the universal theories of languages have to be adopted. There seems to be a universal way of perception of languages within Level A and Level B. Mechanical transformational rules seem to mean a completely different meaning, for the recent linguistic analysis can be summed up as only one way “Move  $\alpha$ ”. The interaction between generative rules and speech perception has to be considered in detail.

In addition to this, the term “Long – term Memory” is apt to mean the peculiarities of competence, but the term does not seem to refer to any innate peculiarities within the framework of W. Cooper. Compared with the recent linguistic theory, the better model including the concept of UG has to be built up.

Between Level B and Level C, some factors for the determination of a particular language can be considered. In the first level, phonetic recognition has a very important meaning. To acquire a particular language, how to recognize phonemes, syllables, morphemes and words, and syntax seems to be the innate abilities.

However, in considering the second language acquisition, all these devices have to work efficiently. In this paper, phonetic analysis in the second language acquisition will be shown briefly. Considering the phonetic environment, the method of TESL has a well – established one, but when learning the foreign language maximally to be effective, the phonetic environment should be considered as the most important factor to develop the sound patterns of foreign languages.

From this point of view, the tentative phonetic analysis will be shown briefly based upon the Listening Comprehension Test performed by JACET in 1988 and 1989.

### III. Phonetic Analysis

The tentative phonetic analysis seems to show the degree of difficulty in Listening Comprehension Test performed by JACET in 1988 and 1989. The explanation that the pho –

netic factors have a very important point can be found in the general language acquisition procedure as follows :<sup>20</sup>

Within any speech sound sequence (which may represent an utterance) there are always some segments which are more readily available to analysis than others. In fact, the sequence must first be processed auditorily and then preserved in memory for at least a few months. It is reasonable to assume that the processing gives priority to the opening segment(s), the concluding segment(s), the segment(s) immediately preceding and following any identifiable pauses.

Human perception in general is particularly sensitive to distinct alterations in the perceptual domain. Consequently, the change from sound to silence and from silence to sound is perceptually more conspicuous than continuous sound sequences. (Obviously, such changes are not the only criterion of salience.) Moreover, research on memory has shown that retention is better for the first and the last than for any other elements in a series of otherwise equivalent stimuli... The value of the 'more salient positions' is bound to be affected by the relative familiarity of the elements appearing in the sequence.

In addition to the position in an utterance, prosodic features have an influence on the learner. About the prosodic properties, W. Klein claims like this :<sup>21</sup>

The term prosody mainly refers to such features of utterances as loudness, pitch, and duration of segments; other terms used in this context are: intonation, stress, and rhythm. Roughly speaking, these features set off certain segments of an utterance. Crucial among the prosodic properties of speech is pitch; loudness and duration of segments are secondary in the most widely used European languages. Words marked by a change in pitch catch our attention. This kind of stress tends to fall on content words rather than function words and words emphasized by raised pitch are ordinarily more perceptually salient than other words... At the same time, stress explains to some extent why content words are usually acquired more easily than function words, even though the latter are much more frequent. Of course, this is not the only reason: content words are certainly more important for communication than function words. This can be clearly seen when one compares the comprehensibility of an utterance where all the function words have been deleted with one where all the content words have been deleted; in the former case the deficient utterance may still be comprehensible, in the latter you cannot make

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<sup>20</sup> W. Klein. (1986). *Second Language Acquisition*. New York : Cambridge Univ. Pr. p.68.

<sup>21</sup> W. Klein. *Second Language Acquisition*. p.69.

anything of it. But the different communicative importance does not help our learner, if he still has to identify which syllable (sequence) is a function word and which one a content word...

As shown above, various phonetic features have a great influence on listening comprehension. The tentative analysis in Section III is based upon this standpoint. In the sound sequence, the prominent has a big value. In general, most content words bear prominence more than function words. The tentative analysis contains the features of initial and final positions of every question, for most Japanese are not familiar with paying attention to the starting phoneme and ending phoneme, for the sound sequence of Japanese is completely different from that of English. Besides, some phonetic phenomena, liaison, elision etc, have an influence on listening comprehension. In general, content words are easy to understand, but function words are not so easy, for some content words bear the prominent or salient sound. The rate of answering sometimes depends upon the topic of questions, for a familiar topic is easy to understand.

Based upon the experimental data of the results of Listening Comprehension Test performed by JACET in 1988 and 1989, the tentative phonetic analysis is shown. The testees are the students majoring in English Literature Course in Kagoshima Prefectural College. To manifest the degree of listening difficulty, the four questions can be phonetically analyzed. The four questions showed the highest rate of answering and the next highest and the lowest rate of answering and the next lowest in the previous paper. To find the degree of difficulty in listening, some phonetic factors seem to be considered; the position and the manner of the articulation of the initial and final phoneme, the phenomena of liaison, assimilation, elision etc... Morphologically, the number of words and the peculiarity of words; content or function words seem to be considered to determine the degree of difficulty in listening comprehension. The tentative analysis seems to find why the degree of difficulty is different from each other.

# 1. Phonetic Analysis — Form A Part 1

## (1) Form A Part 1 (1988,6)

	High		Low	
No.	14	16	9	8,20
Total (62)	88.71%	80.65%	33.87%	33.71%

## (2) Form A Part 1 (1989,6)

	High		Low	
No.	14	15	9	20
Total (64)	81.25%	76.56%	38.10%	42.19%

Table (1) and Table (2) show the rate of answering. Sentence (14) contains two sentences; the former sentence has a bilabial nasal consonant in the initial position and a voiceless labio-dental consonant in the final position, and the latter has a retroflex semivowel and a mid central unrounded vowel. The phonetic phenomenon of liaison can be found in four places. Sentence (14) has 20 words in all, among which 14 content words can be found. The topic is easy to follow, and a popular one. Sentence (15) also contains two sentences, the former sentence has a voiceless plosive consonant in the initial position, and a voiced alveolar fricative consonant in the final position, and the latter has a voiceless alveolar consonant in the initial position and a voiced alveolar fricative consonant in the final position. The phonetic phenomenon of liaison can be found in one place. Sentence (15) has 15 words in all, among which 10 content words can be found. The topic is a very familiar one. Question (16) also contains two sentences, the former sentence has a glottal fricative consonant in the initial position, and a voiceless bilabial plosive consonant in the final, and the latter has a voiced dental fricative consonant in the initial position, and a voiceless alveolar plosive consonant in the final. Question (16) has 18 words in all, among which 10 content words can be found. The topic is also a familiar one.

On the contrary, Question (9), Question (20), and Question (8) show the lowest rate of answering. Similarly, Question (9) contains two sentences, the former sentence has an alveolar lateral in the initial position and the latter has a voiced alveolar plosive consonant in the final. The phonetic phenomenon of liaison can be found in one place. Question (9) has 10 words in all, among which 7 content words can be found. The topic needs knowledge about science. Question (20) also contains two sentences, the former sentence has a voiceless velar plosive consonant in the initial position and a voiced alveolar consonant in the final, and the latter sentence has a voiced bilabial plosive consonant in the initial position and a mid central unrounded vowel in the final. The phonetic phenomenon of liaison can be found in three places. Question (20) has 20 words in all, among which 12 content words can be found. The topic is a familiar one, but the negative element in the initial position seems to be difficult to understand. Question (8) also contains two sentences, the former sentence has a mid central unrounded vowel in the initial position and a voiceless alveolar plosive consonant in the final, and the latter sentence has mid central vowels in the initial and final positions. The phonetic feature of liaison can be found in four places. Question (8) has 22 words in all, among which 11 content words can be found. The topic is a familiar one, but the opposite misunderstanding can be considered in answering.

## 2. Phonetic Analysis — Form B Part 1

## (3) Form B Part 1 (1988, 12)

	High		Low	
No.	7	10	12	5
Total (61)	85.25%	78.69%	29.51%	39.34%

## (4) Form B Part 1 (1989, 12)

	High		Low	
No.	7	10	12	13
Total (63)	85.71%	80.95%	20.63%	26.98%

Table (3) and Table (4) also show the rate of answering. Question (7) and Question (10) show the highest and the next high rate of answering. Question (7) also contains two sentences, the former sentence has a mid central unrounded vowel in the initial position and a voiceless dental fricative consonant in the final position, and the latter has a bilabial semivowel in the initial position and a voiceless alveolar fricative consonant in the final position. The phonetic phenomenon of liaison can be found in three places. Question (7) has 23 words in all, among which 15 content words can be found. The topic is a familiar one. Question (10) also contains two sentences; the former has a voiced bilabial plosive consonant in the initial position and a high close front unrounded vowel in the final position, and the latter has voiceless alveolar fricative consonants in the initial and final positions. The phonetic phenomenon of liaison can be found in three places. Question (10) has 20 words in all, among which 10 content words can be found. The topic is a familiar one. On the contrary, Question (12), Question (5), and Question (13) show the lowest rate of answering. Similarly, Question (12) also contains two sentences; the former sentence has a voiceless alveolar fricative consonant in the initial position, and a voiceless alveolar fricative consonant in the final position, and the latter sentence has a palatal semivowel in the initial position and a high open back rounded vowel in the final position. The phonetic phenomenon of liaison can be found in one place. Question (12) has 16 words in all, among which 11 content words can be found. The topic is a complicated one and needs imagination. Question (5) also contains two sentences; the former sentence has a voiceless plosive consonant in the initial position, and a voiced alveolar fricative consonant in the final position, and the latter sentence has a voiceless alveolar plosive consonant in the initial position and a high front vowel in the final position. The phonetic phenomenon of liaison can be found in four places. Question (5) has 22 words in all, among which 13 content words can be found. The topic is a complicated one. Question (13) also contains two sentences; the former sentence has a voiced velar plosive consonant in the initial position and an alveolar lateral consonant in the final position, and the

latter sentence has a voiceless velar plosive consonant in the initial position and a voiceless alveolar plosive consonant in the final position. The phonetic phenomenon of liaison can be found in two places and one reduction can be found. Question (13) has 8 words in all, among which 6 content words can be found. The topic is a little difficult and needs knowledge about science.

### 3. Phonetic Analysis — Form A Part 2

#### (5) Form A Part 2 (1988,6)

	High		Low	
No.	14	10	8,18	17,20
Total (62)	96.77%	87.10%	46.77%	48.39%

#### (6) Form A Part 2 (1989,6)

	High		Low	
No.	10	4,5,14,16	3	2
Total (64)	92.19%	87.50%	40.63%	42.19%

Table (5) and Table (6) show the rate of answering. Questions of part two are paraphrase questions, so that the knowledge about idiomatic expressions seems to have an influence on the rate of answering. Similarly, the phonemes of the initial and the final positions seem to have an influence on the rate of answering. Question (10) also contains two sentences; the former sentence has a voiced dental fricative consonant in the initial position and an alveolar nasal consonant in the final position, and the latter sentence also has a voiced dental fricative consonant in the initial position and an alveolar lateral consonant in the final position. The phonetic phenomenon of liaison can be found in two places. Question (10) has 15 words in all, among which 9 content words can be found. The topic is a very familiar one. Question (14) also contains two sentences; the former sentence has a high open front unrounded vowel in the initial position, and an alveolar lateral consonant in the final position, and latter sentence has a voiced alveolar lateral consonant in the initial position and an alveolar lateral consonant in the final position. The phonetic phenomenon of liaison can be found in two places, and that of elision can be found in one place. Question (14) has 18 words in all, among which 11 content words can be found. The topic is also a familiar one and an idiomatic expression can be found. Question (4) also contains two sentences; the former sentence has a glottal fricative consonant in the initial position and a voiceless alveolar plosive consonant in the final position, and the latter sentence has a glottal fricative consonant in the initial position and an alveolar nasal consonant in the final position. The phonetic phenomenon of reduction can be

found in two places. Question (4) has 7 words in all, among which 5 content words can be found. The topic is a very easy one, and an idiomatic expression can be found. On the contrary, Question (3), Question (8), and Question (18) show the lowest rate of answering. Question (3) also contains two sentences; the former sentence has a voiced dental fricative consonant in the initial position and a voiceless velar plosive consonant in the final position and the latter sentence has a low open central unrounded vowel in the initial position and a mid central unrounded vowel in the final position. The phonetic phenomenon of liaison can be found in two places, and that of elision can be found in one place. Question (3) has 12 words in all, among which 7 content words can be found. The topic is a little difficult. An idiomatic expression is difficult. Question (8) also contains two sentences; the former sentence has a glottal fricative consonant in the initial position and a voiceless alveolar fricative consonant in the final position, and the latter sentence has a bilabial semivowel in the initial position and a mid central unrounded vowel in the final position. The phonetic phenomenon of liaison can be found in five places. Question (8) has 18 words in all, among which 9 content words can be found. The topic is a familiar one, but an idiomatic expression is complicated. Question (18) also contains two sentences; the former has a bilabial semivowel in the initial position and a retroflex semivowel in the final position, and the latter has a voiced alveolar plosive consonant in the initial position and a retroflex semivowel in the final position. The phonetic phenomenon of liaison can be found in three places. Question (18) has 14 words in all, among which 9 content words can be found. The topic is a familiar one, but an idiomatic expression is complicated.

#### 4. Phonetic Analysis — Form B Part 2

##### (7) Form B Part 2 (1988,12)

No.	High		Low	
	15	10	5	20
Total (61)	91.80%	90.16%	39.34%	45.91%

##### (8) Form B Part 2 (1989,12)

No.	High		Low	
	15	13	20	5
Total (63)	88.89%	82.54%	26.98%	41.27%

Table (7) and Table (8) show the rate of answering. Questions of part two are also paraphrase questions. Question (10), Question (13), Question (15) show the highest rate of answering. Question (15) also contains two sentences; the former sentence has a mid central

unrounded vowel in the initial position and a voiced alveolar plosive consonant in the final position, and the latter has a mid central unrounded vowel in the initial position and a voiceless bilabial plosive consonant in the final position. The phonetic phenomenon of liaison can be found in six places. Question (15) has 20 words in all, among which 14 content words can be found. The topic is a familiar one, and the pattern of paraphrase is very familiar. Question (10) also contains two sentences; the former sentence has a bilabial semivowel in the initial position and a voiced alveolar fricative consonant in the final position, and the latter has a voiced dental fricative consonant in the initial position and a voiceless alveolar plosive consonant in the final position. The phonetic phenomenon of liaison can be found in two places, and that of elision can be found in one place. Question (10) has 11 words in all, among which 9 content words can be found. The topic is a very familiar one. On the contrary, Question (5) and Question (20) show the lowest rate of answering. Question (5) also contains two sentences; the former sentence and the latter have voiceless alveolar plosive consonants in the initial positions and bilabial plosive consonants in the final positions. The phonetic phenomenon of elision can be found in one place. Question (5) has 15 words in all, among which 8 content words can be found. The topic is a little difficult, and an idiomatic expression is complicated. Question (20) also contains two sentences; the former sentence has a voiced dental fricative consonant in the initial position and a voiceless alveolar fricative consonant in the final position, and the latter has a voiced dental fricative consonant in the initial position and an alveolar lateral consonant in the final position. The phonetic phenomenon of liaison can be found in four places, and that of elision can be found in one place. Question (20) has 19 words in all, among which 9 content words can be found. The topic is a little difficult, and the idiomatic expression is complicated.

As shown above, about listening comprehension, various factors can be considered; the feature of the starting phoneme and the ending phoneme, various phonetic phenomena, the features of words, and the topic. Generally speaking, listening comprehension in a short time needs quick response and English intuition.

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