

## The communication of friendly and hostile attitudes by verbal and non-verbal signals\*

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### Résumé

Deux expériences sont rapportées dans lesquelles on demandait à des sujets d'évaluer un film sur bande magnétique représentant un acteur lisant des messages amicales, neutres ou hostiles dans un style non verbal amical, neutre ou hostile. Auparavant, ces messages et genres non verbaux avaient été présentés indépendamment à un groupe isolé afin d'obtenir une estimation de leurs forces individuelles en utilisant une échelle d'évaluation de six degrés, et de permettre ainsi la classification des présentations verbales (messages) et non verbales (genres), au cours d'une expérience durant laquelle les deux types de présentation avaient été présentés combinés. Les résultats des deux expériences montrent que des présentations non verbales (notamment *hostile-amicale*) avaient un effet plus grand sur des évaluations faites sur une échelle de sept points que des présentations verbales. L'importance de ce résultat était cependant liée à la force relative des présentations non verbales comparées aux présentations verbales. Dans la première expérience les deux types

### Zusammenfassung

Es wird von zwei Versuchen berichtet, in denen Versuchspersonen Magnetbildbänder beurteilen sollten, auf denen ein Schauspieler freundschaftliche, neutrale oder feindselige Meldungen in einem freundlichen, neutralen oder feindseligen nicht-verbalen Stil verlas. Diese Meldungen sowie die nicht-verbalen Ausdrucksformen waren vorher bereits unabhängig von einander einer getrennten Gruppe von Versuchspersonen zur Beurteilung vorgeführt worden, und zwar im Hinblick auf eine anhand einer sechsstelligen Skala vorzunehmenden Schätzung ihrer jeweiligen Stärke. Dieses Verfahren ermöglichte eine vergleichende Gegenüberstellung der verbalen (Meldungen) und nicht-verbalen (Ausdrucksformen) Rollen in einem Experiment, in welchem beide Rollentypen kombiniert vorgeführt wurden. Die Ergebnisse beider Versuche ergaben, daß nicht-verbale Darstellungen (feindselig-freundlich) eine größere Wirkung auf die anhand von 7-Punkte-Skalen gemachten Beurteilungen hatten als verbale Rollen. Das Ausmaß dieses größeren Effekts von nicht-

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de présentation étaient approximativement égaux en force s'ils étaient évalués seuls; ici, les présentations non verbales produisaient des désaccords 12,5 fois plus importants que des présentations verbales, et 5,7 fois plus de changements de position sur l'échelle. Dans la deuxième expérience, les présentations verbales étaient bien plus fortes que les présentations non verbales évaluées seules. Ici, l'effet relatif des présentations non verbales dans la deuxième expérience était diminué; la proportion des désaccords non verbaux/verbaux était de 1,67:1. Quand les signaux verbaux et non verbaux étaient en contradiction, la représentation était qualifiée d'*insincère, instable et confuse* - ce qui n'avait pas été le cas dans des expériences antérieures sur la dimension supérieure-inférieure.

verbalen Rollen war jedoch von ihrer relativen Stärke im Vergleich zu den verbalen Rollen abhängig. Im ersten Versuch wurden beide Rollentypen als ungefähr gleich stark beurteilt, wenn sie für sich allein gewertet wurden; hier zeigten nicht-verbale Rollen 12,5 mal mehr Streuung an als verbale Rollen und produzierten 5,7 mal soviel Änderungen in der Skalenposition. Im zweiten Versuch waren die verbalen Rollen wesentlich stärker als die nicht-verbalen wenn sie allein gewertet wurden. Hier war der relative Effekt der nicht-verbalen Rollen im zweiten Experiment eingeschränkt: das Verhältnis von nicht-verbalen und verbaler Veränderlichkeit war jetzt 1,67 zu 1. Wenn verbale und nicht-verbale Signale zu einander im Widerspruch standen, wurde die Darstellung als *unehrlich, labil und verwirrend* bezeichnet, was bei früheren Versuchen über die Superior-inferior Dimension nicht der Fall war.

### Abstract

*Two experiments are reported here in which Ss were asked to rate videotapes of a performer reading friendly, neutral and hostile messages in a friendly, neutral or hostile non-verbal style. These messages and non-verbal styles had previously been presented independently to a separate group of Ss for rating, in order to obtain an estimate of their individual strengths in terms of six rating scales, and thus permit a matching of verbal (messages) and non-verbal (styles) cues in the experiment where both types of cues were presented in combination. The results of both experiments indicate that non-verbal cues had a greater effect on ratings made on 7-point scales, such as hostile-friendly, than verbal cues. The magnitude of this greater effect of non-verbal cues, however, was dependent on the relative strength of non-verbal as opposed to verbal cues. In the first experiment, both types of cues were approximately equal in strength when rated alone; here non-verbal cues accounted for 12.5 times as much variance as verbal cues, and produced 5.7 times as much shift on the rating scales. In the second experiment the verbal cues were much stronger than the non-verbal cues when rated alone. Here the relative effect of non-verbal cues in the second experiment was diminished; the ratio of non-verbal : verbal variance was now 1.67:1. When verbal and non-verbal signals were inconsistent, the performance was rated as insincere, unstable and confusing - which was not found in earlier experiments on the superior-inferior dimension.*

## 1. INTRODUCTION

It is now familiar that human social interaction consists not only of verbal exchanges, but also of non-verbal signals such as head-nods, facial expression, gesture, posture, eye-movements, tones of voice, etc. It is known that these non-verbal signals play a number of separate roles, including the communication of interpersonal attitudes, the expression of emotions, self-presentation, indicating mutual attentiveness, providing feedback, handling floor-apportionment, and providing illustrations for speech (cf. Ekman and Friesen, 1967; Argyle, 1969). It has been maintained by a number of writers that the non-verbal channel is a kind of silent language, at the background of consciousness (Hall, 1959). It has been suggested by Davitz (1964) that verbal and non-verbal signals are perceived by quite different processes; Ekman and Friesen (1969) observed that some non-verbal stimuli are more easily verbalized than others.

The present first author put forward elsewhere the hypothesis that language evolved and is normally used for communicating information about events external to the speakers, while the non-verbal code is used, by humans and animals, to establish and maintain interpersonal relationships (Argyle, 1969). In an earlier experiment by Mehrabian and Wiener (1967) the relative effects of verbal and non-verbal signals for emotions were compared. Single words were tape-recorded, with the affective tone of the words themselves varying (e.g. Love v. Terrible) and the tone of voice varying from positive to negative affect. It was found that judgements of the stimuli were based mainly on tone of voice.

A group of previous experiments had been carried out in which the effects of verbal and non-verbal cues of superiority and inferiority were compared (Argyle *et al.*, 1970). It was found that when verbal and non-verbal cues of equivalent strength were combined the non-verbal cues accounted for 10.3 times as much variance as verbal cues, and produced 4.3 times as much shift on relevant rating scales.

The present experiment used the same method as in the superior-inferior experiments, but with another dimension of interpersonal attitudes, friendly-hostile.

*Hypothesis 1.* Non-verbal signals for hostile-friendly attitudes have more effect than verbal signals.

Following the 'double-bind' hypothesis of Bateson *et al.* (1956) it was expected that inconsistent combinations of cues like friendly (verbal) and hostile (non-verbal) would be rated as confusing, unstable and insincere. This was not found in the previous experiments on the inferior-superior dimension, but it was thought that such effects might occur with love and hate.

*Hypothesis 2.* A person communicating inconsistent verbal and non-verbal cues will be rated as more unstable, confusing and insincere than one communicating consistent non-verbal and verbal cues. (This is not regarded as a test of the double-blind hypothesis).

## 2. EXPERIMENT I

### 2.1. Method

#### 2.1.1. Subjects

Six male and 6 female students rated the typed messages and non-verbal styles (a performer reading numbers in a hostile, neutral or friendly manner) separately on six 7-point scales. In the experiment itself, fifteen male and fifteen female students at an Education College served as subjects and rated videotapes of the messages and non-verbal styles combined on the same six 7-point scales.

#### 2.1.2. Materials

The messages which were used as verbal cues in the experiment were as follows:

*Friendly.* 'I enjoy meeting the subjects who take part in these experiments and find I usually get on well with them. I hope you will be able to stay on afterwards to have a chat about the experiment. In fact, the people who have come as subjects in the past always seemed to be very pleasant.'

*Neutral.* 'I don't really mind meeting the subjects who take part in these experiments. Some of them are fairly nice. Others of course are rather tedious. You can come along afterwards and talk about the experiment if you like, but please don't stay too long. On the whole, I don't have very strong feelings about people who come as subjects in experiments.'

*Hostile.* 'I don't much enjoy meeting the subjects who take part in these experiments. I often find them rather boring and difficult to deal with. Please don't hang around too long afterwards and talk about the experiment. Some people who come as subjects are really rather disagreeable.'

The mean ratings of these messages, when the typed versions were presented alone on the relevant 7-point scales, were:

*Messages*

	Friendly	Neutral	Hostile
<i>Scales</i>			
Hostile-friendly	5.95	4.05	2.25
Unpleasant-pleasant	6.00	3.50	2.15
She liked-disliked me	4.90	4.00	3.15
Average	5.62	3.85	2.52

Range 3.10 units

The non-verbal styles consisted of various combinations of tone of voice, facial expression and posture:

*Friendly*: Warm, soft tone of voice, open smile, relaxed posture.

*Neutral*: Expressionless voice, blank face.

*Hostile*: Harsh voice, frown with teeth showing, tense posture.

The performer was an attractive female student aged 23.

In order to obtain ratings of the non-verbal styles alone, videotapes were made of the performer reading numbers – 'one, two, three . . .' in the styles described above, for the same length of time needed to read the messages aloud. The mean ratings of these videotapes on the relevant scales were: <sup>1</sup>

*Videotapes*

	Friendly	Neutral	Hostile
<i>Scale</i>			
Hostile-friendly	6.10	3.90	1.75
Unpleasant-pleasant	5.60	4.10	1.60
She liked-she disliked me	4.70	3.50	2.25
Average	5.46	3.83	1.87

Range 3.59 units

Nine videotapes were then prepared in which each of the three messages was spoken in each of the three non-verbal styles.

*2.1.3. Procedure*

Subjects were given the following instructions: 'Thank you very much for coming

1. Counting numbers was used, since it includes all the non-verbal accompaniments

of speech; although there is a 'verbal' message, this has no meaningful contents.

along. This is a rather unusual experiment. We are going to show you nine films of the same person who will speak to you, saying different things in different ways. We want you to imagine that you are actually meeting the person and that she is an experimenter. We would like to know what you think of her.'

The subjects were then given booklets of rating scales consisting of 9 sets of six 7-point scales, and were shown how to fill in these scales.

The nine videotapes were shown in random order. Subjects filled in six rating scales after the presentation of each videotape. At the end of the experiment, subjects were debriefed.

## 2.2. Results

2 x 3 x 3 Analyses of Variance (repeated measures on the last two factors) were carried out for each of the six rating scales. Where interactions proved significant, further Neumann-Keuls Multiple Comparison Tests were done.

### 2.2.1. *The relative effects of verbal and non-verbal cues*

Table 1 shows the results of the analyses of variance performed on the rating scales *hostile-friendly*, *unpleasant-pleasant*, *she liked me-disliked me*.

It can be seen that both verbal and non-verbal cues affect ratings on these three scales, but an examination of the simple main effects shows that whereas the non-verbal is effective at all levels of the verbal, the influence of the verbal is somewhat dependent on the level of the non-verbal with which it is combined. In particular, the verbal has no effect when it is combined with hostile non-verbal cues.

Furthermore the variation attributable to non-verbal cues is much greater than that due to verbal cues; the ratio of non-verbal: verbal F values on the *hostile-friendly*, *unpleasant-pleasant* and *she liked me-disliked me* scales being 16.68:1, 10.12:1 and 10.73:1, respectively. Taking the average of these ratios over the three scales combined, we find that non-verbal cues account for 12.51 times as much variation as verbal cues. The average shift in ratings due to the non-verbal manipulation was 5.7 times as great as for the verbal.

Although we attempted to match non-verbal and verbal cues in strength, this matching was only approximate and the non-verbal were slightly stronger. To test whether the greater effect of non-verbal cues was due to any prior discrepancies in strength between non-verbal and verbal cues, the observed mean ratings for the nine conditions were compared with the mean ratings that would be expected if

Table 1. *F-values obtained from the analyses of variance on scales related to positive-negative affect in experiment I*

Source	Rating Scales		
	Hostile-friendly	Unpleasant-pleasant	She liked me-disliked me
<i>Main effects</i>			
Sex	<1.00	<1.00	6.50*
Non-verbal cues (NV)	217.06***	94.37***	63.13***
Verbal cues (V)	13.01***	9.32***	5.88**
<i>Interactions</i>			
Sex x NV	4.86*	1.77	<1.00
Sex x V	<1.00	<1.00	<1.00
NV x V	11.01***	6.43***	6.66***
Sex x V	<1.00	<1.00	1.06
<i>Simple main effects</i>			
NV for Verbal friendly	131.08***	26.64***	36.45***
Verbal neutral	144.68***	67.13***	62.64***
Verbal hostile	80.90***	26.69***	14.69***
V for NV friendly	8.05***	8.45***	11.92***
NV neutral	26.05***	13.39***	4.34*
NV hostile	<1.00	<1.00	<1.00

- \* -  $p < .05$
- \*\* -  $p < .01$
- \*\*\* -  $p < .001$

verbal and non-verbal cues had an equal effect, dependent only on their individual strengths as rated prior to the experiment. Table 2 shows the mean ratings obtained in each of the nine conditions and those expected, using the calculation:

$$\text{Expected mean} = \frac{\text{Strength of non-verbal} + \text{Strength of verbal}}{2}$$

Taking the Mean Square error (non-verbal x verbal x subjects within groups) as an estimate of the variance, and using t-tests, it was found that the expected and observed mean values differed significantly ( $p < .05$ ) in those conditions where the verbal and non-verbal cues were clearly discrepant (e.g. hostile non-verbal, friendly verbal and friendly non-verbal, hostile verbal conditions). In these cases, subjects tended to give a heavier weighting to non-verbal cues.

### 2.2.2. Effects of inconsistent cues

Table 3 shows the results of the analyses of variance performed on the rating scales *stable-unstable*, *straightforward-confusing*, and *sincere-insincere*.

Table 2. Means for the nine non-verbal x verbal conditions (both sexes combined) for rating scales related to positive-negative affect in experiment 1

Scale	Verbal	Non-verbal		
		Friendly	Neutral	Hostile
Hostile-friendly	Friendly	6.03	4.27	1.60
	Neutral	6.03	4.10	1.37
	Hostile	5.17	2.83	1.80
Unpleasant-pleasant	Friendly	5.37	4.13	1.90
	Neutral	5.63	4.10	1.87
	Hostile	4.40	2.77	2.17
She disliked me-she liked me	Friendly	4.90	4.20	2.57
	Neutral	5.17	3.77	2.03
	Hostile	4.00	3.47	2.50
All three scales combined	Friendly	5.43	4.20*	2.02*
	Neutral	5.61*	3.99	1.76*
	Hostile	4.52*	3.36	3.16

*Means expected if verbal and non-verbal cues had had an equal effect*

Scale	Verbal	Non-verbal		
		Friendly	Neutral	Hostile
All three scales combined	Friendly	5.54	4.72	3.74
	Neutral	4.65	3.84	2.86
	Hostile	3.99	3.17	2.19

\* Cases where the observed mean rating differed significantly ( $p > .05$ ) from the expected mean rating.

Table 3. F-values obtained from the analyses of variance on the scales stable-unstable, straightforward-confusing, sincere-insincere, in experiment 1

Source	Rating Scales		
	Stable-unstable	Straightforward-confusing	Sincere-insincere
<i>Main Effects</i>			
Sex	<1.00	<1.00	<1.00
Non-verbal cues (NV)	18.94***	<1.00	4.00*
Verbal cues (V)	<1.00	<1.00	5.33**
<i>Interactions</i>			
Sex x NV	1.02	<1.00	<1.00
Sex x V	2.29	<1.00	<1.00
NV x V	3.11*	5.00**	6.57**
Sex x NV x V	<1.00	<1.00	1.59

\* -  $p < .05$

\*\* -  $p < .01$

\*\*\* -  $p < .001$



It can be seen from this that non-verbal cues affect ratings on the *stable-unstable* scale. An examination of the means for the three non-verbal levels revealed that non-verbal hostile conditions produced higher ratings of instability. Secondly, it can be seen that both verbal and non-verbal cues affect ratings on the *sincere-insincere* scale. Friendly verbal conditions were rated as less sincere than hostile and neutral conditions. Hostile non-verbal conditions were rated as less sincere than friendly or neutral conditions.

Of greater interest to the inconsistency hypothesis, however, are the significant interaction effects between verbal and non-verbal cues found on all three related rating scales. Table 4 shows the means of the nine verbal x non-verbal conditions.

Table 4. Means for the nine non-verbal x verbal conditions (both sexes combine) for the rating scales *stable-unstable*, *straightforward-confusing*, *sincere-insincere* in experiment I

Scale	Verbal	Non-verbal		
		Friendly	Neutral	Hostile
Stable-unstable	Friendly	2.87	3.20	4.53
	Neutral	3.23	3.90	4.87
	Hostile	4.20	4.07	4.07
Straightforward-confusing	Friendly	2.47	3.03	3.60
	Neutral	2.83	2.00	3.83
	Hostile	3.83	3.07	2.60
Sincere-insincere	Friendly	4.53	3.87	5.53
	Neutral	3.03	4.00	4.70
	Hostile	4.10	4.11	3.83

Multiple comparison tests were carried out between the means. It was found that: (1) On the *stable-unstable* scale, the inconsistent conditions (friendly verbal, hostile non-verbal and hostile verbal, friendly non-verbal) were rated as significantly less stable than the friendly verbal, friendly non-verbal conditions where verbal and non-verbal cues were consistent. (2) On the *straightforward-confusing* scale, one inconsistent condition (hostile verbal, friendly non-verbal) was rated significantly more confusing ( $p < .05$ ) than the two consistent conditions (friendly verbal, friendly non-verbal and hostile verbal, hostile non-verbal). (3) On the *sincere-insincere* scale, the other inconsistent condition (friendly verbal, hostile non-verbal) was rated significantly less sincere ( $p < .05$ ) than the two consistent conditions (friendly verbal, friendly non-verbal and hostile verbal, hostile non-verbal).

### 2.2.3. Sex differences

Although no specific hypotheses were made with respect to differences attributable to the sex of the subject, sex was included as a factor in the analyses of variance. Examination of Table 1 reveals that males and females only responded differently on the *she liked me-she disliked me scale*, with males attributing a greater degree of liking them to the performer than did females.

On the *hostile-friendly scale* there is a significant interaction between non-verbal cues and sex of subject. Males found the neutral non-verbal conditions more friendly than did females; the means for neutral non-verbal being 4.02 and 3.31, respectively.

## 3. EXPERIMENT II

In this experiment videotapes combining verbal and non-verbal cues varying along the hostile-friendly dimension were again prepared. This time, however, the verbal cues used were stronger than the non-verbal cues in terms of the preliminary ratings of both types of cue made independently. Another difference in this experiment was that the neutral verbal and non-verbal cues were omitted.

### 3.1. Method

#### 3.1.1. Subjects

Five male and five female students rated the typed messages and videotapes of a performer reading numbers in a friendly or hostile manner separately. Fifteen male and fifteen female students served as subjects in the actual experiment and rated videotapes of verbal and non-verbal cues combined. The same six 7-point rating scales were used as before.

#### 3.1.2. Materials

The verbal messages that were used in the experiment are given below:

*Friendly.* 'It is very enjoyable for us to meet the subjects who take part in these experiments and we find we always get on well with you. I do hope that you will be able to stay on afterwards to have a chat about the experiment. In fact the people who come as subjects always seem to be very nice.'

*Hostile.* 'We don't much enjoy meeting the subjects who take part in these experiments, we usually find them boring and difficult to deal with. I hope you don't hang around afterwards to talk about the experiment. As a matter of fact, the people who come as subjects are usually rather disagreeable.'

Mean ratings of these messages, when the typed versions were presented alone were:

	<i>Messages</i>	
	Friendly	Hostile
<i>Scale</i>		
Hostile-friendly	6.64	1.50
Unpleasant-pleasant	6.66	1.50
She liked me-disliked me	6.30	1.50
<b>Average</b>	<b>6.53</b>	<b>1.50</b>

Range 5.03 units

2

It can be seen that these messages were more extreme than those used in Experiment I.

The non-verbal styles were similar to those used in Experiment I, except that, as we wished the verbal cues to be stronger than the non-verbal cues, the performer was instructed to 'tone down' her manner somewhat.

The mean ratings of the performer reading numbers in a hostile or friendly manner:

	<i>Videotape</i>	
	Friendly	Hostile
<i>Scale</i>		
Hostile friendly	5.25	2.10
Unpleasant-pleasant	5.50	2.25
She liked me-disliked me	4.50	2.70
<b>Average</b>	<b>5.08</b>	<b>2.35</b>

Range 2.73 units.

Four videotapes were then prepared in which each of the messages was spoken in each of the non-verbal styles.

### 3.1.3. Procedure

Subjects were given the same instructions as in the first experiment. The four videotapes were shown in random order. After each videotape had been shown, subjects filled in six rating scales.

### 3.2. Results

2 x 2 x 2 Analyses of Variance (repeated measures on the last two factors) were carried out for each of the six rating scales. Multiple comparison tests were performed when interactions proved significant.

#### 3.2.1. *The relative effect of verbal and non-verbal cues*

Table 5 shows the results of the analyses of variance performed on the rating scales *hostile-friendly*, *unpleasant-pleasant*, *she liked me-she disliked me*.

Table 5. *F-values obtained from the analyses of variance on the scales relating to positive-negative affect in experiment II*

Source	Rating scales		
	Hostile-friendly	Unpleasant-pleasant	She disliked me-liked me
<i>Main effects</i>			
Sex	<1.00	<1.00	<1.00
Non-verbal cues (NV)	157.83***	47.00***	148.62***
Verbal cues (V)	136.10***	74.85***	46.23***
<i>Interactions</i>			
Sex x NV	<1.00	2.19	5.30*
Sex x V	<1.00	1.85	<1.00
NV x V	12.87**	17.52***	6.62*
Sex x NV x V	<1.00	<1.00	<1.00
<i>Simple main effects</i>			
NV for Verbal Friendly	131.25***	63.50***	86.94***
Verbal hostile	41.44***	7.52**	6.91*
V for NV friendly	111.74***	91.77***	35.50***
NV hostile	28.54***	8.82**	2.89

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

Both verbal and non-verbal cues significantly affected ratings on these three scales ( $p < .001$  in all cases). Examination of the simple main effects shows that verbal cues are effective at all levels of the non-verbal on the two scales *hostile-friendly* and *unpleasant-pleasant*. On the *she liked me-she disliked me* scale, verbal cues had no effect when the non-verbal was hostile. Non-verbal cues, on the other hand, were effective at all levels of the verbal on all three scales.

A comparison of F-values on the analyses of variance reveals that, on the whole, non-verbal cues still accounted for more variation than did verbal cues; the exception being the *unpleasant-pleasant* scale where verbal cues seemed to be slightly more effective. The ratios of non-verbal: verbal F-values on the scales *hostile-friendly*, *unpleasant-pleasant*, *she liked me-she disliked me* are 1.16:1, 0.63:1, 3.21:1, respectively (average over three scales combined 1.67:1).

Table 6 shows the mean values obtained in Experiment II, and those expected if the results were based on the strength of verbal and non-verbal cues (as estimated by preliminary ratings) alone, using the formula described in Experiment I, viz.

$$\text{Expected mean} = \frac{\text{Strength of non-verbal} + \text{Strength of verbal}}{2}$$

Table 6. Means for the four non-verbal x verbal conditions (both sexes combined) for rating scales related to positive-negative affect in experiment 2

Scale	Verbal	Non-verbal	
		Friendly	Hostile
Hostile-friendly	Friendly	6.37	2.87
	Hostile	3.27	1.30
Unpleasant-pleasant	Friendly	6.03	2.93
	Hostile	3.00	1.93
She disliked me-she liked me	Friendly	5.30	2.70
	Hostile	2.97	2.03
All three scales Combined	Friendly	5.90	2.83*
	Hostile	3.08	1.75

*Mean ratings expected if verbal and non-verbal cues had an equal effect*

Scale	Verbal	Non-verbal	
		Friendly	Hostile
All three scales Combined	Friendly	5.80	4.44
	Hostile	3.29	1.92

\* Cases where the observed mean rating differed significantly ( $p < .05$ ) from the expected mean rating.

T-tests comparing observed with expected mean values reveal that only in the hostile verbal, friendly non-verbal do the two differ significantly ( $p < .05$ ). In this case, a heavier weighting was again given to non-verbal cues.

3.2.2. *Effects of the inconsistent conditions*

Table 7 shows the results of the analyses of variance performed on the scales *stable-unstable*, *straightforward-confusing*, and *sincere-insincere*.

Table 7. *F-values obtained from the analyses of variance on the scales stable-unstable, straightforward-confusing, sincere-insincere in experiment II*

Source	Rating scales		
	Stable-unstable	Straightforward-confusing	Sincere-insincere
<i>Main effects</i>			
Sex	<1.00	8.30**	1.35
Non-verbal cues (NV)	66.74***	12.41**	3.96
Verbal cues (V)	1.36	<1.00	6.61*
<i>Interactions</i>			
Sex x NV	2.22	<1.00	8.04**
Sex x V	<1.00	>1.00	3.12
NV x V	1.12	65.87***	46.06***
Sex x NV x V	1.96	<1.00	>1.00

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

Non-verbal cues again affect the *stable-unstable* scale, with the non-verbal hostile being rated higher on instability than the non-verbal friendly. Non-verbal cues also affected the *confusing-straightforward* scale. The performer was judged more confusing in the non-verbal hostile conditions than in the non-verbal friendly

Table 8. *Means for the four non-verbal x verbal conditions (both sexes combined) for the rating scales stable-unstable, straightforward-confusing, sincere-insincere in experiment II*

Scale	Verbal	Non-verbal	
		Friendly	Hostile
Stable-unstable	Friendly	2.90	4.77
	Hostile	3.50	4.73
Straightforward-confusing	Friendly	2.00	5.20
	Hostile	4.30	2.37
Sincere-insincere	Friendly	3.33	5.77
	Hostile	4.37	3.03

conditions. Verbal cues affected the *sincere-insincere* scale, with verbal friendly being judged less sincere than verbal hostile.

Interactions between verbal and non-verbal cues are significant on both the *straightforward-confusing* and *sincere-insincere* scales. Multiple comparison tests between means reveal a similar pattern to that found in Experiment I, viz. that on the *straightforward-confusing* and *sincere-insincere* scales the 'double bind' conditions, where the verbal and non-verbal cues were discrepant, were rated as more confused, less sincere than conditions where the two types of cue were consistent.

Table 8 shows the mean obtained in the four verbal x non-verbal conditions for the three scales *stable-unstable*, *straightforward-confusing*, and *sincere-insincere*.

### 3.2.3. Sex differences

Males found the performer more confusing than did females. Females thought the performer liked them more in the non-verbal hostile conditions than males did. Males found the performer less sincere in the non-verbal hostile conditions than did females. See Tables 5 and 6.

## 4. DISCUSSION

The first hypothesis, that non-verbal cues have more effect than verbal cues on communicating positive or negative affect, was supported by the results of both the experiments reported here. In the first experiment, with the verbal and non-verbal cues approximately equal in strength, the non-verbal cues accounted for 12.5 times as much variance as the verbal cues on the scales measuring positive or negative affect and for 5.2 times as much shift on the scales. In the second experiment, where the verbal cues were much stronger than the non-verbal cues, the non-verbal cues still accounted for 1.67 times as much variation as the verbal cues. It thus appears that there are two factors operating to influence the perception of positive or negative affect:

1. The channel of communication used: Ss appear to attach more weight to non-verbal cues in making their judgements.
  2. The strength of each type of cue: more attention is paid to stronger cues, where 'strength' refers to the deviation from some hypothetical point of neutral affect.
- It would be premature at this stage to formulate a mathematical relationship between the type of cue, their relative strength and the resultant rating. It is possible that verbal cues are disregarded when they are paired with strong non-verbal

cues, as seemed to be the case in the first experiment with verbal cues combined with hostile non-verbal conditions.

Why should non-verbal cues be more effective than verbal cues in communicating negative or positive affect in interpersonal attitudes? 1. Perhaps there is an innate pattern of communication and recognition of cues for these attitudes. This appears to be the case with animals, and certain aspects of human expression seem to be unlearned and culturally universal (Vine, 1970). 2. Perhaps speech is normally used for other kinds of messages – information about problem-solving etc. – and not for handling the immediate social situation, which non-human primates can do perfectly well without language. 3. It appears that we normally use two channels of communication, verbal and non-verbal, which function simultaneously. Conscious attention is focussed on the verbal, while the 'silent' non-verbal channel handles interpersonal matters, including feedback on what is being said. It is thus a disturbance of the normal division to put interpersonal material into the verbal channel. 4. One advantage of interpersonal matters being dealt with non-verbally, is that attitudes can be kept vague and flexible – people need not reveal clearly nor commit themselves to what they think about each other.

Why should more attention be paid to 'strong' or extreme cues? It appears that people pay more attention to strong stimuli in perception in general. From the point of social interaction a 'strong' stimulus would be one which signals an extreme attitude, e.g. of hostility or of friendliness. Secondly, there appears to be a tendency to pay attention to novel stimuli. In an interpersonal situation, an extreme attitude would be novel, in the sense that it is rarely expressed during interaction.

The second hypothesis, that inconsistent verbal and non-verbal cues of positive or negative affect would lead the performer to be judged unstable, insincere and confused, was also supported by the results of both experiments. In the first experiment, however, a different pattern of results was found for each inconsistent condition, viz. the hostile verbal, friendly non-verbal condition was judged more confusing than other conditions; the friendly verbal hostile non-verbal was judged less sincere than other conditions. Indirectly, this again supports the idea that subjects attach more weight to non-verbal cues in the communication of interpersonal attitudes. When one is faced with 'double bind' communications, one way to resolve the dilemma posed by two conflicting sets of cues is to discredit the truth of one set. One might, for example, form an opinion on the basis of the non-verbal set (as Ss in experiment I appeared to do) and disbelieve the verbal cues. If the non-verbal cues are *friendly*, one then assumes the performer to have a positive attitude (she likes me) towards one. Furthermore, when the non-verbal cues were friendly in Experiment I, Ss tended to see the performer as sincere, i.e.



honest in intention. If this sincere friendly performer then speaks a hostile message, cognitive dissonance arises and the subject finds the performer 'confusing'. One solution to this, is to assume that the performer is herself confused and does not know or mean what she is saying. If, on the other hand, the non-verbal cues are *hostile*, subjects regard the performer as having a negative attitude (she dislikes me) to them and also as being insincere. Inconsistent verbal and non-verbal cues do not arouse dissonance, as inconsistent communication is what one would expect from an insincere person. In the second experiment, no distinctive patterns of ratings were found for each of the inconsistent conditions; both were judged more confused and less sincere than the other two conditions where verbal and non-verbal cues were consistent. Possibly because the verbal cues were stronger in this experiment, it was more difficult for Ss to discredit them and base their opinions on non-verbal cues alone. Either inconsistent condition could thus be interpreted as a hostile person 'acting' in a friendly manner (i.e. being insincere), or vice versa as a friendly person 'acting' in a hostile manner (i.e. being confused). That Ss rated both conditions as insincere and confused, is perhaps symptomatic of their (the subjects) own confusion.

These results are in contrast to those of the previous experiments on the inferior-superior dimension. Here there was no evidence of double-bind effects – where verbal and non-verbal cues conflicted Ss simply disregarded the verbal signals. It is very interesting that this is not what happens with the friendly-hostile dimension.

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### *Резюме*

В настоящей статье излагаются два эксперимента, во время которых субъектам было предложено дать оценку фильму, записанному на пленку, в котором был представлен актер, читавший сообщения дружеские, нейтральные и враждебные в неречевом дружеском, нейтральном и враждебном стиле. До этого эти сообщения и неречевые виды были представлены независимо в изолированной группе с тем, чтобы получить оценку их индивидуальной силы, используя при этом шкалу оценки в шесть градусов, что позволило осуществить классификацию речевых сообщений и неречевых представлений (видов) во время эксперимента, в котором оба типа представлений действовали одновременно. Результаты обоих экспериментов показывают, что неречевые представления (в частности враждебное-дружеское) имели более сильное действие при оценках, произведенных на шкале с семью точками, чем речевые представления. Здесь неречевые представления создавали разногласия в 12,5 раза большие чем речевые представления, и в 5,7 раза больше изменений в положении на шкале. Во втором опыте речевые представления были значительно более сильными по сравнению с неречевыми, оцениваемыми независимо. Относительный эффект неречевых представлений во втором эксперименте был уменьшен. Отношение разногласий "неречевые/речевые" было равным 1,67:1. Когда речевые и неречевые сигналы находились в противоречии, то представление было оценено как *неискреннее*, *неустойчивое*, и *смутное* — что не производилось в предыдущих экспериментах относительно размера "высшего-низшего".