



SIXTH FRAMEWORK PROGRAMME  
PRIORITY 1.6. Sustainable Development, Global Change and Ecosystem  
1.6.2: Sustainable Surface Transport



**506716**

**Title**                    **Results of the Comprehension Tests on pictograms conducted in Austria, the Czech Republic and Hungary**

**Authors**                Siebenhandl, K., Brugger, Ch. [DUK]  
Simlinger P., Egger S. [IIID]  
Holló, P. [KTI]  
Weinberger, J., Vasek, J. [CDV]

**Summary**                **The Comprehension Test was conducted in 3 countries, and performed as a Paper and Pencil Test. 84 variants of 33 referents were tested and evaluated by 604 participants. 20 of the referents reached the ISO score of 66.**

**Status**                    **Final**

**Date**                      **05.01.2007**

**Revisions**              **14.12.2007**

**Distribution**            PU

**Document ID**          InSafety\_CT\_Report\_FINAL

**Attachments**          **0**

## List of Abbreviations

1 <sup>st</sup> CT	1 <sup>st</sup> Comprehension Test
2 <sup>nd</sup> CT	2 <sup>nd</sup> Comprehension Test
CDV	Centrum dopravního výzkumu
CJT	Comprehensibility Judgement Test
CT	Comprehension Test
DUK	Danube University Krems
IIID	International Institute for Information Design
In-Safety	Infrastructure and Safety
ISO (9186)	ISO Standard 9186: "Test methods for judged comprehensibility and for comprehension"
ITS	Intelligent Transport Systems
VC	Vienna Convention On Road Signs and Signals
VMS	Variable Message Sign(s)

**TABLE OF CONTENTS**

List of Abbreviations	2
Participating Bodies / Credits	4
List of Figures	4
List of Tables	4
1. Introduction	5
2. Method	5
2.1. Test procedure	5
2.2. Comprehension Test	6
2.2.1. Preparation of the Test Material	7
2.2.2. Referents	8
2.2.3. Testing	9
2.2.4. Participants	9
3. Results	10
1.2.1.1: Road ahead is closed	12
1.2.1.2: Pass ahead is closed	13
1.2.1.3: Tunnel ahead is closed	14
1.2.1.4: Bridge ahead is closed	15
1.2.1.5: Next exit closed	16
1.2.1.5: Dedicated lanes for emergency vehicles	17
2.2.1: Flooded road	18
2.2.2: Fog	19
2.2.3: Freezing fog	20
2.3.2: Accident has happened	21
2.3.3: Vehicle broken down	22
2.3.4: Oncoming illegal traffic	23
2.3.8.1: Elk or reindeer on road	24
2.3.10: High probability of accidents	25
2.3.11: Objects/obstacles on the road	26
3.2.2.1: Last exit before toll check point	27
3.2.2.1.1: Toll road ahead	28
3.2.2.2: Last exit before pass	29
3.2.2.5: Last exit before bridge	30
3.2.3: Exit after exit closed	31
3.3.2.11: Mobile home	32
3.3.2.2: Park & Ride	33
3.3.2.4: Ferry boat	34
3.3.2.8: Children's playground	35
3.3.5: Mobile phone	36
4.4: Fines doubled	37
4.5: Switch off engine	38
4.6: Switch on hazard lights	39
4.7: Motorway entry/junction	40
4.8: Motorway exit	41
4.11: Motorail station	42
4.12: City centre	43
4.15: Underground trains depart every 15 minutes	44
4. Discussion and Conclusions	45
5. References	47

## Participating Bodies / Credits

This test was carried out under the Sixth Framework Programme of the European Commission, within the Project "IN-SAFETY", Activity A2.2 "Pictograms substituting verbal messages on VMS".

### **Submitting Party, Leader of Work Package 2 and Activity A2.2:**

International Institute for Information Design (IIID), Vienna, Austria

### **Leader of Testing Activities, Testing Partner, and Analysis:**

Danube University Krems (DUK), Austria

### **Testing Partner:**

Centrum dopravního výzkumu (CDV), Brno, Czech Republic

KTI Budapest, Institute for Transport Sciences, Budapest, Hungary

## List of Figures

Figure 1: Preparation of the test booklets, source: Brugger, Ch. .... 7

Figure 2: Instruction on Performing the Comprehension Test, source: Brugger, Ch. . 9

## List of Tables

Table 1: Comprehension Test: Assignment of referents to series ..... 8

Table 2: Statistic data of participants contributing to the Comprehension Test ..... 10

Table 3: Conclusions, Final Scores of the Tested Pictograms..... 45

## 1. Introduction

The IN-SAFETY Project focuses on the prerequisites for a successful implementation of Intelligent Transport Systems (ITS) in order to enhance the self-explanatory nature of roads.

European drivers have to cope with increasingly complex traffic environments, including vertical and horizontal signing; which is often supported by Telematics. Thus, there is a high need for a self-explanatory road environment at a personalized level which would offer intuitive guidance to the driver and information when this is needed. The information given should be related to the driver's particular needs (route, disabilities, preferences, etc). A self-explanatory road will protect the driver from making errors and will enhance his/her comfort.

Due to the fact that information displayed on Variable Message Signs (VMS) is usually shown in the local language, the complexity of information is confusing and leads to driver mistakes and safety risks. The objective of this activity within work package 2 is to increase the self-explaining road environments by presenting a proposal of homogenized and comprehensive pictograms to substitute verbal messages on VMS.

## 2. Method

### 2.1. Test procedure

The defined stages for the development and testing procedure of pictograms recommended within the final IN-SAFETY proposal are:

- 1) Collection of the information needed concerning the standardization of a graphical symbol and the technical requirements of VMS.
- 2) Collection of a set of existing and proposed variants for each referent/meaning.
- 3) Comprehensibility Judgement Test to eliminate incomprehensible solutions: The Comprehensibility Judgement Test was conducted in April 2006. A total of 243 variants were tested. 56 of the variants have been taken into account for further testing, several variants were proposed for redesign.<sup>1</sup>
- 4) Comprehension Test of 33 referents at a total of 84 variants, which are addressed in this paper.
- 5) Checking comprehensibility of variants under conditions of impaired vision. Animated pictograms are to be tested separately. The test results have to be compared to the results of static pictograms.
- 6) Acceptance as a standard graphical symbol, which has been evaluated the most comprehensible and surpasses the criterion of acceptability.

---

<sup>1</sup> See: Brugger Ch. (2006): Comprehensibility Judgement Test; Report In-Safety, 506716. 30/04/2006.

The evaluation criteria and methods for testing follow the ISO 9186 “Test methods for judged comprehensibility and for comprehension”<sup>2</sup>. Details on applying the Comprehension Test can be found in this standard.

## 2.2. Comprehension Test

In the Comprehension Test (CT), one of the variants is shown in combination with a statement of the general context in which the graphical symbol is expected to be seen. Respondents are asked to note what they think the symbol means and what action they would take in response to it.

The CT for each variant has to be conducted with at least 50 respondents, who are expected to be familiar with the referent. A respondent sees only one variant for any referent.

Analysis of the CT involved three independently working judges, who assigned each response to one of the following seven standard categories:

- Cat.1.: Correct understanding of the symbol is certain  
(Estimated probability of correct understanding over 80%)
- Cat.2.: Correct understanding of the symbol is very probable  
(Estimated probability of correct understanding between 66 and 80%)
- Cat.3.: Correct understanding of the symbol is probable  
(Estimated probability of correct understanding between 50 and 65%)
- Cat.4.: The stated meaning is opposite to the intended meaning
- Cat.5.: Any other response
- Cat.6.: The response given is “Don’t know”
- Cat.7.: No response is given

An overall score for each variant is obtained by weighting and summing up the percentages of responses in the different categories.

The variant with the highest overall score is the most comprehensible variant.

As there is no further specific score determination within the current ISO Standard analysis of the results follows the criteria according to ISO 9186 (first edition 1989)<sup>3</sup>, which foresees the following evaluation scheme:

---

<sup>2</sup> ISO, International Standardization Organization (2001): ISO 9186, Graphical symbols – Test methods for judged comprehensibility and for comprehension. Geneva: ISO.

<sup>3</sup> ISO, International Standardization Organization (1989): ISO 9186: First Edition, Procedures for the development and testing of public information symbols. Geneva: ISO.

“If the comprehension score for this variant exceeds 66, then this variant may be used to define the standard image content.

Where two variants have the same comprehension score, the most comprehensible variant can be identified by taking the one having the lowest percentage of responses in category 5 (“the response is wrong”).

For critical referents (e.g., safety symbols) the 66 criterion shall be rigorously adhered to.

For less important referents the criterion may be relaxed by including category 3 responses in the cumulative value in order to comply with the 66 criterion”

### 2.2.1. Preparation of the Test Material

The test material was distributed to the partner institutions via mail as MS-Word documents, accompanied by a detailed guide for preparation and printing.

There was a total of four series, which had to be sampled into booklets. Each series was coded by a letter, 21 referents were shown in one series. The partners were instructed to check that only items of one series are in one booklet.

It was recommended that at least 50 test-booklets for each series should be prepared.

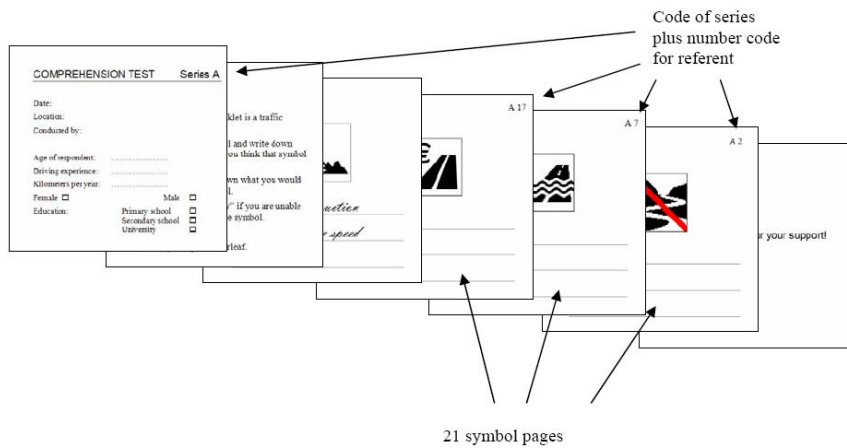


Figure 1: Preparation of the test booklets, source: Brugger, Ch.

## 2.2.2. Referents

Due to the large number of referents and variants the referents were split up into four series in order to ensure reliable testing:

Code	Referent No	Referent Name	Number of Variants	Series			
				A	B	C	D
1	1.2.1.1	Road ahead closed	2			1	1
2	1.2.1.2	Pass ahead is closed	4	1	1	1	1
3	1.2.1.3	Tunnel ahead is closed	3	1	1	1	
4	1.2.1.4	Bridge ahead is closed	3		1	1	1
5	1.2.1.5	Next exit closed	2	1	1		
6	1.4.1.5	Dedicated lanes for emergency vehicles	1			1	
7	2.2.1	Flooded road	3	1	1		1
8	2.2.2	Fog	3	1		1	1
9	2.2.3	Freezing fog	3	1	1	1	
10	2.3.2	Accident has happened	4	1	1	1	1
11	2.3.3	Vehicle broken down	3	1	1	1	
12	2.3.4	Oncoming illegal traffic	4	1	1	1	1
13	2.3.8.1	Elk or reindeer on road	2	1	1		
14	2.3.10	High probability of accidents	1	1			
15	2.3.11	Objects/obstacles on the road	3	1	1		1
16	3.2.2.1	Last exit before control point	4	1	1	1	1
17	3.2.2.1.1	Toll road ahead	2	1	1		
18	3.2.2.2	Last exit before pass	2			1	1
19	3.2.2.5	Last exit before bridge	3		1	1	1
20	3.2.3	Exit after exit closed	2	1	1		
21	3.3.2.11	Mobile home	1				1
22	3.3.2.2	Park & Ride	4	1	1	1	1
23	3.3.2.4	Ferry boat	4	1	1	1	1
24	3.3.2.8	Children's playground	2			1	1
25	3.3.5	Mobile phone	2	1	1		
26	4.4	Fines doubled	3	1		1	1
27	4.5	Switch off engine	3	1	1		1
28	4.6	Switch on hazard lights	1				1
29	4.7	Motorway entry/junction	1		1		
30	4.8	Motorway exit	2			1	1
31	4.11	Motorail station	2			1	1
32	4.12	City centre	3	1	1	1	
33	4.15	Underground trains depart every 15 minutes	2			1	1
Variants per series			84	21	21	21	21

Table 1: Comprehension Test: Assignment of referents to series



### 2.2.3. Testing

Each participating organisation conducted the test with at least 50 respondents for each series. The partners were informed that the sample of respondents should resemble the user population in terms of age, sex, and educational level. Persons with severe visual impairment (no correction possible) were not allowed to take part. The sample should preferably consist of respondents who were expected to be familiar with the referents. Therefore, participants were sought who hold a drivers licence. Respondents who had already taken part in the Comprehensibility Judgement Test were not invited for testing the comprehension of symbols within this study.

The test was conducted as a paper and pencil test; participants got a verbal instruction first and were given the booklets with 21 symbols afterwards. Each booklet also contained a small introduction on the first page:

“We are studying the comprehensibility of symbols used on highways. Please note below the shown symbol what you think the symbol means and what action you would take in response to it.”

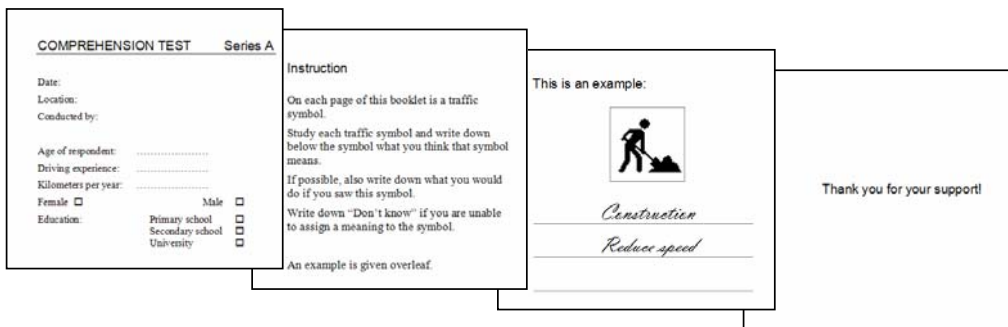


Figure 2: Instruction on Performing the Comprehension Test, source: Brugger, Ch.

### 2.2.4. Participants

A total of 3 countries (Austria, the Czech Republic, Hungary) participated in the CT. Overall 604 respondents (413 male, 191 female) answered the CT with 204 participants in Austria and 200 participants each in the Czech Republic and in Hungary.

Only persons holding a drivers licence were invited to the test. A similarity of the sample with the eventual user population in terms of age, educational level, and driving experience was reached.

**Kommentar:** Hier würde ich mir einen Chi<sup>2</sup>-Test erwarten ...

Detailed sample characteristics are shown in the following table:

	Austria	Hungary	Czech	Total
<b>Respondents</b>	204	200	200	604,00
Average age (in years)	35,2	47,6	41	41,27
<b>Gender</b>				
Men	124	136	153	413
Women	80	64	47	191
<b>Educational Level</b>				
Primary	51	1	28	80
Secondary	89	59	114	262
University	59	140	58	257
Unknown	5	0	0	5
<b>Driving Experience</b>				
Average distance (km)/year	13727,18	12875,13	17204,5	14602,27
Years	*	23,82	19,7	21,76

*Table 2: Statistic data of participants contributing to the Comprehension Test*

\*due to inconsistent data this median is not available for Austria.

### 3. Results

According to ISO 9186:2001<sup>4</sup> the results for each participating country were listed and tabulated. These lists of responses were also used to resolve anomalies in the results from the three countries.

The results were then categorized by three independent judges following the seven standard categories<sup>5</sup>.

Based on these tables the mean and median values of the responses were calculated for each variant and each country. Following the ISO 9186 the total scores were averages computed from the means and median values of all participating countries.<sup>6</sup>

The individual variants are always displayed above the corresponding data column. The results are displayed in descending order from left to right based on the total mean estimates in order to determine the most comprehensible variant.

<sup>4</sup> ISO, International Standardization Organization (2001): ISO 9186, Graphical symbols – Test methods for judged comprehensibility and for comprehension. Geneva: ISO, p.9ff.

<sup>5</sup> For details see: 2.2. Comprehension Test

<sup>6</sup> Scores in Austrian data are based on calculations according to ISO 9186, where category 'No response' is not included in calculating the final score. Scores in data from Czech Republic and Hungary are based on percentages of the total sample tested, including category 'No response'. As in most cases the number of missing responses is very small, the influence on the final combined scores from all participating countries also is only minimal. Therefore, these differences were not corrected for this report.

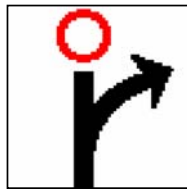
The variant with the highest overall score was determined as the most comprehensible variant.

If the overall score for this variant exceeds the criterion of acceptability on the CT, then this variant may be used as the standard graphical symbol for the referent.

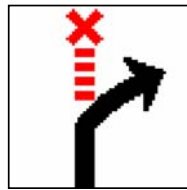
Where two variants exceed the criterion of acceptability on the CT and have the same overall score, the one least likely to be confused with an existing graphical symbol will be recommended.

If no variant obtained an overall score exceeding the criterion of acceptability on the comprehension test, it will be recommended for improvement by adding test results and recommendations.

### 1.2.1.1: Road ahead is closed



C



D

<b>Austria</b>						
Category	C			D		
	f	%	Score	f	%	Score
Certain	41	80.4	80.4	18	35.3	36.0
Very probable	4	7.8	5.9	11	21.6	16.5
Probable	1	2.0	1.0	8	15.7	8.0
Opp. meaning	2	3.9	-3.9	0	0.0	0.0
Wrong	0	0.0		4	7.8	
Don't know	3	5.9		9	17.6	
No response	0	0.0		1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>83.4</b>	<b>51</b>	<b>100.0</b>	<b>60.5</b>

<b>Czech Republic</b>						
Category	C			D		
	f	%	Score	f	%	Score
Certain	44	88.0	88.0	28	56.0	56.0
Very probable	5	10.0	7.5	8	16.0	12.0
Probable	0	0.0	0.0	6	12.0	6.0
Opp. meaning	0	0.0	0.0	1	2.0	-2.0
Wrong	1	2.0		7	14.0	
Don't know	0	0.0		0	0.0	
No response	0	0.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>95.5</b>	<b>50</b>	<b>100.0</b>	<b>72.0</b>

<b>Hungary</b>						
Category	C			D		
	f	%	Score	f	%	Score
Certain	27	54.0	54.0	22	44.0	44.0
Very probable	7	14.0	10.5	6	12.0	9.0
Probable	7	14.0	7.0	12	24.0	12.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	7	14.0		6	12.0	
Don't know	1	2.0		3	6.0	
No response	1	2.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>71.5</b>	<b>50</b>	<b>100.0</b>	<b>65.0</b>

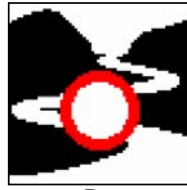
**Total score**                      C    **83.4**                      D    **65.8**

The percentage of correct responses indicates better comprehensibility of variant C. The usage of a dashed line for representing parts of a road seems to be sub-optimal, as this can be seen also when comparing related variants of other referents tested.

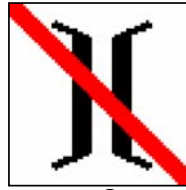
## 1.2.1.2: Pass ahead is closed



A



B



C



D

<b>Austria</b>												
	A			B			C			D		
Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	6	11.8	12.5	13	25.5	25.5	1	2.0	2.0	0	0.0	0.0
Very probable	8	15.7	12.5	26	51.0	38.2	4	7.8	5.9	1	2.0	1.5
Probable	1	2.0	1.0	3	5.9	2.9	1	2.0	1.0	0	0.0	0.0
Opp. meaning	1	2.0	-2.1	0	0.0	0.0	1	2.0	-2.0	0	0.0	0.0
Wrong	20	39.2		4	7.8		26	51.0		34	66.7	
Don't know	12	23.5		5	9.8		18	35.3		15	29.4	
No response	3	5.9		0	0.0		0	0.0		1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>24.0</b>	<b>51</b>	<b>100.0</b>	<b>66.7</b>	<b>51</b>	<b>100.0</b>	<b>6.9</b>	<b>51</b>	<b>100.0</b>	<b>1.5</b>

<b>Czech Republic</b>												
	A			B			C			D		
Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	7	14.0	14.0	18	36.0	36.0	1	2.0	1.0	6	12.0	12.0
Very probable	5	10.0	7.5	11	22.0	16.5	1	2.0	1.5	2	4.0	3.0
Probable	7	14.0	7.0	7	14.0	7.0	13	26.0	13.0	10	20.0	10.0
Opp. meaning	8	16.0	-16.0	3	6.0	-6.0	4	8.0	-8.0	0	0.0	0.0
Wrong	15	30.0		9	18.0		23	46.0		26	52.0	
Don't know	6	12.0		0	0.0		7	14.0		6	12.0	
No response	2	4.0		2	4.0		1	2.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>12.5</b>	<b>50</b>	<b>100.0</b>	<b>53.5</b>	<b>50</b>	<b>100.0</b>	<b>8.5</b>	<b>50</b>	<b>100.0</b>	<b>25.0</b>

<b>Hungary</b>												
	A			B			C			D		
Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	9	18.0	18.0	15	30.0	30.0	4	8.0	8.0	4	8.0	8.0
Very probable	3	6.0	4.5	11	22.0	16.5	9	18.0	13.5	9	18.0	13.5
Probable	8	16.0	8.0	7	14.0	7.0	1	2.0	1.0	11	22.0	11.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	3	6.0	-6.0	0	0.0	0.0
Wrong	20	40.0		12	24.0		18	36.0		11	22.0	
Don't know	5	10.0		4	8.0		11	22.0		14	28.0	
No response	5	10.0		1	2.0		4	8.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>30.5</b>	<b>50</b>	<b>100.0</b>	<b>53.5</b>	<b>50</b>	<b>100.0</b>	<b>16.5</b>	<b>50</b>	<b>100.0</b>	<b>32.5</b>

**Total score** **22.3** **57.9** **10.6** **19.7**

The variants C and D are not comprehended correctly. Using the diagonal slash for signalling "closed" seems to be less effective, as it is also used to indicate the end of a specific regulation.

The results show a clear preference for variant B, but in terms of the negating element this variant is suggested for improvement.

**1.2.1.3: Tunnel ahead is closed**

A



B



C

**Austria**

Category	A			B			C		
	f	%	Score	f	%	Score	f	%	Score
Certain	29	56.9	58.0	37	72.5	72.5	26	51.0	51.0
Very probable	1	2.0	1.5	6	11.8	8.8	3	5.9	4.4
Probable	3	5.9	3.0	1	2.0	1.0	4	7.8	3.9
Opp. meaning	0	0.0		0	0.0		0	0.0	
Wrong	8	15.7		3	5.9		12	23.5	
Don't know	9	17.6		4	7.8		6	11.8	
No response	1	2.0		0	0.0		0	0.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>62.5</b>	<b>51</b>	<b>100.0</b>	<b>82.4</b>	<b>51</b>	<b>100.0</b>	<b>59.3</b>

**Czech Republic**

Category	A			B			C		
	f	%	Score	f	%	Score	f	%	Score
Certain	16	32.0	32.0	34	68.0	68.0	18	36.0	36.0
Very probable	1	2.0	1.5	4	8.0	6.0	2	4.0	3.0
Probable	10	20.0	10.0	3	6.0	3.0	11	22.0	11.0
Opp. meaning	6	12.0	-12.0	4	8.0	-8.0	8	16.0	-16.0
Wrong	11	22.0		5	10.0		9	18.0	
Don't know	5	10.0		0	0.0		1	2.0	
No response	1	2.0		0	0.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>31.5</b>	<b>50</b>	<b>100.0</b>	<b>69.0</b>	<b>50</b>	<b>100.0</b>	<b>34.0</b>

**Hungary**

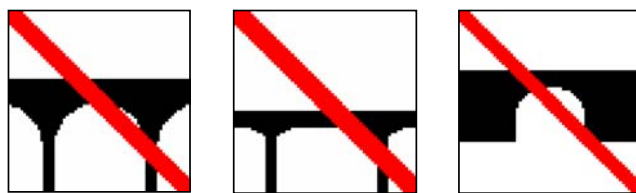
Category	A			B			C		
	f	%	Score	f	%	Score	f	%	Score
Certain	22	44.0	44.0	28	56.0	56.0	31	62.0	62.0
Very probable	7	14.0	10.5	4	8.0	6.0	5	10.0	7.5
Probable	8	16.0	8.0	7	14.0	7.0	2	4.0	2.0
Opp. meaning	2	4.0	-4.0	0	0.0	0.0	4	8.0	-8.0
Wrong	9	18.0		7	14.0		4	8.0	
Don't know	1	2.0		3	6.0		4	8.0	
No response	1	2.0		1	2.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>58.5</b>	<b>50</b>	<b>100.0</b>	<b>69.0</b>	<b>50</b>	<b>100.0</b>	<b>63.5</b>

**Total score****50.8****73.5****52.3**

The element "tunnel" contained in the symbols has been identified by more than 80 % of the respondents. The problem is the negating element.

Also, using a diagonal slash for signalling "closed" in this case seems to be less understandable, as it is used to indicate "the end" of the carriage way; in contrast, the circle is commonly understood.

## 1.2.1.4: Bridge ahead is closed



B

C

D

**Austria**

Category	B			C			D		
	f	%	Score	f	%	Score	f	%	Score
Certain	18	35.3	35.3	19	37.3	37.3	1	2.0	2.0
Very probable	4	7.8	5.9	6	11.8	8.8	0	0.0	0.0
Probable	4	7.8	3.9	1	2.0	1.0	0	0.0	0.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	12	23.5		15	29.4		41	80.4	
Don't know	13	25.5		10	19.6		8	15.7	
No response	0	0.0		0	0.0		1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>45.1</b>	<b>51</b>	<b>100.0</b>	<b>47.1</b>	<b>51</b>	<b>100.0</b>	<b>2.0</b>

**Czech Republic**

Category	B			C			D		
	f	%	Score	f	%	Score	f	%	Score
Certain	16	32.0	32.0	17	34.0	34.0	11	22.0	22.0
Very probable	2	4.0	3.0	0	0.0	0.0	4	8.0	6.0
Probable	7	14.0	7.0	9	18.0	9.0	3	6.0	3.0
Opp. meaning	2	4.0	-4.0	7	14.0	-14.0	2	4.0	-4.0
Wrong	8	16.0		10	20.0		23	46.0	
Don't know	12	24.0		4	8.0		6	12.0	
No response	3	6.0		3	6.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>38.0</b>	<b>50</b>	<b>100.0</b>	<b>29.0</b>	<b>50</b>	<b>100.0</b>	<b>27.0</b>

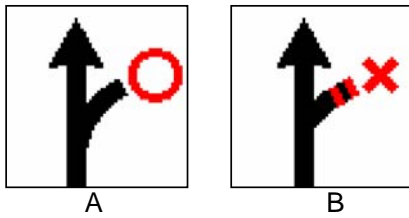
**Hungary**

Category	B			C			D		
	f	%	Score	f	%	Score	f	%	Score
Certain	29	58.0	58.0	31	62.0	62.0	12	24.0	24.0
Very probable	9	18.0	13.5	6	12.0	9.0	1	2.0	1.5
Probable	7	14.0	7.0	3	6.0	3.0	13	26.0	13.0
Opp. meaning	0	0.0	0.0	2	4.0	-4.0	0	0.0	0.0
Wrong	2	4.0		3	6.0		15	30.0	
Don't know	3	6.0		5	10.0		7	14.0	
No response	0	0.0		0	0.0		2	4.0	
<b>Sum</b>	<b>50</b>	<b>100.0</b>	<b>78.5</b>	<b>50</b>	<b>100.0</b>	<b>70.0</b>	<b>50</b>	<b>100.0</b>	<b>38.5</b>

**Overall score****53.9****48.7****22.5**

The symbol of the bridge itself is not identified and comprehended well. Variant D led to answers like: end of viaduct, end of tunnel. Variant C was associated with "End of narrow road", "Driving over footbridge is forbidden" and "End of bridge", which leads to the suggestion that the negating element (the diagonal slash) is also not understood well. This pictogram is suggested to be improved.

### 1.2.1.5: Next exit closed



<b>Austria</b>		A			B		
Category	f	%	Score	f	%	Score	
Certain	32	62.7	65.3	26	51.0	51.0	
Very probable	9	17.6	13.8	8	15.7	11.8	
Probable	2	3.9	2.0	2	3.9	2.0	
Opp. meaning	0	0.0	0.0	1	2.0	-2.0	
Wrong	2	3.9		9	17.6		
Don't know	4	7.8		5	9.8		
No response	2	3.9		0	0.0		
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>81.1</b>	<b>51</b>	<b>100.0</b>	<b>62.7</b>	

<b>Czech Republic</b>							
Category	f	%	Score	f	%	Score	
Certain	38	76.0	76.0	27	54.0	54.0	
Very probable	5	10.0	7.5	14	28.0	21.0	
Probable	0	0.0	0.0	3	6.0	3.0	
Opp. meaning	1	2.0	-2.0	0	0.0	0.0	
Wrong	3	6.0		3	6.0		
Don't know	3	6.0		3	6.0		
No response	0	0.0		0	0.0		
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>81.5</b>	<b>50</b>	<b>100.0</b>	<b>78.0</b>	

<b>Hungary</b>							
Category	f	%	Score	f	%	Score	
Certain	9	18.0	18.0	20	40.0	40.0	
Very probable	19	38.0	28.5	11	22.0	16.5	
Probable	13	26.0	13.0	7	14.0	7.0	
Opp. meaning	0	0.0	0.0	0	0.0	0.0	
Wrong	8	16.0		8	16.0		
Don't know	1	2.0		2	4.0		
No response	0	0.0		2	4.0		
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>59.5</b>	<b>50</b>	<b>100.0</b>	<b>63.5</b>	

**Total score                                    74.0                                    68.1**

Variant A is more comprehensible than variant B, although there are differences between the three countries. Again the dashed line for marking the run of the street seems to be less comprehensible. The variant showing the cross to signal “closed” elicited more responses related to a crossing.



### 1.2.1.5: Dedicated lanes for emergency vehicles



C

#### Austria

Category	f	%	Score
Certain	1	2.0	2.0
Very probable	33	64.7	48.5
Probable	9	17.6	8.8
Opp. meaning	0	0.0	0.0
Wrong	3	5.9	
Don't know	5	9.8	
No response	0	0.0	
Total	51	100.0	59.3

#### Czech Republic

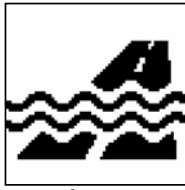
Category	f	%	Score
Certain	11	22.0	22.0
Very probable	11	22.0	16.5
Probable	5	10.0	5.0
Opp. meaning	0	0.0	0.0
Wrong	14	28.0	
Don't know	4	8.0	
No response	5	10.0	
Total	50	100.0	43.5

#### Hungary

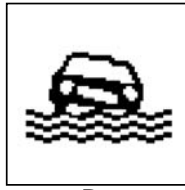
Category	f	%	Score
Certain	35	70.0	70.0
Very probable	2	4.0	3.0
Probable	4	8.0	4.0
Opp. meaning	0	0.0	0.0
Wrong	1	2.0	
Don't know	5	10.0	
No response	3	6.0	
Total	50	100.0	77.0

**Total score 59.9**

Almost two thirds of the respondents identified the vehicle as an emergency vehicle, but due to the missing context information only a few responses were related to the intention of “dedicated lane for emergency vehicles”.

**2.2.1: Flooded road**

A



B



D

<b>Austria</b>			<b>B</b>			<b>D</b>			
Category	f	%	Score	f	%	Score	f	%	Score
Certain	26	51.0	53.1	9	17.6	17.6	8	15.7	16.0
Very probable	1	2.0	1.5	4	7.8	5.9	1	2.0	1.5
Probable	11	21.6	11.2	20	39.2	19.6	14	27.5	14.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	6	11.8		10	19.6		14	27.5	
Don't know	5	9.8		8	15.7		13	25.5	
No response	2	3.9		0	0.0		1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>65.8</b>	<b>51</b>	<b>100.0</b>	<b>43.1</b>	<b>51</b>	<b>100.0</b>	<b>31.5</b>

**Czech Republic**

Category	f	%	Score	f	%	Score	f	%	Score
Certain	36	72.0	72.0	23	46.0	46.0	21	42.0	42.0
Very probable	4	8.0	6.0	5	10.0	7.5	10	20.0	15.0
Probable	4	8.0	4.0	7	14.0	7.0	7	14.0	7.0
Opp. meaning	1	2.0	-2.0	0	0.0	0.0	1	2.0	-2.0
Wrong	3	6.0		13	26.0		8	16.0	
Don't know	1	2.0		1	2.0		2	4.0	
No response	1	2.0		1	2.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>80.0</b>	<b>50</b>	<b>100.0</b>	<b>60.5</b>	<b>50</b>	<b>100.0</b>	<b>62.0</b>

**Hungary**

Category	f	%	Score	f	%	Score	f	%	Score
Certain	31	62.0	62.0	17	34.0	34.0	23	46.0	46.0
Very probable	6	12.0	9.0	6	12.0	9.0	6	12.0	9.0
Probable	5	10.0	5.0	9	18.0	9.0	8	16.0	8.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	6	12.0		15	30.0		11	22.0	
Don't know	1	2.0		3	6.0		2	4.0	
No response	1	2.0		0	0.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>76.0</b>	<b>50</b>	<b>100.0</b>	<b>52.0</b>	<b>50</b>	<b>100.0</b>	<b>63.0</b>

**Total score                      73.9                      51.9                      52.2**

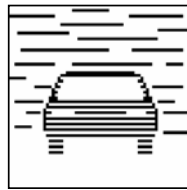
Variant A is comprehended best.

Variant D is often interpreted as damaged road surface or risk of aquaplaning.

**2.2.2: Fog**



A



C



D

**Austria**

Category	A			C			D		
	f	%	Score	f	%	Score	f	%	Score
Certain	40	78.4	80.0	44	86.3	86.3	29	56.9	58.0
Very probable	1	2.0	1.5	1	2.0	1.5	1	2.0	1.5
Probable	1	2.0	1.0	0	0.0	0.0	1	2.0	1.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	6	11.8		0	0.0		10	19.6	
Don't know	2	3.9		6	11.8		9	17.6	
No response	1	2.0		0	0.0		1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>82.5</b>	<b>51</b>	<b>100.0</b>	<b>87.7</b>	<b>51</b>	<b>100.0</b>	<b>60.5</b>

**Czech Republic**

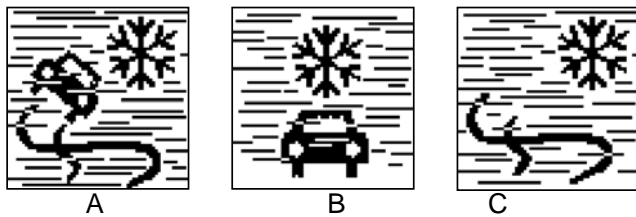
Category	A			C			D		
	f	%	Score	f	%	Score	f	%	Score
Certain	39	78.0	78.0	35	70.0	70.0	20	40.0	40.0
Very probable	5	10.0	7.5	1	2.0	1.5	3	6.0	4.5
Probable	2	4.0	2.0	5	10.0	5.0	1	2.0	1.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	2	4.0		1	2.0		16	32.0	
Don't know	2	4.0		5	10.0		6	12.0	
No response	0	0.0		3	6.0		4	8.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>87.5</b>	<b>50</b>	<b>100.0</b>	<b>76.5</b>	<b>50</b>	<b>100.0</b>	<b>45.5</b>

**Hungary**

Category	A			C			D		
	f	%	Score	f	%	Score	f	%	Score
Certain	31	62.0	62.0	26	52.0	52.0	31	62.0	62.0
Very probable	3	6.0	4.5	10	20.0	15.0	4	8.0	6.0
Probable	6	12.0	6.0	3	6.0	3.0	2	4.0	2.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	6	12.0		4	8.0		10	20.0	
Don't know	3	6.0		6	12.0		2	4.0	
No response	1	2.0		1	2.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>72.5</b>	<b>50</b>	<b>100.0</b>	<b>70.0</b>	<b>50</b>	<b>100.0</b>	<b>70.0</b>

**Total score                                      80.8                                      78.1                                      58.7**

Responses for variants A and C show no significant differences. More than two thirds of the respondents included the term “fog” in their answer. Variant D was often associated with the term “wind”.

**2.2.3: Freezing fog**

<b>Austria</b> Category	A			B			C		
	f	%	Score	f	%	Score	f	%	Score
Certain	5	9.8	10.0	5	9.8	10.0	6	11.8	11.8
Very probable	29	56.9	43.5	16	31.4	24.0	23	45.1	33.8
Probable	16	31.4	16.0	22	43.1	22.0	16	31.4	15.7
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	0	0.0		5	9.8		0	0.0	
Don't know	0	0.0		2	3.9		6	11.8	
No response	1	2.0		1	2.0		0	0.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>69.5</b>	<b>51</b>	<b>100.0</b>	<b>56.0</b>	<b>51</b>	<b>100.0</b>	<b>61.3</b>

**Czech Republic**

Category	A			B			C		
	f	%	Score	f	%	Score	f	%	Score
Certain	27	54.0	54.0	28	56.0	56.0	22	44.0	44.0
Very probable	13	26.0	19.5	4	8.0	6.0	18	36.0	27.0
Probable	8	16.0	8.0	14	28.0	14.0	7	14.0	7.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	2	4.0		3	6.0		3	6.0	
Don't know	0	0.0		1	2.0		0	0.0	
No response	0	0.0		0	0.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>81.5</b>	<b>50</b>	<b>100.0</b>	<b>76.0</b>	<b>50</b>	<b>100.0</b>	<b>78.0</b>

**Hungary**

Category	A			B			C		
	f	%	Score	f	%	Score	f	%	Score
Certain	11	22.0	22.0	11	22.0	22.0	10	20.0	20.0
Very probable	16	32.0	24.0	17	34.0	25.5	24	48.0	36.0
Probable	17	34.0	17.0	13	26.0	13.0	8	16.0	8.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	4	8.0		7	14.0		2	4.0	
Don't know	1	2.0		2	4.0		3	6.0	
No response	1	2.0		0	0.0		3	6.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>63.0</b>	<b>50</b>	<b>100.0</b>	<b>60.5</b>	<b>50</b>	<b>100.0</b>	<b>64.0</b>

**Total score                      71.3                      64.2                      67.8**

The first variant (A) reached the best score, but all variants were comprehended well.

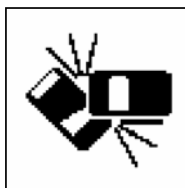
### 2.3.2: Accident has happened



A



B



C



D

#### Austria

Category	A			B			C			D		
	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	14	27.5	28.0	16	31.4	31.4	15	29.4	30.0	12	25.5	26.0
Very probable	2	3.9	3.0	1	2.0	1.5	2	3.9	3.0	2	3.9	3.0
Probable	23	45.1	23.0	16	31.4	15.7	21	41.2	21.0	8	15.7	8.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	5	9.8		15	29.4		6	11.8		22	43.1	
Don't know	6	11.8		3	5.9		6	11.8		5	9.8	
No response	1	2.0		0	0.0		1	2.0		1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>54.0</b>	<b>51</b>	<b>100.0</b>	<b>48.5</b>	<b>51</b>	<b>100.0</b>	<b>54.0</b>	<b>51</b>	<b>100.0</b>	<b>37.0</b>

#### Czech Republic

Category	A			B			C			D		
	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	13	26.0	26.0	18	36.0	36.0	9	18.0	18.0	13	26.0	26.0
Very probable	8	16.0	12.0	7	14.0	10.5	15	30.0	22.5	10	20.0	15.0
Probable	4	8.0	4.0	3	6.0	3.0	12	24.0	12.0	11	22.0	11.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	22	44.0		21	42.0		13	26.0		13	26.0	
Don't know	2	4.0		0	0.0		1	2.0		2	4.0	
No response	1	2.0		1	2.0		0	0.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>42.0</b>	<b>50</b>	<b>100.0</b>	<b>49.5</b>	<b>50</b>	<b>100.0</b>	<b>52.5</b>	<b>50</b>	<b>100.0</b>	<b>52.0</b>

#### Hungary

Category	A			B			C			D		
	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	12	24.0	24.0	17	34.0	34.0	11	22.0	22.0	14	28.0	28.0
Very probable	6	12.0	9.0	1	2.0	1.5	17	34.0	25.5	13	26.0	19.5
Probable	1	2.0	1.0	9	18.0	9.0	4	8.0	4.0	6	12.0	6.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	30	60.0		20	40.0		11	22.0		12	24.0	
Don't know	1	2.0		3	6.0		6	12.0		4	8.0	
No response	0	0.0		0	0.0		1	2.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>34.0</b>	<b>50</b>	<b>100.0</b>	<b>44.5</b>	<b>50</b>	<b>100.0</b>	<b>51.5</b>	<b>50</b>	<b>100.0</b>	<b>53.5</b>

#### Total score

43.3

47.5

52.7

47.5

The given answers show relation to "congestion ahead", "danger of an accident", but do not well enough refer to "accident has happened". Therefore, work on this referent is suggested to be carried on.

### 2.3.3: Vehicle broken down



A



B



C

<b>Austria</b>									
Category	A			B			C		
	f	%	Score	f	%	Score	f	%	Score
Certain	16	31.4	32.7	6	11.8	11.8	5	9.8	9.8
Very probable	3	5.9	4.6	0	0.0	0.0	0	0.0	0.0
Probable	1	2.0	1.0	0	0.0	0.0	2	3.9	2.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	19	37.3		34	66.7		41	80.4	
Don't know	10	19.6		11	21.6		3	5.9	
No response	2	3.9		0	0.0		0	0.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>38.3</b>	<b>51</b>	<b>100.0</b>	<b>11.8</b>	<b>51</b>	<b>100.0</b>	<b>11.8</b>

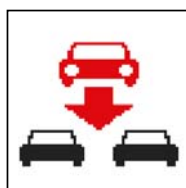
<b>Czech Republic</b>									
Category	A			B			C		
	f	%	Score	f	%	Score	f	%	Score
Certain	10	20.0	20.0	14	28.0	28.0	11	22.0	22.0
Very probable	0	0.0	0.0	4	8.0	6.0	6	12.0	9.0
Probable	3	6.0	3.0	7	14.0	7.0	12	24.0	12.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	22	44.0		16	32.0		13	26.0	
Don't know	12	24.0		7	14.0		4	8.0	
No response	3	6.0		2	4.0		4	8.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>23.0</b>	<b>50</b>	<b>100.0</b>	<b>41.0</b>	<b>50</b>	<b>100.0</b>	<b>43.0</b>

<b>Hungary</b>									
Category	A			B			C		
	f	%	Score	f	%	Score	f	%	Score
Certain	10	20.0	20.0	10	20.0	20.0	11	22.0	22.0
Very probable	5	10.0	7.5	1	2.0	1.5	3	6.0	4.5
Probable	4	8.0	4.0	2	4.0	2.0	4	8.0	4.0
Opp. meaning	0	0.0	0.0	6	12.0	-12.0	0	0.0	0.0
Wrong	22	44.0		18	36.0		22	44.0	
Don't know	6	12.0		11	22.0		8	16.0	
No response	3	6.0		2	4.0		2	4.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>31.5</b>	<b>50</b>	<b>100.0</b>	<b>11.5</b>	<b>50</b>	<b>100.0</b>	<b>30.5</b>

**Total score                                 30.9                                 21.4                                 28.4**

The reached scores are not high enough for proposing these variants. The symbols were associated either with “lay-by” or “service station ahead”. The pictograms B and C are suggested to be improved by showing a red rectangle, and/or by adding function lines to indicate a boiling engine.

### 2.3.4: Oncoming illegal traffic



A



B



C



D

#### Austria

Category	A			B			C			D		
	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	13	25.5	26.0	3	5.9	6.0	12	23.5	23.5	16	31.4	32.0
Very probable	1	2.0	1.5	5	9.8	7.5	0	0.0	0.0	0	0.0	0.0
Probable	4	7.8	4.0	12	23.5	12.0	5	9.8	4.9	0	0.0	0.0
Opp. meaning	1	2.0	-2.0	1	2.0	-2.0	1	2.0	-2.0	0	0.0	0.0
Wrong	12	23.5		23	45.1		19	37.3		24	47.1	
Don't know	19	37.3		6	11.8		14	27.5		10	19.6	
No response	1	2.0		1	2.0		0	0.0		1	2.0	
Total	51	100.0	29.5	51	100.0	23.5	51	100.0	26.5	51	100.0	32.0

#### Czech Republic

Category	A			B			C			D		
	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	0	0.0	0.0	4	8.0	8.0	1	2.0	2.0	3	6.0	6.0
Very probable	1	2.0	1.5	1	2.0	1.5	3	6.0	4.5	5	10.0	7.5
Probable	2	4.0	2.0	1	2.0	1.0	5	10.0	5.0	3	6.0	3.0
Opp. meaning	0	0.0	0.0	1	2.0	-2.0	0	0.0	0.0	0	0.0	0.0
Wrong	26	52.0		32	64.0		18	36.0		28	56.0	
Don't know	14	28.0		9	18.0		17	34.0		8	16.0	
No response	7	14.0		2	4.0		6	12.0		3	6.0	
Total	50	100.0	3.5	50	100.0	8.5	50	100.0	11.5	50	100.0	16.5

#### Hungary

Category	A			B			C			D		
	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	4	8.0	8.0	14	28.0	28.0	2	4.0	4.0	4	8.0	8.0
Very probable	2	4.0	3.0	0	0.0	0.0	1	2.0	1.5	3	6.0	4.5
Probable	2	4.0	2.0	0	0.0	0.0	5	10.0	5.0	5	10.0	5.0
Opp. meaning	2	4.0	-4.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	20	40.0		21	42.0		18	36.0		24	48.0	
Don't know	17	34.0		11	22.0		19	38.0		12	24.0	
No response	3	6.0		4	8.0		5	10.0		2	4.0	
Total	50	100.0	9.0	50	100.0	28.0	50	100.0	10.5	50	100.0	17.5

#### Total score

14.0

20.0

16.2

22.0

No variant tested reached positive results. Variant A got the most negative replies and “don’t know” answers, variant B led the strongest association to oncoming traffic. Variant C and D were often associated with the term “danger” (dangerous road, driving is dangerous...).

### 2.3.8.1: Elk or reindeer on road



A



B

<b>Austria</b>		A			B		
Category	f	%	Score	f	%	Score	
Certain	18	35.3	35.3	8	15.7	15.7	
Very probable	31	60.8	45.6	42	82.4	61.8	
Probable	0	0.0	0.0	1	2.0	1.0	
Opp. meaning	0	0.0	0.0	0	0.0	0.0	
Wrong	1	2.0		0	0.0		
Don't know	1	2.0		0	0.0		
No response	0	0.0		0	0.0		
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>80.9</b>	<b>51</b>	<b>100.0</b>	<b>78.4</b>	

<b>Czech Republic</b>		A			B		
Category	f	%	Score	f	%	Score	
Certain	45	90.0	90.0	49	98.0	98.0	
Very probable	4	8.0	6.0	0	0.0	0.0	
Probable	0	0.0	0.0	1	2.0	1.0	
Opp. meaning	0	0.0	0.0	0	0.0	0.0	
Wrong	0	0.0		0	0.0		
Don't know	1	2.0		0	0.0		
No response	0	0.0		0	0.0		
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>96.0</b>	<b>50</b>	<b>100.0</b>	<b>99.0</b>	

<b>Hungary</b>		A			B		
Category	f	%	Score	f	%	Score	
Certain	16	32.0	32.0	22	44.0	44.0	
Very probable	29	58.0	43.5	23	46.0	34.5	
Probable	4	8.0	4.0	2	4.0	2.0	
Opp. meaning	0	0.0	0.0	0	0.0	0.0	
Wrong	0	0.0		2	4.0		
Don't know	1	2.0		1	2.0		
No response	0	0.0		0	0.0		
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>79.5</b>	<b>50</b>	<b>100.0</b>	<b>80.5</b>	

**Total score** **85.5** **86.0**

Both symbols were comprehended well.



**2.3.10: High probability of accidents****Austria**

Category	f	%	Score
Certain	4	7.8	8.0
Very probable	8	15.7	12.0
Probable	12	23.5	12.0
Opp. meaning	0	0.0	0.0
Wrong	21	41.2	
Don't know	5	9.8	
No response	1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>32.0</b>

**Czech Republic**

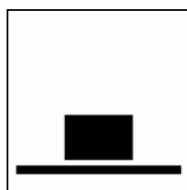
Category	f	%	Score
Certain	8	16.0	16.0
Very probable	3	6.0	4.5
Probable	4	8.0	4.0
Opp. meaning	0	0.0	0.0
Wrong	23	46.0	
Don't know	10	20.0	
No response	2	4.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>24.5</b>

**Hungary**

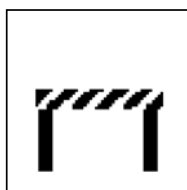
Category	f	%	Score
Certain	1	2.0	2.0
Very probable	0	0.0	0.0
Probable	13	26.0	13.0
Opp. meaning	0	0.0	0.0
Wrong	26	52.0	
Don't know	3	6.0	
No response	7	14.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>15.0</b>

**Total score** **23.8**

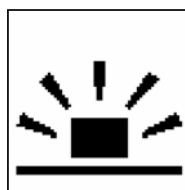
This variant elicited 50 % responses related to “danger”, the answers in association with “poison” had to be classified “wrong”. The answers given were associated with “dangerous cargo”, “poison on road” or “unhealthy materials on road”. The intended association to accidents is not given.

**2.3.11: Objects/obstacles on the road**

A



B



D

**Austria**

Category	A			B			D		
	f	%	Score	f	%	Score	f	%	Score
Certain	3	5.9	6.1	1	2.0	2.0	1	2.0	2.1
Very probable	4	7.8	6.1	0	0.0	0.0	0	0.0	0.0
Probable	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	10	19.6		41	80.4		22	43.1	
Don't know	32	62.7		8	15.7		25	49.0	
No response	2	3.9		1	2.0		3	5.9	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>12.2</b>	<b>51</b>	<b>100.0</b>	<b>2.0</b>	<b>51</b>	<b>100.0</b>	<b>2.1</b>

**Czech Republic**

Category	A			B			D		
	f	%	Score	f	%	Score	f	%	Score
Certain	11	22.0	22.0	16	32.0	32.0	2	4.0	4.0
Very probable	1	2.0	1.5	9	18.0	13.5	2	4.0	3.0
Probable	1	2.0	1.0	9	18.0	9.0	0	0.0	0.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	5	10.0		10	20.0		23	46.0	
Don't know	26	52.0		6	12.0		17	34.0	
No response	6	12.0		0	0.0		6	12.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>24.5</b>	<b>50</b>	<b>100.0</b>	<b>54.5</b>	<b>50</b>	<b>100.0</b>	<b>7.0</b>

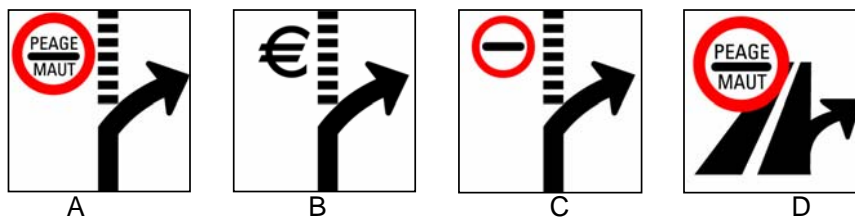
**Hungary**

Category	A			B			D		
	f	%	Score	f	%	Score	f	%	Score
Certain	1	2.0	2.0	10	20.0	20.0	0	0.0	0.0
Very probable	2	4.0	3.0	0	0.0	0.0	1	2.0	1.5
Probable	1	2.0	1.0	4	8.0	4.0	0	0.0	0.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	5	10.0		24	48.0		14	28.0	
Don't know	31	62.0		11	22.0		27	54.0	
No response	10	20.0		1	2.0		8	16.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>6.0</b>	<b>50</b>	<b>100.0</b>	<b>24.0</b>	<b>50</b>	<b>100.0</b>	<b>1.5</b>

**Total score****14.2****26.8****3.5**

This pictogram is suggested to be redesigned due to the low scores in all participating countries.

## 3.2.2.1: Last exit before toll check point

**Austria**

Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	17	33.3	34.7	23	45.1	45.1	0	0.0	0.0	22	43.1	44.0
Very probable	9	17.6	13.8	5	9.8	7.4	0	0.0	0.0	14	27.5	21.0
Probable	11	21.6	11.2	3	5.9	2.9	0	0.0	0.0	7	13.7	7.0
Opp. meaning	0	0.0	0.0	2	3.9	-3.9	0	0.0	0.0	3	5.9	-6.0
Wrong	9	17.6		6	11.8		43	84.3		2	3.9	
Don't know	3	5.9		12	23.5		7	13.7		2	3.9	
No response	2	3.9		0	0.0		1	2.0		1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>59.7</b>	<b>51</b>	<b>100.0</b>	<b>51.5</b>	<b>51</b>	<b>100.0</b>	<b>0.0</b>	<b>51</b>	<b>100.0</b>	<b>66.0</b>

**Czech Republic**

Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	32	64.0	64.0	27	54.0	54.0	1	2.0	2.0	38	76.0	76.0
Very probable	1	2.0	1.5	2	4.0	3.0	5	10.0	7.5	4	8.0	6.0
Probable	5	10.0	5.0	3	6.0	3.0	0	0.0	0.0	1	2.0	1.0
Opp. meaning	5	10.0	-10.0	0	0.0	0.0	0	0.0	0.0	1	2.0	-2.0
Wrong	2	4.0		8	16.0		34	68.0		5	10.0	
Don't know	3	6.0		8	16.0		7	14.0		1	2.0	
No response	2	4.0		2	4.0		3	6.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>60.5</b>	<b>50</b>	<b>100.0</b>	<b>60.0</b>	<b>50</b>	<b>100.0</b>	<b>9.5</b>	<b>50</b>	<b>100.0</b>	<b>81.0</b>

**Hungary**

Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	33	66.0	66.0	30	60.0	60.0	5	10.0	10.0	41	82.0	82.0
Very probable	9	18.0	13.5	8	16.0	12.0	3	6.0	4.5	5	10.0	7.5
Probable	4	8.0	4.0	6	12.0	6.0	15	30.0	15.0	3	6.0	3.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	3	6.0		4	8.0		18	36.0		0	0.0	
Don't know	0	0.0		1	2.0		6	12.0		0	0.0	
No response	1	2.0		1	2.0		3	6.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>83.5</b>	<b>50</b>	<b>100.0</b>	<b>78.0</b>	<b>50</b>	<b>100.0</b>	<b>29.5</b>	<b>50</b>	<b>100.0</b>	<b>92.5</b>

**Total score****67.9****63.2****13.0****79.8**

Variant D got the highest score, variant C can be excluded, as there were only a few correct answers.

**3.2.2.1.1: Toll road ahead**

A



B

**Austria**

Category	f	%	Score	f	%	Score
Certain	43	84.3	84.3	32	62.7	62.7
Very probable	1	2.0	1.5	7	13.7	10.3
Probable	0	0.0	0.0	0	0.0	0.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	2	3.9		9	17.6	
Don't know	5	9.8		3	5.9	
No response	0	0.0		0	0.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>85.8</b>	<b>51</b>	<b>100.0</b>	<b>73.0</b>

**Czech Republic**

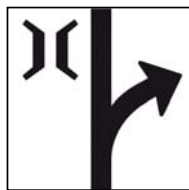
Category	f	%	Score	f	%	Score
Certain	36	72.0	72.0	32	64.0	64.0
Very probable	2	4.0	3.0	0	0.0	0.0
Probable	2	4.0	2.0	6	12.0	6.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	3	6.0		7	14.0	
Don't know	6	12.0		5	10.0	
No response	1	2.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>77.0</b>	<b>50</b>	<b>100.0</b>	<b>70.0</b>

**Hungary**

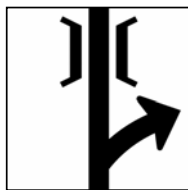
Category	f	%	Score	f	%	Score
Certain	29	58.0	58.0	42	84.0	84.0
Very probable	12	24.0	18.0	4	8.0	6.0
Probable	3	6.0	3.0	1	2.0	1.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	5	10.0		2	4.0	
Don't know	1	2.0		0	0.0	
No response	0	0.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>79.0</b>	<b>50</b>	<b>100.0</b>	<b>91.0</b>

**Total score****80.6****78.0**

Both variants reached more than two thirds of correct responses.

**3.2.2.2: Last exit before pass**

C



D

**Austria**

Category	f	%	Score	f	%	Score
Certain	1	2.0	2.0	0	0.0	0.0
Very probable	0	0.0	0.0	0	0.0	0.0
Probable	2	3.9	2.0	0	0.0	0.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	28	54.9		38	74.5	
Don't know	19	37.3		12	23.5	
No response	1	2.0		1	2.0	
Total	51	100.0	4.0	51	100.0	0.0

**Czech Republic**

Category	f	%	Score	f	%	Score
Certain	6	12.0	12.0	8	16.0	16.0
Very probable	4	8.0	6.0	4	8.0	6.0
Probable	5	10.0	5.0	5	10.0	5.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	26	52.0		27	54.0	
Don't know	4	8.0		5	10.0	
No response	5	10.0		1	2.0	
Total	50	100.0	23.0	50	100.0	27.0

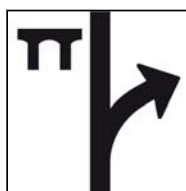
**Hungary**

Category	f	%	Score	f	%	Score
Certain	1	2.0	2.0	3	6.0	6.0
Very probable	2	4.0	3.0	23	46.0	34.5
Probable	25	50.0	25.0	9	18.0	9.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	13	26.0		8	16.0	
Don't know	6	12.0		5	10.0	
No response	3	6.0		2	4.0	
Total	50	100.0	30.0	50	100.0	49.5

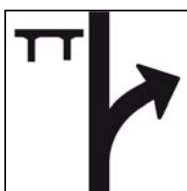
**Total score****19.0****25.5**

Most responses are related to the terms of "bridge" or "narrow road", and therefore had to be classified "wrong". The pass symbol itself seems to be not comprehended well; therefore, this pictogram is suggested to be redesigned.

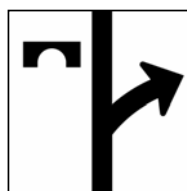
### 3.2.2.5: Last exit before bridge



B



C



D

#### Austria

Category	f	%	Score	f	%	Score	f	%	Score
Certain	6	11.8	12.0	16	31.4	31.4	2	3.9	4.0
Very probable	1	2.0	1.5	2	3.9	2.9	0	0.0	0.0
Probable	2	3.9	2.0	2	3.9	2.0	2	3.9	2.0
Opp. meaning	1	2.0	-2.0	1	2.0	-2.0	1	2.0	-2.0
Wrong	18	35.3		15	29.4		25	49.0	
Don't know	22	43.1		15	29.4		20	39.2	
No response	1	2.0		0	0.0		1	2.0	
Total	51	100.0	13.5	51	100.0	34.3	51	100.0	4.0

#### Czech Republic

Category	f	%	Score	f	%	Score	f	%	Score
Certain	20	40.0	40.0	20	40.0	40.0	7	14.0	14.0
Very probable	10	20.0	15.0	5	10.0	7.5	1	2.0	1.5
Probable	2	4.0	2.0	4	8.0	4.0	5	10.0	5.0
Opp. meaning	1	2.0	-2.0	0	0.0	0.0	0	0.0	0.0
Wrong	5	10.0		11	22.0		25	50.0	
Don't know	9	18.0		4	8.0		11	22.0	
No response	3	6.0		6	12.0		1	2.0	
Total	50	100.0	55.0	50	100.0	51.5	50	100.0	20.5

#### Hungary

Category	f	%	Score	f	%	Score	f	%	Score
Certain	25	50.0	50.0	21	42.0	42.0	7	14.0	14.0
Very probable	8	16.0	12.0	8	16.0	12.0	5	10.0	7.5
Probable	5	10.0	5.0	8	16.0	8.0	11	22.0	11.0
Opp. meaning	1	2.0	-2.0	1	2.0	-2.0	0	0.0	0.0
Wrong	6	12.0		4	8.0		20	40.0	
Don't know	3	6.0		5	10.0		3	6.0	
No response	2	4.0		3	6.0		4	8.0	
Total	50	100.0	65.0	50	100.0	60.0	50	100.0	32.5

#### Total score

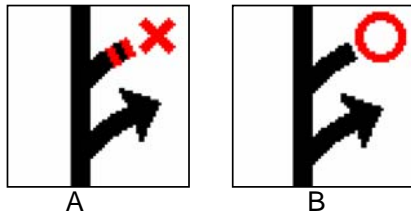
44.5

48.6

19.0

Variant C got the highest number of correct responses, but still about 25% of 'Don't know' answers. The symbol of the bridge is suggested to be improved and if possible to be harmonized with referent 1.2.1.4. (bridge).

### 3.2.3: Exit after exit closed



#### Austria

Category	f	%	Score	f	%	Score
Certain	32	62.7	66.7	36	70.6	70.6
Very probable	4	7.8	6.3	3	5.9	4.4
Probable	1	2.0	1.0	4	7.8	3.9
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	3	5.9		3	5.9	
Don't know	8	15.7		5	9.8	
No response	3	5.9		0	0.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>74.0</b>	<b>51</b>	<b>100.0</b>	<b>78.9</b>

#### Czech Republic

Category	f	%	Score	f	%	Score
Certain	26	52.0	52.0	30	60.0	60.0
Very probable	8	16.0	12.0	11	22.0	16.5
Probable	2	4.0	2.0	3	6.0	3.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	3	6.0		1	2.0	
Don't know	9	18.0		5	10.0	
No response	2	4.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>66.0</b>	<b>50</b>	<b>100.0</b>	<b>79.5</b>

#### Hungary

Category	f	%	Score	f	%	Score
Certain	22	44.0	44.0	27	54.0	54.0
Very probable	4	8.0	6.0	6	12.0	9.0
Probable	5	10.0	5.0	9	18.0	9.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	11	22.0		5	10.0	
Don't know	5	10.0		2	4.0	
No response	3	6.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>55.0</b>	<b>50</b>	<b>100.0</b>	<b>72.0</b>

**Total score**

**65.0**

**76.8**

About three quarters of the responses indicate correct understanding of both variants tested, with variant B better than variant A.

**3.3.2.11: Mobile home****Austria**

Category	f	%	Score
Certain	19	37.3	38.0
Very probable	11	21.6	16.5
Probable	11	21.6	11.0
Opp. meaning	0	0.0	0.0
Wrong	4	7.8	
Don't know	5	9.8	
No response	1	2.0	
Total	51	100.0	65.5

**Czech Republic**

Category	f	%	Score
Certain	12	24.0	24.0
Very probable	14	28.0	21.0
Probable	4	8.0	4.0
Opp. meaning	0	0.0	0.0
Wrong	4	8.0	
Don't know	10	20.0	
No response	6	12.0	
Total	50	100.0	49.0

**Hungary**

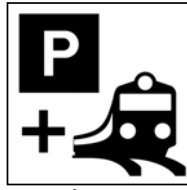
Category	f	%	Score
Certain	19	38.0	38.0
Very probable	5	10.0	7.5
Probable	4	8.0	4.0
Opp. meaning	0	0.0	0.0
Wrong	7	14.0	
Don't know	10	20.0	
No response	5	10.0	
Total	50	100.0	49.5

**Total score** **54.7**

Only a few answers include the explicit wording 'Mobil home' as it was intended to, but the responses refer to 'Caravan' or 'Camping' or "Caravan site" and therefore the correct understanding of the symbol is very probable.



## 3.3.2.2: Park &amp; Ride



A



B



C



D

**Austria**

Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	43	84.3	84.3	36	70.6	70.6	26	51.0	52.0	30	58.8	60.0
Very probable	3	5.9	4.4	0	0.0	0.0	6	11.8	9.0	4	7.8	6.0
Probable	1	2.0	1.0	3	5.9	2.9	2	3.9	2.0	7	13.7	7.0
Opp. meaning	2	3.9	-3.9	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	1	2.0		9	17.6		12	23.5		7	13.7	
Don't know	1	2.0		3	5.9		4	7.8		2	3.9	
No response	0	0.0		0	0.0		1	2.0		1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>85.8</b>	<b>51</b>	<b>100.0</b>	<b>73.5</b>	<b>51</b>	<b>100.0</b>	<b>63.0</b>	<b>51</b>	<b>100.0</b>	<b>73.0</b>

**Czech Republic**

Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	24	48.0	48.0	19	38.0	38.0	13	26.0	26.0	29	58.0	58.0
Very probable	8	16.0	12.0	7	14.0	10.5	5	10.0	7.5	14	28.0	21.0
Probable	3	6.0	3.0	6	12.0	6.0	5	10.0	5.0	5	10.0	5.0
Opp. meaning	0	0.0	0.0	1	2.0	-2.0	0	0.0	0.0	0	0.0	0.0
Wrong	3	6.0		13	26.0		15	30.0		0	0.0	
Don't know	10	20.0		4	8.0		6	12.0		2	4.0	
No response	2	4.0		0	0.0		6	12.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>63.0</b>	<b>50</b>	<b>100.0</b>	<b>52.5</b>	<b>50</b>	<b>100.0</b>	<b>38.5</b>	<b>50</b>	<b>100.0</b>	<b>84.0</b>

**Hungary**

Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	37	74.0	74.0	35	70.0	70.0	33	66.0	66.0	44	88.0	88.0
Very probable	4	8.0	6.0	2	4.0	3.0	4	8.0	6.0	2	4.0	3.0
Probable	6	12.0	6.0	6	12.0	6.0	1	2.0	1.0	3	6.0	3.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	1	2.0	-2.0	0	0.0	0.0
Wrong	3	6.0		7	14.0		5	10.0		1	2.0	
Don't know	0	0.0		0	0.0		3	6.0		0	0.0	
No response	0	0.0		0	0.0		3	6.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>86.0</b>	<b>50</b>	<b>100.0</b>	<b>79.0</b>	<b>50</b>	<b>100.0</b>	<b>71.0</b>	<b>50</b>	<b>100.0</b>	<b>94.0</b>

**Total score****78.3****68.3****57.5****83.7**

Variants A and D were comprehended best.

**3.3.2.4: Ferry boat**

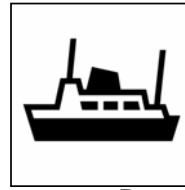
A



B



C



D

**Austria**

Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	45	88.2	90.0	46	90.2	90.2	47	92.2	94.0	7	13.7	14.3
Very probable	2	3.9	3.0	1	2.0	1.5	1	2.0	1.5	16	31.4	24.5
Probable	1	2.0	1.0	1	2.0	1.0	0	0.0	0.0	17	33.3	17.3
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	1	2.0		1	2.0		0	0.0		3	5.9	
Don't know	1	2.0		2	3.9		2	3.9		6	11.8	
No response	1	2.0		0	0.0		1	2.0		2	3.9	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>94.0</b>	<b>51</b>	<b>100.0</b>	<b>92.6</b>	<b>51</b>	<b>100.0</b>	<b>95.5</b>	<b>51</b>	<b>100.0</b>	<b>56.1</b>

**Czech Republic**

Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	46	92.0	92.0	48	96.0	96.0	47	94.0	94	21	42.0	42.0
Very probable	2	4.0	3.0	2	4.0	3.0	1	2.0	1.5	13	26.0	19.5
Probable	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	6	12.0	6.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	0	0.0		0	0.0		1	2.0		3	6.0	
Don't know	1	2.0		0	0.0		0	0.0		4	8.0	
No response	1	2.0		0	0.0		1	2.0		3	6.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>95.0</b>	<b>50</b>	<b>100.0</b>	<b>99.0</b>	<b>50</b>	<b>100.0</b>	<b>95.5</b>	<b>50</b>	<b>100.0</b>	<b>67.5</b>

**Hungary**

Category	f	%	Score	f	%	Score	f	%	Score	f	%	Score
Certain	46	92.0	92.0	48	96.0	96.0	46	92.0	92.0	18	36.0	36.0
Very probable	2	4.0	3.0	1	2.0	1.5	1	2.0	1.5	13	26.0	19.5
Probable	0	0.0	0.0	0	0.0	0.0	1	2.0	1.0	10	20.0	10.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	1	2.0		1	2.0		2	4.0		7	14.0	
Don't know	1	2.0		0	0.0		0	0.0		1	2.0	
No response	0	0.0		0	0.0		0	0.0		1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>95.0</b>	<b>50</b>	<b>100.0</b>	<b>97.5</b>	<b>50</b>	<b>100.0</b>	<b>94.5</b>	<b>50</b>	<b>100.0</b>	<b>65.5</b>

**Total score****94.7****96.4****95.2****63.0**

Variants A-B-C reached high scores, whereas variant D lies below the recommended score of 66.

### 3.3.2.8: Children's playground



C



D

#### Austria

Category	f	%	Score	f	%	Score
Certain	44	86.3	88.0	39	76.5	76.5
Very probable	3	5.9	4.5	5	9.8	7.4
Probable	1	2.0	1.0	3	5.9	2.9
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	1	2.0		3	5.9	
Don't know	1	2.0		1	2.0	
No response	1	2.0		0	0.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>93.5</b>	<b>51</b>	<b>100.0</b>	<b>86.8</b>

#### Czech Republic

Category	f	%	Score	f	%	Score
Certain	40	80.0	80.0	34	68.0	68.0
Very probable	3	6.0	4.5	6	12.0	9.0
Probable	1	2.0	1.0	5	10.0	5.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	5	10.0		5	10.0	
Don't know	1	2.0		0	0.0	
No response	0	0.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>85.5</b>	<b>50</b>	<b>100.0</b>	<b>82.0</b>

#### Hungary

Category	f	%	Score	f	%	Score
Certain	48	96.0	96.0	43	86.0	86.0
Very probable	1	2.0	1.5	2	4.0	3.0
Probable	0	0.0	0.0	2	4.0	2.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	1	2.0		2	4.0	
Don't know	0	0.0		1	2.0	
No response	0	0.0		0	0.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>97.5</b>	<b>50</b>	<b>100.0</b>	<b>91.0</b>

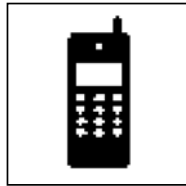
**Total score**

**92.2**

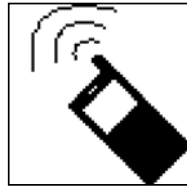
**86.6**

Both variants reached high comprehension rates.

### 3.3.5: Mobile phone



A



B

#### Austria

Category	f	%	Score	f	%	Score
Certain	15	29.4	30.0	10	19.6	19.6
Very probable	14	27.5	21.0	10	19.6	14.7
Probable	0	0.0	0.0	6	11.8	5.9
Opp. meaning	0	0.0	0.0	1	2.0	-2.0
Wrong	11	21.6		10	19.6	
Don't know	10	19.6		14	27.5	
No response	1	2.0		0	0.0	
Total	51	100.0	51.0	51	100.0	38.2

#### Czech Republic

Category	f	%	Score	f	%	Score
Certain	18	36.0	36.0	8	16.0	16.0
Very probable	12	24.0	18.0	10	20.0	15.0
Probable	3	6.0	3.0	2	4.0	2.0
Opp. meaning	2	4.0	-4.0	12	24.0	-24.0
Wrong	3	6.0		5	10.0	
Don't know	10	20.0		11	22.0	
No response	2	4.0		2	4.0	
Total	50	100.0	53.0	50	100.0	9.0

#### Hungary

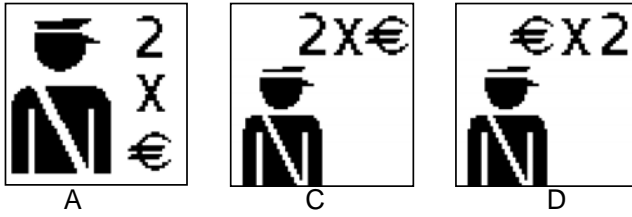
Category	f	%	Score	f	%	Score
Certain	19	38.0	38.0	11	22.0	22.0
Very probable	5	10.0	7.5	3	6.0	4.5
Probable	4	8.0	4.0	5	10.0	5.0
Opp. meaning	0	0.0	0.0	1	2.0	-2.0
Wrong	10	20.0		12	24.0	
Don't know	9	18.0		14	28.0	
No response	3	6.0		4	8.0	
Total	50	100.0	49.5	50	100.0	29.5

**Total score**

**51.2**

**25.6**

Both referents were linked with "Mobile phone", but the association to a traffic symbol was not comprehended. Variant A reached better scores. The variants should be tested in a combination with the letters SOS and a phone number to get representative values associated with the intended use.

**4.4: Fines doubled****Austria**

Category	f	%	Score	f	%	Score	f	%	Score
Certain	4	7.8	8.2	4	7.8	7.8	2	3.9	4.0
Very probable	2	3.9	3.1	1	2.0	1.5	0	0.0	0.0
Probable	0	0.0	0.0	1	2.0	1.0	0	0.0	0.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	21	41.2		30	58.8		27	52.9	
Don't know	22	43.1		15	29.4		21	41.2	
No response	2	3.9		0	0.0		1	2.0	
Total	51	100.0	11.2	51	100.0	10.3	51	100.0	4.0

**Czech Republic**

Category	f	%	Score	f	%	Score	f	%	Score
Certain	6	12.0	12.0	2	4.0	4.0	2	4.0	4.0
Very probable	9	18.0	13.5	9	18.0	13.5	2	4.0	3.0
Probable	5	10.0	5.0	3	6.0	3.0	10	20.0	10.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	8	16.0		19	38.0		15	30.0	
Don't know	19	38.0		10	20.0		16	32.0	
No response	3	6.0		7	14.0		5	10.0	
Total	50	100.0	30.5	50	100.0	20.5	50	100.0	17.0

**Hungary**

Category	f	%	Score	f	%	Score	f	%	Score
Certain	10	20.0	20.0	15	30.0	30.0	16	32.0	32.0
Very probable	6	12.0	9.0	6	12.0	9.0	8	16.0	12.0
Probable	4	8.0	4.0	4	8.0	4.0	1	2.0	1.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	9	18.0		7	14.0		6	12.0	
Don't know	15	30.0		15	30.0		13	26.0	
No response	6	12.0		3	6.0		6	12.0	
Total	50	100.0	33.0	50	100.0	43.0	50	100.0	45.0

**Total score                                    24.9                                    24.6                                    22.0**

This symbol was tested just for experimental purpose as it is not in use in Europe. All variants reached scores around 20%; there is no significant difference in scores between the pictograms.

**4.5: Switch off engine**

A



B



D

**Austria**

Category	f	%	Score	f	%	Score	f	%	Score
Certain	30	58.8	60.0	30	58.8	58.8	28	54.9	56.0
Very probable	3	5.9	4.5	3	5.9	4.4	2	3.9	3.0
Probable	3	5.9	3.0	4	7.8	3.9	1	2.0	1.0
Opp. meaning	1	2.0	-2.0	1	2.0	-2.0	0	0.0	0.0
Wrong	4	7.8		7	13.7		5	9.8	
Don't know	9	17.6		6	11.8		14	27.5	
No response	1	2.0		0	0.0		1	2.0	
Total	51	100.0	65.5	51	100.0	65.2	51	100.0	60.0

**Czech Republic**

Category	f	%	Score	f	%	Score	f	%	Score
Certain	19	38.0	38.0	26	52.0	52.0	14	28.0	28.0
Very probable	0	0.0	0.0	2	4.0	3.0	3	6.0	4.5
Probable	0	0.0	0.0	4	8.0	4.0	0	0.0	0.0
Opp. meaning	0	0.0	0.0	1	2.0	-2.0	1	2.0	-2.0
Wrong	9	18.0		4	8.0		15	30.0	
Don't know	20	40.0		11	22.0		12	24.0	
No response	2	4.0		2	4.0		5	10.0	
Total	50	100.0	38.0	50	100.0	57.0	50	100.0	30.5

**Hungary**

Category	f	%	Score	f	%	Score	f	%	Score
Certain	27	54.0	54.0	29	58.0	58.0	35	70.0	70.0
Very probable	3	6.0	4.5	5	10.0	7.5	2	4.0	3.0
Probable	4	8.0	4.0	3	6.0	3.0	2	4.0	2.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Wrong	6	12.0		6	12.0		3	6.0	
Don't know	7	14.0		6	12.0		6	12.0	
No response	3	6.0		1	2.0		2	4.0	
Total	50	100.0	62.5	50	100.0	68.5	50	100.0	75.0

**Total score****55.3****63.6****55.2**

Variante B reached the highest score, although there are significant differences between the partner countries.

#### 4.6: Switch on hazard lights



##### Austria

Category	f	%	Score
Certain	21	41.2	41.2
Very probable	1	2.0	1.5
Probable	1	2.0	1.0
Opp. meaning	0	0.0	0.0
Wrong	19	37.3	
Don't know	9	17.6	
No response	0	0.0	
Total	51	100.0	43.6

##### Czech Republic

Category	f	%	Score
Certain	30	60.0	60.0
Very probable	2	4.0	3.0
Probable	2	4.0	2.0
Opp. meaning	0	0.0	0.0
Wrong	8	16.0	
Don't know	5	10.0	
No response	3	6.0	
Total	50	100.0	65.0

##### Hungary

Category	f	%	Score
Certain	19	38.0	38.0
Very probable	3	6.0	4.5
Probable	5	10.0	5.0
Opp. meaning	0	0.0	0.0
Wrong	13	26.0	
Don't know	8	16.0	
No response	2	4.0	
Total	50	100.0	47.5

**Total score 52.0**

About 46% of the respondents answered correctly, 15 % of the responses are 'Don't know' answers. Wrong answers in most cases stress the aspect of "danger."

**4.7: Motorway entry/junction****Austria**

Category	f	%	Score
Certain	22	43.1	44.0
Very probable	11	21.6	16.5
Probable	6	11.8	6.0
Opp. meaning	0	0.0	0.0
Wrong	0	0.0	
Don't know	11	21.6	
No response	1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>66.5</b>

**Czech Republic**

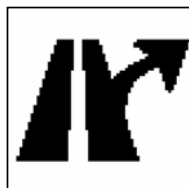
Category	f	%	Score
Certain	37	74.0	74.0
Very probable	3	6.0	4.5
Probable	3	6.0	3.0
Opp. meaning	0	0.0	0.0
Wrong	0	0.0	
Don't know	6	12.0	
No response	1	2.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>81.5</b>

**Hungary**

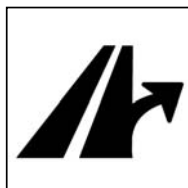
Category	f	%	Score
Certain	11	22.0	22.0
Very probable	18	36.0	27.0
Probable	11	22.0	11.0
Opp. meaning	0	0.0	0.0
Wrong	3	6.0	
Don't know	4	8.0	
No response	3	6.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>60.0</b>

**Total score** **69.3**



**4.8: Motorway exit**

C



D

**Austria**

Category	f	%	Score	f	%	Score
Certain	45	88.2	88.2	38	74.5	76.0
Very probable	1	2.0	1.5	2	3.9	3.0
Probable	2	3.9	2.0	3	5.9	3.0
Opp. meaning	0	0.0	0.0	1	2.0	-2.0
Wrong	1	2.0		4	7.8	
Don't know	2	3.9		2	3.9	
No response	0	0.0		1	2.0	
Total	51	100.0	91.7	51	100.0	80.0

**Czech Republic**

Category	f	%	Score	f	%	Score
Certain	36	72.0	72.0	37	74.0	74.0
Very probable	3	6.0	4.5	4	8.0	6.0
Probable	3	6.0	3.0	5	10.0	5.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	3	6.0		2	4.0	
Don't know	3	6.0		2	4.0	
No response	2	4.0		0	0.0	
Total	50	100.0	79.5	50	100.0	85.0

**Hungary**

Category	f	%	Score	f	%	Score
Certain	34	68.0	68.0	36	72.0	72.0
Very probable	7	14.0	10.5	2	4.0	3.0
Probable	3	6.0	3.0	5	10.0	5.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	1	2.0		1	2.0	
Don't know	3	6.0		2	4.0	
No response	2	4.0		4	8.0	
Total	50	100.0	81.5	50	100.0	80.0

**Total score****84.2****81.7**

Both variants reached high comprehension scores, there is no significant difference between the two symbols. The second variant is recommended, because of the likely possibility to display additional information.

**4.11: Motorail station**

C



D

**Austria**

Category	f	%	Score	f	%	Score
Certain	30	58.8	58.8	25	50.0	50.0
Very probable	2	3.9	2.9	7	14.0	10.5
Probable	5	9.8	4.9	6	12.0	6.5
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	10	19.6		7	14.0	
Don't know	4	7.8		4	8.0	
No response	0	0.0		1	2.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>66.7</b>	<b>50</b>	<b>100.0</b>	<b>66.5</b>

**Czech Republic**

Category	f	%	Score	f	%	Score
Certain	28	56.0	56.0	30	60.0	60.0
Very probable	6	12.0	9.0	4	8.0	6.0
Probable	4	8.0	4.0	3	6.0	3.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	1	2.0		8	16.0	
Don't know	5	10.0		3	6.0	
No response	6	12.0		2	4.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>69.0</b>	<b>50</b>	<b>100.0</b>	<b>69.0</b>

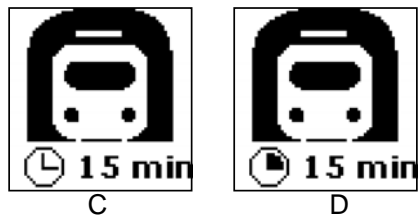
**Hungary**

Category	f	%	Score	f	%	Score
Certain	25	50.0	50.0	19	38.0	38.0
Very probable	6	12.0	9.0	9	18.0	13.5
Probable	6	12.0	6.0	10	20.0	10.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	5	10.0		6	12.0	
Don't know	5	10.0		3	6.0	
No response	3	6.0		3	6.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>65.0</b>	<b>50</b>	<b>100.0</b>	<b>61.5</b>

**Total score****66.9****65.7**

With about two thirds correct responses both variants are well comprehended, there is no significant difference between the score of the two pictograms.



**4.15: Underground trains depart every 15 minutes****Austria**

Category	f	%	Score	f	%	Score
Certain	21	41.2	41.2	16	31.4	31.4
Very probable	6	11.8	8.8	7	13.7	10.3
Probable	3	5.9	2.9	2	3.9	2.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	11	21.6		19	37.3	
Don't know	10	19.6		7	13.7	
No response	0	0.0		0	0.0	
<b>Total</b>	<b>51</b>	<b>100.0</b>	<b>52.9</b>	<b>51</b>	<b>100.0</b>	<b>43.6</b>

**Czech Republic**

Category	f	%	Score	f	%	Score
Certain	17	34.0	34.0	21	42.0	42.0
Very probable	6	12.0	9.0	3	6.0	4.5
Probable	4	8.0	4.0	7	14.0	7.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	14	28.0		10	20.0	
Don't know	3	6.0		5	10.0	
No response	6	12.0		4	8.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>47.0</b>	<b>50</b>	<b>100.0</b>	<b>53.5</b>

**Hungary**

Category	f	%	Score	f	%	Score
Certain	27	54.0	54.0	28	56.0	56.0
Very probable	3	6.0	4.5	2	4.0	3.0
Probable	0	0.0	0.0	5	10.0	5.0
Opp. meaning	0	0.0	0.0	0	0.0	0.0
Wrong	7	14.0		6	12.0	
Don't know	8	16.0		7	14.0	
No response	5	10.0		2	4.0	
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>58.5</b>	<b>50</b>	<b>100.0</b>	<b>64.0</b>

**Total score****52.8****53.7**

Answers show that the symbol of “underground” is often associated with “train”.

## 4. Discussion and Conclusions

For 33 referents a total of 84 variants were tested. In all three participating countries 20 referents were comprehended well. Their picture content is approved.

13 referents were not understood correctly, among them are the suggested improvements for the standard symbols for “bridge”, “tunnel”, and “pass”, which have to be redesigned and tested again.

The graphical design for symbolizing “closed” showing a cross, a diagonal slash or a red circle has to be consistent through all the message signs. Therefore, it is suggested to test again, which design is most comprehended and commonly understandable.

*Table 3: Conclusions, Final Scores of the Tested Pictograms*

Code	Referent No	Referent Name	Variants No.	Series				ISO SCORE				Suggestion
				A	B	C	D	A	B	C	D	
1	1.2.1.1	Road ahead closed	2			1	1			83,4	65,8	✓
2	1.2.1.2	Pass ahead is closed	4	1	1	1	1	22,3	57,9	10,6	19,7	improvement
3	1.2.1.3	Tunnel ahead is closed	3	1	1	1		50,8	73,5	52,3		improvement
4	1.2.1.4	Bridge ahead is closed	3		1	1	1		53,9	48,7	22,7	improvement
5	1.2.1.5	Next exit closed	2	1	1			74	68,1			✓
6	1.4.1.5	Dedicated lanes for emergency vehicles	1			1				59,9		✓
7	2.2.1	Flooded road	3	1	1		1	73,9	51,9		52,2	✓
8	2.2.2	Fog	3	1		1	1	80,8		78,1	58,7	✓
9	2.2.3	Freezing fog	3	1	1	1		71,3	64,2	67,8		✓
10	2.3.2	Accident has happened	4	1	1	1	1	43,3	47,5	52,7	47,5	improvement
11	2.3.3	Vehicle broken down	3	1	1	1		30,9	21,4	28,4		improvement
12	2.3.4	Oncoming illegal traffic	4	1	1	1	1	14	20	16,2	22	improvement
13	2.3.8.1	Elk or reindeer on road	2	1	1			85,5	86			✓
14	2.3.10	High probability of accidents	1	1				23,8				abandone
15	2.3.11	Objects/obstacles on the road	3	1	1		1	14,2	26,8		3,5	improvement

16	3.2.2.1	Last exit before control point	4	1	1	1	1	67,9	63,2	13	79,9	✓
17	3.2.2.1.1	Toll road ahead	2	1	1			80,6	78			✓
18	3.2.2.2	Last exit before pass	2			1	1			19	25,5	improvement
19	3.2.2.5	Last exit before bridge	3		1	1	1		44,5	48,6	19	improvement
20	3.2.2	Exit after exit closed	2	1	1			65	76,8			✓
21	3.3.2.11	Mobile home	1				1				54,7	✓
22	3.3.2.2	Park & Ride	4	1	1	1	1	78,3	68,3	57,5	87,7	✓
23	3.3.2.4	Ferry boat	4	1	1	1	1	94,7	96,4	95,2	63	✓
24	3.3.2.8	Children's playground	2			1	1			92,2	86,6	✓
25	3.3.5	Mobile phone: SOS	2	1	1			51,2	25,6			improvement
26	4.4	Fines doubled	3	1		1	1	24,9		24,6	22	abandon
27	4.5	Switch off engine	3	1	1		1	55,3		63,6	55,2	improvement
28	4.6	Switch on hazard lights	1				1				52	improvement
29	4.7	Motorway entry/junction	1		1				69,3			✓
30	4.8	Motorway exit	2			1	1			84,2	81,7	✓
31	4.11	Motorail station	2			1	1			66,9	65,7	✓
32	4.12	City centre	3	1	1	1		7,6	10,7	10,7		improvement
33	4.15	Underground trains depart every 15 minutes	2			1	1			52,8	53,7	improvement
		Variants per series	84	21	21	21	21					

## 5. References

Brugger Ch. (2006): Comprehensibility Judgement Test; Report In-Safety, 506716.

Brugger, Ch. (1999): Public information symbols: a comparison of ISO testing procedures. In: Zwaga, H.J.G., Boersema, T. & Hoonhout, H.C.M. (Eds.): Visual information for everyday use. London: Taylor & Francis.

ISO, International Standardization Organization (1989): ISO 9186: First Edition, Procedures for the development and testing of public information symbols. Geneva: ISO.

ISO, International Standardization Organization (2001): ISO 9186, Graphical symbols – Test methods for judged comprehensibility and for comprehension. Geneva: ISO.

Zwaga, H.J. (1989): Comprehensibility estimates of public information symbols; their validity and use. In Proceedings of the Human Factors Society 33rd Annual Meeting (pp. 979-983). Santa Monica, CA: The Human Factors Society.