

**Relation of ambiguity tolerance to cognitive and affective needs:  
A cross cultural content analysis**

**Katya Stoycheva, Todd Lubart, Franck Zenasni, Kalina Popova**

**ABSTRACT**

Ten Bulgarian and ten French doctoral students in psychology rated each of the 188 items of need for closure, need for structure, need for cognition, need to evaluate, need for precision, intolerance of uncertainty, and need for affect scales. Experts were provided with a written definition of tolerance - intolerance of ambiguity and indicated whether and to what extent these items relate to ambiguity tolerance construct. The strength of items' relation to ambiguity tolerance (weak, moderate, or strong) was compared across expert groups and across scales. Cases of cross-cultural disagreement in judgements and lack of consensus among experts were examined.

**WHY THIS STUDY?**

The idea for this project grew out of the examination of the nomological network of ambiguity tolerance (AT). The examination of the literature showed that there is a particular group of individual-difference variables that are considered in relation to tolerance – intolerance of ambiguity. These are newly constructed measures that cover cognitive and affective motivations, preferences, attitudes and behaviours. These are, for example, need for cognitive closure, need for structure, need for cognition, need for precision. Despite the fact that individual's reactions to ambiguous situations, events, ideas and objects play important role in the definition of these constructs, there were very few direct comparisons of these measures to AT. We identified five studies reporting data on their correlation to AT:

### *Need for cognitive closure*

1. 97 male and female university students completed NFCS and Eysenck's AInT - Intolerance of ambiguity scale (Webster, Kruglanski, 1994) – AInT correlated 0,29 ( $p < 0,01$ ) with the total scale's score and 0,36 ( $p < 0,01$ ) with preference for Order subscale, 0,23 ( $p < 0,05$ ) with preference for Predictability subscale, and 0,36 ( $p < 0,01$ ) with discomfort with Ambiguity subscale.

2. Blanchard-Fields, Hertzog, Stein and Pak (2001) observed significant correlations between Budner's subscale of attitudinal intolerance and NFCS-O ( $r = 0,45$ ;  $p < 0,01$ ), NFCS-P ( $r = 0,59$ ;  $p < 0,01$ ), NFCS-Decisiveness ( $r = - 0,16$ ;  $p < 0,05$ ), NFCS-A ( $r = 0,46$ ;  $p < 0,01$ ) and significant correlations between Budner's subscales of decision-making intolerance and NFCS-O ( $r = 0,26$ ;  $p < 0,01$ ), NFCS-P ( $r = 0,24$ ;  $p < 0,01$ ) and NFCS-C ( $r = 0,21$ ;  $p < 0,01$ ) for a sample of 219 adults ranging in age from 23 – 86 years.

Blanchard-Fields, Hertzog, Stein and Pak (2001) observed correlations between Budner's subscale of attitudinal intolerance and NFCS-O ( $r = 0,48$ ;  $p < 0,01$ ), NFCS-P ( $r = 0,50$ ;  $p < 0,01$ ), NFCS-A ( $r = 0,28$ ;  $p < 0,01$ ) and correlations between Budner's subscale of decision-making intolerance and NFCS-C ( $r = 0,29$ ;  $p < 0,01$ ) for a sample of 96 university students.

3. Need for closure was correlated 0,60 ( $p < 0,01$ ) with Budner's AInT score for a sample 72 undergraduate students (Leone, Wallace, Modglin, 1999).

### *Need for cognition*

2. Blanchard-Fields, Hertzog, Stein and Pak (2001) observed correlations between Budner's subscale of attitudinal intolerance and NCOG ( $r = - 0,28$ ;  $p < 0,01$ ) and non significant correlation between Budner's subscale of decision-making intolerance and NCOG for a sample of 96 university students.

Blanchard-Fields, Hertzog, Stein and Pak (2001) observed correlation between Budner's subscale of attitudinal intolerance and NCOG ( $r = - 0,45$ ;  $p < 0,01$ ) and correlation between Budner's subscale of decision-making intolerance and NCOG ( $r = - 0,28$ ;  $p < 0,01$ ) for a sample of 219 adults ranging in age from 23 to 86 years.

### *Need for precision*

4. (Viswanathan, 1997) studied 160 undergraduate students and NFP correlated - 0,25 ( $p < 0,01$ ) with abbreviated version of Norton's MAT.

### *Need for structure*

3. Need for structure correlated with Budner's AInT score 0,75 ( $p < 0,01$ ) for a sample of 72 undergraduate students and 0,54 ( $p < 0,01$ ) for a sample of 69 undergraduate students (Leone, Wallace, Modglin, 1999)

5. Neuberg and Newsom (1993) report correlation with Eysenck's AInT scale of 0,18 ( $p < 0,05$ ) for a sample of 191 undergraduate students (0,17 and 0,15 for Desire for structure and Response to lack of structure, respectively) and correlation of 0,36 ( $p < 0,001$ ) for another sample of 360 undergraduate students (0,27 and 0,36 for Desire for structure and Response to lack of structure, respectively).

There were few empirical findings that were difficult to compare, and relationships between the measures were debated (Neuberg et al., 1997; Kruglanski et al., 1997). Available data were neither conducive to conclusions nor were they indicating any specific direction for further research. In this situation a content analysis of the scales' items appeared to be a useful instrument in approaching the problem – how AT relates to cognitive and affective individual difference measures.

The following scales were included in our study: need for closure, need for structure, need for cognition, need for evaluation, need for precision, intolerance of uncertainty, and need for affect. They were selected because:

- \* there were empirical studies reporting their correlation with AT;
- \* their link to the AT construct was theoretically postulated;
- \* they were related to other scales in our selection;
- \* we assumed they may relate to the AT construct as it is defined (Stoycheva, 2003).

Intolerance of uncertainty and need for affect scales were added to the cognitive needs measures in order to:

- \* cover an important element of ambiguity tolerance – subjective states and feelings induced by ambiguity that individuals need to process and that can be overwhelming for some of them
- \* have a more balanced representation of human reactions: people have to deal with both cognitive and affective content in ambiguous situations.

## **METHOD**

Judges rated each of the items of need for closure (42 items), need for structure (12 items), need for cognition (45 items), need for evaluation (16 items), and intolerance of uncertainty (27 items) and need for affect (26 items) with respect to its relation to the AT construct.

### **Judges**

Ten doctoral students at the Institute of Psychology of the Bulgarian Academy of Sciences and ten doctoral students at the Laboratory of Cognition and Development at University Rene Descartes in Paris, France, took part in the study. None of them was involved in research on ambiguity tolerance. There were 1 men and 9 women aged 24 to 30 in the Bulgarian group and 2 men and 8 women aged 26 to 38 in the French group.

### **Items' translation**

The items in the selected scales, 188 in total, were first translated into Bulgarian and into French. First, two Bulgarian and two French independent translations of the items were obtained. Second, the two versions in each language were compared and discussed to reach a wording of each of the items in Bulgarian and in French respectively. Third, professional translator translated the items from Bulgarian into French. Fourth, the two French translations of the items were compared and discussed. The translator plus two French psychologists and two Bulgarian psychologists took part in the discussion. The group worked to establish equivalence between the French and the Bulgarian translations of the items while maintaining them as close as possible to the English language original. In this way the final wording of the items in Bulgarian and in French was obtained.

Two letters, indicating the scale they are issued, and a number in ascending order numbered items. The scales were ordered as follow: CL - Need for Closure; ST – Need for Structure; CG – Need for Cognition; EV – Need for Evaluation; UN- Intolerance of Uncertainty; AF – Need for Affect. Thus we started with CL1 (the first item in the Need for Closure scale) and ended with AF188 (the last item in the Need for Affect scale).

Each item was written on separate cardboard. Item's number was written on the reverse side of the cardboard.

## Procedure

Judges were provided with a written definition of the AT construct. They were asked to read each of the items one after another and to indicate their relation to the AT construct. Items were presented in a chance order.

First, judges indicated whether the item is related or not to AT. After they finish, the E took away those of the items that were judged as unrelated to AT. Then judges were asked to look again at the related items and indicate for each of them how much it is related to AT construct – strongly related, moderately related, or weakly related. After they finish, the E coded the ratings judges gave as follows: 0 – not related; 1 – weakly related; 2 – moderately related; 3 – strongly related.

Thus for each of the 188 items was obtained information about 1) whether or not it is related to the AT construct, and 2) the strength of its perceived relation to AT, defined at three levels as strong, moderate, and weak.

## AT definition

“The psychological dimension of **ambiguity tolerance** describes individual behaviour in ambiguous situations where individuals are confronted with a lack of information or with an incoherence in the available information. Individuals who are **intolerant of ambiguity** perceive and interpret ambiguous situations as a source of psychological discomfort or a threat and respond to them in a defensive way. These individuals seem confused by ambiguity and tend to avoid it. Their reactions in ambiguous situations often may be disturbed, exaggerated or poorly coordinated. Individuals who are **tolerant of ambiguity** are better able to cope with ambiguity and manage it. They perceive and interpret ambiguous situations in more adequate and realistic way and react to them more appropriately. They can tolerate ambiguity as much as to elaborate more adaptive and coordinated responses to the situation.”

## RESULTS

Items were categorized according to the consensus (or lack of it) in judges' ratings of items' relation to AT. Consensus (or lack of it) both between judges and between the two groups of judges was considered. Five categories of items were specified:

1. Items with consensus on relatedness: Items that are judged to be related to AT in both groups (70% and more agreement that item relates to AT in both groups of judges)

2. Items with consensus on non relatedness : Items that are judged to be unrelated to AT in both groups (70% and more agreement that item does not relate to AT in both groups of judges)
3. Items with opposite consensus in the groups of judges : there is a clear opinion on the item but it goes in different directions (70% and more agreement that the item relates to AT in one of the group of judges and 70% and more agreement that this item does not relate to AT in the other group)
4. Items with no consensus in both groups: Items with scores' distributions of 60% – 40%, 50% – 50%, or 40% - 60% in both groups.
5. Differing items: Items with a consensus in one of the groups but not in the other.

The distribution of scales' items across these 5 categories can be seen in Table 1.

**Table 1** Distributions of scales' items according to the consensus or lack of it among the judges from the two groups

Scales	Number of items in the scale	Consensus Related	Consensus Not Related	Opposite Consensus	No Consensus	Differing items
CL	42	38		1		3
ST	12	11			1	
CG	45	13	6	1	8	17
EV	16	10			1	5
PR	20	19				1
UN	27	26				1
AF	26	4	10	1		11
Total	188	121	16	3	10	38

Data analyses and interpretation will be presented in two parts. In Part One we will discuss our findings about the relation of AT to the cognitive and affective manifestations that these scales measure. In Part Two we will discuss the cross-cultural dimension in our findings as it is manifested in agreement / disagreement and consensus / lack of consensus among judges coming from two different cultures.

## PART ONE

### Relation of AT to cognitive and affective manifestations

In order to strengthen our conclusions, we shall analyse the relation of AT to those of the items that exhibit consensus among judges and across groups – items from the above mentioned categories 1 and 2. There are 137 items in total: 121 items that were judged to be related to AT in both groups and another 16 items that were judged to be not related to AT in both groups (Table 2).

For each of the retained 137 items an average score of judges' ratings for this item was calculated. Items' scores ranged from 3,00 (all judges rated these items as strongly related to AT) to 0,05 (19 out of 20 judges said these items are not related to AT), with a mean of 2,11 and standard deviation of 0,77.

Table 2. Items retained for further analysis of the relation of AT to cognitive and affective manifestations

Scales	Number of items in the scale	Consensus yes	Consensus No	Number of items retained
CL	42	38		38
ST	12	11		11
CG	45	13	6	19
EV	16	10		10
PR	20	19		19
UN	27	26		26
AF	26	4	10	14

Then items were ranked in descending order according to judges' average rating. Higher ratings indicate stronger relation to AT therefore the higher the ranking of the item the stronger is the item's relation to AT. Four levels of relatedness to AT were considered:

Level 3 – items with an average rating above 2,50, or “strong” items

Level 2 – items that rated between 2,00 and 2,50, or “moderate” items

Level 1 – items that rated between 1,00 and 2,00, or “weak” items

Level 0 – items with an average rating below 1,00

The distribution of the 137 scales' items across these 4 levels can be seen in Table 3.

**Table 3.** Distribution of the retained for analysis items according to item’s scale and level of relatedness to AT

Scales	Items scoring above 2,50	Items scoring 2,00 to 2,50	Items scoring 1,00 to 2,00	Items scoring below 1,00
CL	17	17	4	0
ST	7	4	0	0
CG	1	4	9	6
EV	1	7	2	0
PR	2	14	3	0
UN	18	6	2	0
AF	0	0	4	10

Items showing strongest relation to AT as well as those unrelated to the AT construct were content analysed in order to delineate the cognitive and affective manifestations that were associated with AT.

**Step 1: Items strongly related to ambiguity tolerance**

At Level 3, there were 3 items with a complete consensus – all 20 judges rated them as strongly related to the AT construct. These are: a) an item from Need for Structure scale (“I become uncomfortable when the rules in a situation are not clear “); b) an item from Need for Precision scale (“I like to know precisely what is meant by information that I learn”), and c) an item from Intolerance of Uncertainty scale (“The ambiguities in life stress me”). Thus the discomfort induced by the lack of clarity in ambiguous situations and the avoidance of ambiguity in one’s understanding of the situation are highlighted.

The majority of the 46 “strong” items come from Intolerance of Uncertainty (39 %) and from Need for Closure (37 %) scales and denote the difficulties one experiences in facing ambiguous situations, events and ideas as well as the avoidance of ambiguity. The rest of the items join these clusters of meaning. Thus the content of the Level 3 items describe:

*Discomfort* (feeling uneasy, anxious, stressed, dislike, can’t stand, can’t relax) *and frustration* (feeling vulnerable, sad, unhappy, upset, can’t function well) induced by lack of clarity in an ambiguous situation or by the unpredictability of events and people’s behaviour

*Inability to act in ambiguous situation* (when uncertain, can’t go forward; paralyses me)

*Avoidance of ambiguity in one’s understanding of a situation, event, or idea* (like/want to know precisely what is meant; what to know in advance what will happen; better to know



bad news that stay in uncertainty; what to know exactly what is good and what is bad about everything; vague descriptions)

*Avoidance of the encounter with ambiguity* – socialize with friends, go to familiar places, avoid people capable of unpredictable actions, having a clear and structured life, organize in advance, look ahead into the future, preference for familiar situations (avoid surprises).

Of the 46 items at the strongest level of relatedness to AT, 42 describe manifestations of intolerance of ambiguity and only 4 items describe manifestations of tolerance of ambiguity. The latter involve: a) *positive experience in uncertain or ambiguous situations* (enjoy the exhilaration of being in unpredictable situations - ST11; enjoy the uncertainty in going into new situations - CL19), as well as b) *preference for exploration* (prefer life filled with puzzles that I must solve - CG39; see many possible solutions to the problems I face - CL38).

#### Step 2: Items unrelated to ambiguity tolerance

At Level 0, there are 10 items from Need for Affect scale and 6 items from Need for Cognition scale. They were rated as unrelated to AT by 70 % to 95 % of the judges. In their perception, tolerance – intolerance of ambiguous situations is not related to:

- a) an approach orientation towards experience of emotions (7 items AF; e.g. emotions are beneficial, help get along in life; dwelling on emotions, need to express them);
- b) the importance assigned to being intellectual and developing one's intellectual skills (6 items CG, taking pride in the products of my reasoning; prefer educational to entertainment programs, thinking enough to achieve one's goals in life);
- c) an avoidance approach to emotional experiences (3 items AF; displays of emotions are embarrassing; wish to feel less emotional)

### **The relation of cognitive and affective needs to AT**

Now we shall summarise the results for each of the scales that were considered in this study.

In Table 4 you find the percentage of scales' items that were judged as related to AT and descriptive statistics for each scale's items ratings (averaged for all of the items of the scale).

Table 4. Descriptive statistics for scales' relation to AT

Scales	Percentage of scale's items related to AT	Scale's Items Ratings	
		Mean	SD
CL	90	2,45	0,33
ST	92	2,66	0,20
CG	29	1,42	0,85
EV	63	2,26	0,27
PR	95	2,26	0,26
UN	96	2,53	0,43
AF	15	0,68	0,69

Intolerance of Uncertainty Scale (Freeston et al., 1994, p. 798)

Twenty six out of the 27 scale items were judged as related to AT. There were 18 Level 3 items, 6 Level 2 items, and 2 Level 1 items. Individual's capacity to tolerate uncertainty, induced by encounters with ambiguity, appears as an important correlate of AT as the ratings of the UN items suggest.

The only discarded item is classified as related to AT by Bulgarian judges and just missed the threshold of 70 %, being classified as related to AT by 60 % of the French judges (its unfair not having any guarantees in life). This is the only item in this scale that makes a general life statement rather than referring to an individual perception or reaction to uncertain situations.

Need for Closure Scale (Neuberg, Judice, West, 1997, p.1411)

The scale has 42 items, organised into 5 facets. About 90 % of them were judged to be related to AT, either at Level 3 (17 "strong" items), Level 2 (17 "moderate" items) or Level 1 (4 "weak" items).

Below is given the distribution of these items among facets:

Table 5. CL items that are related to AT across facets and degrees of relatedness

Facets	Number of Items	Related Items	“Strong” Items	“Moderate” Items	“Weak” Items
1 O Preference for order	10	9	3	4	2
2 P Preference for predictability	8	8	6	2	
3 D Decisiveness	7	4		3	1
4 A Discomfort with ambiguity	9	9	6	2	1
5 C Close-mindedness	8	8	2	6	

Items that belong to facets “Discomfort with ambiguity” and “Preference for predictability” show greatest strength of relationship with AT. They cover the areas of experiencing discomfort and avoiding ambiguity that we already discussed. Next come the facet “Closed-mindedness”, followed by the facet “Preference for order”. Decisiveness facet, or how much difficulty one experiences in making decisions, is least related to AT. Those of the items in the D facet that are related AT focus on the tendency a) to put off important decisions versus quick and confident decision (doubts may be confusing and paralysing), and b) confused by many possible options versus seeing quickly one best solution (premature closure).

Need for Structure Scale (Neuberg, Newsom, 1993, p. 131)

Its 12 items are organised into two factors. Judges agreed that 11 of the items are related to AT and had no consensus on 1 item:

*Desire for structure* – 2 strong items; 2 moderate items (4 out of 4)

*Response to lack of structure* – 5 strong items; 2 moderate items (7 out of 7)

Items with the strongest relation to AT describe the way in which situations lacking structure are experienced. They include: 4 items for discomfort (rules are not clear; not knowing what to expect; uncertain outcomes; people that are unpredictable); 1 item for enjoyment – exhilaration in unpredictable situation; 2 items for (lack of) negative response to changes in one’s routine; Then come avoidance of ambiguity under the form of organising one’s life and environment (2 items).

*Item 5 “Enjoy being spontaneous” (Neuberg, Newsom, 1993, p. 131) that was dropped from authors’ use of the scale is also the item about which our judges did not have consensus – their opinions about whether the item is related or not are divided 50 to 50.*

Need for Cognition Scale (Cacioppo , Petty, 1982, pp. 120-121)

Thirteen of its 45 items were judged as related and 6 were judged as unrelated to AT. Among related items there are 1 “strong” item, 4 “moderate:” items and 8 “weak” items, scoring from 2,65 to 1,30. Ten out of the 13 related items (or 77 %) were reverse scored, i.e. they describe uneasiness to think in new and unfamiliar situations; avoidance of thinking when confused, avoidance of thinking and of learning new things; avoidance of deep and complex thinking; avoidance of the responsibility for thinking things out. This incidence is higher than the proportion of reversed items in the scale itself (25 out of 45, or 56 %).

The three positive items that were related to AT describe preference for cognitive exploration (having puzzles one must solve, preference for complex tasks, enjoy thinking).

In addition to this we can mention that all unrelated items were straight items.

Need for Evaluation Scale (Jarvis, Petty, 1996, p. 176)

Ten out of the 16 scale’s items were judged as related to AT. Among them there are 1 “strong” item, 7 “moderate” items and 2 “weak” items, scoring from 2,85 to 1,90. All “moderate” items score above items’ mean of 2,11. Items’ content refer to *avoidance of ambiguity in one’s understanding of life situations* (want to know exactly what is good and what is bad about everything; prefer holding strong opinions than no opinion at all; taking extreme positions; new things are really good or really bad; forming opinions about everything).

Need for Precision Scale (Viswanathan, 1997, p. 723)

Judges showed consensus in rating 19 of its 20 items as related to AT. There were 2 “strong” items, 14 “moderate” items and 3 “weak” items. Their average ratings range from 3,00 to 1,90 and 89% of them score above 2,00. Their content, as Table 6 indicates, covers either *avoidance of ambiguity in one’s understanding of an object, task, event or situation through search for precision* (9 items) or *acceptance of the lack of precision that entails ambiguity* (10 items). Here are some examples for avoidance (need information when description is vague; to know precisely what is meant by information; use precise information that is available when making decisions) and for acceptance (be only as exact as I need to be; put things into broad categories).

Table 6. PR items' average ratings and their content distribution

Search for precision that avoids ambiguity		Acceptance of the lack of precision that entails ambiguity	
PR118	3,00		
PR117	2,65		
PR135	2,50		
		PR129	2,45
PR120	2,40		
		PR130	2,35
		PR125	2,30
		PR122	2,25
		PR123	2,25
		PR124	2,25
PR128	2,15		
PR131	2,15		
PR116	2,10		
		PR126	2,10
PR134	2,10		
PR119	2,06		
		PR132	2,00
		PR133	1,95
		PR127	1,90

Need for Affect Scale (Maio, Esses, 2001, p. 591)

Judges had consensus on 14 of its 26 items: 4 items were judged as related and 10 were judged as unrelated to AT construct. Level 0 items (judged as unrelated) refer more to approach of emotions (7 items) and less to avoidance (3 items). Level 1 items, rated as weakly related to AT, comprise 3 avoidance and one approach item. AT seems unrelated to emotions as motivators of either approach or avoidance behaviour; however, approach items were more often selected for non-relatedness.

	Approach items	Avoidance Items
Consensus Related	1	3
Consensus Unrelated	7	3

## **PART TWO**

### **Cross cultural comparisons**

#### Step 1: Discrepancies in judges' consensus on items

The two groups of judges differed in their ratings of 41 items. These 10 items on which judges in both groups had no consensus will not be considered here, since there is no difference between the groups in the perception of these items, and judges' ratings of these items do not indicate association with the AT construct.

In the case of 3 items with opposite consensus judges had consensus on the item but this consensus went in the opposite direction in the two groups. These items come from the CL, CG and AF scales. For the other 38 items there was a consensus in one of the groups but no consensus in the other group. These items come, in descending order of their number, from CG, AF, EV, CL, and PR and UN scales (see Table 7).

Most of the items characterised by cross-cultural differences come from scales (or scales' facets) that showed weakest relation to the AT construct (Need for Cognition and Need for Affect scales; Decisiveness facet of the Need for Closure scale). In this sense observed cross-cultural differences strengthen the conclusions based on observed cross-cultural similarities in the ratings of items' relation to the AT construct.

The pattern of having /not having consensus across the groups of judges does not seem to indicate any particular pattern of cultural particularities in the rating of scales' items in relation to the AT construct.

There is one noticeable difference across the groups of judges. French judges had consensus on 18 of the 38 differing items, and these were 5 YES items and 13 NO items. Bulgarian judges had consensus on the other 20 differing items, but they had consensus on 15 YES items and on 5 NO items. It seems that Bulgarian judges had greater sensitivity to the manifestations of AT and were therefore more inclusive in recognising item's relatedness to AT. French judges, on the other hand, were more exclusive in deciding about item's non-relatedness to AT. Differing items (items on which there were no cross-cultural consensus) appear to be of two types mostly. First, items whose "saturation" with AT was high enough to elicit consensual recognition among Bulgarian but not among French judges. Second, items whose non-relatedness to AT was clear enough for French but not for Bulgarian judges.

**Table 7.** Across scales' distribution of the items with consensus on relatedness (yes) or non relatedness (no) in one of the groups and with no consensus in the other group

<b><u>Consensus FR</u></b>		<b><u>Consensus BG</u></b>		Total number of items
<b>NO</b>	<b>YES</b>	<b>NO</b>	<b>YES</b>	
	CL12, CL17		CL22	3
CG66, CG69 R, CG73R, CG74R, CG78R , CG85R, CG91	CG65R, CG70R		CG55, CG58, CG59, CG62R, CG63, CG75R, CG84, CG96	17
	EV107	EV115	EV105, EV106, EV108	5
			PR121	1
			UN139	1
AF163, AF169, AF174, AF178, AF180, AF184		AF168, AF170, AF171, AF175	AF185	11

Reversed items in the Need for Cognition scales are indicated with “R”.

The distribution of the Need for Affect items across groups of judges is as follow:

FR judges – Consensus on NO - 4 avoidance items and 2 approach

BG judges – Consensus on NO – 2 avoidance and 2 approach items

BG judges – Consensus on YES – 1 avoidance item

**Step 2: Differences in groups' means of items ratings**

There are 6 (out of 137) items that show inter-group differences in their average ratings. These are:

*at 0,001 level of significance*

PR 127 - FR mean 2,6 > BG mean 1,2

*at 0,05 level of significance*

CL9 - FR mean 2,6 > BG mean 1,7

EV101 – FR mean 2,9 > BG mean 1,7

PR131 - FR mean 2,7 > BG mean 1,6

UN145 – FR mean 2,2 < BG mean, 3,00

AF172 - FR mean 1, 00 < BG mean 2,1

There were few and mostly small differences in the mean ratings of the items in the two groups of judges. It seems that French and Bulgarian judges agreed both about items' relatedness to the AT construct and about the strength of the items' relatedness to the AT construct.

## **DISCUSSION**

### **Validity of the AT construct**

The content analysis of expert judgements of the relation of scales' items to the AT construct appears to be a useful source of information

Scales were appropriately selected for the study of the nomological network of AT construct – 137 items (73 % of all items) were consensually rated as either related (121 items) or unrelated (26 items) to AT, and for another 38 items (or 20 % of all items) there was a consensus in at least one of the group of judges.

The predominance of intolerance items among the items strongly related to AT is consistent with the composition of the AT scales (Stoycheva, 2003).

The content analysis of the strongly related versus unrelated items corroborates several aspects of the definition of AT as a personality characteristic and its manifestations in the self-regulation of human behaviour in ambiguous situations (Stoycheva, 2003):

- AT refers to the ability to live with ambiguity and adapt to it but not to the search for ambiguity
- Avoidance of ambiguity is recognised as a manifestation of human behaviour in ambiguous situations both within and across cultures
- Lack of clarity on the meaning of a situation is often a source of discomfort or frustration in encounters with ambiguity and tend to block one's actions



- Individual differences in intolerance of uncertainty are highly relevant to AT, i.e. to individuals' behaviour in ambiguous situations.

Our findings point to a possible differentiation between the scales with respect to their relation to AT. We could discuss them as related scales (CL, ST, EV, PR, and UN) and unrelated scales (AF). Need for structure and Intolerance of uncertainty were almost unanimously rated as strongly related to AT, next was rated Need for closure, followed by Need for precision and Need for evaluation.

The items of the Need for Cognition scale were judged most differently and divergently with respect to their relation to the AT construct.

### **Cross cultural insights**

Consensus among judges appears both in the assignment (or not) of an item to the network of manifestations related to ambiguity tolerance and in the rating of the strength of item's relation to the AT construct.

Lack of within-cultural consensus about the relation of a particular item to the AT construct is a more common source of cross – cultural differences (38 items) than the lack of between-cultural agreement on the relation of a particular item to the AT construct (3 items).

### **References**

Cacioppo , J.T. and Petty, R. E. (1982) The need for cognition, *Journal of Personality and Social Psychology*, Vol. 42(1), 116-131.

Freeston, M. H., Rheaume, J., Letarte, H., Dugas, M. J., and Ladouceur, R. (1994) Why do people worry? *Personality and Individual Differences*, Vol., 17, No 6. 791-802

Jarvis, W.B.G. and Petty, R. E. (1996) The need to evaluate, *Journal of Personality and Social Psychology*, Vol. 70, No 1, 172 – 194

Kruglanski, A.W., Atash, N.M., Degrada, E., Mannetti, L., Pierro, A., and Webster, D.M. (1997) Psychological theory testing versus psychometric nay-saying: Comment on Neuberg et al.'s (1997) critique of the Need for closure scale, *Journal of Personality and Social Psychology*, Vol. 73, No 5, pp. 1005-1016.

Maio, G. R. and Esses, V. M. (2001) The need for affect: Individual differences in the motivation to approach and avoid emotions, *Journal of Personality*, Vol. 69(4), 583-615.

Neuberg, S.L., Judice, T.N. and West, S.G. (1997) What the need for closure scale measure and what it does not: Toward differentiating among epistemic motives, *Journal of Personality and Social Psychology*, 1997, vol. 72, No6, 1369-1412

Neuberg, S.L., West, S.G., Judice, T.N., and Thompson, M.M. (1997) On dimensionality, discriminant validity, and the role of psychometric analyses in personality theory and measurement: Reply to Kruglanski et al.'s (1997) defence of the need for closure scale, *Journal of Personality and Social Psychology*, Vol. 73, No 5, pp. 1017-1029.

Neuberg, S.L. and Newsom, J.T. (1993) Personal need for structure: Individual differences in the desire for simple structures, *Journal of Personality and Social Psychology*, Vol. 65, No1, 113-131.

Stoycheva, K. (2003) *Tolerantnostta kam neopredelenost [Tolerance for ambiguity]*. Pleven, Bulgaria: Lege Artis.

Viswanathan, M. (1997) Individual differences in need for precision, *Personality and Social Psychology Bulletin*, Vol., 23, No 7, 717-735

Webster, D. M. and Kruglanski, A.W. (1994) Individual differences in need for cognitive closure, *Journal of Personality and Social Psychology*, Vol. 67, No 6, 1049-1062.

### **Acknowledgements**

The authors deeply thanks Marina Vulova, Maria Trifonova, Carolyn Granier-Deferre and Tzena Mileva for their valuable participation in items' translation.

The contribution of NATO Research Fellowship to the first author and Jacobs Foundation's short-term exchange grant to the first and the second authors is gratefully acknowledged.

The Institute of Psychology at the Bulgarian Academy of Sciences in Sofia, Bulgaria and the Laboratory of Cognition and Development at the University Rene Descartes in Paris, France supported the realisation of this study.