

# **Bachelor Thesis**

*The extent to which people take inconsistent opinions of an expert and groups of laypeople into account when forming their opinion*

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*De mate waarin mensen de inconsistente meningen van een deskundige en een groep leken in overweging nemen wanneer zij hun mening vormen*

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## Abstract

In this paper, the persuasiveness of two types of arguments and their relationship to each other were examined: one of the *ad verecundiam* (appeal to authority) arguments: the *expert* argument, and the *ad populum* argument. A lack of knowledge exists on what people take into account when forming their opinion, which is why this study's aim was to see whether people take level of expertise and group size into account when forming an opinion based on incongruent opinions from an expert and a group of laypeople. This was done by measuring the attitude of 240 participants on a certain claim after having read a version of the manipulated material. No main effect was found for group size or level of expertise. However, an interesting significant interaction effect was found indicating that people were mostly persuaded by an expert presenting the pro-argument and the group of laypeople presenting the counter argument. This indicates that people might have certain expectations as to what role a certain source should represent in an argument. Further research needs to be conducted to fully understand the magnitude of this possible expectation concerning roles of different sources with incongruent arguments.

## Introduction

### *General motive for this study*

Opinions of experts and opinions of groups of laypeople (who typically have a low level of expertise) have been meeting each other everywhere: the two for example regularly run into each other when it comes to political (e.g. Brexit or the Dutch law on intelligence and security services: WIV), environmental (how climate change should be fought), or ethical discussions (e.g. white privilege or the use of antidepressants). A short example to make expert opinion and opinions of groups of laypeople more tangible:

*The Dutch news (NOS) is featuring a good part of their daily news broadcast to report on the government's decision to gradually transition the entire society to a more plant-based diet. The NOS interviews a dietician-researcher of about 42 years old who is specialised in a plant-based diet. She has studied the effects of a plant-based diet on the symptoms of arthritis and she found that a plant-based diet significantly alleviates these symptoms and, more importantly, that a plant-based diet can prevent 70% of lifestyle diseases from happening in the first place. She advises everyone that if they want to live a long, healthy life, they should start eating according to a plant-based diet. In other words: she advises everyone to become vegan, endorsing the government's decision of gradually transitioning into a more plant-based diet.*

*The next day, a group of about 30 citizens criticizing a plant-based diet is issued extensively in the national news. They are demonstratively holding signs such as 'I need my bacon!', 'WE CHOOSE OUR OWN FOOD' and 'vegans are taking over the world!'. These citizens quite*

*obviously are not satisfied with the government's most recent endeavour trying to improve society's overall health and eliminating lifestyle diseases.*

Imagine you have no set opinion on a plant-based diet. Whose opinion do you value more: the dietician-researcher or the group criticizing her statement? What do you take into account? People are faced with opinions from both experts and groups of laypeople day after day, but what does the average person do with these opinions? How does someone form his/her own opinion based on the opinions one comes across from experts and groups of laypeople? How do these opinions influence the persuasiveness of the claim? To be able to examine how the two types of arguments relate to each other, both the *ad populum* and the *expert* argument need to be analysed separately first.

### *Laypeople*

When looking at the *ad populum* argument – referencing (the opinion of) a large group of people – through the scope of formal logic within cognitive psychology, it is considered a logical fallacy (Walton, 1980) which cannot be regarded a satisfactory answer. This answer originating from formal logic was not satisfactory as it categorizes an argument as either fully logical or entirely invalid, but the world is far from being this mutually exclusive. A spectrum in between these two opposites was needed because human beings use the entire spectrum when they reason: people have the capability to remember and make use of (general) knowledge that was gained in the past, which leads to a spectrum of answers that lie between the two mere binary options that formal logic proposed. This caused the formal logic perspective within cognitive psychology to become less relevant in determining argument *quality*.

Therefore, Walton (1999, p. 224) has made a descriptive argumentation scheme for the *ad populum* argument, which indicates the reasoning behind the argument based on a group of laypeople endorsing a certain claim:

S1: Everybody (in a particular reference group) accepts that A.  
Therefore, A is true (or you should accept A)  
S2: Everybody (in a particular reference group) rejects that A.  
Therefore, A is false (or you should reject A).

Alongside this argumentation scheme are several corresponding critical questions (CQs) to evaluate *ad populum* argument *quality* (Walton 1989, p. 89):

CQ1: Does a large majority of the cited reference group accept A as true?

CQ2: Is there other relevant evidence available that would support the assumption that A is not true?

CQ3: What reason is there for thinking that the view of this large majority is likely to be right?

To evaluate the quality of an argument, several models were introduced within various scientific areas, for example these critical questions by Douglas Walton in 1989 or by philosopher Stephen Toulmin in 1958 (the Toulmin model). Besides these criteria which can be used to evaluate the quality of an argument, the opinion of people on how persuaded they are by a certain argument can be consulted as well. These opinions then make up the *persuasiveness* of an argument.

What is known about the concrete *persuasiveness* of the *ad populum* argument is that it has been shown to significantly influence the attitude and behaviour of an individual. A little over three decades ago, two apparently similar dual-process models were introduced: the Heuristic-Systematic Model (HSM) and the Elaboration Likelihood Model (ELM), which state that a message will be processed differently depending on either high or low involvement of the receiving party (for further information on these models see: Chaiken (1980) and Petty & Cacioppo (1984) respectively). These dual-process models show a distinction in the effectiveness of the *ad populum* argument: the effectiveness of the *ad populum* argument is especially visible within people who have relatively limited motivation to process messages, i.e. when people process information via the peripheral/heuristic route of the ELM/HSM model (Maheswaran & Chaiken, 1991). The effect is still significant when people are highly involved and consequently process information centrally/systematically, however when people are not highly involved and process information peripherally, the observed effect is much greater. Therefore, this finding indicates the *ad populum* argument could be considered persuasive under certain conditions denoting as much as that the *ad populum* argument tends to be more persuasive when people are not highly involved in processing the message.

### *Experts*

When analysing the *expert* argument in a similar way to the *ad populum* argument, the expert argument is categorized a logical fallacy by formal logic (Walton & Koszowy, 2014), which leaves no room for a nuanced answer in between either fully valid or invalid reasoning. However when approaching the expert argument by using argumentation theory from within informal logic, more insight is gained into the reasoning and quality of the expert argument. According to Walton, Reed and Macagno (2008, p. 14), arguments from an expert opinion can

be seen as “a sub-type of argument from people whom are arguing from a Position to Know”, or the more widely accepted *authority (ad verecundiam)* argument. Walton’s (1997, p. 210) descriptive argumentation scheme which indicates the reasoning which is behind an argument from an expert, is as follows:

*Major Premise:* Source *E* is an expert in subject domain *S* containing proposition *A*.

*Minor Premise:* *E* asserts that proposition *A* (in domain *S*) is true (false)

*Conclusion:* *A* may plausibly be taken to be true (false)

Walton (1997, p. 223) also introduced a matching subset of six Critical Questions (CQs) to the expert opinion argumentation scheme to evaluate the quality of the argument:

CQ1. *Expertise Question:* How credible is *E* as an expert source?

CQ2. *Field Question:* Is *E* an expert in the field *F* that *A* is in?

CQ3. *Opinion Question:* What did *E* assert that implies *A*?

CQ4. *Trustworthiness Question:* Is *E* personally reliable as a source?

CQ5. *Consistency Question:* Is *A* consistent with what other experts assert?

CQ6. *Backup Evidence Question:* Is *E*’s assertion based on evidence?

The aforementioned argumentation scheme and the matching Critical Questions could be of use to any (lay)person wanting to evaluate or form an opinion on a proposition (*A*) made by an expert (*E*) in a subject domain (*S*). Like the *ad populum* argument, these CQs are one of the used criteria of examining the quality of the *expert* argument. Besides evaluating the quality of an argument by using e.g. these CQs, the *persuasiveness* of an argument can be determined by consulting people’s opinion on the extent to which they consider an argument to be persuasive.

One of the main factors which determine the *persuasiveness* of a message, is the credibility of the source proclaiming the message. Expertise is almost without exception considered to be one of the sub-dimensions that contribute to the dimension of a source’s credibility, alongside with e.g. goodwill and reliability (Giffin, 1967), attractiveness (Pornpitakpan, 2004) or trustworthiness (see Andreoli & Worchel, 1978; Sternthal, Phillips & Dholakia, 1978). However, *expertise* is generally found to be the most influential on a person’s opinion (Wilson & Sherrell, 1993). In contrast to the relatively limited number of studies done on the persuasiveness of the *ad populum* argument, the extent to which *expert* arguments influence people’s attitudes and actions has been studied thoroughly (for a review, see: Pornpitakpan, 2004). Similar to the *ad populum* argument, the HSM/ELM dual-process models reveal a differentiation in the extent of persuasiveness of the *expert* argument; this

differentiation, either high or low involvement, will affect the influence that expert opinion has on a person. Especially with regard to the heuristic/peripheral route of processing information (low involvement), expert opinions are found to be significantly more convincing than the opinions of laypeople (Hoeken, Hornikx & Hustinx, 2012). Even though little or no direct comparison between the persuasiveness of the two has been made, it strongly seems as if people generally might adopt expert opinions more than laypeople’s opinions.

*Bayesian Approach*

Based on the argumentation schemes from both the *ad populum* and *expert* argument, it seems as if both arguments differ to the extremities as the schemes and CQs are so vitally different from one another. A different approach however shows that the two may not be as mutually exclusive as they appear based on formal logic, argumentation schemes or corresponding CQs; in their most recent study, Hornikx, Harris and Boekema (2018) suggest that the two arguments could actually be considered quite similar to one another. Hornikx (2013) proposes that the Bayesian approach to argumentation has more to offer to a legitimate evaluation of argument quality. According to Hornikx (2013), the Bayesian approach could gain more valuable insight in the quality of an argument as it uses a hypothesis (*h*) that can be supported by (weak or strong) evidence (*e*) to indicate the individually estimated probability (*P*) of (*h*) happening based on given (*e*). The exact formula based on Bayesian’s Theory can be seen in Figure 1, which shows the interdependence of the variables (e.g. when (*e*) has less sources, this affects the (*P*) of (*h*) happening).

$$P(H|E) = \frac{P(H) P(E|H)}{P(H) P(E|H) + P(nonH) P(E|nonH)}$$

Figure 1. The formula based on Bayes’ Theory with which the final normative estimated Probability (*P*) can be calculated based on Hypothesis (*h*), given Evidence (*e*) (Bayes & Price, 1763)

*Bayesian Approach: similarity between ad populum and expert argument*

As the *ad populum* and *expert* argument could be considered similar in various aspects (Hornikx, Harris & Boekema, 2018), Bayes’ Theory could help evaluate the persuasiveness of both the *ad populum* and *expert* argument. Bayes’ Theory has been able to prove that the estimate of *P* increases when the number of the *e* increases, in other words it is able to show

the *ad populum* as well as the *expert* argument to become increasingly persuasive as more sources are endorsing a claim (for further review, see: Hornikx, 2013). In addition, people's estimate of  $P(h/e)$  does not only increase with a higher number of independent sources, but also when the trustworthiness of the sources increases (Hornikx, 2013), which does not strike as odd as the dimension of trustworthiness was already discussed in the appeal to *expert* opinion and was found to be relevant to an increased estimate of  $P(h/e)$  as well.

*Experts vs. Laypeople: Hornikx, Harris and Boekema (2018)*

Most research describes the arguments which appeal to expert opinion and the *ad populum* argument as two completely different arguments and therefore it is very rare to come across a comparison of the two types of arguments within literature. Yet Hornikx, Harris and Boekema (2018) propose that the two could actually be on either side of a spectrum and are therefore not that dissimilar as described in most studies. According to Hornikx et al. (2018), both types of arguments present one or more sources and both types of arguments contain a certain level of expertise. By using the formula derived from Bayes' Theory, the theoretical impact of experts and laypeople can be calculated and a comparison between a certain number of laypeople and an expert can be made.

Hornikx et al. (2018) tested whether people were capable of estimating how many laypeople of a certain level of expertise would be needed to counter the knowledge of an expert and showed that people were fairly capable of estimating the needed number of laypeople in terms of Bayes' Theory. Figure 2 visualises that the actual reported number of laypeople was fairly in line with the predicted number of lay reports required to counter a single expert. Figure 2 also shows that as laypeople's expertise increased, the less actual reports differed from predicted numbers. The majority of results not matching predictions were when the expert had a 99.9% expertise count, which means the expert would only be wrong 0.1% of the time. The difference between predictions and these actual results could be explained by the 99.9% expertise count being a slightly unrealistic scenario that would never occur in real life and which therefore makes it hard for people to make a legitimate estimate of the number of laypeople that

are theoretically needed (as calculated by means of the formula derived from Bayes' Theory) to counter one expert opinion.

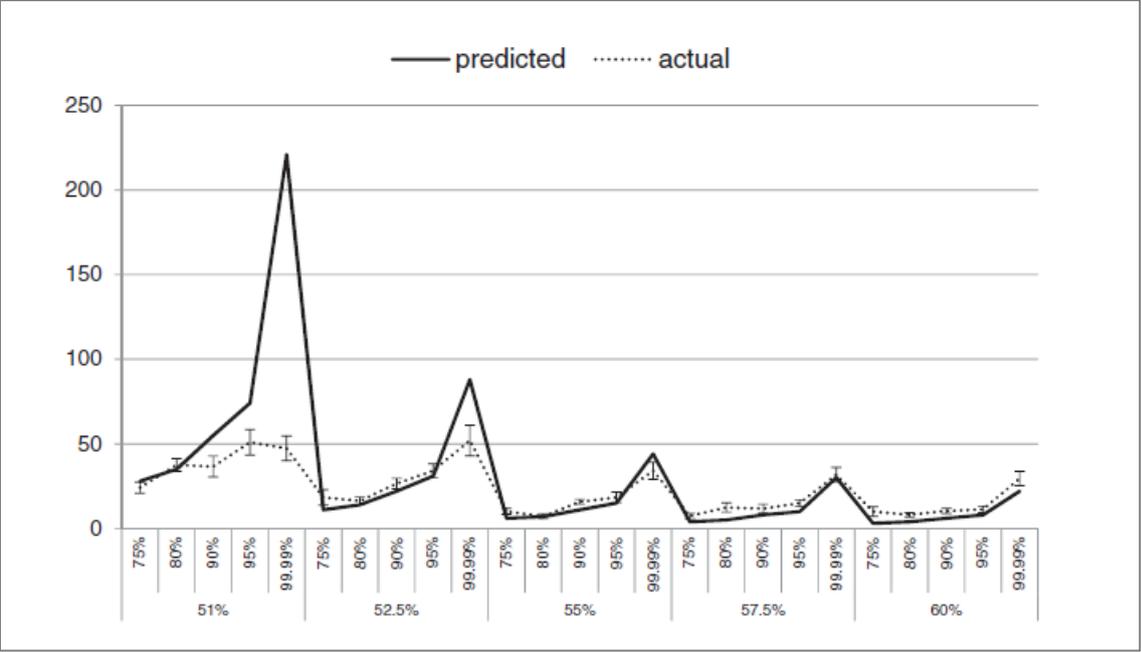


Figure 2. Predicted and actual estimates of the number of lay reports required to counteract the expert reports across conditions (Hornikx, Harris & Boekema, 2018).

A slight disadvantage of Hornikx et al. (2018) could be that the study uses a within-subjects design, which increases the chance of finding significant results because it makes it more likely participants understand what the study is about and consequently they might give more socially desirable answers. As a final point, a possible limitation of Hornikx et al. (2018) might be that participants were only asked about the number of laypeople a person estimates to counter a single expert, but no other information on their given estimate was provided by the participants as to how or why participants reached their specific numeric estimate. Therefore, the study of Hornikx et al. (2018) shows that people are sensitive to the number and level of expertise when forming their opinion. However, a lack of information exists on how much one takes group size (the number of independent sources endorsing a claim) and level of expertise into account when forming one's opinion. That is why the aim of this current study is to determine whether people take either or both the level of expertise and the size of the group of laypeople into account when forming their opinion.

In this paper the relationship between the two types of arguments - the *ad populum* argument and the *expert* argument - is examined, to find out to what extent people take opinions of experts and groups of laypeople (with varying levels of expertise and group size) into account when

forming their opinion. Based on current literature which allows a numerical estimation of people's attitude, the expectation could be set that as the laypeople's expertise increases, people will follow the expert's opinion less than the opinion of the laypeople, as the expert's expertise relatively becomes lower. The other set expectation for this study based on current literature is that when the group of laypeople becomes smaller, people will follow the expert's opinion more than the opinion of the group of laypeople as the expert's expertise relatively increases.

*Hypothesis 1: As the laypeople's expertise increases, people follow the expert's opinion less than the opinion of laypeople*

*Hypothesis 2: As the group of laypeople becomes smaller, people follow the expert's opinion more than the opinion of laypeople*

#### *Relevance of the order*

The relevance of the order with which an argument is presented has been researched to a certain extent. Literature seems to be undecided about the role of the order with which arguments are presented. On the one hand, a study by Igou and Bless (2003) indicates that for messages that are one-sided or congruent, arguments were most convincing when placed at the beginning; also called the *primacy effect*. The same study indicated that for two-sided or incongruent arguments, the argument that was brought forward the latest consistently seems to have the most persuasiveness; also called the *recency effect*. Later, Igou and Bless (2007) found out that this difference could be mediated by the difference in perception of the importance of the arguments. With one-sided messages, people expected the most important information first, while with incongruent messages, people expected the most relevant information at the end of the message.

On the other hand, when Igou and Bless studied the role of the order with which incongruent arguments are presented, they found that when faced with two-sided incongruent messages containing several arguments, people are unable to estimate the relative importance of the arguments. In other words, according to Igou and Bless (2003), receivers of the messages are not capable of understanding where the communicators have placed the most important arguments.

The ambiguity concerning people's ability to pinpoint the location of where the communicators inserted the incongruent messages carrying the most importance, can e.g. be seen in the method of 'Study 2' of Igou and Bless (2003). This method silently implicates that within the condition of 'two communicators', each communicator can be used interchangeably with the other i.e. that the order with which the communicators are presented is irrelevant. This apparent irrelevance of the order with which the communicators are presented, could be considered at odds with Igou and Bless' other studies, in which they emphasize the importance of the order of the arguments and more importantly, in what respective location of the message the most important information can be found. It is unclear as to what exact order of communicator and argument importance was used by Igou and Bless in their 2003 'Study 2' for the 'two communicators' condition. This raises some questions concerning the relevance of the order of presenting the arguments.

In this article two types of arguments - the *ad populum* argument and the *expert* argument – have been described and their relationship is examined to rule out any possible ambiguity concerning the relevance of the order with which arguments are presented. Therefore, the research question of this study will focus on whether the order with which inconsistent opinions of experts and groups of laypeople are presented will affect one's opinion.

*Research Question 1: Will the order with which the inconsistent opinions of experts and laypeople are presented affect people's opinion?*

## **Method**

### *Materials*

The manipulations were placed in the material regarding a decision on park benches in the municipality of Zwolle, the Netherlands (for entire questionnaire, see: Appendix). The opinions of an expert ('Chief Officer of the Police Department of IJsselland who is right 90% of the time' i.e. has a level of .90 expertise) and a group of lay people (visitors of theatre Odeon in Zwolle who are right [51/60]% of the time, but their group is [15/30] people strong) were presented to the participant. Depending on the version the participant was faced with, the stories had different orders of argument (B: (B1) = pro first; (B2) = pro last) and source (C: (C1) = expert first; (C2) = expert last). Also, the group of laypeople varied in expertise and number (A: *baseline* (A1) = a group of 30 laypeople with a .51 level of expertise; (A2) = a group of

laypeople consisting of 15 people with .51 level of expertise; (A3) = a group of 30 laypeople with a .60 level of expertise). See Figure 3 for a visual representation of the manipulation of item (A). Figure 3 shows the extent to which participants were expected to agree with the expert within the independent variable (A). The different conditions (A1), (A2) and (A3) have all been crossed with both versions of the order of the argument (B) and the order of the source (C). The control condition was only crossed with a different point of view on the claim, as only one source presented one side of the argument in the control condition.

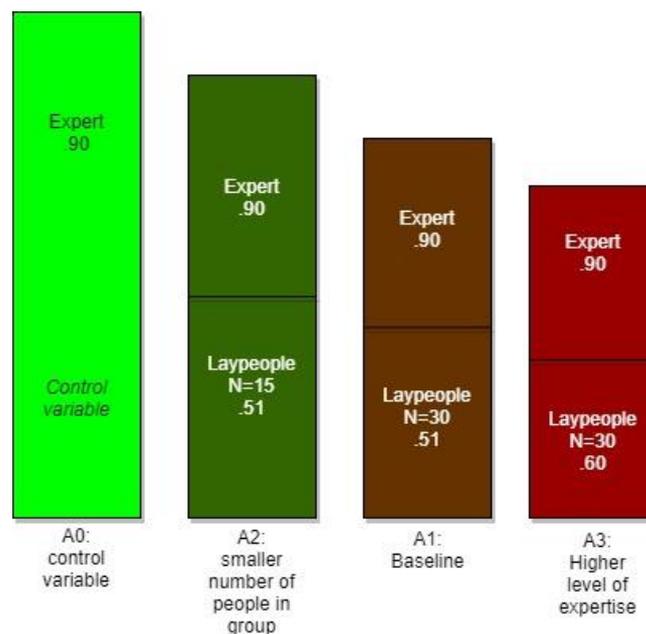


Figure 3. Independent variable A: differences between groups of laypeople. Height of the bar indicates extent to which participant is expected to agree with expert

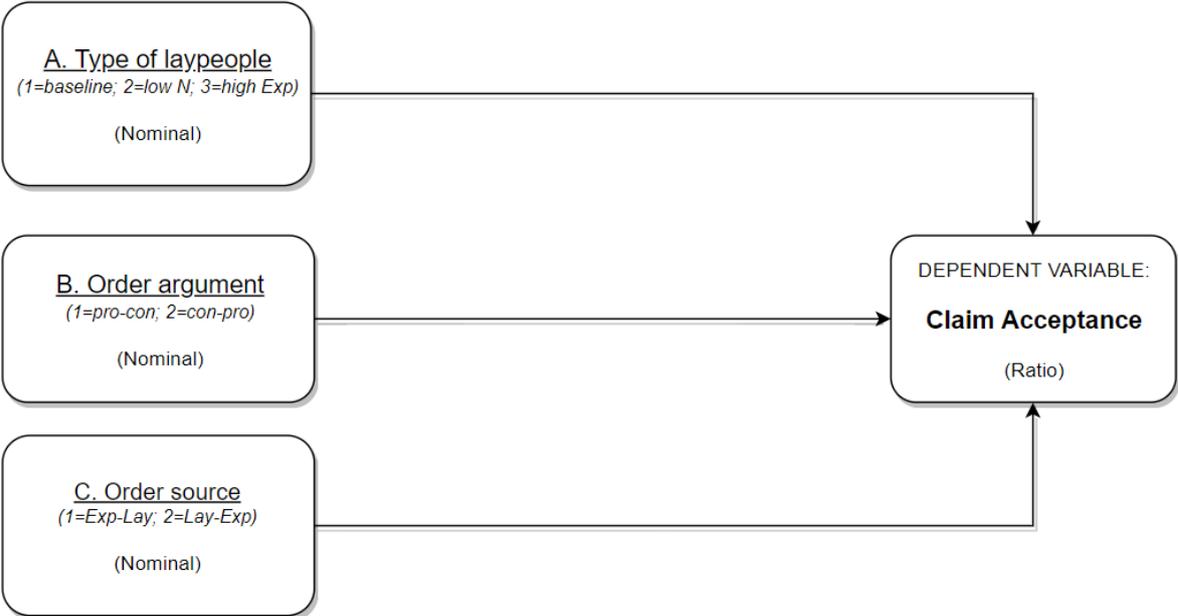
### Participants

A total of 240 participants took part in the experiment, of which five did not have a Dutch nationality and were therefore taken out of the dataset. The age of the remaining 235 participants ranged from 15 to 78 ( $M = 29.61$ ,  $SD = 14.59$ ) and the majority of participants were female (60%). Participant's educations ranged from VMBO/LBO to WO: almost half (42.6%) of the 235 participants had completed or were busy completing a scientific education at a university (WO). No significant effects between different versions were found for age ( $F(13, 221) < 1$ ), gender ( $X^2(13) = 18.42$ ,  $p = .142$ ) or education ( $X^2(78) = 80.37$ ,  $p = .405$ ). Participants estimated the extent to which they were educated in argumentation theory on a

Likert scale ranging from 1 to 7 ( $M = 4.62, SD = 1.43$ ), which indicated participants generally did not estimate themselves to be highly educated within argumentation theory: only 80 out of 235 (34.1%) ranked themselves a 6 or higher. Again, no significant effect of different versions of the material was found on estimated education of argumentation theory ( $F(13, 221) < 1$ ).

*Design*

The research was performed by means of a 3x2x2 between-subjects design with a control condition. The influence of the three independent variables (see Figure 4) on the dependent variable was measured by means of four items. The first independent variable (A), was the difference between groups of laypeople. The other independent variables were: (B) = the order with which the pro/con-argument was presented, and (C) = the order with which what source was presented.



*Figure 4. the model of analysis and relations*

By crossing all variables with one another, a total of 12 versions was created (3x2x2). An additional two versions of a control condition where only the expert was presented with either a pro or con-argument, added two more versions to the previously mentioned total of 12 versions. This created a total of 14 different versions for this experiment.

### *Instrumentation*

Before answering the short questionnaire, participants were given a general introduction to the study. The dependent variable, the attitude regarding the municipality's decision on the removal of the park benches in Zwolle, was then measured by means of four items on a 7-point Likert scale (totally disagree – totally agree; bad – good; unnecessary – necessary; unwise – wise). These four items were then comprised to the dependent variable, the overall attitude, which could be considered to be trustworthy:  $\alpha = .92$ . Participants were then asked to fill out their age, gender, nationality and education. Finally participants were asked to state what, according to them, was the purpose of this study and to indicate on a 7-point Likert scale the extent to which the participant considered him or herself to be educated in argumentation theory.

### *Procedure*

Six research assistants received (on average) three copies of all 14 versions of the material and each of these six research assistants found 40 people to take part in the experiment. Participants were presented with the questionnaires in real life and filled out the forms with a pen and paper. On average, participants took about 5-10 minutes to complete the questionnaire. As the questionnaire was relatively short, no rewards or incentives to motivate participants were regarded necessary. The participants were instructed to read the instructions on the first page of the questionnaire. When a participant asked about the goal of the study, this was revealed to the participants only after the questionnaires were filled out and returned to the test leader.

### *Statistical analysis*

The predictions concerning the different types of laypeople were based on the expert favouring the claim, however in half of the material the strong source (the expert) was *against* the claim. To be able to measure all attitudes regarding the claim, the scores of the attitude were re-coded in half the material where the expert was not in favour of the claim.

## **Results**

A three-way univariate ANOVA test of between-subjects effects was conducted to test for possible significant main effects for the three independent variables (different groups of laypeople, the order of the argument and the order with which the source was presented). No significant main effect was found for the first variable, the different groups of laypeople ( $F(2,$

166) < 1), therefore providing no support for the first hypothesis: people did not follow the expert's opinion less than the opinion of laypeople when the laypeople's expertise increased. This indicates that in this experiment people did not make a distinction between groups of laypeople with .51 level of expertise or .60 level of expertise. By this same lack of a main effect in the type of laypeople ( $F(2, 166) < 1$ ), support for the second hypothesis was not provided either: people did not follow the expert's opinion more than the opinion of a group of laypeople when that group of laypeople became smaller. The research question concerning the order of the arguments was answered negatively ( $F(1, 166) = 1.05, p = .307$ ): people's opinions were not affected by the order with which inconsistent opinion of experts and laypeople were brought forward, i.e. it did not make a significant difference to a person's opinion whether the pro-argument was presented first or last. The means of people's attitudes can be seen in Table 1.

*Table 1. the attitude of participants influenced by the two independent variables: type of lay group (A) and order of the argument (B) (1 = very negative attitude, 7 = very positive attitude)*

	<i>pro-con (B1)</i>			<i>con-pro (B2)</i>		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
<i>Baseline (A1)</i>	4.58	1.37	30	4.07	1.46	30
<i>Smaller group (A2)</i>	4.35	1.61	30	4.35	1.53	29
<i>Higher expertise (A3)</i>	4.22	1.34	29	4.15	1.42	30

No significant main effect was found for the order of the source ( $F(1, 166) < 1$ ). However, the three-way univariate ANOVA test showed a significant interaction effect between the order of the argument, and the order of the source ( $F(1, 166) = 3.94, p = .049, \eta^2 = .02$ ). This indicates participants tend to be mostly persuaded by a point of view when the expert is in favour of the argument when combined with a group of laypeople representing the con-argument (i.e. a combination of (B1 + C1); or (B2 + C2)), which has been visualised in Figure 5. People seemed to agree with the claim mostly when the expert was defending the argument,

regardless of whether the expert was presented first or second. In other words, in this study the expert was regarded as more persuasive as long as he was in favour of the argument.

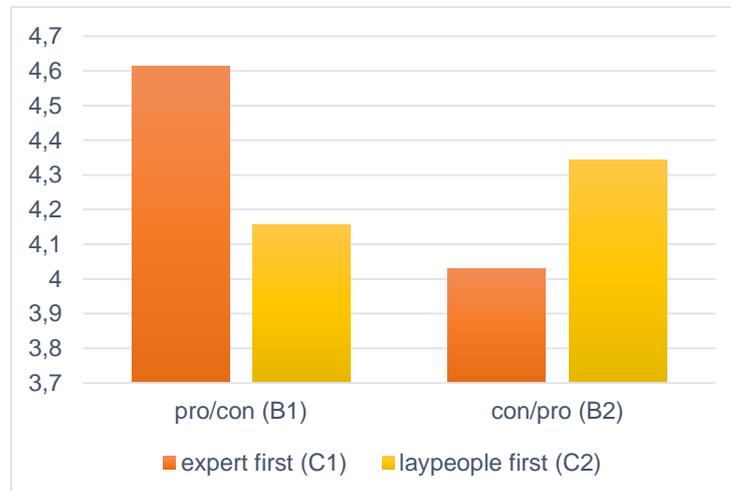


Figure 5. extent to which participants agree with the expert showing the significant interaction effect between the order of the argument (B) and the order of the source (C). Y-axis represents part of the attitude scale regarding the claim (ranging from 1-7).

## Conclusion and discussion

### *Types of laypeople: level of expertise and group size (H1 and H2)*

Based on current literature, a main effect was expected for the varying levels of expertise of the group of laypeople (H1) and for the varying sizes of the group of laypeople (H2). However, in this study the extent of persuasiveness appeared to be uninfluenced by the level of expertise and size of the group of laypeople. People did not follow the expert's opinion less when the group of laypeople's expertise increased and neither did people follow the expert's opinion more when the group of laypeople consisted of a lower number of people.

Hornikx et al. (2018) showed people are quite capable of working with the Bayesian theory and the concepts of expertise and number of people in a group. Yet the present study shows people do not put this capability into practice when confronted with the manipulated numbers, which could be seen as a nuance to current literature. Given the lack of a main effect in this study, it could be considered imaginable people did not take the numbers of the manipulation into account. The reason for this could be that people were given a task that was

possibly one of a somewhat cognitive strenuous nature, or it could be that people simply did not register or work with the numbers. The manipulation was apparently simple, but small and it was placed in the material by means of three different speakers. In other words, the manipulation requires participants to register the information of the several opposing sources, as well as take the information into account and then to form their own judgment, which possibly asks a lot from the participant's cognitive skills. Further research is needed to understand this phenomenon.

For future studies, to rule out any effect from this possible limitation, the task could be made easier by making the manipulation more apparent and clear (e.g. by means of showing pictures of different group sizes, levels of expertise and quotes instead of a mere reading task). Similarly, this possible limitation could be avoided by requiring the participants to actively work with the given numbers so the participants have actively registered the given numbers of the manipulations (e.g. by asking whether the number/level of expertise of the group of lay people is a fair equivalent of the .90 expert). Also, to rule out any ambiguity, the final question could contain the explicit words '*given the two opinions you have just read, (what is your opinion on the municipality's decision on the removal of park benches?)*' as this was missing in this study's questionnaire.

#### *Order relevance (RQ1)*

In contrast to what Igou and Bless (2003) found, no *recency* effect was found in this study, i.e. the order with which the inconsistent opinions of experts and laypeople on a claim are brought forward did not significantly affect people's opinion of that claim.

This could possibly be explained by the occurrence of the significant interaction effect: the order effect could be influenced by the pro or con claim when it is combined in specific ways with the source of the claim. The claim was perceived significantly more persuasive when the expert was presenting the pro-argument and the group of laypeople presented the con-argument for the claim, regardless of the order with which the expert or laypeople were presented.

When trying to pinpoint the reason for this interaction effect, it seems like a plausible effect as humans are mostly exposed (e.g. in media) to an expert endorsing a claim. Presenting an expert is often a strategic choice from journalists to increase the persuasiveness of the issue they are presenting in the media, which could partly indicate why people are more sensitive to the combination of an expert presenting the pro-argument and the group of laypeople presenting the counter argument. In other words, people might not perceive the combination of an expert

underwriting an argument and group of laypeople countering that argument as strange, as they are exposed to it at least every now and then. Furthermore, what becomes inherently clear from this study is that people are not persuaded much by the reversed situation: it could be understandable that a group of laypeople presenting the pro-argument combined with an expert presenting the con-argument might appear strange to people as this is not something people are regularly exposed to in everyday life (e.g. the media).

This result has not been found before and is quite interesting as it seems like people might have certain expectations as to what role (pro/con) a certain source should represent. Also, it could possibly explain why this study did not find a recency effect, or why for example Igou and Bless (2003) found that people were not capable of estimating the relative importance of certain arguments: if people work with source/role expectations more than with relative importance of the arguments and their respective locations in a message it might be difficult to find evidence for the fact that people work with relative importance of arguments and their respective locations within a message. Therefore, this study could be considered an addition to current literature and could function as an interesting starting point for new studies based on the finding of this interaction effect. However, further research needs to be conducted to be able to provide a complete explanation for the significant interaction effect.

#### *General limitations of this study*

In this study a between subjects design was used, which has the advantage that it causes less random error. However, simultaneously it carries the disadvantage that each participant was only faced with one out of 12 scenarios (or one of two control scenarios). All corresponding results depend on that one scenario a participant was faced with, not taking into account participants' possible (already set, perhaps strong) opinions on street youths or park benches. This research design makes it more difficult to find significant results, which can be both a strength or a limitation depending on the results and in this case it can be considered a limitation. Future research could include the same model of analysis, but with a within subjects design.

Another possible limitation could be that the 7-point Likert scale did not provide enough room to show nuances; future studies could measure the acceptance regarding a claim with e.g. a 10-point Likert scale.

A final limitation of this study could be that the expert, the Chief Officer of the Police Department IJsselland, did not meet the requirements participants expected of an expert regarding the behaviour of the street youths. Several participants indicated that they did not expect a Chief Officer of the Police to be aware and all-knowing as to the way in which street

youths behave. This means the manipulation could possibly have failed to some extent, as some participants might have impugned the expertise of a Chief Officer of the Police, as they did not perceive this expert to necessarily be an expert in the motives and patterns of the behaviour of street youths. To avoid this possible limitation, an expert such as a person with a PhD in psychology who is specialised in the behaviour of street youths in public spaces could be used to represent the expert source in future studies featuring a similar scenario. Also, for future studies the extent to which the expert is perceived a genuine expert in a certain area among participants could be pretested to avoid making a possible mistake in this manipulation.

### *Overall conclusion*

The results of this study could help gain more insight in the way people process incongruent arguments brought forward by different kinds of sources. People seem to be more persuaded by an expert presenting the pro-argument combined with a group of laypeople presenting the con-argument, than the reversed scenario.

Applying the results of this study and its implications to the example in the introduction, it would not matter for the persuasiveness of the claim (that everybody should adopt a plant-based lifestyle) whether the level of expertise of the demonstrating group of laypeople in desperate need for their bacon was .51 or .60. Nor would it make a difference to the extent of the persuasiveness whether the group of rebelling carnivores consisted of 15 or 30 people. On top of that, the order would be irrelevant: it would not make a significant difference whether the dietician-researcher would have been featured first in the broadcast, or the demonstrating group of citizens.

A scenario that *would* make a significant difference is when the dietician-researcher would be *against* the government's idea on transitioning to a more plant-based lifestyle, for example saying that 'the decision would not be serving anybody' and that 'no one's health would benefit from a plant-based lifestyle'. Combined with a group of citizens then countering the expert and saying they support the government's decision to go vegan with lots of praise and applauding, would drastically decrease the extent to which the government's idea is perceived as persuasive. Regardless of the order with which the dietician-researcher (con) and citizens (pro) would have been presented in, this reversed scenario (expert = con; citizens = pro) according to this current study would be perceived as significantly less persuasive than the scenario in which the dietician-researcher represents to pro-argument and the citizens represent the con-argument.

To reiterate, the research question and hypotheses have been answered negatively, but an interesting interaction effect has resulted from the study. This interaction effect shows people are more likely to accept a claim with incongruent arguments when the pro-argument is presented by the expert and the con-argument is presented by the group of laypeople. This interaction effect could be an interesting starting point for more extensive future studies on the persuasiveness due to set expectations on the role certain sources should represent when presenting a side of an incongruent argument.

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# Appendix

## **Version: Manipulation in type of laypeople, order of the argument and expert first (C1)**

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Beste deelnemer,

Graag vernemen we uw mening over een mogelijk besluit in de gemeente Zwolle. Lees de informatie goed en geef vervolgens antwoord op de vraag. Het gaat om uw persoonlijke mening: u kunt dus geen goed of fout antwoord geven.

De deelname duurt maximaal tien minuten. Uw antwoorden worden anoniem verwerkt.

Hartelijk dank voor uw medewerking!

Radboud Universiteit Nijmegen

Persoon A zegt: Heb je gehoord dat men de bankjes in het stadspark in Zwolle wil weghalen om zo de overlast van hangjongeren tegen te gaan?

Persoon B zegt: Ja, maar waarom stel je deze vraag?

Persoon A zegt: Ik vraag dit omdat ik niet weet of dit wel een goed plan is.

Persoon B zegt: Ik denk van **[wel/niet]**.

Persoon A zegt: En waarom denk je dit dan?

Persoon B zegt: Omdat de hoofdcommissaris van de Politie IJsselland aangeeft dat dit **[/niet]** zal helpen tegen de overlast van hangjongeren. En hij kan het weten omdat hij in 90% van de gevallen gelijk heeft als het om hangjongeren gaat.

(Persoon C hoort de conversatie tussen persoon A en persoon B en spreekt vervolgens persoon B tegen.)

Persoon C zegt: Ik heb echter gehoord dat bezoekers van de schouwburg Odeon in Zwolle aangeven dat dit **[wel/niet]** zal helpen tegen de overlast van hangjongeren. Schouwburgbezoekers zijn niet deskundig op het gebied van hangjongeren. Over dit onderwerp heeft elke schouwburgbezoeker in **[51/60]**% van de gevallen gelijk. Aan de andere kant zijn er wel **[15/30]** schouwburgbezoekers die beweren dat het weghalen van bankjes **[/niet]** zal helpen tegen de overlast van hangjongeren.

Wat vind jij van het idee om de bankjes in het stadspark in Zwolle weg te halen?

De bankjes in het stadspark in Zwolle moeten worden weggehaald om zo de overlast van hangjongeren tegen te gaan

Helemaal oneens	<input type="radio"/>	Helemaal eens						
Slecht	<input type="radio"/>	Goed						
Onnodig	<input type="radio"/>	Noodzakelijk						
Onverstandig	<input type="radio"/>	Verstandig						



**Version: Manipulation in type of laypeople, order of the argument and expert last (C2)**

---

Beste deelnemer,

Graag vernemen we uw mening over een mogelijk besluit in de gemeente Zwolle. Lees de informatie goed en geef vervolgens antwoord op de vraag. Het gaat om uw persoonlijke mening: u kunt dus geen goed of fout antwoord geven.

De deelname duurt maximaal tien minuten. Uw antwoorden worden anoniem verwerkt.

Hartelijk dank voor uw medewerking!

Radboud Universiteit Nijmegen

Persoon A zegt: Heb je gehoord dat men de bankjes in het stadspark in Zwolle wil weghalen om zo de overlast van hangjongeren tegen te gaan?

Persoon B zegt: Ja, maar waarom stel je deze vraag?

Persoon A zegt: Ik vraag dit omdat ik niet weet of dit wel een goed plan is.

Persoon B zegt: Ik denk van [wel/niet].

Persoon A zegt: En waarom denk je dit dan?

Persoon B zegt: Ik heb gehoord dat bezoekers van de schouwburg Odeon in Zwolle aangeven dat dit [/niet] zal helpen tegen de overlast van hangjongeren. Schouwburgbezoekers zijn niet deskundig op het gebied van hangjongeren. Over dit onderwerp heeft elke schouwburgbezoeker in [51/60]% van de gevallen gelijk. Aan de andere kant zijn er wel [15/30] schouwburgbezoekers die beweren dat het weghalen van bankjes [/niet] zal helpen tegen de overlast van hangjongeren.

(Persoon C hoort de conversatie tussen persoon A en persoon B en spreekt vervolgens persoon B tegen.)

Persoon C zegt: Ik heb echter gehoord dat de hoofdcommissaris van de Politie IJsselland aangeeft dat het weghalen van de bankjes [wel/niet] zal helpen tegen de overlast van hangjongeren. En hij kan het weten omdat hij in 90% van de gevallen gelijk heeft als het om hangjongeren gaat.

Wat vind jij van het idee om de bankjes in het stadspark in Zwolle weg te halen?

De bankjes in het stadspark in Zwolle moeten worden weggehaald om zo de overlast van hangjongeren tegen te gaan

Helemaal oneens	<input type="radio"/>	Helemaal eens						
Slecht	<input type="radio"/>	Goed						
Onnodig	<input type="radio"/>	Noodzakelijk						
Onverstandig	<input type="radio"/>	Verstandig						

