

## IN SEARCH OF CAUSES OF HUNG JURIES \*

**ABSTRACT.** A major problem facing the jury system is the hung jury. Several solutions have been proposed i.e., to minimize the decision rule, to create mixed juries, or to give the jury the 'dynamite' instructions. Nevertheless, no efforts have been made to determine the underlying causes of a hung jury. This paper presents an empirical study of hung versus unanimous juries in terms of the deliberation style and content. It suggests ways of avoiding hung juries.

**KEY WORDS:** decision making, deliberation analysis, deliberation style, hung jury, jury

### INTRODUCTION

The ultimate aim of any jury is to reach a group decision concerning the verdict. However, occasionally the jury is unable to reach the minimum quorum as required by the relevant decision rule and in such cases a hung jury is declared. This failure in the judicial system has been the source of considerable concern for legislators, has undermined the role of the jury system, and produces an excessive increase in the costs of administering justice. In response, legislators have minimized the jury size and decision rule in an effort to eliminate the problem. Thus, in the USA a reduction in jury size was proposed in order to reduce the number of hung juries (*Williams v. Florida*, 1970; *Apodaca, Cooper and Madden v. Oregon*, 1972), and in *Johnson v. Louisiana* (1972), the court established that a unanimous verdict was not required to reach a just verdict. In England a combined decision rule has been adopted for certain case types – unanimity followed by a majority (i.e., 10 out of 12) after a given period of deliberation (Gisbert, 1990). In Spain a qualified majority

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decision rule has been adopted (a not-guilty verdict requiring a simple majority i.e. 5 out of 9, whereas a guilty verdict requires 7 out of 9 votes). This Spanish decision rule, according to the preface of the law, aims to eliminate hung juries brought about by obstinate minorities (*Ley Orgánica del Tribunal del Jurado*, 1995). An alternative procedure is the introduction of judge's instructions similar to the 'dynamite charge instruction' designed to force the minority faction of the jury to reconsider their verdict in order to avoid a hung jury (*Allen v. U.S.*, 1896). The judge may use these instructions to reinitiate or kick-start the legal process by asking jurors to reassess their decisional criteria and to make a final attempt to reach a verdict (Hastie et al., 1983; Kassin et al., 1990).

Various studies in this field have described the phenomenological variables of the jury that are directly linked to or are the root causes of a hung jury. The most frequent and critical variables referred to have been jury size and the decision rule. Research on the former has focused on three different sources of information: archival studies, mock juries, and computer simulation studies. The archive studies reveal that the larger the jury size the greater the propensity towards a hung jury (Zeisel, 1971). A similar tendency has been observed with mock juries though the likelihood of hung juries is much higher (i.e., Roper, 1980). However, Kerr and MacCoun (1985) found that, though the number of hung juries increases in relation to jury size, there were no significant differences between juries composed of six or 12 jurors. As for the computer simulation studies, no significant relationships were observed between jury size and the number of hung juries (i.e., Hastie et al., 1983). Though several discrepancies have been reported in the literature, the overall data suggest that the number of hung juries increases with jury size. A possible explanation for the discrepancy may lie in the quality of the simulations and the size of the opposing factions (Kerr and MacCoun, 1985).

With reference to the decision rule, Kalven and Zeisel's (1966) prominent archival study revealed that the requirement of a unanimous verdict led to a hung jury in 5.6% of cases, this percentage fell to 3.1% when a 2/3 majority decision rule was required. Likewise, Foss (1981) reports that there were 45% fewer hung juries in jurisdictions with a majority decision rule in contrast to unanimous jurisdictions. Similar results have been obtained in studies

undertaken with mock juries (Nemeth, 1977; Saks, 1977; Vila, 1996).

Given that an increase in the number of jurors and the unanimous decision rule lead to a greater number of hung juries, it would seem reasonable to advocate a reduction in jury size and a less stringent decision rule. However, this procedure could impoverish the quality of the group decision (Hastie et al., 1983) and widen the discrepancies among juries (Hans and Vidmar, 1986).

An exogenous variable of the jury that contributes to hung juries is case complexity. Kalven and Ziesel (1966) have observed a hung jury in 2% of low complexity cases whereas in complex cases the figure was to 10%. In contrast, a minority pro-innocent or pro-guilty driven verdict does not seem to increase the probability of a hung jury (Kalven and Zeisel, 1966; Hastie et al., 1983).

Furthermore, an archival study designed to examine if the judge influences the length of the deliberation in such a way as to give rise to a hung jury, reveals that judges do allow sufficient time for the deliberation and that the causes for the jury's indecision are to be sought in the jury itself (Kalven and Zeisel, 1966).

As the root causes that lead to deadlock have as yet to be determined, the effectiveness of the solutions that have been proposed remain unclear. Therefore, the purpose of the present study is to determine the underlying causes of hung juries which we believe are to be found in the deliberation processes. Thus we have examined the different deliberation styles of unanimous and hung juries as well as the content and perceptions of the deliberation and the evaluation of the foreperson and factions.

## METHOD

### *Participants*

A total of 160 participants eligible for jury service were randomly selected from the electoral register in Spain. All participated voluntarily in the experiment and were randomly assigned to 20 juries. The gender of jury composition was counter balanced i.e. an equal number of men and women were assigned to each jury. The age ranged from 18 to 65 years, with a mean age of 32.6 years.

### *Material*

From our jury database, 10 hung juries and 10 equivalent unanimous juries in terms of the pre-deliberation size and verdict factions were selected.

### *Procedure*

The participants viewed on video the re-enactment of a real life trial of rape. The video included the testimony of eyewitnesses and forensic experts, the opening and closing arguments of the defense and prosecution as well as the judge's definition of the legal terms involved and the instructions regarding the decision rule.

After viewing the trial together in a group, the participants were required to fill in a socio-demographic questionnaire and then assigned a jury. Thereafter, they completed a pre-deliberation questionnaire and gave their verdict of pro-innocence or pro-guilty. Having completed the questionnaire each jury was asked to elect a foreperson to chair the deliberation, but they were not given instructions about what to do if they could not reach a unanimous verdict. In other words, they themselves would have to declare themselves incapable of reaching a unanimous verdict. The deliberations were not subject to a time limit and were recorded on videotape.

Following the deliberation, the jurors were asked to complete a post-deliberation questionnaire in which they were asked to evaluate the persuasive capacities and the skill of other jurors using five point Likert type scales. The Likert type scale contained the following variables:

- a. Do you think the jury's verdict is just?
- b. I personally am happy with the verdict that has been reached.
- c. Was the deliberation, in your opinion, serious?
- d. Was an in depth deliberation carried out?
- e. Were the relevant facts dealt with during the deliberation?
- f. Did some of the jurors deal with irrelevant facts ignoring the most relevant ones?
- g. Have you observed any jurors in your own group (i.e., jurors who support your verdict) to be unwilling to talk?
- h. Have you observed any jurors in the other group (i.e., jurors who do not support your verdict) to be unwilling to talk?

- i. I have felt the influence of other jurors during the deliberation.
- j. The people who made up the jury were good jurors.
- k. An exhaustive analysis of all the evidence of both the defense and the prosecution has been carried out during the deliberation.
- l. How important is it to reach a unanimous verdict?
- m. The other jurors had very good skills of persuasion.
- n. I think I have been impartial during the deliberation.
- o. I think the jurors who did not support my verdict were intransigent.
- p. I think that those who are better at talking are better at defending their point of view.
- q. Have you felt lonely defending your point of view?

Finally, in order to evaluate the status of the foreperson we proceeded with a sociometric study where the jurors were asked to elect two and reject two jurors according to their skills to serve in a future jury.

### *Analysis of the Deliberation*

The procedure for analyzing the deliberations is transcendental given that it is an indirect and unbiased measurement of the juries' decisions using the "Relational Communicational Control Coding Manual" (Rogers, 1979) for the evaluation of deliberation styles. The system consists of two indices "response format" and "response mode". The response format is composed of five categories: assertion, question, superposition, incomplete, and others. The response mode has ten categories: support; opposition; extension; answer; instruction; order; disregard; topic change; initiation/termination; others. Further indices were added regarding the juror's identity, the contents regarding the trial and material evidence, and legal issues. The trial evidence included the following categories: the judge's intervention; the prosecution arguments; the defense arguments; the testimony of the victim, the accused, eyewitnesses, forensic experts and the police, as well as personal anecdotes, references to the law of precedence, inference of the events, proven facts, others, and no reference to factual evidence. The legal issues contained the following categories: the intended verdict, witness credibility, verdict/sentence definition, admissible evidence; inadmissible evidence, legal conjecture, standard of proof, verdict/evidence rela-

tionship, others, and no reference to legal issues. A total of 56 items of material evidence were recodified according to: refers to the evidence; does not refer to the evidence. Moreover, two special codes accounted for silence and jargon.

These categories were determined using a procedure of agreed validation and successive approximations in the analysis of the deliberation.

### *Reliability*

The deliberation was codified by two expert coders and catalogued as reliable in other codes. Two modes of consistency, intra-codifier and an inter-codifier, were computed on the basis of a 30 minute fragment. In order to obtain the intra- and inter-consistency a one month interval was allowed between the initial codification and the recodification. The consistency was computed using Kappa.

The result shown in Table I reveal that the codification consistency was good (see the comparison table of Fleiss et al., 1969). Moreover, the special codes showed absolute reliability (Kappa = 1), for both inter- and intra-codifiers.

Moreover, our codifiers were consistent in other contexts (Arce et al., 1995a, 1995b, 1996), thus the results are reliable (Wicker, 1975).

### *Statistical Analysis*

The analysis of the deliberations was carried by assigning a digit to each juror's intervention in order to convert each digit or category into a variable. The aim is to place the variables into a discrete variable condition, that is, frequencies or continuous variables. Traditionally, they have been considered to be continuous variables (Hastie et al., 1983). For our purposes, which require a nested analysis, it is more convenient to regard these variables as continuous. Nevertheless, we have taken the precaution of ensuring that they are continuous variables by converting them using the square root method (Keppel, 1982; Martínez Arias, 1990). A variance analysis was carried out with a design factor type (hung vs unanimous) and the calculations of the simple effects of the nested factor type in each of the factor levels, according to case type, format, response mode, trial evidence, legal issues, and material evidence.

TABLE I  
Kappa values

DIGITS	INTRA-1	INTRA-2	INTER
Subjects	1.00	1.00	1.00
Format	0.96	0.88	0.86
Mode	0.84	0.86	0.80
Trial evidence	0.68*	0.77*	0.65*
Legal issues	0.72	0.72	0.70
Material evidence	1.00**	1.00	0.93**

Intra-1 = consistency of intra-codifier 1; intra-2 = consistency of intra-codifier 2; inter = average consistency of intercodifiers.

\* Reference/no reference to trial evidence Kappa: 1,00.

\*\* For reference/no reference to material evidence.

## RESULTS

### *Length of the Deliberation*

The length of the deliberation was significantly longer [ $F(1,18) = 8.65$ ;  $p < 0.01$ ] for hung juries ( $M = 20.97$ ) in comparison with unanimous juries ( $M = 13.51$ ).

### *Format*

The factor jury type, that is, unanimous vs. hung was significant [ $F(1,72) = 7.08$ ;  $p < 0.01$ ]. The simple effects for the factor type nested in each of the format levels show differences in assertion [ $F(1,72) = 5$ ;  $p < 0.05$ ] and superposition [ $F(1,72) = 8.12$ ;  $p < 0.01$ ]. Hung juries resort more to assertion ( $M = 11.97$  and  $M = 16.08$ , for unanimous and hung juries respectively) and for the superposition format i.e. the juror's simultaneous interruptions ( $M = 5.16$  and  $M = 10.40$  in unanimous and hung juries respectively).

### *Response Mode*

The factor type predicts significant differences [ $F(1,162) = 26.36$ ;  $p < 0.001$ ]. The simple effects in the nested factor type in each of the levels of the response mode exhibit differences at the level of disapproval [ $F(1,162) = 21.25$ ;  $p < 0.001$ ]; at the extension level

[ $F(1,162) = 26.04$ ;  $p < 0.001$ ]; at the answer reply level [ $F(1,162) = 6.82$ ;  $p < 0.01$ ]; and in the order level [ $F(1,162) = 4.07$ ;  $p < 0.05$ ]. It appears that in comparison to unanimous juries, hung juries resort more to disapproval ( $M = 9.83$  vs.  $M = 4.47$ ); extensions ( $M = 15.58$  vs.  $9.65$ ); answers ( $M = 4.89$  vs.  $M = 1.85$ ); and orders ( $M = 3.06$  vs.  $M = 0.71$ ).

Surprisingly, hung juries frequently used extensions, that is, the means for introducing arguments. In principle, extensions are often associated with unanimous juries given that other studies have reported the absence of continued arguments in hung juries (Arce, 1989). For this reason the formats that followed the extensions were controlled by classifying the continuations into constructive messages (i.e., approvals, extensions) or destructive (i.e., superpositions, jargon, disapprovals). With reference to constructive messages, no significant differences were observed between hung and unanimous juries [ $F(1,18) = 0.72$ ; ns], but in hung juries a significantly higher number of arguments (i.e. extensions) were followed by destructive messages [ $F(1,18) = 10.04$ ;  $p < 0.01$ ].

### *Trial Evidence*

The factor type, i.e. hung vs. unanimous, predicts differences in the use of trial evidence [ $F(1,234) = 16.33$ ;  $p < 0.001$ ]. The simple effects with the factor type nested in each of the categories regarding trial evidence showed differences in the category inference of the evidence [ $F(1,234) = 100.46$ ;  $p < 0.001$ ] which exhibits a greater incidence in hung juries ( $M = 1.91$  vs.  $M = 0.24$ ); and in the recodified variable reference to the trial evidence [ $F(1,234) = 9.63$ ;  $p < 0.01$ ] which shows a greater absence of such references in hung juries ( $M = 18.17$  vs.  $M = 17.66$ ).

### *Legal Issues*

The factor type entails differences in the manipulation of legal issues [ $F(1,180) = 17.15$ ;  $p < 0.001$ ], the following simple effects nested in each of the codified legal categories was significant: (a) intended verdict [ $F(1,180) = 4.11$ ;  $p < 0.05$ ] which seems to be more closely linked to hung juries ( $M = 6.32$  vs.  $M = 4.24$ ); (b) the verdict-evidence relationship was more frequent in unanimous verdicts ( $M = 4.74$  vs.  $2.18$ ); (c) makes no reference to legal issues [ $F(1,180) =$

22.3;  $p < 0.001$ ] was more frequent in hung juries ( $M = 15.80$  vs.  $M = 9.59$ ).

### *Material Evidence*

The interventions referring to the evidence were not measured by the factor type of jury [ $F(1,18) = 0.402$ ; ns], whereas the sum of the total interventions not associated to the evidence was higher in hung juries [ $F(1,18) = 9.87$ ;  $p < 0.01$ ].

### *Perception of the Deliberation*

Bearing in mind that the faction size has been found to mediate in the juror's perception of the quality of the deliberation (i.e., Vila, 1996), a MANOVA 2 (majority vs. minority faction)  $\times$  2 (jury verdict: unanimous vs. hung) was carried out with a complete factorial design. A significant multivariate effect was observed for the factor faction [ $F(17,138) = 1.97$ ;  $p < 0.01$ ], and the same occurred with factor jury verdict [ $F(17,138) = 5.09$ ;  $p < 0.01$ ], though this was not the case for the interaction [ $F(17,138) = 0.87$ ;  $p < 0.60$ ]. As no interaction was observed between faction and type of jury in the perception of the deliberation we only considered the evaluation of the factor jury type (see Table II).

The jurors who arrive at a unanimous verdict ( $M = 3.98$ ) consider themselves to be good jurors in contrast to jurors in hung juries ( $M = 3.55$ ); hung jurors ( $M = 3.34$ ) view the out-group as being not as open to dialogue as do the unanimous jurors ( $M = 2.56$ ); the unanimous deliberations ( $M = 2.62$ ) are less centered on irrelevant questions than hung ones ( $M = 3.34$ ); hung jurors ( $M = 3.10$ ) are conceived of as more obstinate, that is, less flexible than unanimous jurors ( $M = 1.79$ ); unanimous deliberations ( $M = 4.11$ ) tend to be more centered on relevant questions than hung deliberations ( $M = 3.58$ ); unanimous jurors are more satisfied with verdict ( $M = 3.86$ ) than hung ones ( $M = 2.83$ ); unanimous jurors ( $M = 4.13$ ) consider their verdict to be more just than hung jurors ( $M = 3.31$ ); and unanimous jurors ( $M = 3.20$ ) believe that an agreement is not as hard to reach as do hung jurors do ( $M = 4.06$ ). It is worth noting that no significant differences were observed between hung and unanimous jurors concerning the variables that measure the juror's involvement i.e., in depth of deliberation, exhaustive analysis of the evidence

TABLE II  
Perception of the deliberation

Variable	F(1,154)	<i>p</i>
A just verdict	18.8	< 0.001
Satisfaction with the verdict	19.4	< 0.001
Seriousness of the deliberation	5.8	< 0.05
In depth deliberation	0.3	ns
Centered around the relevance of the evidence	10.9	< 0.001
Jurors centered on irrelevant issues	13.5	< 0.001
In-group no debate	1.0	ns
Out-group no debate	10.5	< 0.001
Other influences	0.0	ns
Good jurors	5.4	< 0.05
Unanimous decision rule	10.6	< 0.001
Obstinate	33.7	< 0.001
Exhaustive analysis of the evidence	0.4	ns
Impartial deliberation	0.1	ns
Achievements due to locutionary skills	0.0	ns
Ability to persuade others	1.4	ns
Feel lonely in the deliberation	0.1	ns

and, impartiality in the deliberation. Thus, it appears that the lack of unanimity cannot be attributed to a lack of juror involvement.

### *Intransigence Study*

Though the literature has reported a link between intransigence and minority factions (Hastie et al., 1983), there are doubts as to the most appropriate definition of this concept. Perhaps a better definition of intransigence would be not changing one's verdict in spite of being unable to provide any evidence to support one's point of view while attempting to destroy opposing points of view. Therefore, intransigence should not be associated with the concept of the size of the minority faction but rather to the use of destructive strategies during the deliberation. Consequently, we have focused on the variables of deliberation style and content that differentiate hung from

unanimous juries. Our results do not fully substantiate the hypothesis that the minority faction is intransigent. Jurors in the minority faction ( $M = 4.54$ ) show more disapproval [ $F(1,78) = 6.19$ ;  $p < 0.05$ ] than the majority faction ( $M = 2.7$ ), make fewer ( $M = 4.98$ ) references to the factual evidence [ $F(1,78) = 4.08$ ;  $p < 0.05$ ] ( $M = 7.45$ ); and exhibit more ( $M = 2.88$ ) connections in their interventions with an intended verdict than the majority ( $M = 1.98$ ). However, the majority faction ( $M = 5.14$ ) make more references to inference of the events [ $F(1,78) = 4$ ;  $p < 0.05$ ] than do the minority faction ( $M = 2.36$ ). For the remaining variables no significant differences were observed.

Our findings appear to confirm the view that minorities are more intransigent. Nevertheless a further question remains unanswered, that is the role of the verdict in relation to intransigence. There is sufficient evidence to claim that innocence can be arrived at by two qualitatively different cognitive paths: debate leading to the building of schemata that implies innocence or by rejecting the prosecution's arguments (Pennington and Hastie, 1993; Vila, 1996). Thus a pro-innocent majority could be intransigent if it does not provide arguments to support its stance. Therefore, a MANOVA 2 (faction: majority vs. minority)  $\times$  2 (verdict: innocent vs. guilty) was carried out in which significant univariate effects were observed in the interaction of assertive variables  $F(1,78) = 6.72$ ;  $p < 0.05$ ]; superposition format [ $F(1,78) = 5.03$ ;  $p < 0.05$ ]; inference of the events [ $F(1,78) = 7.46$ ;  $p < 0.01$ ]; no reference to the factual evidence [ $F(1,78) = 4.56$ ;  $p < 0.05$ ]; and intended verdict [ $F(1,78) = 9.92$ ;  $p < 0.01$ ]. The simple effects for the factor faction nested in the innocent verdict shows that the majorities ( $M_s = 4.39$  and  $7.1$  majorities and minorities respectively) resort less to assertion [ $F(1,78) = 4.32$ ;  $p < 0.05$ ] (majorities ( $M_s = 4.75$  and  $2.8$  majorities and minorities respectively)); mediate more superpositions [ $F(1,78) = 4.72$ ;  $p < 0.05$ ]; and the majority does not accompany its interventions with references to the material evidence [ $F(1,78) = 6.68$ ;  $p < 0.05$ ] as often as the minority ( $M_s = 6.94$  and  $4.75$  for the majority and minority respectively). Moreover, the factor faction nested in the guilty verdict shows differences in superpositions [ $F(1,78) = 10.56$ ;  $p < 0.01$ ], a strategy employed more by the minority than by the majority ( $M_s = 5.5$  and  $2.0$  respectively); the minority ( $M =$

3.19) more frequently use inference of the events [ $F(1,78) = 13.97$ ;  $p < 0.001$ ] than the majority ( $M = 1.54$ ); and the minority ( $M = 7.57$ ) establish fewer links in their interventions with the material evidence [ $F(1,78) = 5.01$ ;  $p < 0.05$ ] than the majority ( $M = 4.63$ ); the minority ( $M = 3.07$ ) support their interventions more with reference to the intended verdict [ $F(1,78) = 8.88$ ;  $p < 0.01$ ] than the majority ( $M = 1.9$ ).

### *Foreperson and Participation*

Since it would be reasonable to believe that in hung juries debates become polarized between a few jurors which in turn would directly influence the number of hung juries, the redundant participation (the degree to which jurors participate in the deliberation) was evaluated (see appendix I for computation) but no significant differences were observed [ $F(1,18) = 1.9$ ; ns].

The perceptions of each juror concerning the quality and skills of the foreperson were examined using two measurements. The first using a five point Likert type scale in which each juror evaluated the persuasive ability and skills of the foreperson. The results show that the foreperson of unanimous juries ( $M = 3.71$ ) were conceived to have better persuasive skills than those of hung juries ( $M = 2.71$ ) [ $F(1,18) = 9.12$ ;  $p < 0.01$ ].

The second measurement was the juror's perception of the foreperson. As mentioned above, the status of the foreperson was measured using the "votes in favor and against two jurors" of each member of the jury. As can be seen in Table III, the data support that the evaluation of the foreperson in unanimous juries is more favourable than in hung juries, where the foreperson is frequently rejected due to the lack of skills to serve in a future jury. In short, this suggests that the foreperson may be an 'obstacle' to unanimity.

The last factor to be evaluated was the options available to the foreperson for guiding the course of the deliberation towards unanimity. It would seem plausible to expect that in a hung jury the foreperson would emit more deliberation regulating messages (i.e., instructions, orders, initiation/termination, change of topic) aimed at avoiding destructive discussions or to increase the number of interventions related to the factual and material evidence, and legal issues; however, the findings do not support this hypothesis

TABLE III  
Status of the foreperson

Jury	Votes		
	in favor	against	total
UNANIMOUS	04	00(*-)	+4
UNANIMOUS	04	01	+3
UNANIMOUS	09(*+)	00(*-)	+9
UNANIMOUS	02	00(*-)	+2
UNANIMOUS	08(*+)	00(*-)	+8
UNANIMOUS	10(*+)	00(*-)	+10
UNANIMOUS	08(*+)	00(*-)	+8
UNANIMOUS	02	00(*-)	+2
UNANIMOUS	09(*+)	00(*-)	+9
UNANIMOUS	03	00(*-)	+3
HUNG	00(*-)	06(*+)	-6
HUNG	05	00(*-)	+5
HUNG	06(*+)	03	+3
HUNG	03	01	+2
HUNG	00(*-)	06(*+)	-6
HUNG	03	02	+1
HUNG	00(*-)	08(*+)	-8
HUNG	03	00(*-)	+3
HUNG	01	00(*-)	+1
HUNG	00(*-)	06(*+)	-6

See the appendix II for the computation. (\*+) significantly high results with a  $p < 0.05$ . (\*-) significantly low results with a  $p < 0.05$ . The total score is the result of the subtraction of the votes in favor from the votes against.

[ $F(1,18) = 3.42$ ; ns]. Moreover, the foreperson in hung juries did not guide the deliberation towards the material evidence as much as the unanimous foreperson [ $F(1,18) = 13.69$ ;  $p < 0.01$ ].

## DISCUSSION

The jury system has often been criticized on the grounds that it is inefficient and leads to hung juries which entails the cost of a retrial

and the burden of calling a new jury. Moreover, the experience of a hung jury may generate a sense of frustration and failure among jurors and in turn negative attitudes towards the jury system. The self-reports of the perceptions of intransigence, lack of dialogue, irrelevant deliberations and dissatisfaction with the verdict that characterize the deliberations of hung juries lend support to this view. Thus, hung juries not only entail costly retrials but may also jeopardize the future undertakings of the jury.

Two aspects concerning the deliberation style of hung juries are worth considering. First, it cannot be claimed that hung juries are innately inefficient particularly since they make considerable efforts to reach a unanimous decision i.e., they are involved in longer deliberations leading to more extensions, which are the main procedures for exchanging information. Secondly, though there are attempts to exchange information, negative deliberation styles undermine the efficiency of informative messages. Thus, the deliberation of hung juries is characterized by superpositions, disapprovals, orders or replies. In addition, hung juries interrupt the flow of the debate which is necessary for changes in verdict to take place. In other words, there are attempts to influence the opposing faction but they are undermined because the opposing faction does not permit the reconstruction of events due to the continuous interruptions made during the deliberation. Likewise, the interventions of hung juries tend to neglect trial or material evidence and legal issues as well as making greater reference to "supposition of events" and "intended verdict"; that is, the interventions are poor attempts at solving conflicts. Previous studies have shown that the supposition of events is a strategy employed by biased juries (Arce et al., 1994). In our study, the suppositions of events were not arguments designed to produce a change of verdict or to assimilate the other faction but were intended to achieve quite the opposite i.e., reactance. Hung juries have been characterized by deliberations driven to verdicts (Hastie et al., 1983) and polling (Davis et al., 1993), which are not conducive to discussion and appraisal of the evidence and in turn produce reactance. In short, hung juries are inefficient with reference to the content and style of deliberation. In contrast, unanimous juries tend to seek evidence-verdict relationships and their interven-

tions are related to trial and material evidence as well as legal issues i.e., they aim to integrate the evidence.

The judge's instructions are designed to guide a hung jury towards unanimity by dissuading minorities from being obstinate (Kalven and Zeisel, 1966; Kassin et al., 1990). Though these 'dynamite' instructions imply that the minorities are systematically intransigent, our findings suggest that occasionally the majorities are intransigent. In some states and federal courts in the USA the use of these judge's instructions have been severely criticized to the extent that have been restricted or prohibited since it is recognized that the instructions may exert undue pressure upon the minority (Jensen, 1989). Nevertheless, in *Lowenfield v. Pehlps* (1988), the US Supreme Court did not consider them to be coercive and ruled that they may be used as a matter of routine (Kassin et al., 1990). Our findings suggest that intransigence cannot be simply ascribed to minorities but rather it may be associated with a not guilty verdict. Hence, the absence of a not guilty account of the events by the pro-not guilty majority may give rise to destructive messages that lack content. In contrast, a guilty verdict requires a coherent account of the events that provide content to the interventions as well as fewer destructive messages. Moreover, we should bear in mind that other variables such as the size of the minority faction, active minorities or the evidence presented may favor intransigence. Therefore, it would be more beneficial if instructions are geared towards discussion, verdict-evidence relationships, and the avoidance of destructive messages rather than attempting to force minorities to conform.

Another source of jury indecision may lie in the role carried out by the foreperson. In hung juries, the foreperson neither controls the deliberation in order to guide it towards the appraisal of evidence nor avoid destructive interventions which often characterize the deliberation styles of hung juries, nor do s/he have the persuasive skills or necessary status within the group to inspire respect or authority i.e., they do not moderate.

In conclusion, in order to minimize the number of hung juries, in the pre-deliberation jurors should be instructed to avoid destructive interventions. Secondly, the foreperson should be trained in how to deal with the deliberation, that is, to control destructive messages,

to guide the deliberation towards the appraisal of the evidence and legal issues (particularly verdict-evidence relationships), and to control discussions or assumptions about the evidence or intended verdict.

#### APPENDIX I

Redundant index =  $\sum (O_i - E_i)^2$

Note:  $O_i$  = observed value;  $E_i$  = expected value. High scores indicate that only a few jurors were involved in the deliberation, whereas low scores reveal a balance participation of the jurors in the deliberation.

#### APPENDIX II

es = election status.

rs = rejection status.

d = maximum number of possible elections.

a = asymmetry.

t = Indices of the probability of a concrete symmetry.

X = Sociometric value the significance of which is to be determined.

M = mean.

X = Limits.

$p = d/(N - 1)$ .

d = 2.

$M = p(N - 1) = 1,98$ .

$\sigma = \text{SQRT}(n - 1)pq = \text{SQRT}[(7 - 1) * 0.33 * 0.66] = 1.14$ .

a = q - p = 0.6.

$X = M \pm t \sigma$

t left with a = 0.6 is for  $p < 0.05 = -1.46$ .

lower limit  $X_{05} = 1.98 - 1.46 = 0.52$ .

t right with a = 0.6 for  $p < 0.05 = 1.46$ .

upper limit  $X_{05} = 1.98 + 1.46 = 3.44$ .

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