

# ANCHORING IN JUDICIAL DECISION-MAKING

Francisca Fariña\*, Ramón Arce\*\* and Mercedes Novo\*\*

\* *University of Vigo*, \*\* *University of Santiago de Compostela*

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*La literatura científica ha puesto de manifiesto que las decisiones de los jueces muestran signos inequívocos de sesgo (véase Wrightsman, 1999). Sin embargo, no se ha desarrollado un esfuerzo importante para determinar el alcance de estos sesgos en las decisiones reales. Por ello, nos planteamos un estudio de archivo con el fin de aislar el heurístico de anclaje y perfilar los efectos del mismo en la calidad de las decisiones. Los resultados mostraron que el 63.6% de las sentencias estaban guiadas por un anclaje decisional. Éste tenía efectos directos en la formación del juicio, procesamiento de la información, establecimiento de los nexos causales y motivación legal. Por último se discuten las implicaciones de los resultados así como los modos de solución o amortiguamiento del problema.*

*Though the literature has shown that judges' decision-making to be subject to bias (Wrightsman, 1999), no specific study has determined the impact of bias on actual judicial decisions. This study aims to review actual judgements in order isolate the anchoring heuristic and assess its role in judicial decisions. The results reveal that 63.6% of the judgements were driven by anchoring, which directly influenced judgement-making, information processing, the establishment of casual relationships, and legal reasoning. The results are discussed in terms of recommendations designed to mitigate bias.*

In explanations of cognition and, by extension, social cognition (Srull & Wyer, 1983; Fiske & Taylor, 1991), three stages are distinguished (Taylor, 1981): a) the search for consistency, b) the subject as information processor, which includes theories of attribution, and c) the subject as loser of information.

The first two of these, which fit into information-processing models, share the basic notion of a subject understood as a naïve scientist or problem-solver, whose actions are guided by normative patterns. In other words, both are based on the idea of man as a being that actively seeks information to understand his environment and that, moreover, manages that information efficiently in the analysis of reality (Vázquez, 1985). However, it was soon realized that "the man in the street" committed errors without using the expected reasoning, so that his performance did not follow normative patterns (Taylor, 1981). There thus emerged a new paradigm in which the subject was characterized by "losing information," through biases and heuristics (Ross, 1977; Ross, 1981; Ross & Anderson, 1982; Kruglanski & Azjen, 1983).

Following Tversky and Kahneman (1983), the term heuristic refers to a strategy, deliberate or otherwise, based on a natural assessment for making an estimation or prediction. These authors showed how, when people make probabilistic estimations, they do not use any kind of normative system; instead, they rely on a limited number of heuristics that simplify complex tasks and permit their rapid solution. Heuristics are most clearly seen when they lead people to deal with probabilistic information, so that the starting points are removed from the normative principles of statistical reasoning (Eiser, 1989). Consequently, we can state that they have great functional value, given the limitations of information processing capacity. As Nisbett and Ross (1980) point out, man has to deal with an enormous amount of information, and he has therefore developed a series of short cuts that come into play in problem-solving, in judgements or in decision-making. From the perspective of problem-solving, the heuristic is the opposite strategy to that of the algorithm. Whilst an algorithmic strategy considers all the possibilities of the problem space, the heuristic focuses exclusively on those which, at that time, are considered as the most relevant. Let us think for a moment of chess players. If they consider systematically all the possible moves, they will clearly be using an algorithmic strategy. However, if they concentrated just on the positions of the pieces situated in the centre of the board, they would be using a heuristic strategy

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Correspondence concerning this article should be addressed to Francisca Fariña, Facultad de Ciencias Sociales, Universidad de Vigo, 36002 Pontevedra (Spain). E-mail: francisca@uvigo.es

(Saks & Kidd, 1986). Obviously, as a cognitive strategy it provides a quicker decision, but it involves greater risks, systematic biases, and sometimes errors.

Since the appearance of the first work on the subject in the 1970s, three heuristics have basically been studied: representativeness (Kahneman & Tversky, 1972, 1973), availability (Kahneman & Tversky, 1973) and anchoring (Tversky & Kahneman, 1974/1986).

The anchoring heuristic became evident first of all in numerical estimations, when the subject is given a starting point, or in incomplete sums (Tversky & Kahneman, 1974/1986), but it has also been found as a strategy for forming judgments in non-numerical estimations (Quattrone, 1982; Cervone & Peake, 1986); it has even shown itself to be a robust phenomenon in situations of financial incentives for accuracy (Tversky & Kahneman, 1974/1986; Wright & Anderson, 1989). In this line, Quattrone (1982) points out that the effect size increases with the discrepancy between the anchoring and the estimated pre-anchoring, until an asymptotic level is reached. Within the field of judicial decisions, anchoring has shown itself to be the heuristic par excellence among judges and magistrates. By way of example, anchoring has great importance in the determination of sentences. Thus, the range specified by the principles of law will act as an anchor on the sentence. Moreover, as Fitzmaurice and Pease (1986) maintain, in England, where sentences have only an upper limit, it is especially relevant for decisions made by the Court of Appeal on sentences given by lower courts. Within Spain's judicial framework, Garrido and Herrero (1995, 1997) have studied the phenomenon of anchoring. Specifically, they observed an anchoring effect of 81.75% in crimes against sexual liberty, though, within the same type of crime, the figure was significantly lower for rape. In sum, the anchoring effect, as well as being significant in itself, interacts with the type of crime. Likewise, Arce, Fariña and Novo (1996) have shown the presence of anchoring in the set of judicial decisions of a court. Operationalized as the superposition of the sentence pronounced by the judge in relation to the public prosecutor's request, anchoring becomes the heuristic with the greatest impact, affecting a total of 58.3% of sentences. Moreover, if we consider this source of bias in conjunction with others detected, over 80% of the decisions analyzed would be based on judgement biases. Prior to these findings, various models of judicial decision had already been formed with an explanatory substrate based

on the assumption of biases and heuristics (Saks & Kidd, 1986; Fitzmaurice & Pease, 1986; Lawrence 1984; Michon & Pakes, 1995). However, these proposals did not – apart from a few isolated examples – provide true empirical support.

In this context, our aim is to carry out an archive study in order to check for inter-judge and inter-crime universality of the anchoring heuristic, as well as identifying its effects on sentences through the study of the effects on the cognitive activity that takes place. In sum, we aim not only to examine the possible effect of anchoring on judicial decisions, but also to analyze the effects on the sentences handed out.

## **METHOD**

### ***Protocols***

We considered a total of 555 penal sentences from the provincial High Courts and Criminal Courts of the Autonomous Region of Galicia, in north-west Spain. These sentences had been passed between 1980 and 1995. All of them were based on the former Penal Code, and were pronounced by a total of 99 judges/courts. The selection criterion was availability, with the condition that no judge/court could be represented in more than 5% of all sentences. As regards the verdict, 457 (82.3%) were condemnatory, 93 (16.8%) were absolutions and 5 (0.9%) were dismissals. Of all the sentences, 172 were passed in courts of first instance (31.0%) and 383 (69.0%) were appeals. By type of crime (bear in mind that some involve more than one), 139 (20.62%) referred to Chapter IV-Heading VIII "Harm"; 75 (11.12%) to theft – Chapter I-Heading XIII "Crimes against property"; 67 (9.94%) to traffic offences – Chapter II-Section 1<sup>a</sup> "Traffic safety", of Heading V "Laws on burials, desecration and crimes of risk in general"; 41 (6.08%) to crimes against public health – Heading V "Laws on burials, desecration and crimes of risk in general" – Chapter II-Section 2<sup>a</sup> "Public health and the environment"; 40 (5.93%) to misdemeanours against people – Heading III of Book III "Misdemeanours against people"; and 40 (5.93%) to fraud – Chapter IV-Heading XIII ("Crimes against property").

### ***Analysis of the protocols***

The protocols, that is, the sentences, comprise two well-differentiated sections, one referring to the facts and the other to their representation in legal terms. It is the interpretation of the facts that totally determines the adjust-

ment to legal terms. The Spanish judicial-penal system is a “fixed” one, in which the facts must fit perfectly with the articles of the Penal Code. It may seem reasonable to assume that the facts represented the principal aim of our analysis, but the legal arguments are important, too, as they also involve all kinds of inferences.

The analysis of the protocols was aimed, first of all, at finding the anchoring heuristic. Anchoring was measured only in the sentence, and was defined in terms of the public prosecutor’s assessment (Garrido & Herrero, 1997) or, in cases of sentences appealed against in higher courts, of the recommendations of the judge from the lower court (Fitzmaurice & Pease, 1986). That is, in line with previous studies, it was measured through initial and direct estimations (Saks & Kidd, 1986; Wagenaar, 1995). More specifically, if these were identical to the final judicial resolution, we assumed that the sentence was guided by decisional anchoring.

Furthermore, it was important to obtain measurements of judges’ cognitive activity on deciding on a sentence. From this, we would be able to identify the cues underlying the ways of arriving at a sentence. The formation of the categories of content to be observed was based on a literature search on concomitants of cognitive activity, and on a system of successive approaches after reading and studying the material. The categories of analysis and a short definition of each one are shown below:

- *IDIOSYNCRATIC INFORMATION*. Count of the number of allusions made by the judge or magistrate to his/her internal state, cognitive processes or emotions.
- *DESCRIPTION OF INTERACTIONS*. Count of descriptions of inter-related actions and reactions, i.e., actions working reciprocally between two or more agents.
- *REPRODUCTION OF CONVERSATIONS*. Count of virtual reproductions of expressions, particular speech patterns or vocabulary of others.
- *CONTEXTUAL EMBEDDING*. References to jurisprudence or precedent based on analogies with other cases. Count of these.
- *AMOUNT OF LEGAL DETAIL*. Count of the number of legal references that can be extracted from the sentence.
- *CONTEXTUAL INFORMATION*. Count of the number of allusions to places, dates, times, etc. in the physical or situational context of the event.

- *ATTRIBUTIONS ABOUT THE MENTAL STATE OF THE ACCUSED*. Count of the number of times the judge or magistrate mentions the mental states or motives of the accused.
- *ATTRIBUTIONS ABOUT THE MENTAL STATE OF THE PLAINTIFF*. Count of the number of times the judge or magistrate mentions the mental states or motives of the plaintiff.
- *PHYSICAL CAUSAL RELATIONSHIPS*. When a link of a physical nature is assumed between two events. Count of the physical causal relationships.
- *TEMPORAL CAUSAL RELATIONSHIPS*. When temporal continuity between two events is attributed. Count of the temporal-causal relationships.
- *Nº OF PRO-ACCUSED PROPOSITIONS*. Propositions with a valence favourable to the accused.
- *Nº OF COUNTER-ACCUSED PROPOSITIONS*. Propositions with a valence disfavourable to the accused.
- *Nº OF NEUTRAL PROPOSITIONS*. Propositions with a neutral valence, that is, neither in favour of nor against the accused.
- *Nº OF WORDS*.
- *Nº OF ABSTRACT PROPOSITIONS*. Propositions unrelated to the evidence of the case; general.
- *Nº OF RELATED PROPOSITIONS*. Propositions related to the evidence of the case.

This measurement instrument is distributed among two factors, one called “general cognitive activity” (words, abstract propositions and related propositions) and another called “specific cognitive activity” (made up of the remaining variables) (Fraga, 1998). With our data, an analysis of the internal consistency of the scales (Cronbach’s alpha) showed values of .8368 for general cognitive activity and .7663 for specific cognitive activity. Moreover, this categorical system, with slight modifications related to the productivity of the categories, also proved to be consistent in other studies for both general and specific cognitive activity (e.g., Arce, Fariña & Fraga, 2000).

### **Reliability**

Two coders analyzed, for the categories making up cognitive activity and the anchoring heuristic, all the protocols (sentences), each taking half of the total. After a period of not less than one week following the end of the coding, they coded 10% of the protocols again, in a cross-

sed fashion. Reliability was computed by means of two different systems, depending on whether the variables were categorical or discrete: agreement index for the former, and correlation index for the latter.

The two coders that participated had been thoroughly trained previously, using agreement as the comparative element, so that it was possible to correct coding bias. Moreover, they had already carried out codification work using a similar procedure, with superposition in the majority of the categories employed (Arce, Fariña & Novo, 1996; Vila, 1996; Arce, Fariña & Fraga, 2000).

The agreement index for the anchoring measurement, both intra-coder and inter-coder, was 1. We considered as consistent all those assessments that exceeded the cut-off point, measured in terms of agreement, of .80 (Tversky, 1977). Our data not only surpass this point, but in fact coincide completely. We believe this result was made possible by the fact that coding of this variable was easy.

We calculated the correlation coefficient as an index of measurement of consistency in cognitive activity. We are conscious of the fact that this index needs some correction. In fact, it is not sensitive to the correspondence of the measures. In other words, the fact that the number of assessments of a given variable coincides from one assessor to another does not imply that the measures are actually referring to the same incidences. Thus, we verified that the count was referred to exactly the same measures. With regard to consistency, a measure is considered reliable if it exceeds the cut-off point of  $r > .70$  (Carrera & Fernández-Dols, 1992). After checking the values of our coders (see Tables 1 and 2), it can be confirmed that the measures are consistent.

Furthermore, and with a view to establishing reliability beyond the instruments, it is also worthy of note that they were found to be reliable, effective and valid in other studies, as well as being consistent with other methods (e.g., Arce, Fariña & Novo, 1996). Consequently, on confirming inter- and intra-assessor, inter-study and inter-method consistency (Wicker, 1975), we can maintain that the measures taken are highly reliable.

### Data Analysis

We applied multivariate analyses of variance (MANOVA) for the study of cognitive activity (dependent variable) associated with the presence vs. absence of the anchoring heuristic in sentences (grouping factor). We employed these levels of comparison on the basis that

we could not define a normative comparison group, as it was impossible to guarantee a group of sentences free of bias. Thus, we compared sentences with anchoring and those in which this heuristic was not present, in order to isolate the effects of anchoring in relation to sentences without this heuristic, in which it is assumed that, if there are biases, they will be counterbalanced in their effects (for a discussion of group assignment, see Kruglanski and Azjen, 1983). The reasons for preferring a MANOVA to other statistical tests were, among others, that this type of analysis takes into account inter-correlations of variables, permits a global  $\alpha$  to be obtained and provides univariate results, at the same time as offering other individual and global statistics, such as

**Table 1**  
Inter-coder reliability in "cognitive activity"

Variables	r <sub>12</sub>	p	r <sub>21</sub>	p
Attributions about accused's mental state	1.00	<.001	1.00	<.001
Attributions about plaintiff's mental state	1.00	<.001	1.00	<.001
Amount of legal detail	.998	<.001	.989	<.001
Description of interactions	.995	<.001	.985	<.001
Contextual embedding	1.00	<.001	1.00	<.001
Contextual information	.962	<.001	.947	<.001
Idiosyncratic information	.997	<.001	1.00	<.001
Words	.840	<.001	1.00	<.001
Abstract propositions	.995	<.001	.993	<.001
Counter-accused propositions	1.00	<.001	.999	<.001
Neutral propositions	.996	<.001	1.00	<.001
Pro-accused propositions	1.00	<.001	.822	<.001
Related propositions	.994	<.001	.998	<.001
Total propositions	.992	<.001	.846	<.001
Physical causal relationships	.875	<.001	.980	<.001
Temporal causal relationships	.994	<.001	.975	<.001
<b>Reproduction of conversations</b>	<b>1.00</b>	<b>&lt;.001</b>	<b>1.00</b>	<b>&lt;.001</b>

Note: r<sub>12</sub> = Inter-coder agreement on material of coder 1; r<sub>21</sub> = Inter-coder agreement on material of coder 2.

**Table 2**  
Intra-coder reliability in "cognitive activity"

Variables	r <sub>1</sub>	p	r <sub>2</sub>	p
Attributions about accused's mental state	1.00	<.001	.998	<.001
Attributions about plaintiff's mental state	1.00	<.001	.990	<.001
Amount of legal detail	.997	<.001	.998	<.001
Description of interactions	1.00	<.001	.999	<.001
Contextual embedding	1.00	<.001	1.00	<.001
Contextual information	.992	<.001	.992	<.001
Idiosyncratic information	1.00	<.001	1.00	<.001
Words	1.00	<.001	1.00	<.001
Abstract propositions	1.00	<.001	.997	<.001
Counter-accused propositions	.939	<.001	.982	<.001
Neutral propositions	.988	<.001	1.00	<.001
Pro-accused propositions	.997	<.001	.997	<.001
Related propositions	1.00	<.001	.999	<.001
Total propositions	.999	<.001	.999	<.001
Physical causal relationships	1.00	<.001	1.00	<.001
Temporal causal relationships	.997	<.001	.998	<.001
<b>Reproduction of conversations</b>	<b>1.00</b>	<b>&lt;.001</b>	<b>1.00</b>	<b>&lt;.001</b>

Note: r<sub>1</sub> = Correlation intra-coder 1; r<sub>2</sub> = Correlation intra-coder 2

the power of the statistical test or the effect size (Stevens, 1986 p. 143). As is well known, the analysis of variance is a robust test, especially with groups of equal or approximately equal sizes (large/small < 1.5), in which homogeneity of variance is assumed (Stevens, 1986). Thus, and as a safeguard, the cognitive activity measurement variables were transformed, with the aim of guaranteeing the homogeneity of variances, by the square root method, which stabilizes variance at approximately  $\chi^2=1$  if the mean of the original observations is  $>.8$  (Dixon & Massey, 1983, p. 373). However, we confirmed this by means of the Box test. In any case, the means we present correspond to the raw, not transformed scores, so that the reader can see the true and direct impact of each measure.

## RESULTS

We found that 63.6% (353) of the sentences are guided by an anchoring effect in the public prosecutor's request or, in the case of an appeal, in the prior judicial decision. The true extent of anchoring in penal judicial decisions is such that there are more sentences with decisional anchoring than those without it,  $\chi^2(1)= 41.083$ ;  $p<.001$ .

As regards systematic sentencing tendencies associated with anchoring, this is found to the largest extent in sentences of "guilty",  $\chi^2(1)= 12.57728$ ;  $p<.001$ ;  $\phi=-.15122$ , and without extenuating circumstances,  $\chi^2(1)= 7.23290$ ;  $p<.001$ ;  $\phi=.11416$ . In fact, in 52.6 % of sentences in which extenuating circumstances were considered, no anchoring is detected in the sentences imposed; on the other hand, in 47.4% there are extenuating circumstances and anchoring in the decision. In 87.4% of decisions where there is anchoring there is a guilty verdict, compared to 12.6% of not-guilty verdicts. In this regard it is important to bear in mind that when an initial hypothesis serves as anchoring, providing a starting point from which to make the final estimations, even though these may lead to reasonable inferences, there generally occur systematic biases and errors in the

making of judgments (Nisbett & Ross, 1980) and, by extension, in their justification there tend to be biases or errors (Higgins, Rhodes & Jones, 1977; Snyder & Cantor, 1979; Srull & Wyer, 1983). Furthermore, another danger stems from inappropriate avoidance or refutation of information: it has been found that there is perseverance of the initial hypothesis, despite the existence of contrary information (Ross & Lepper, 1980; Fariña et al., 1996). Subsequent analysis of the cognitive activity deployed in arriving at a sentence will indicate the value of these effects and predictions.

With regard to the effects on the content of the sentence pronounced, we found anchoring to mediate, from a multivariate perspective, cognitive activity in general,  $F_{\text{multivariate}}(3,551)= 6.44164$ ;  $p<.001$ , T.E.= .034. The univariate effects (see Table 3) indicate that the absence of this heuristic is associated with a greater number of words and more propositions related to the evidence. In sum, when they do not resort to anchoring, judges and magistrates need to employ greater explanatory activity for the decision taken in sentencing. Consequently, anchoring, in accordance with the predictions, involves cognitive saving or economy with regard to sentencing (Nisbett & Ross, 1980).

In the same line as in general cognitive activity, the results show significant multivariate differences in specific cognitive activity mediated by the anchoring factor,  $F_{\text{multivariate}}(13,541)= 6.81226$ ;  $p<.001$ ; T.E.= .141. Likewise, at a univariate level we also found differences mediated by this factor (see Table 4) in the following variables: amount of legal detail, neutral and pro-accused propositions, description of interactions, contextual information, reproduction of conversations, attributions about the plaintiff's mental state, and temporal and physical causal relationships. Systematically, the absence of this heuristic is associated with a greater number or amount of: attributions about the plaintiff's mental state, descriptions of interactions, legal detail, contextual information, neutral propositions, pro-accused proposi-

**Table 3**  
Univariate effects in the dimension "general cognitive activity"

Variable	MC	F	p	eta <sup>2</sup>	m <sub>0</sub>	m <sub>1</sub>
Related propositions	18263.6420	12.98235	.000	.02294	48.02	36.1
Abstract propositions	.89668	.00826	.928	.00001	2.48	2.56
Words	3326857.90	6.25721	.013	.01119	755.95	595.03

D.F. (1,553); m<sub>0</sub>= mean of group of sentences without anchoring; m<sub>1</sub>= mean of anchored sentences group.

tions, temporal and physical causal relationships established between the facts, and reproduction of conversations. By explanatory groupings, the absence of anchoring implies sentences more “oriented towards the facts” (contextual information, description of interactions and reproduction of conversations); more “legally justified” (legal detail); and “causally guided” (temporal and physical causal relationships). Moreover, sentences without anchoring are observed to be guided by a process of “integration of the information.” This derives from the fact that sentences without anchoring display more pro-accused and neutral propositions and an equal number of propositions against the accused compared to sentences based on anchoring. In other words, in sentences without anchoring there is also the possibility of the perspective in opposition to the accused (or counter-accused perspective), strongly linked to the anchoring established by the public prosecutor or, in the case of an appeal, the lower judge/court. In contrast, the presence of the heuristic involves being led by a “criterion of exclusion of information,” lessening the impact of perspectives that are neutral or contrary to the final object of decision. Finally, we find that, in the absence of anchoring, there are more “attributions about the mental state of the plaintiff,” which serve to refute the hypothesis of guilt on the basis of mental alterations affecting the person that reported the crime (bear in mind that there is no expert consultant on mental states available). That is, there is more acceptance of “extralegal evidence.” In sum, and in accordance with the results for general cognitive activity, when they do not resort to the anchoring heuristic, judges develop a deeper processing measured through the greater specific cognitive activity they

deploy. All of this leads us to hypothesize that, while in decisions based on anchoring judges or magistrates base their decisions on the processes, proof, cataloguing and reconstructions of the public prosecutor, judge or lower court, in its absence there is a dual process: rejecting anchoring and constructing or taking from the defence a new perspective.

In brief, all the indications are that judicial decision-makers employ the anchoring heuristic to subordinate more objective forms of information processing.

## DISCUSSION

Two points should be borne in mind before discussing the findings of the present work. First, it is an archive study in which the material was written sentences, so that it is not generalizable to the work of all judges. Nevertheless, the concurrence of our results with those of other studies in the same line and using different methods (see the review in this article) means that it can indeed to some extent be generalized. Second, the impossibility of using a normative comparison group means that the comparative values are not totally objective, so that the deviations detected in relation to the anchoring could be different, in principle (and in accordance with the hypotheses proposed in the literature) greater.

Having shown the considerable impact of anchoring on judicial decisions, several aspects of the implications of anchoring with regard to sentences should be considered:

- a) *Its influence on the judgement passed.* Anchoring has an impact, clearly and as expected from the measure, on the sentence, being directly related to deci-

**Table 4**  
Univariate effects in “specific cognitive activity”

Variable	MC	F	p	eta <sup>2</sup>	m <sub>0</sub>	m <sub>1</sub>
Attributions about accused’s mental state	34.39664	2.45475	.118	.00442	2.20	1.68
Attributions about plaintiff’s mental state	10.51268	8.25193	.004	.01470	.54	.26
Description of interactions	981.25596	7.41647	.007	.01323	9.40	6.63
Legal detail	1994.56544	47.22616	.000	.07868	7.87	3.85
Contextual embedding	.28392	1.66432	.198	.00300	1.81	1.76
Contextual information	963.56969	11.51626	.001	.02040	8.06	5.32
Idiosyncratic information	.34855	.08393	.772	.00015	.77	.82
Counter-accused propositions	138.88734	.38698	.534	.00070	14.03	15.07
Neutral propositions	20154.3803	10.19243	.001	.01810	33.54	21.01
Pro-accused propositions	1284.15049	21.55559	.000	.03752	5.49	2.32
Physical causal relationships	11.16256	5.94527	.015	.01064	.91	.61
Temporal causal relationships	1069.15601	7.95643	.005	.01418	9.38	6.50
Reproduction of conversations	128.27396	6.71753	.010	.01200	2.06	1.06

D.F. (1,553); m<sub>0</sub>= mean of group of sentences without anchoring; m<sub>1</sub>= mean of anchored sentences group.

sions of “guilty”. This can be understood as a bias that negatively affects the trial, since it is preferable for any bias to be towards innocence rather than guilt. It is in this context that we appreciate the relevance of aphorisms such as “in dubio pro reo,” “everyone is innocent until proved guilty,” or “it is ten times preferable to absolve a guilty person than it is to condemn an innocent one” Considering further this possible bias against the defendant, anchoring leaves the way open, beyond what would be expected by chance, for disregarding extenuating circumstances requested by the defence. Even so, this does not mean we can expect a constant effect of context (i.e., type of case) derived from the decision-maker (trait), and of their interaction. In fact, Garrido and Herrero (1995, 1997) observed an effect of type of crime, while Gómez-Ulla (2000) found differences among courts. In this regard, Einhorn (1980) had earlier pointed out that heuristic strategies are quite general rules for solving problems that acquire specific content in interaction with the task faced by the individual.

- b) *The cognitive economy or saving implied.* One of the assumptions generally associated with heuristics is the principle of cognitive saving (Nisbett & Ross, 1980). Contextually, the judicial field is vulnerable to this type of strategy due to saturation. Thus, every year the annual report from Spain’s General Council for Judicial Power notes a lack of human resources for dealing with the cases presented, and identifies delays in their resolution or sentence as the most pressing problem in courts (Cilla et al., 1997). In our particular case, the direct measure was general cognitive activity, and in it we found not only that anchoring serves the aim of cognitive economy, but also that its incidence is extremely high: 63.6% of sentences. In sum, anchoring is an instrument that facilitates cognitive saving and, by extension, lessens the impact of lack of resources and saturation on the judicial system. All of the above leads us to ask ourselves: what kind of justice is received, both in courts of first instance and in appeals, by those that are the object of an anchored decision?
- c) *The specific cognitive activity deployed.* This specific activity, in accordance with the relationship between anchoring and cognitive economy on the part of the decision-maker, is markedly lower in sentences with anchoring compared to those in which it is

absent. The use of anchoring leads to a neglect of the evidence in favour of prior decisions that are accepted without proper verification. In narrative terms, all the indications are that decisions anchored in the request from the prosecution or a previous judicial decision do not re-create a narration of the factual events, or do so in shallower terms. This constitutes a fundamental difference between the performance of juries and judges in the re-creation of narratives. In this regard, Fariña, Arce and Real (1998) found that juries, when they reach a hypothesis of guilt in the accused, base themselves on deeper processing of the information than when the decision is one of not-guilty. By way of explanation they formed the “verification of information hypothesis,” which postulates that, in decisions involving more risk, that is, in which guilt is assumed, juries conscientiously verify the risk information so as to avoid committing costly errors. On the other hand, judges, in decisions guided by decisional anchoring associated with guilty verdicts, are not subject to this verification of information hypothesis, and rather have a tendency to exclude information contrary to the guilty decision reached.

- d) *Effects on the integration of the judgement options.* Anchoring, in conjunction with economy of cognitive activity, gives rise to a process that is disfavoured to the accused and neutral at the same time. Considering, moreover, the link between anchoring and guilt, it follows that decisions are “oriented to the verdict.” From a legal perspective, and bearing the present results in mind, there is most likely a transgression of one of the maxims of the judiciary: the need to demonstrate guilt, or, in legal terminology, that the burden of proof be borne by the accuser (public prosecutor). Moreover, it is also assumed to be a role of judges to corroborate the value of this burden and the not-guilty version and, finally, form a judgement after verifying the goodness of fit of the two versions. However, anchored decisions make way “ad literam,” without verification and justification, for the charges presented against the accused. As Gómez Colomer (1993) points out, in the sentence, decision-makers must weigh up the entire situation, and particularly the proof available and the results of tests or investigations, interpreting and applying the penal and judicial codes to the facts being judged. For this, they need a strategy of analy-

sis of the evidence “oriented to the proof”; in other words, they should direct their reasoning not towards the verdict but towards the evidence and its cumulative effect, which will lead eventually to a verdict (Hastie et al., 1986).

- e) *Link with the facts.* Anchoring is dissociated from the facts; that is, it displays fewer connections with the factual version of the case (i.e., contextual information, description of interactions and reproduction of conversations). In other words, it is governed by a process of “exclusion of the evidence.” Thus, it undermines another of the cornerstones of justice: the need for decisions to be based on reasoning, in this case from the facts (Spanish Constitution, art. 120.3). Adherence to this principle, moreover, is essential in decisions that lean towards culpability, as do anchored decisions.
- f) *The need for causal links.* Causal links of a temporal or physical nature, that is, empirical and categorical connections (Schank & Abelson, 1977; Bennet & Feldman, 1984), are also a basic requirement for adequately justifying use of the facts on which a judicial decision is based. Once again, anchoring, linked in with culpability, elicits less empirical or categorical causality, where it would in fact be more appropriate to find greater causal chaining. Thus, anchoring entails “avoidance of causal justification.”
- g) *The requirement of normative causality.* Normative causality refers to the connections of a legal nature between facts and decision. We used two measures in relation to this: legal detail and embedding. In legal detail we noted the links with articles of the law, while embedding referred to the use of jurisprudence and the rule of precedent. The effect of anchoring a dissociation from legal reasoning but not from established jurisprudence and precedent. However, what was to be expected was a high degree of legal reasoning (Spanish Constitution, art. 120.3), precisely given the association with judgements of guilt. In sum, anchoring is linked to a weakening of legal justification.
- h) *Reference to the mental states of the plaintiff/defendant.* References to the mental state of the plaintiff, without being based on experts’ reports, are incorporated more in sentences not anchored in previous decisions or the request of the public prosecutor. What is at play here, in terms of an explanatory

hypothesis, is “juridical psychologism” (Loh, 1981) – that is, the assumption of mental assessment by legal professionals (judges, public prosecutors and lawyers), especially in non-anchored decisions. Consequently, there is clearly and frequently a need inherent in judicial decision-making for a mental assessment carried out by properly-qualified professionals (psychologists or psychiatrists). In brief, while it is indeed uncommon for the plaintiff/defendant to be scientifically assessed, in the absence of an expert assessment, judges make a legal assessment. In any case, we have found explicit indications that non-anchored decisions are mediated by “extra-legal evidence” (the “extralegal factor” in the literature): the unfounded assumption of a mental disorder in the plaintiff.

Having examined the state of the matter, it remains to find a solution to the problem detected. We have found two solutions in the literature that might, if not eradicate these sources of informal reasoning, at least cushion their impact; unfortunately, there are no indications of a global solution. The first of these partial remedies, which comes from the field of reasoning, indicates that informal reasoning, impregnated with heuristics, implies a metacognitive deficit, suggesting, in the case under study here, that judges are not conscious of such biases (Perkins, 1989). In this regard, training of judges and magistrates in sources of bias, so that they become more aware of how biased their decisions can be, would result in more objective decisions. The second solution is based on judges, prior to forming a judgement, establishing a protection factor against anchoring, consisting in generating an alternative anchoring value, or in considering multiple anchoring points (Plous, 1993). In this specific context, such anchors could derive from “decisional guidelines,” with narratives of evidence to support them (see examples in Novo, Arce & Gómez-Ulla, 2000).

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