**Supporting Information**

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| **Condition** | **Game type** | **P(B)** | **N** | **K** |
| L1/3 | Lottery | 1/3 |  |  |
| L1/2 | Lottery | 1/2 |  |  |
| L2/3 | Lottery | 2/3 |  |  |
| S-H K4 | Stag hunt |  | 10 | 4 |
| S-H K7 | Stag hunt |  | 10 | 7 |
| S-H K10 | Stag hunt |  | 10 | 10 |
| S-H N2 | Stag hunt |  | 2 | 2 |
| E K4 | Entry |  | 10 | 4 |
| E N2 | Entry |  | 2 | 1 |
| E K7 | Entry |  | 10 | 7 |
|  |  |  |  |  |

**Table S1** List of conditions, game types and experimental parameters. P(B) is the probability of winning 15 euros given choice B in the lottery trials; N is the number of participants playing a game; and K is the number of players (“at least” in the stag-hunt, and “at most” in the entry game) that should choose B in the games in order to win.

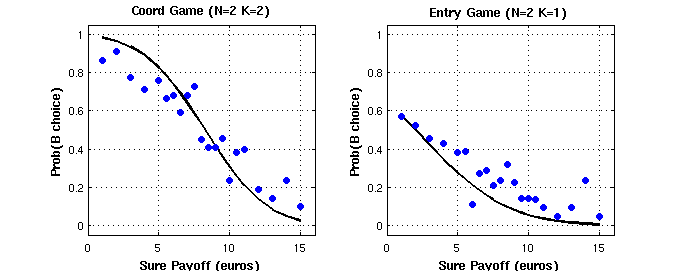
**Supplementary analysis**

**Playing games in groups of N=2**. The frequency of B-choices (see **Figure S1**) decreased with increasing sure payoffs keeping other parameters constant (all logit functions are decreasing; regression analysis shows that the coefficients of the values of the sure payoffs (*X*) are negative for both conditions, p-value < 0.001). Participants made less B-choices in the stag-hunt games when playing in groups of ten vs. two players (p-value < 0.001). In the entry game, B-choices for N=2 are not significantly different than for N=10 (K=4) (p-value = 0.98), while B-choices are significantly lower for N=2 compared to N=10 (K=7) (p-value < 0.001). The data of the conditions N=2 confirm the differential pattern of behavior observed between the entry and the stag-hunt game for RL and RA, thus RA participants chose less often B in the stag hunt compared with RL participants (p-value = .03), while in the entry game we did not find any significant difference between the two groups of participants in terms of B-choices (p-value = .41). Behavior in playing games with N=10 and N=2 was strongly correlated (e.g., cross-subjects correlation of B-choices in entry N=2 and entry N=10 K=7: rho = .63 p-value .0049 Bonferroni adjusted significant level, and rho = .80 p-value = .0001 with entry N=10 K=4; and stag hunt N=2 and N=10 K=7 rho = .57 p-value = .013). Finally, at the brain level, we did not find any differential activity between the conditions N=2 vs. N=10. We performed a conjunction analysis of the contrast N=2 vs. N=10 in the stag-hunt and entry games. We created a design matrix containing 10 regressors (i.e. one for each condition): BOLD = b0 + b1 lottery-L 1/3 + b2 lottery-L 1/2 + b3 lottery-L 2/3 + b4 stag hunt-N10 K4 + b5 stag hunt-N10 K7 + b6 stag hunt –N10 K10 + b7 stag hunt-N2 K2 + b8 entry-N10 K4 + b9 entry-N2 K1 + b10 entry-N10 K7 + ε. We performed a conjunction analysis of two contrast vectors: λN2-stag hunt = [0, 0, 0, -1, -1, -1, 3, 0, 0, 0], and λN2-entry = [0, 0, 0, 0, 0, 0, 0, -1, 2, -1]. No differential activity was found (even with a very liberal threshold, p<0.001 uncorrected) between playing N=2 vs. N=10. We thus merged the data of the condition with N=2 with the other conditions for the fMRI analyses reported in the manuscript.

**The independence between the measure of risk (certainty equivalents) and the measure of strategic sophistication in games.** When considering only threshold-strategy players (N=10, the categorization of threshold and non-threshold players was based on choice data from the entry games), we found a significant correlation across subjects between certainty equivalents (the estimated X\*) for the lotteries and the stag-hunt games (Pearson correlation, rho=0.8085, p-value .0083 Bonferroni-adjusted significance level); no-significant correlation between lotteries and entry games (rho=0.4974, p-value = .26); and no-significant correlation between entry games and stag-hunt games (rho=0.1815, p-value=.67). Thus, confirming the behavioral pattern observed with the entire sample of participants (X\*-lottery and X\*-stag hunt: Pearson correlation r = 0.69, p = 0.0019, Bonferroni-adjusted significance level; X\*-lottery and X\*-entry: r = 0.27, p = 0.33; and X\*-stag hunt and X\*-entry: r = 0.22, p = 0.41). This finding supports the hypothesis of independence between threshold strategies in the entry game (as a measure of strategic sophistication) and behavior in the lotteries and stag-hunt game. Moreover, there was no significant difference in terms of risk preferences (estimated certainty equivalents for the lottery) between threshold and non-threshold players (Two-sample Wilcoxon rank-sum test, z=0.78, p=0.70). Thus, confirming the independencey between the measure of risk and the measure of strategic sophistication.

**Supplementary figures**

**Figure S1**: Relative frequencies of B choices separately for stag hunt, and entry games conditional on the (21 different) sure payoffs for groups of N=2.



**Figure S2**: dmPFC activity resulting from GLM 1 (red), GLM2 (green) and overlap (yellow).

