

Jerusalem Science Contest

החידון המדע הירושלמי

Genetics and Free Choice, Part 1



Genetic Influence on Human Psychological Traits

A Survey

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ראה נתתי לפניך היום את־החיים
ואת־הטוב ואת־המות ואת־הרע
(דברים ל:טו)

See, I have set before you this day the life and the good, the death and the bad. (Deut. 30:15)

Causation or Correlation?

Statement: On a cross country trip, the distance traveled causes the total decrease of gasoline in your tank at the end of the trip.

Statement: Exercise causes calories to be burned.

Statement: Increase sales of ice cream causes an increase in the rates of murder and violent crime.

Statement: The contribution of the father's Y chromosome causes the sex of his unborn child to be male.

Statement: The increase of the global temperature causes a proportional and direct increase in the number of global pirates.

CORRELATION IS NOT CAUSATION!



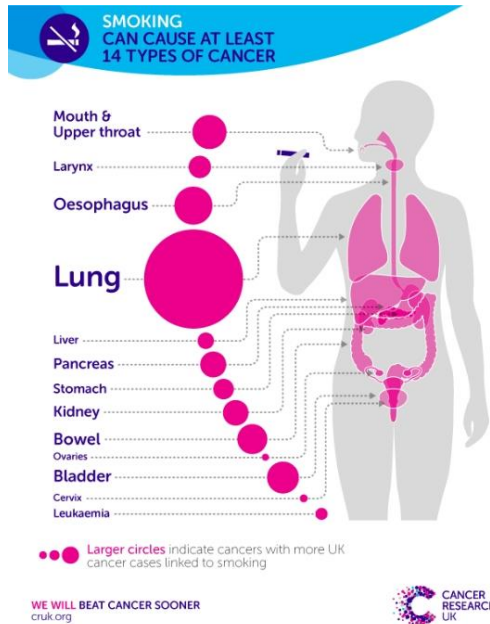
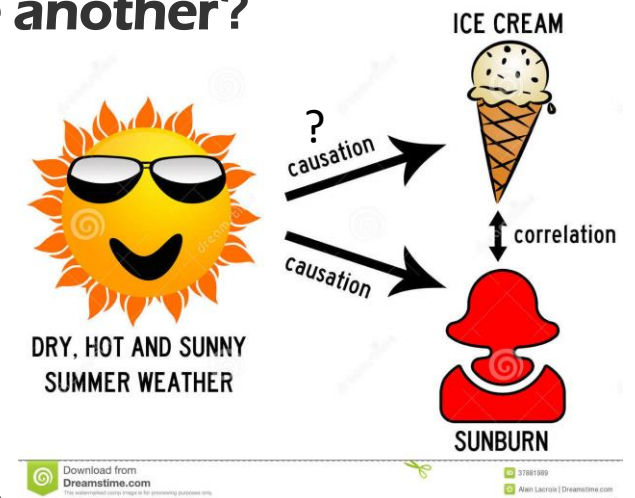
Both ice cream sales and shark attacks increase when the weather is hot and sunny, but they are not caused by each other (they are caused by good weather, with lots of people at the beach, both eating ice cream and having a swim in the sea)



What are correlation and causation and how do they differ from one another?

Correlation is a statistical measure (expressed as a number) that describes the size and direction of a relationship between two or more variables. A correlation between variables, however, does not automatically mean that the change in one variable is the cause of the change in the values of the other variable.

Causation indicates that one event is the result of the occurrence of the other event; i.e. there is a causal relationship between the two events. This is also referred to as cause and effect.



Theoretically, the difference between the two types of relationships are easy to identify — an action or occurrence can *cause* another (e.g. smoking causes an increase in the risk of developing lung cancer), or it can *correlate* with another (e.g. smoking is correlated with alcoholism, but it does not cause alcoholism). In practice, however, it remains difficult to clearly establish cause and effect, compared with establishing correlation.

Negligence that ends in accident - תחילתו בפשיעה וסופו באונס
Mishnah Torah, Laws of Bailments, Chap 4.



יב. הפקיד אצל חבירו כספים בדרך להוליכם לביתו או ששלח עמו מעות ממקום למקום צריכין שיהיו צרורים ומונחים בידו או קשורים כראוי על בטנו מכנגד פניו עד שיגיע לביתו ויקברם כראוי ואם לא קשרן בדרך הזאת אפילו נאנסו חייב לשלם שהרי תחלתו בפשיעה מעשה באחד שהפקיד מעות אצל חבירו והניחם במחיצה של קנים והיו טמונים בעובי המחיצה ונגנבו משם ואמרו חכמים אף על פי שזו שמירה מעולה לענין גניבה אינה שמירה כראוי לענין האש ומאחר שלא טמנו בקרקע או בכותל בניין פושע הוא וכל שתחלתו בפשיעה וסופו באונס חייב וכן כל כיוצא בזה:

6. When a person entrusts money to a colleague on a journey to bring to his home, or sends money with him from one place to another, the money must be bound in a packet and held in the watchman's hand or tied on his stomach opposite his face and carried in this fashion until he reaches his home and buries it in the appropriate manner. If he did not tie it in this manner, even if the money was lost because of factors beyond the watchman's control, he is liable. The rationale is that at the outset, he was negligent.



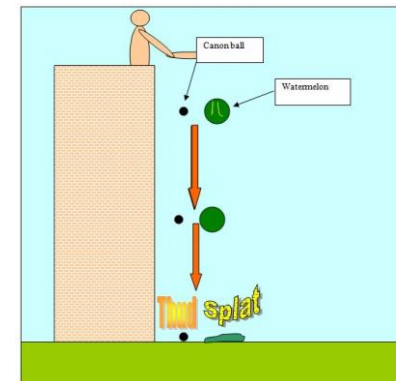
An incident once occurred concerning a person who entrusted money to a colleague. The colleague placed the money in a partition made from reeds. The money was hidden in the midst of the partition and was stolen from there. When the matter was brought to the Sages, they said: Although this is an excellent manner of guarding to prevent theft, it is not a proper place to guard money in the event of fire. Since he did not bury it in the ground or the walls of a building, he is considered negligent. **Whenever a person is negligent in his care for the article at the outset, even if it is ultimately destroyed by forces beyond his control, he is liable.** Similar laws apply in all analogous situations.

One throws a utensil from the roof - הזורק כלי מראש הגג
Mishnah Torah , Law of Damage, Chap. 7



ז. כל הגורם להזיק ממון חבירו [ג] חייב לשלם נזק שלם מן היפה שבנכסיו כשאר המזיקין. אע"פ שאינו הוא המזיק זה הנזק עצמו באחרונה הואיל והוא הגורם הראשון חייב. כיצד ב הזורק כלי שלו מראש הגג על גבי כרים וכסתות ובא אחר וקדם וסלק את הכרים מעל הארץ ונחבט הכלי בארץ ונשבר. [ד] חייב נזק שלם כאילו שברו בידו שסלוק הכרים והכסתות גרם לו שישבר וכן כל כיוצא בזה:

7. Whenever a person causes property belonging to a colleague to be damaged - even though he himself is not the one who ultimately causes the damage - **since he is the primary cause, he is liable to make financial recompense** from the finest property in his possession, like others who cause damage.



What is implied? A person throws a utensil that he owns from a roof onto pillows and blankets, and another person comes and removes the pillows from the ground, causing the utensil to hit the ground and break. **The person who removes the pillows is liable to pay the entire sum of the damages, as if he broke the utensil with his own hands. For it was the removal of the pillows and the coverings that caused the utensil to break.** The same applies in all analogous situations.

One throws a utensil from the roof - הזורק כלי מראש הגג
Mishnah Torah , Law of Damage, Chap. 7



ח. הזורק כלי של חבירו מראש הגג על גבי כרים וכסתות של בעל הכלי וקדם בעל הכלי והסיר הכרים הזורק חייב שזריקתו הוא הגורם הראשון לשבירת הכלי. ואם קדם אחר וסלקן שניהן חייבין הזורק והמסלק ששניהם גרמו לאבד ממונו של זה:

8. When by contrast a person throws a utensil belonging to a colleague from a roof onto pillows and blankets that belong to the owner of the utensil, and the owner comes and removes the pillows from the ground, the person who threw the utensil is liable to pay for the damages to it. His throwing the utensil is the primary cause for its breaking.

In this case, the neighbor was helping the owner move things out of the 31st story apartment on moving day. The neighbor was too lazy to shlep the computer monitor down 31 flights of stairs so he had this great idea. Place a mattress on the sidewalk and throw the monitor onto the mattress below. Well, he didn't tell the owner of his great idea so the owner saw the mattress and threw it on the moving van while the monitor was in free fall. OOOPSY! – The not very wise neighbor must pay for his GREAT idea.



One throws a utensil from the roof - הזורק כלי מראש הגג
Mishnah Torah , Law of Damage, Chap. 7




יב. הזורק כלי מראש הגג לארץ ולא היה תחתיו כלים. וקדם אחר ושברו במקל כשהוא באויר קודם שיגיע לארץ. הרי זה הראשון [ט] פטור שלא שבר אלא כלי שסופו להשבר מיד בודאי ונמצא כשובר כלי שבור ואין זה כגורם. וכן כל כיוצא בזה פטור:

12. When a person throws a utensil from a roof toward the earth without there being any pillows beneath it to soften its fall, and another person comes and breaks the utensil with a staff while it is in the air before it hits the earth, the person who breaks it is not liable.

The rationale is that he broke only a utensil that would certainly have been broken immediately. **And so, it is as if he is breaking a broken utensil. He is not considered to be one who caused damages.** Similarly, anyone who performs analogous actions is not liable.

His breaking the utensil, correlates to the other's throwing it from the window.



FALLING OBJECTS

- When an object moves through air, its motion is opposed by the force of friction.
- Friction occurs when the surfaces of any kind of matter move past each other.
- Friction from the air affects the motion of a falling object by acting **against** the force of gravity.



Human Personalities - דעות בבני אדם

Mishnah Torah , Deot, Chap. 1

א. דעות הרבה יש לכל אחד ואחד מבני אדם וזו משונה מזו ורחוקה ממנו ביותר יש אדם שהוא בעל חמה כועס תמיד ויש אדם שדעתו מיושבת עליו ואינו כועס כלל ואם יכעס יכעס מעט בכמה שנים ויש אדם שהוא גבה לב ביותר ויש שהוא בעל תאוה לא תשבע נפשו מהלך בתאוה ויש שהוא בעל לב טהור מאד ולא יתאוה אפילו לדברים מעטים שהגוף צריך להן ויש בעל נפש רחבה שלא תשבע נפשו מכל ממון העולם כענין שנאמר אוהב כסף לא ישבע כסף ויש מקצר נפשו שדיו אפילו דבר מעט שלא יספיק לו ולא ירדוף להשיג כל צרכו ויש שהוא מסגף עצמו ברעב וקובץ על ידו ואינו אוכל פרוטה משלו אלא בצער גדול ויש שהוא מאבד כל ממונו בידו לדעתו ועל דרכים אלו שאר כל הדעות כגון מהולל ואונן וכילי ושוע ואכזרי ורחמן ורך לבב ואמיץ לב וכיוצא בהן:

1. Each and every man possesses many character traits. Each trait is very different and distant from the others.

One type of man is wrathful; he is constantly angry. [In contrast,] **there is the calm individual** who is never moved to anger, or, if at all, he will be slightly angry, [perhaps once] during a period of several years.

There is the prideful man and **the one who is exceptionally humble**. There is the man ruled by his appetites - he will never be satisfied from pursuing his desires, and [conversely,] the very pure of heart, who does not desire even the little that the body needs.

There is the greedy man, who cannot be satisfied with all the money in the world, as [[Ecclesiastes 5:9](#)] states: "A lover of money never has his fill of money." [In contrast,] **there is the man who puts a check on himself**; he is satisfied with even a little, which is not enough for his needs, and he does not bother to pursue and attain what he lacks.

There is [the miser,] who torments himself with hunger, gathering [his possessions] close to himself. Whenever he spends a penny of his own, he does so with great pain. [Conversely,] **there is [the spendthrift,]** who consciously wastes his entire fortune.

All other traits follow the same pattern [of contrast]. For example: **the overly elated and the depressed; the stingy and the freehanded; the cruel and the softhearted; the coward and the rash. and the like.**

